SPECIFICATIONS

FOR

Thornbury Township Meeting Room Renovations

General Contracting

IN

TOWNSHIP OF THORNBURY
6 TOWNSHIP DRIVE
CHEYNEY, PA 19319-1020

ISSUED FOR BID:
June 22, 2026

Dever Architects
22 Regency Plaza
Glenn Mills, PA 19342

SET NO: _____
FILE #: 22041

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PROCUREMENT AND CONTRACTING REQUIREMENTS

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SECTION 000100

NOTICE TO BIDDERS

INVITATION TO BID

TOWNSHIP OF THORNBURY

Sealed bids for the Thornbury Township Meeting Room Renovations (General Contracting) will be received digitally by the PennBid system online. Bids may be submitted as instructed until **10:00 AM**, on **7/9/2026**, at which time the bidding will be closed and administered by the PennBid system. No physical or electronic copies bids will be accepted at the Township offices.

The building will be open for a contractor's walk-through during the weeks of ***6-22*** and ***6-29*** any time between ***11:00 AM and 2:00 PM***. Contact Susan Duadert at 610-399-8383, ext: 101 to schedule times. The last day for contractors to submit questions to the design team is **07/08/2026 @ 10:00 AM at the pre bid conference to be held in the meeting room space.**

Thornbury Township, (The Owner), invites qualified General Contractors to bid on a general contract (Guaranteed Maximum Price), including all mechanical and electrical work, for construction described in general as follows:

> The work as shown on the Bid Documents including, but not limited to: the General Construction; Plumbing; Heating; and Electrical Work all in accordance with the Standard Conditions, the Drawings, and the Specifications.

A certified check or bid bond in the amount of ten percent (10%) of the total bid, made payable to the Township of Thornbury, must accompany each bid. Address all bids to the Township of Thornbury, c/o: Jeffrey Seagraves, Manager, 6 Township Drive, Cheyney, PA 19319-1020. All correspondence and submittals shall be plainly endorsed for the Thornbury Township Meeting Room Renovations prior to upload in PennBid..

Attention of Bidders is called to all of the requirements contained in the bid package, particularly to the PA Prevailing Wage Rates, various insurance requirements, various equal opportunity provisions, and the requirements for payment and performance bond(s) drawn for 100% of the contract price and a one-year maintenance bond, for 10% of the contract price, to begin upon substantial completion / acceptance of the work.

Plans, specifications, and bidding forms are on file electronically and may be obtained at the PennBid website listing for the project. Should there be any issue with obtaining documents from the PennBid website they can be obtained in digital form from Dever Architects ftp. Bidders should contact Dever Architects at (610)358-2300 to obtain the information needed to access the site. Bidders will be notified via email when updates and addendums become available and are posted to the PennBid project site.

The Township of Thornbury reserves the right to accept or reject any or all bids thereof, and waive any information in the bidding, as they deem in the best interest of the Township.

BY ORDER OF THE BOARD OF SUPERVISORS
OF THE TOWNSHIP OF THORNBURY

Jeffrey Seagraves, Manager

END OF SECTION 000100

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SECTION 001000

INSTRUCTIONS TO BIDDERS

1. THE WORK: the Thornbury Township Meeting Room Renovation & Fit-Out includes a general renovation of all the finishes at the Basement Level, walk-out Township meeting space, kitchenette and two restrooms currently present within the level of the meeting room located at 6 Township Drive, for Thornbury Township.
    A. There are provisional and alternate scopes of work described at the attached documents, these include:
        1. The new secondary entrance canopy. The Bidder shall prepare a discrete, complete and severable bid for this work.
        2. The construction of a new Kitchenette and service counter, to include cabinetry, window and, new partition walls and required finishes. The location as indicated; is within the existing Meeting Room Space. The finishes indicated at the drawings for this area should be reflected including any deductions in scope for each particular solution. Please prepare this portion of the bid as a discrete, complete and severable bid: Add-Alternate.
        3. There are two restrooms scheduled for renovation in the existing basement. This involves the removal and relocation of the walls containing the toilet wall flanges, drain & vent lines and other plumbing service to the toilet fixtures. New work shall be contained within the newly framed partition and furred-out walls indicated with a minimum of sub-slab trenching and replacement of lines. It is the intent to use existing plumbing and drain line locations currently observed to reduce demolition, saw-cutting and patching of the existing slab. All fixtures shall be replaced with new as scheduled & specified in both areas.
        4. There are areas of the basement level that are designated “Not In Contract”, however it is acknowledged that some disruption and/or construction may occur in these areas given the age of the structure and the need to reroute, replace and clarify the building systems. Any work in these areas shall leave them operational and restored consistent with the existing level of finish at other areas within the building and adjacent finishes. This scope shall be included in the base scope for the project but should be identified.
    B. A final decision about the inclusion of any optional and alternate scopes of work or materials in the contract shall be made by the owner after Bid opening and selection of the Bidder to move forward.

2. SECURING DOCUMENTS

    Copies of the proposed Contract Documents may be obtained from:

    Downloaded from Links provided at the PennBid system listing for the project.

    Or

    Dever Architects
    22 Regency Plaza
    Gen Mills, PA 19342
    Ph: 610-358-2300

    Released upon the conditions being satisfied as set forth in the Invitation to Bid.

3. BID FORM

In order to receive consideration, make Bids in strict accordance with the following:

A. Make Bids upon the forms provided therefore, properly signed and with all items filled out. Do not change the wording of the Bid form, and do not add words to the Bid form. Unauthorized conditions, limitations, or provisions attached to the Bid will be cause for rejection of the Bid. If alterations by erasure or interlineations are made for any reason, explain over such erasure or interlineations with a signed statement from the Bidder.

B. No telegraphic Bid or telegraphic modification of a Bid will be considered once the bid is closed within the PennBid system for this project. No Bids will be received or processed after the time fixed for receiving them. Late Bids will be returned to the Bidder unopened.

C. Address Bids to the Owner, Thornbury Township, Delaware County, PA; and post as required at the PennBid System Software on or before the date and time given at the Invitation to Bid on or before the day and hour set for opening the Bids. Bids will not be accepted in person, they must be submitted through the PennBId System with all supporting documentation attached. Submit only the original signed copy of the Bid. It is the sole responsibility of the Bidder to see that his Bid is received on time.

4. BONDS

A. Bid security in the amount stated in the Invitation to Bid must accompany each Bid. The successful Bidder's security will be retained by the Owner until the GC has signed the Contract and has furnished the required Certificates of Insurance.

B. The Owner reserves the right to retain the security of all Bidders until the successful Bidder enters into the Contract or until 30 days after Bid opening, whichever is sooner. Other Bid security will be returned as soon as practicable. If any Bidder refuses to enter into a Contract, the Owner may retain his Bid security as Liquidated Damages but not as a penalty.

C. Prior to signing the Contract, the Owner will require the successful Bidder to secure and post a Labor and Materials Payment Bond and Performance Bond, each in the amount of 100% of the Contract Sum, and each on the form provided therefore in the Project Manual. Such bonds shall be issued by Surety acceptable to the Owner. Costs of such bonds will be paid for by the Contractor. In lieu of the above bonds, Federal or Commonwealth chartered lending institution irrevocable letters of credit and restrictive or escrow accounts, equal to 100% of the contract amount, will be acceptable.

D. Upon completion and final acceptance, a one-year maintenance bond in the amount of 10% of final contract price shall be furnished by the contractor.

5. EXAMINATION OF DOCUMENTS AND SITE OF WORK

Before submitting a Bid, each Bidder shall examine the Drawings carefully, shall read the Specifications and all other proposed Contract Documents, and shall visit the site of the Work. Each Bidder shall fully inform himself prior to Bidding as to existing conditions and limitations under which the Work will be performed, and shall include in his Bid a sum to cover the cost of items necessary to perform the Work as set forth in the proposed Contract Documents. No allowance will be made to a Bidder because of lack of such examination or knowledge. The submission of a Bid will be considered as conclusive evidence that the Bidder and all their critical subcontractors have made such examinations as required to provide a complete bid.

6. PROOF OF COMPETENCY OF BIDDER

A Bidder will be required to furnish evidence satisfactory to the Owner that he and his proposed subcontractors have sufficient means and experience in the types of work called for to assure completion of Contract in a satisfactory manner.

7. WITHDRAWAL OF BIDS

A. A Bidder may withdraw his Bid, either personally or by written request, at any time prior to the scheduled time for opening of Bids.

B. No Bidder may withdraw his Bid for a period of sixty (60) calendar days after the date set for opening thereof, and Bids shall be subject to acceptance by the Owner during this period.

8. AWARD OR REJECTION OF BIDS

Contract, if awarded, will be awarded to the responsible Bidder who has proposed the lowest Contract Sum, subject to Owner's right to reject any or all Bids and to waive informality and irregularity in Bids and in the Bidding.

9. EXECUTION OF AGREEMENT

A. The Form of Agreement which the successful Bidder will be required to execute is included in the Project Manual.

B. The Bidder to whom the Contract is awarded shall, within twenty (20) calendar days after notice of award and receipt of Agreement forms from the Owner, sign and deliver copies to the Owner.

C. At or prior to delivery of the signed Agreement, the Bidder to whom the Contract is awarded shall deliver to the Owner those Certificates of Insurance naming the Township as additional insured as required by the Contract Documents and such Labor and Materials Payment Bonds and Performance Bond as are required by the Owner.

D. Bonds and Certificates of Insurance shall be approved by the Owner before the successful Bidder may proceed with the Work. Failure or refusal to provide Bonds or Certificates of Insurance in a form satisfactory to the Owner shall subject the successful Bidder to loss of time from the allowable construction period equal to the time of delay in furnishing the required material.

10. INTERPRETATION OF CONTRACT DOCUMENTS PRIOR TO BIDDING

A. If any person contemplating submitting a Bid for construction of the Work is in doubt as to the true meaning of any part of the proposed Contract Documents, or finds discrepancies in or omissions from any part of the proposed Contract Documents, he may submit to the Architect a written request for interpretation thereof not later than seven (7) days before Bids will be opened. The person submitting the request shall be responsible for its prompt delivery.

B. Interpretation or correction of proposed Contract Documents will be made only by Addendum and will be mailed or delivered to each General Contract Bidder of record. The Owner will not be responsible for any other explanations or interpretations of the

proposed Contract Documents.

11 SUBSTITUTIONS

A. Proposals to substitute equipment or materials shall be received, if at all, not later than ten (10) days before the original date scheduled for bid opening. Such proposals shall specifically identify the material or equipment which is to be substituted plus a complete description of the proposed substitute, including, but not limited to, product data, drawings, descriptions and other material which is of assistance in evaluating the proposed substitution.

B. It is the responsibility of the bidder to provide sufficient information for a substitution request to be evaluated. This should include price adjustments to purchase and deliver the substituted materials and products and any variation in Labor costs for their installation and finishing.

C. All substitution requests shall be accompanied by a completed copy of the "Substitution Request Form" attached at the end of Section 01 3300 of this Project Manual.

D. The Architect reserves the right to or not to review any requested substitutions after bid date. If it is agreed to perform any additional reviews for Contractor substitutions, the Contractor requesting such substitutions will be required to pay the Architect (or consulting engineer) an amount of $130.00 an hour for such services, up-front, as a mutually agreed fee. Any non-agreement to compensate the Architect will automatically result in the Contractor providing the original specified, non-substituted products and materials.

E. Any project material substitutions agreed to be reviewed for change are subject to both minimum owner credits of $350.00 each and architectural/engineering review fees. The final owner credit will be established by the Architect, as determined by the value of the cost difference between specified and requested substitutions of materials only, equally divided between the Owner and Contractor, with the $350.00 minimum credit. Architectural fees are based upon Project Manual quoted hourly rates of $130.00 for review. In order to proceed, the contractor is requested to provide written authorization to the Architect. The approval of any item for review is binding for credit and review costs as determined by the Architect. If the Contractor does not wish to proceed, all specified products, materials must be submitted unless other circumstances, such as manufacturer discontinuation, have occurred.

12 ADDENDA

A. Architect shall endeavor to publish addenda, if any, at least five (5) days prior to the opening of bids.

13 REQUESTS FOR INFORMATION

A. Calls, faxes and emails shall be consolidated and sent only from the General Contractor Bidders (not from any subcontractors, suppliers, vendors, etc.).

B. All requests, questions and clarifications, etc. must be made in writing and be from the General Contractor Bidder (not any from subcontractors, suppliers, vendors, etc.).

C. The last of the written requests will be accepted at the specified time indicated by the Owner, and requests received after that time will not be responded to. No addendum to bid specifications may be issued within two (2) working days of the time established for the receipt of bids unless such addendum also amends the bid opening to a date not less than five (5) working days after the date of the addendum being posted.

14 LABOR ISSUES

E. If any Union or Trade Organization places pickets at the job site or there are labor disruptions, the Contractor will implement a “Reserved Gate System” and/or obtain injunctive relief as allowed by law. In the event that the Contractor incurs costs for “Reserved Gate System”, injunctive relief, part-time or full-time security and/or other such reasonable expenses to increase security on the job site, such costs will be borne by the Owner. If labor disputes prevent the continuance of construction activities for more than ten working days, the contract time shall be extended.

15 PRE-BID CONFERENCE

A Pre-Bid Conference will be held for the purpose of considering questions posed by Bidders. The conference will be open to all prospective Bidders and will be held at the following date and time***: 07/08/2026* @ 10*:00 AM*** at the Township meeting space.

16 CONSTRUCTION TIME AND LIQUIDATED DAMAGES

C. The Agreement will include a stipulation that the Work must be started within ten (10) calendar days following receipt of the Owners Notice to Proceed.

D. The Agreement will include a stipulation that the Work be completed in a period from August 1st, 2026, through October 23rd, 2026; eighty-four calendar days following receipt of the Owner's Notice to Proceed.

E. The Agreement will include a stipulation that Liquidated Damages will be established in the amount of Five Hundred Dollars ($500.00) per calendar day for each calendar day after the agreed completion date that the Work is not fully certified by the Architect as being ***Substantially Complete*** as that stage of completion is defined in the conditions of the Contract.

17 NON-COLLUSION AFFIDAVIT

The Non-Collusion Affidavit must be submitted with the Bid proposal, or the Bid will be found to be invalid.

18 MATERIAL SAFETY DATA SHEETS

Material Safety Data Sheets must be submitted for respective products, in compliance with Federal Hazard Communication Standard Act (29 CFR 1910, 1200) and various State Right-to-Know Laws.

END OF SECTION 001000

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SECTION 003000

BID FORM for GENERAL CONTRACTING

Pursuant to and in compliance with the invitation to bid and the proposed Contract Documents relating to construction of:

Thornbury Township Meeting Room Renovations, Township of Thornbury, PA

the undersigned, having become thoroughly familiar with the terms and conditions of the proposed Contract Documents and with local conditions affecting the performance and costs of the Work at the place where the Work is to be completed, and having fully inspected the site in all particulars, hereby proposes and agrees to fully perform the Work in strict accordance with the proposed Contract Documents, including furnishing any and all labor and materials, and to do all of the Work required to construct and complete said Work in accordance with the Contract Documents, for the following sum of money:

Base Bid: All labor, materials, services, and equipment necessary for completion of the Work for PHASE 1 as shown on the Drawings and in the Specifications.

Cost of Work (Guaranteed Maximum Price): _____ Dollars $_____

Alternates: All labor, materials, services, and equipment necessary for completion of the Work for PHASE 2 as shown on the Drawings and in the Specifications.

Add. (_____) Dollars ($_____)

AGREEMENTS AND ACKNOWLEDGMENTS

I agree that Owner reserves the right to reject this bid.

I agree that this bid shall remain open and not be withdrawn for a period of **sixty** days from the bid opening date.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within **sixty** days after the date set for the opening of this bid, or at any other time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to Owner in accordance with this bid as accepted, and will also furnish and deliver to Owner the Performance Bond, Labor and Material Payment Bond, and proof of insurance coverage all within seven days after personal delivery or after deposit in the mails of the notification of acceptance of this bid.

Acknowledgment is made of receipt of the following addenda:

Addendum #1 dated _____ Addendum #3 dated _____

Addendum #2 dated _____ Addendum #4 dated _____

Identification Of Bidder: If bidder or other interested person is a corporation, give legal name of corporation, state where incorporated, and names of president and secretary; if a partnership, give name of firm and names of all individual co-partners composing the firm; if bidder or other interested person is an individual, give first and last names in full. Identify license number for licensing in accordance with an act for the registration of contractors.

Corporation (____) Partnership (____) Individual (____)

Legal name of
Corporation or Firm: _____

State Where Incorporated: _____

Names of Officers,
Partners or Individuals _____

_____

_____

License Number: _____

Signature of Bidder: If bidder is a corporation, set forth the name, signature, and title of the officer or officers authorized to sign contracts on behalf of the corporation. If bidder is a partnership, set forth the signature of the partner or partners authorized to sign contracts on behalf of the partnership. If bidder is an individual, set forth the signature of the individual.

Name: _____

Signature: _____

Title: _____

Date: _____

Name: _____

Signature: _____

Title: _____

Date: _____

Address of Bidder:

Business address: _____

_____

_____

Project Manager: _____

Email address: _____

Telephone number: _____

Fax number: _____

END OF SECTION 003000

SECTION 003100

BID BOND

KNOW ALL MEN BY THESE PRESENTS, THAT WE, _____ as PRINCIPAL, and _____ as SURETY, are held and firmly bound unto the _____ (hereinafter called the OWNER), in the penal sum of _____ ($_____) lawful money of the United States, for payment of which sum well and truly to be made, we bond ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THE OBLIGATION IS SUCH that whereas the Principal has submitted the accompanying Bid dated: _____ for _____.

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the time specified therein after the opening of the same, and shall within 10 days after the Principal is notified by the Owner of the award of such Contract to him, enter into a written contract with the Owner, in accordance with the Bid as accepted; and give bond with good and sufficient surety or sureties as may be required for the faithful performance and proper fulfillment and labor supplied, if required in said Contract; or in event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bonds within the time specified if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the Owner may procure the required materials or supplies, or both, if the latter amount of the former, together with any other expenses and costs that may have been incurred by the Owner, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bonded parties have executed this instrument under their several seals this_____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

WITNESSED BY:

_____ _____
(Individual Principal) (Name of Partner)

_____ _____
(Business Address)

ATTEST:

_____ _____
(Corporate Principal) (Corporate Surety)

By:_____

_____
(Business Address)

SEAL

(Power of Attorney for person signing for Surety Company must be attached to Bond.)

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the corporation as Principal in the within bond; and that _____ who signed the said bond on behalf of the Principal was then the _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed and attested to for an in behalf of said corporation by the authority of its governing body.

_____
(Corporate Seal)

We, the undersigned, will provide _____ as Principal, a Performance and Payment Bond on the form provided, to the Owner in the penal sum of the Principal's bid for _____.

_____
(Surety)

_____
(Address)

Date:_____

Signed:_____
(Attorney-in-fact)

END OF SECTION 003100

SECTION 003200

NON-COLLUSION AFFIDAVIT

Commonwealth of Pennsylvania

_____
NAME OF PROJECT

County of_____

I, _____of the City of

_____ in the County of _____

and the State of_____of full age, being duly sworn according to

law on my oath depose and say that:

I am_____

of the firm of _____

the bidder making the Proposal for the above named Project, and that I have executed the said Proposal with full authority to do so; that said bidder has not, directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in said Proposal and in this affidavit are true and correct, and made with full knowledge that the Owner relies upon the truth of the statements contained in said Proposal and in the statements contained in this affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by_____
NAME OF CONTRACTOR

in accordance with all Pennsylvania Public Bidding Laws

Subscribed and sworn to

before me this_____day _____

of_____, 2026 Also print name of affiant under signature

Notary Public of
My Commission expires _____20____

END OF SECTION 003200

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SECTION 003300

BIDDER'S QUALIFICATIONS

All questions must be answered, and the date given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit additional information if he so desires.

1. Name of Bidder:

2. Permanent main office address:

3. When Organized:

4. If a corporation, where incorporated:

5. How many years have you been engaged in the contracting business under your present firm or trade name?

6. Contracts on hand: Schedule these showing amount of each contract and the appropriate anticipated dates of completion.

7. General character of work performed by your company:

8. Have you ever failed to complete any work awarded to you? If so, where and why.

9. Have you ever defaulted on a contract? If so, where and why.

10. List the more important projects recently completed by your company, stating the approximate cost for each and the month and year completed.

11. List your major equipment available for this contract:

12. List experience in construction work similar in importance to this project:

13. List background and experience of the principal members of your organization, including the officers:

14. List credit available: $

15. List bank references:

16. Will you, upon request, fill out a detailed financial statement and furnish any other information which may be required by the Owner?

17. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder's Qualifications.

Bidder: _____

By: _____

Title: _____

Dated this _____ day of _____, 20_____.

State of _____ ,

County of_____:

_____being duly sworn deposes and says that he is _____ _____of _____ and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of _____, 20___.

_____Notary Public

My commission expires: _____

END OF SECTION 003300

SECTION 004300

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____ as Principal, and _____ a corporation, as Surety, are held firmly bound unto _____ as Obligee, in the full and just sum of _____ ($_____) for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal entered into a contract with _____ dated _____ for _____

_____

WHEREAS, said contract provides that the Principal will furnish a bond conditioned to guarantee for the period of one (1) year after approval of the final estimate on said job, by the Owner, against all defects in workmanship and materials which may become apparent during said period, and

WHEREAS, the said contract has been completed, and was approved on _____ _____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if within one (1) year from the date of approval of the said contract, the work done under the terms of said contract shall disclose poor workmanship in the execution of said work, and the carrying out of the terms of said contract, or it shall appear that defective materials were furnished thereunder, then this obligation shall remain in full force and virtue, otherwise this instrument shall be void.

Signed and sealed this _____ day of _____, 20____.

Witness:

_____ _____

Principal

By: _____

Attorney-in-Fact

END OF SECTION 004300

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SECTION 007000

GENERAL CONTRACT CONDITIONS

ARTICLE 1 - DEFINITIONS

(A) The Contract Documents consist of the Notice to Bidders, Instructions to Bidders, Form of Proposal, Articles of Agreement, General Conditions, Special Conditions, the Drawings, and the Specifications, including all modifications thereof incorporated in the documents before their execution. These form the Contract.

(B) The term "Owner" as used herein refers to the Municipality or Party shown in the Notice to Bidders.

(C) The term "Contractor" as used herein refers to the individual, firm, partnership, co-partnership or corporation who is mentioned as such in the agreement and is hereafter treated as of the singular number and masculine gender.

(D) The term "Sub-Contractor" as used herein includes only those having direct contact with the Contractor and it includes one who furnished material worked to a special design according to the drawings and specifications of this work but does not include one who furnished material not so worked.

(E) The term "Architect" as used herein refers to that company or person designated by the Owner or their representative having the work in charge.

(F) The term "Work" of the Contractor or Subcontractor includes labor or materials or both.

ARTICLE 2 - EXECUTION, CORRELATION AND INTENT OF DOCUMENTS

The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. The Architect will decide as to the meaning or intent of any portion of the specifications or plans, where the same may be found obscure or in dispute, he shall have the right to correct any errors or omissions therein. All work that may be called for in the specifications and not shown on the plans, or shown on the plans and not called for in the specifications, shall be executed and furnished by the Contractor as if described in both ways; and should any incidental work or material be required which is not denoted in the specifications or plans, either directly or indirectly, but which is nevertheless necessary for proper carrying out of the intent thereof, the Contractor is to understand the same to be implied and required and shall perform all such work and furnish all such material as fully as if they were partially delineated or described, and without extra cost to the Owner.

ARTICLE 3 - DRAWINGS

(A) Copies Furnished: Unless otherwise provided for in the Contract Documents, the Architect will furnish to the Contractor, free of charge, electronic copies of the Contract Drawings and Specifications reasonably necessary for the execution of the work.

(B) Copies of the work: The Contractor shall keep one copy thereof of all drawings and specifications on the work in good order available to the Architect and his representative.

(C) Ownership of Plans: All drawings and specifications and copies thereof furnished by the Architect are his property. They are to be returned to him on request at the completion of the work, prior to the time of final payment.

ARTICLE 4 - CONTRACTOR'S UNDERSTANDING

It is understood and agreed that the Contractor has, by careful examination, satisfied himself as to the nature of and location of the work, the conformation of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work, general and local conditions, and all other matters which can in any way effect the work under this Contract. No verbal agreement or conversation with any officer, agent or employee of the Owner, either before or after the execution of this Contract, shall effect or modify any of the terms or obligations herein contained.

ARTICLE 5 - CHANGES IN THE WORK

The Architect shall have the right to make such alterations in plans or in the character of the work as may be considered necessary or desirable from time to time to complete materially the original plans and specifications, provided such alterations do not change materially the original plans and specifications, and such alterations shall not be considered a waiver of any conditions of the Contract nor to invalidate any of the provisions thereof.

Should such alterations in the plans result in an increase or decrease in the quantity of work to be performed, without change in character, the Contractor shall accept payment in full of the Contract unit price for the actual quantities of work done. Should such alterations in the character of the work be productive of increased cost or result in decreased cost to the Contractor, a fair and equitable sum therefore shall be agreed upon in writing by the Contractor and the Architect and approval by the Owner before such work is begun, and shall be added to or deducted from as the case may be, the contract price, where a change involves the omission and addition of similar work, such work omitted shall be deducted from that added before any profit is computed. No allowance will be made for anticipated profits.

ARTICLE 6 - EXTRA WORK

Work and materials of a character for which no price is named in the Agreement shall be considered as extra work which shall be done by the Contractor only upon written order signed by the Architect, at a price to be previously agreed upon in writing by the Contractor and the Architect and approved by the Owner.

No bill or claim for extra work or materials shall be allowed or paid unless the doing of such work or furnishing of such extra materials shall have been authorized in writing by the Architect.

If the Contractor shall proceed with such work after receiving the written authority therefore, as hereinbefore provided, then such extra work shall be controlled by all of the terms and provisions of this Contract, subject to such prices as are agreed upon and fixed by the Architect and the Owner as hereinbefore provided.

If the Contractor shall fail or decline to perform such extra work as authorized in writing as aforesaid, the Owner may then arrange for the performance of the work in any manner he may see fit, the same as if the Contract had not been executed and the Contractor shall not interfere with such performance of the work, or the Owner may withhold payment of all estimated work until the Contractor's refusal or failure is eliminated. Any such extra cost to the Owner by reason of the Contractor's failure or refusal to perform such extra work shall be deducted from the amount due to the Contractor under the terms of the Contract.

ARTICLE 7 - FORCE ACCOUNT WORK

All extra work done on a force account basis will be paid for in the following manner:

(A) For all labor, trucks, truck drivers, operators and foreman in direct charge of the specific operation, the Contractor shall receive the current local rate of wage, to be agreed upon in writing before starting such work, for each and every hour that said labor and/or trucks, truck drivers, operators and foremen are actually engaged on such work, to which shall be added an amount equal to ten percent (10%) of the sum thereof.

(B) For all materials used, the Contractor shall receive the actual cost of such materials including freight charges as shown by original receipted bills, to which cost shall be added a sum equal to fifteen percent (15%).

(C) For any machinery or equipment, except small tools and equipment for which no rental is allowed, which may be deemed necessary or desirable to use, the Architect, with the approval of the Owner, shall allow the Contractor a reasonable rental price for each and every hour that said machinery or equipment is in use on such work. Such rental price shall include fuel and lubrication and shall be agreed upon in writing by the Contractor and the Architect and approved by the Owner before such work is begun. No percentages shall be added to such rental price.

(D) The compensation as herein provided shall be received by the Contractor as payment in full for work done on a force account basis, the fifteen percent (15%) which is allowed on the cost of materials including freight charges being allowed and accepted for which no rental is allowed, overhead expense, including insurance and profit. The Contractor's representative and the Architect's representative shall compare records of extra work done on a force account basis at the end of each day. All claims for extra work done on a force account basis shall be submitted to the Architect by the Contractor, upon certified triplicate statements to which shall be attached original receipted bills covering the cost of and freight charges on all materials used in such work. Said statements shall be filed not later than the twentieth day of the month following that in which the work was actually performed and shall include all labor charges, etc., and materials charges insofar as they can be verified.

Should the Contractor refuse to prosecute the work as directed or to submit his claim as required, then the Architect may withhold payment of all estimates until the Contractor's refusal or failure is eliminated.

ARTICLE 8 - EXAMINATION AND APPROVAL

All work and materials shall be at all times subject to the examination of and approval by the Architect or his duly authorized representatives. The Contractor shall provide reasonable and necessary facilities for such examination. If any work should be covered up without the approval or consent of the Architect, if required by him, it shall be uncovered for examination at the Contractor's expense.

ARTICLE 9 - DEFECTIVE WORK AND MATERIALS

Defective work and materials may be condemned by the Architect at any time before the final acceptance of the work. The Contractor shall remove at his own expense any work or material condemned and shall rebuild and replace the same without extra cost. Previous examination will not relieve the Contractor from the responsibility for good work and materials whether overlooked by the Architect or caused by damage from any source whatsoever.

Failure to conform with the above may be cause to discontinue the work, and the Architect and the Owner in his or its' discretion may either remedy the work or may have the Contract completed by others and charge the cost thereof as money paid the Contractor.

ARTICLE 10 - MATERIALS, APPLIANCE AND EMPLOYEES

Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of acceptable quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, tools, equipment, light, power, transportation and other facilities necessary for the execution and prosecution of the work in an acceptable manner and at a satisfactory rate of progress. The equipment used on any portion of the work shall be such that no injury to adjacent property or highways will result from its use.

The Contractor shall employ such superintendent, foremen and workmen as are careful and competent, and the Architect may demand the dismissal of any person employed by the Contractor in, about or upon the work, who shall be guilty of misconduct or be incompetent or negligent in the due and proper performance of duties, or who neglects or refuses to comply with the directions given, and such person shall not be employed again thereon without the written consent of the Architect. Should the Contractor continue to employ or again employ such person, the Owner may withhold all estimates which are or may become due, or the Architect may suspend the work, until such orders are complied with.

The superintendent shall not be changed except with the consent of the Architect, unless the superintendent proves to be unsatisfactory to the Contractor and/or ceases to be in his employ. The superintendent shall represent the Contractor in his absence, and all directions given to him shall be as binding as if given to the Contractor. Other important directions shall be confirmed in writing to the Contractor. Other directions shall be confirmed on written request in each case.

ARTICLE 11 - ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees entailed by the use of any patented equipment, materials or methods of construction. He shall defend all suits and claims for infringements of any patent rights and shall save the Owner harmless on account thereof, including any costs, council fees or any other expense harmless to which the Owner may be put by reason of his failure to defend such suit or suits.

ARTICLE 12 - SUPERVISION

The Contractor shall give sufficient supervision to the work, using his best skill and attention. He shall carefully study and compare all drawings, specifications and other instructions and shall at once report
to the Architect any error, inconsistency or omission which he may discover, but he shall not be held responsible for their existence or discovery.

ARTICLE 13 - PERMITS, LICENSES AND CERTIFICATES

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work. He shall obtain and furnish the Architect all required certificates for work for which certificates are issued. The Contractor shall pay all State, County, Municipal and Public Utility fees for permits, licenses, taxes, etc.

ARTICLE 14 - POINTS AND INSTRUCTIONS

The Contractor shall not proceed with the work until he has made timely demand upon the Architect for, and has received from his, such reference points and instructions as may be necessary as the work progresses. The work shall be done in strict conformity with such points and instructions. Work done before the points and instructions are given by the Architect shall be at the Contractor's risk, the Contractor shall furnish free of charge, all stakes and such temporary structures as may be necessary for making and maintaining points and lines and shall furnish the Architect such facilities and materials for giving said lines and points as they may require. The Contractor must carefully preserve benchmarks, reference points and stakes, and in case of willful or careless destruction, he will be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

ARTICLE 15 - RIGHT-OF-WAY AND STORAGE SPACE

The Owner shall provide the land upon which the work is to be done, with right of access thereto, but unless otherwise agreed upon, the Contractor shall provide space and land required and access thereto for the erection of temporary construction facilities and for storage of materials.

ARTICLE 16 - DAMAGES TO PROPERTY

In case any direct or indirect injury is done to existing street or underground structures, sewer, water mains, etc., or to public or private property of any kind or to any materials or fixtures, by or because of the work, in consequence of any act or omission on the part of the Contractor, his employees or agents, the Contractor at his own cost and expense, except when hereinafter specified otherwise, shall restore such structures, property, materials, etc., to a condition equal or similar to that existing before such damage or inquiry was done, by repairing or otherwise as may be directed by the Architect, or shall make good such damage or injury in a satisfactory manner.

ARTICLE 17 - CONTRACTOR'S LIABILITY

The work in every respect, from the execution of the contract bond and during its progress until final acceptance, shall be under the charge and in the care of the Contractor and at his risk. He shall properly safeguard against any or all injury or damage to the public, any property, material or thing, except where stipulated otherwise in the specifications and shall alone be responsible for any damage or injury from his undertaking of this work to any person or persons or thing connected therewith. He shall indemnify and save harmless the Owner and all its officers, agents and employees from all suits or actions at law of any kind, including all costs, attorney's fees and any expense whatsoever in connection with this work, and shall, if required, show evidence of settlement of any such action before final payment is made by the Owner.

ARTICLE 18 - WORKER'S COMPENSATION ACT

The Contractor shall accept, insofar as the work covered by this contract is concerned, the provisions of the Worker's Compensation Act of 1915 and any supplements or amendments thereto, including any which may hereafter be passed, and shall insure his liability from the Bureau of Worker's Compensation of the Department of Labor and Industry; and all contracts with subcontractors shall obtain the obligation given above insuring that they likewise will be bound in like manner.

The Contractor shall at all times indemnify and save harmless the Owner from all claims for Worker's Compensation which may be made by any of the employees of the Contractor or by any of the employees of any subcontractor to whom the Contractor may have let the performance of any part of the work embraced in this Contract, and the Contractor will appear for and defend the Owner against any and all such claims.

ARTICLE 19 - PUBLIC SAFETY

During the progress of the work the Contractor shall provide watchmen and lights, fences and barriers, temporary passageways, danger warnings and detour signs, and take precautions as may be necessary to protect life and property, unless otherwise notified by the Architect in writing.

ARTICLE 20 - OBSERVANCE OF LAWS

The Contractor, at all times, shall observe and comply with all Federal and State laws and local ordinances and regulations which in any manner effect the conduct of the work and all such orders or decrees as exist at present and those which may be enacted later by bodies or tribunals having any jurisdiction or authority over the work and shall indemnify and save harmless the Owner and all its officers, agents and servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by himself or his employees.

ARTICLE 21 - SERVING NOTICES

Any notice to be given to the Contractor under this Contract shall be deemed to be served if the same be delivered to the man in charge of any office used by the Contractor, or his superintendent or agent at or near the work, or deposited in the post office, postpaid, addressed to the Contractor at this last known place of business.

ARTICLE 22 - SANITARY ACCOMMODATIONS

The Contractor shall provide and maintain in a neat and sanitary condition, such necessary accommodations for the use of his employees as may be approved by the Architect and satisfactory tot he sanitary authorities. No public nuisance shall be committed.

ARTICLE 23 - SUBLETTING OR ASSIGNING CONTRACT

The Contractor shall not sublet, sell, transfer or otherwise dispose of the Contract or any portion thereof, or of the work provided for therein, except for the furnishing of materials, or of his right, title or interest therein to any person, firm or corporation without the consent of the Architect. No such assignment or subcontract, even though thus consented to, shall relieve the Contractor from his liability under the Contract for the performance and completion of the work by the time and in the manner contracted for.

The provisions of the Contract as to performance by the Contractor shall apply to any subcontractor, his officers, agents or employees of the subcontractor in all respects as if he and they were employees of the Contractor and they shall be subject to the same provisions thereby as employees of the Contractor, and the work and material furnished by any subcontractor shall be subject to the provisions as if furnished by the Contractor.

The Contractor shall, as soon as practicable after executing the Contract, notify the Architect in writing of the names of subcontractors proposed for the work and shall not employ any that the Architect may within a reasonable time object to as incompetent or unfit.

ARTICLE 24 - RIGHTS OF VARIOUS INTERESTS

Whenever work being done by other contractors or forces of the Owner is contiguous to work covered by this Contract, the respective rights of various interest involved shall be established by the Architect, to secure the completion of the various portions of the work in general harmony.

ARTICLE 25 - DELAYS AND EXTENSION OF TIME

If the Contractor be delayed in the completion of the work by any cause beyond his control, then the time stated in the Agreement for the completion of the work may be extended by the Owner for a period equivalent to the actual number of calendar days lost be reason of any cause aforesaid. This length of extended period shall be determined and fixed by the Owner but an extension may not be allowed unless a claim therefore is presented in writing to the Architect within seven days of the date of occurrence of the delay.

ARTICLE 26 - FAILURE TO COMPLY WITH ORDERS, ETC.

If the Architect shall at any time be of the opinion that the Contractor is not progressing with the work as fast as necessary to insure its completion or to repair damage to public or private property, or is continuing to employ or re-employ negligent or careless persons, or is conducting the work in a manner disapproved by the Architect, or is failing to prosecute the work in accordance with the provisions of the specifications, or if he stops or abandons the work on any part of the construction without the written consent of the Owner or is otherwise violating any of the provisions of the Contract, then the Architect shall report such deficiencies and order him to remedy the same.

If, after ten (10) days from the date of such notice, the Contractor shall have failed to comply with, then the Owner may withhold all payments until the orders of the Owner are carried out, or it may suspend any or all work, or it may place additional forces, equipment, tools and materials on parts of the work at the Contractor's expense, as hereinafter specified, or it may annual the contract as hereinafter specified.

In case the Owner should augment the Contractor's forces, equipment, etc., as hereinabove provided, the cost incurred in carrying on such part of the work shall be deemed as to be carried out by the Owner on account of the Contractor, and the Contractor shall be allowed therefor the contract price and Owner may retain the amount of the cost of such work from any sum or sums due or to become due to the Contractor under this Contract, but if such cost exceeds such unpaid balance, the Contractor shall pay the difference to the Owner.

ARTICLE 27 - SUSPENSION OF WORK

The Owner reserves the right to suspend the whole or any part of the work contracted to be done when it is deemed to be in the best interest of the Owner to do so. In case of such suspension a proper extension of time will be allowed as provided in ARTICLE 25 if the suspension is due to no fault or neglect of the Contractor due to idle equipment or forces during such suspension period. Neither an extension of time, for any reason, beyond that fixed herein for the completion, not the doing or acceptance of any part of the work called for by the contract shall be deemed to be a waiver by the Owner of the right to abrogate this Contract for abandonment or delays in the manner provided for in ARTICLE 3 of the Agreement.

ARTICLE 28 - ANNULMENT

The Bidders to whom the Contract is awarded must begin actual work on the ground within ten (10) days from the date of executing the Contract, or obtain from the Owner an extension of time. If the Contractor fails to begin the work in accordance with any notice or notices received from the Owner as provided in ARTICLE 26, or if the Contractor shall become insolvent or be declared bankrupt, or commit any act of bankruptcy or insolvency, or allow any final judgment based on any claim growing out of this Contract, to stand against him unsatisfied for a period of forty-eight (48) hours, or shall make an assignment for the benefit of creditors, or from any other causes whatsoever shall not carry on the work in an acceptable manner, the Owner may give notice in writing to the Contractor and his Surety, of such delay, neglect or default, specifying the same and if the Contractor, within a period of three (3) days after

such notice, shall not proceed in accordance therewith, then the Owner shall have full power and authority, without violating the Contract, to take the prosecution of the work out of the hands of the Contractor, to appropriate or use of any or all materials and equipment on the ground that may be suitable and acceptable, to enter into an agreement, without advertising for bids thereof, for the completion of said contract according to the terms and provisions thereof, or to use such other methods as in its opinion shall be required for the completion of said contract in an acceptable manner. All costs and charges incurred by the Owner, together with the cost of completing the work under Contract, shall be deducted form any monies due or which may become due the Contractor. In case the expense so incurred by the Owner be less than the sum which would have been payable under the Contract if it had been completed by the Contractor, including the damages, then the Contractor shall be entitled to receive the difference, and in case such expense exceeds the sum which would have been payable under the Contract including the damages, then the Contractor and the Surety shall be liable and shall pay to the Owner the amount of said excess.

ARTICLE 29 - REMOVAL OF EQUIPMENT

In case of annulment of this Contract before its completion from any cause whatsoever, the Contractor, if notified to do so by the Owner, shall promptly remove any part or all of his equipment and supplies from site of the work, failing which, the Owner shall have the right to move such equipment and supplies at Contractor's Expense. No equipment shall be removed from work by Contractor except as hereinbefore designated until the usefulness of such equipment on work has ceased, and except with the written consent of the Architect, otherwise such removal may be considered by the Owner as an abandonment of the work on the part of the Contract.

ARTICLE 30 - ORDER OF COMPLETION AND USE OF COMPLETED PARTS

The Contractor shall complete any portion of the work in such order of time as may be stated in the specifications or as the Architect may require. The Owner shall have the right to take possession of and use any completed or partially completed portion thereof of the work although the time for completing the entire work or portions thereof may not have expired; but such taking possession shall not be deemed an acceptance of the work so taken or used or any part thereof.

ARTICLE 31 - AUTHORITY OF ARCHITECT

The Architect shall have full authority to decide all questions which may arise with the Contractor relative to the quality and acceptability of materials furnished and work performed, the manner, performance and rate of progress, the interpretation of any and all plans and specifications and the acceptable fulfillment of the Contract on the part of the Contractor. The Architect shall determine the amount and quantity of the several kinds of work performed and materials furnished and his decision and estimates shall be conclusive on the Contractor. Such estimates shall be a condition precedent to the right of the Contractor to receive any money due under the Contract.

ARTICLE 32 - PAYMENT OF LABOR AND MATERIALS

The Contractor shall pay promptly all laborers or mechanics employed on the work embraced in these specifications, as well as for all materials and before final payment is made, the Contractor shall furnish the Owner with a release signed by all persons, firms, partnerships, corporations or bodies having furnished any material or materials for or toward the construction of said work and shall furnish to the Owner such evidence as may be required by the Owner that all labor and materials have been paid for.

ARTICLE 33 - MONTHLY ESTIMATES

As long as the work contracted for herein is executed in accordance with the provisions of this Contract and with such progress as may be satisfactory to the Owner, the Architect on or about the last

day of each month will make an approximate estimate of the amount and value of the work done and material incorporated in the work by the Contractor according to the terms of this Contract from the last day covered by the previous estimate.

The Architect may include in the estimate a reasonable amount of materials delivered at the site of the work, not to exceed seventy-five percent (75%) of the cost of said materials, which materials are acceptable for incorporation into the work but not used, provided however, that the Contractor shall produce receipted invoices certifying to the payment of such materials and shall submit to the Architect delivery slips certifying to the delivery of such materials to the site of the work.

From the total of the Architect's estimate shall be deducted ten percent (10%) of the whole to be retained by the Owner, until after the completion of the Contract and its acceptances by the Owner, as well as previous payments and charges against the Contractor and the balance shall be the amount due the Contractor on the current estimate. These estimates will then be forwarded to the Owner and following approval of the Owner will be ordered paid.

It is understood and agreed that if the Owner at any time during the progress of the work, considered the amount withheld on account of the above mentioned percentage in excess of the amount necessary to complete the work or necessary for the full and ample protection of the Owner then the Owner may reduce the percentage retained to an amount sufficient for its proper protection.

For contracts exceeding $50,000, retainage shall be deducted at the rate of ten percent (10%) of the amount due until fifty percent (50%) of the contract is completed. The sum or sums withheld after the Contract is fifty percent (50%) completed shall be five percent (5%) of the amount due, for the remaining work. In the event of a dispute between the contracting body and the prime contractor, which dispute is based on increased costs claimed by one prime contractor occasioned by delays or other actions of another prime contractor, additional retainage in the sum of one and one half times the amount of any possible liability may be withheld until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the Contractor causing the additional claim furnishes a bond satisfactory to the contracting body to indemnify such contracting body against the claim.

No estimates given, or payments made, except final certificates of payment, shall be conclusive of the performance of the contract either wholly or in part, and no estimates or payments including the final estimate or payment shall be construed to be an acceptance of defective work or improper materials.

ARTICLE 34 - ACCEPTANCE AND FINAL PAYMENT

At such time as the Contractor shall have the work in condition for acceptance, he shall remove his equipment, all surplus materials, rubbish and debris resulting from or connected with the work and shall notify the Architect that the work is ready for final inspection. If after the final inspection the Architect shall determine that the Contractor has completed the construction contemplated by this Contract, performed the Contract on his part, the Architect shall make a final estimate as to the entire amount of each class of work performed and as to the value thereof, with such increases or deductions as may have been made in accordance with the terms of the Contract and such deductions on account of damages, as may be due to the Owner under the Contract, or of such additions as may be due to the Contractor, and shall certify to the Owner in writing with the aggregate amount of said final estimate at the completion of the work.

No payment shall become due and payable until the Contractor shall have furnished satisfactory evidence that all labor, materials, outstanding claims an indebtedness of whatever nature arising out of the performance of the Contract have been paid. The action of the Architect by which the Contractor is to be bound and work concluded, according to the terms of the Contract, shall be evidence of the aforesaid certificate and final payment, all prior certificates or estimates upon which payments have been made being partial payment and subject to correction in the final payment.

Contracts exceeding $50,000 shall be substantially complete if construction is sufficiently completed in accordance with Contract Documents and certified by the Architect of the Contract body, as modified by change orders agreed to by the parties, so that the project can be used, occupied or operated for its intended use. In no event shall a project be certified as substantially complete until at least 90% of the work on the project is completed. The Contractor shall be paid in full except as provided in ARTICLE 33 within 30 days following the date of substantial completion, less only one and one half times such amount as is required to complete any then remaining uncompleted minor items which amount shall be certified by the Architect and upon receipt by the contracting body of any guarantee bonds required, in accordance with the Contract Documents, to insure proper workmanship for a designated period of time. The certificate given bay the Architect shall list in detail each and every uncompleted item and a reasonable cost of completion. Final payment of any amount so withheld for the completion of the minor items shall be paid forthwith upon completion of the items in the certificate of the Architect. Any amount due after substantial completion shall bear interest at the rate of 6% per annum.

The acceptance of the final payment by the Contractor, made as aforesaid, shall operate as and be a release to the Owner and every member and agent thereof and from all claims and liabilities to the Contractor for anything done or furnished, for or relating to the work, or affecting the work, but this final payment shall not be considered relieving the Contractor from his indemnity obligation as described in ARTICLE 17.

ARTICLE 35 - CORRECTION OF WORK AFTER FINAL PAYMENT

Neither the final estimate nor final payment nor any provision in the Contract shall relieve the Contractor of the responsibility for faulty materials or workmanship, and he shall remedy without cost to the Owner any defects due thereto and pay any damage resulting there from, which shall appear within one (1) year from the date of acceptance.

ARTICLE 36 - QUANTITIES

The quantities given for unit price work are to be taken as approximate only. The unit price submitted will be applied to the completed work actually done, and the Contractor paid accordingly. Any variation between the actual quantities of work as constructed and the estimated quantities of work as given in the bidding sheet will be paid for at the unit price for that particular class of work.

ARTICLE 37 - DAMAGE ON ACCOUNT OF HIGH WATER, ETC.

The Contractor shall also hold himself responsible for all damage done to his work by heavy rains or floods, and he shall take all reasonable precautions to provide against damage by heavy rains to adjoining property by building such temporary channels to carry off the storm water as the nature of the work may require.

ARTICLE 38 - ARCHITECT'S DECISION

The Architect shall have full authority to decide all questions which may arise with the Contractor relative to the quality and acceptability of materials furnished, and work performed, the manner, performance, rate of progress, the interpretation of any or all plans and specifications and the acceptable fulfillment of the Contract on the part of the Contractor. He shall determine the amount and quantity of the several kinds of work performed and the materials furnished, his decisions and estimates shall be conclusive on the Contractor, and such estimates shall be a condition precedent to the right of the Contractor to receive any money due the Contract.

ARTICLE 39 - TIME FOR COMPLETION

The time allowed for completion of the Contract from the date of the Notice to Proceed is specified by the Owner to be Ninety (90) calendar days.

The Work must be started within ten (10) calendar days of the Notice to Proceed.

ARTICLE 40 - DAMAGES FOR NOT COMPLETING WITHIN TIME LIMIT

Where actual damages for any delay in completion are impossible of determination by reason of the Owner's objection not to terminate the right of the Contractor to proceed, the Contractor and his Sureties shall be liable for and shall pay to the Owner the sum of five hundred dollars ($500.00) as fixed, agreed and liquidated damages for each calendar day of such delay after the day fixed for completion, until the work is completed or accepted; Provided that the Owner may accept the work if there has been such a degree of completion as will in the Owner's opinion make the project reasonable safe, fit and convenient for the use and accommodation for which it was intended. In such case, the Contractor shall not be charged with liquidated damages, but the Owner may assess the actual damages caused by such delay.

ARTICLE 41 - MINIMUM WAGE SPECIFICATIONS

The specifications for every contract for any public work as defined herein shall contain at least the following conditions, provisions and requirements:

The general prevailing minimum wage rates including contributions for employee benefits as shall have been determined by the Secretary which must be paid to the workmen employed in the performance of the Contract are bound herewith.

The Contractor shall pay no less than the wage rates as determined in the decision of the Secretary of Labor and Industry and shall comply with the conditions of the Pennsylvania Prevailing Wage Act, approved August 15, 1961 (Act No. 442), as amended August 9, 1963 (Act No. 342), and the Regulations issued pursuant thereto.

The provisions of the Pennsylvania Prevailing Wage Act and the Regulations issued pursuant thereto are applicable to this Contract, and shall have the same force and effect as though herein written out in full.

The Contract provisions with respect to prevailing wage rates shall apply to all work performed on the Contract by the Contractor and to all work performed on the Contract by his Subcontractors, and the Contractor shall insert in each of his subcontracts all of the stipulations contained in these required provisions and such other stipulations as may be required by the Secretary of Labor and Industry.

No workmen may be employed on the public work except in accordance with the classifications set forth in the decision of the Secretary of Labor and Industry. In the event that additional or different classifications are necessary, the procedure set forth in Section 7 of the Regulations for the Pennsylvania Prevailing Wage Act shall be followed.

All work men employed or working on the public work shall be paid unconditionally, regardless of whether any contractual relationship exists or the nature of any contractual relationship which be alleged to exist between any Contractor, Subcontractor and workmen, not less than once a week without deductions or rebate on any account either directly or indirectly, except authorized deductions, the full amounts due at the time of payment, computed at the rates applicable to the time worked in the appropriate classification. Nothing in the Contract, the Act or these Regulations shall prohibit the payment of more than the general prevailing minimum wage rates as determined by the Secretary to any workman on public work.

The Contractor and each Subcontractor shall post for the entire period of construction the wage determination decisions of the Secretary, including the effective date of any changes thereof, in a prominent and easily accessible place or places at the site of the work and at such place or places used

by them to pay workmen their wages. The posted notice of wage rates must contain the following information:

a) name of project.

b) name of public body for which it is being constructed.

c) the crafts and classifications of workmen listed in the Secretary's general prevailing minimum wage rates determination for the particular project.

d) The general prevailing minimum wage rates determined for each craft and classification and the effective date of any changes.

e) A statement advising workmen that if they have been paid less than the general prevailing minimum wage rate for their job classification or that the Contractor and/or Subcontractor are not complying with the Act or these regulations in any manner whatsoever, they may file a protest in writing with the Secretary of Labor and Industry within three (3) months of the date of the occurrence, objection to the payment to any Contractor to the extent of the amount or amounts due or to become due to them as wages for work performed on the public work project. Any workmen paid less than the rate specified in the Contract shall have a civil right of action for the difference between the wage paid and the wages stipulated in the Contract, which right of action must be exercised within six (6) months from the occurrence of the event creating such right.

The Contractor and all Subcontractors shall keep an accurate record showing the name, craft and/or classification, number of hours worked per day, and the actual hourly rate of wage paid (including employee benefits) to each workman employed by him in connection with the public work and such record must include any deductions from each workman. The record shall be preserved for two years from the date of payment and shall be open at all reasonable hours to the inspection of the public body awarding the Contract and to the Secretary of Labor and Industry or his duly authorized representative.

Apprentices shall be limited to such numbers as shall be in accordance with a bona fide apprenticeship program registered with and approved by the Pennsylvania Apprenticeship and Training Council and only apprentices whose training and employment are in full compliance with the provisions of the Apprenticeship and Training Act approved July 14, 1961 (Act 304) and the Rules and Regulations issued pursuant thereto shall be employed on the public work project. Any workman using the tools of a craft who doe not qualify as an apprentice within the provisions of the subsection shall be paid the rate predetermined for journey men in that particular craft and/or classification.

Wages shall be paid without any deductions except authorized deductions. Employers not parties to a contract requiring contributions for employee benefits which the Secretary has determined to be included in the general prevailing minimum wage rate shall pay the monetary equivalent thereof directly to the workmen.

Payment of compensation to workmen for work performed on public work on a lump sum basis, or a piece work system or a price certain for the completion of a certain amount of work, or the production of a certain result shall be deemed a violation of the Act and these regulations, regardless of the average hourly earnings resulting therefrom.

The Contract shall also provide that each Contractor and each Subcontractor shall file a statement each week and a final statement at the conclusion of the work on the Contract with the contracting agency, under oath and in a form satisfactory to the Secretary of Labor and Industry, certifying that all workmen have been paid wages in strict conformity with provisions of the Contract as prescribed by this Section 40 of the General Conditions, or if any wages remain unpaid to set forth the

amount of wages due and owing to each workman respectively.

ARTICLE 42 - NONDISCRIMINATION IN EMPLOYMENT

The Contractor agrees that he will comply with the provisions of the Pennsylvania Human Relations Act in providing equal employment opportunities in connection with all work performed by him at the job site pursuant to this Contract. The Contractor, therefore, agrees:

1. The Contractor will not discriminate nor permit discrimination by his agents, servants or employees against any employee or applicant for employment with regard to hiring, tenure of employment, promotion, terms, conditions or privileges of employment, at the job site covered by this Contract, because of race, color, religion, age, or national origin, and will take such affirmative action as is hereinafter set forth to prevent same.

2. (a) The Contractor will, in all publications or advertisements for employees to work at the job site covered by this Contract, place by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, age or national origin.

   (b) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract understanding, a notice to be provided by the Pennsylvania Human Relations Commission, advising the said labor union or workers representative of the Contractor's commitment under this Section, and shall post copies of the notice in conspicuous places available to this employees and applicants for employment.

3. (a) The Contractor shall supply the contracting agency of the State with a periodic report, called a "Compliance Report", relating to work performed at the job site under this Contract as may be required by the Pennsylvania Human Relations Commission. The Commission shall at all times have access to the employment records of said Contractor for purposes of investigation to ascertain compliance with the rules, regulations and orders of the Pennsylvania Human Relations Commission, relating to discrimination.

   (b) The Contractor shall insert the provisions of Paragraphs (1), (2) and (3) of this Article in all subcontracts which are entered into by the Contractor under this Contract requiring work to be done at the job site, as covenants to be binding upon such Subcontractors.

4. Compliance by the Contractor with Paragraphs (2) and (3) of this Article shall discharge the Contractor from any liability hereunder, relating to the non-discriminatory provisions of this agreement.

ARTICLE 43 - THE LIABILITY OF SUBCONTRACTOR IN EMPLOYMENT

The Subcontractor of the Contractor under ARTICLE 42, Paragraph 3 (b) above shall have the same responsibilities and obligations as the Contractor to comply with the provisions of ARTICLE 42, Paragraphs (1), (2) and (3) hereof and shall be subject to the applicable penalties for failure to comply as hereinafter set forth in ARTICLE 44.

ARTICLE 44 - PENALTIES FOR FAILURE TO COMPLY

1. It is hereby agreed that the failure to comply with the foregoing requirements shall constitute a substantial breach of this Contract.

2. In the event the Pennsylvania Human Relations Commission, after investigation and hearing, shall determine that the Contractor or Subcontractor, as the case may be, has failed to comply

with any of the provisions of ARTICLE 42, Paragraphs (1), (2) and (3) hereof, the Commission in addition to issuing any order it deems appropriate pursuant to Section 9 of the Pennsylvania Human Relations Act, shall certify such findings to the Contracting Agency of the State, with a recommendation for termination of the Contract or the Subcontractors, as the case may be, or with a recommendation that such Contractor be declared ineligible for any further public works contracts or subcontracts for a period of not more than two (2) years from the date of such recommendations.

3. Should the Contracting Agency of the State adopt the recommendation to terminate the Contract, written notice of this fact shall be given to the Contractor by registered mail addressed to the Contractor's registered office in Pennsylvania, in which event all obligation on the part of the Contracting Agency to perform this Contract shall cease, save only the obligation to pay the Contractor the sum due, including any retained amounts, for all articles delivered or work done, or for all articles or equipment for which the Contractor may be liable, to the date of such termination.

4. Should the Contracting Agency of the State adopt the recommendation to direct the Contractor to terminate a subcontract entered into by the Contractor under this Contract, written notice of this fact shall be given to the Contractor by registered mail addressed to the Contractor's registered office in Pennsylvania, and it shall then be the obligation of the Contractor to terminate such Subcontract, pursuant to said written notice.

5. Should the Contracting Agency of the State adopt the recommendation to declare the Contractor or Subcontractor, as the case may be, ineligible for further public works contracts or subcontracts, written notice of this fact and of the duration of such period of ineligibility shall be given to the Contractor of Subcontractor by registered mail addressed to the Contractor's or Subcontractor's registered office in Pennsylvania.

ARTICLE 45 - RIGHT OF APPEAL

From any order of the Pennsylvania Human Relations Commission, the Contractor or Subcontractor, as the case may be, shall have a right of appeal as in other cases provided by law, and the Contracting Agency of

the State shall not act upon the recommendation of the Commission specified in ARTICLE 44, paragraph (2) above until the Contractor or Subcontractor has exhausted the right of appeal provided by law, or the time for such appeal shall have expired.

ARTICLE 46 - INSPECTION

Representatives of any Federal and State government having jurisdiction shall have access to the work wherever it is in preparation of progress and the Contractor shall provide proper facilities for such access and inspection.

ARTICLE 47 - FEDERAL LABOR STANDARDS

The Contractor and all Subcontractors shall comply with the Regulations of the Secretary of Labor made pursuant to the Anti-Kickback Act of June 30, 1940, 40 U.S.C. 276 (C) and any amendments or modifications thereto. The Contractor and all Subcontractors shall furnish the Owner with weekly statements of Compliance. In case of Subcontracts, the Contractor shall cause appropriate provisions to be inserted on any Subcontracts for the work which he may let to insure compliance with said Anti-Kickback Act by all Subcontractors subject thereto, and Statements of Compliance required of Subcontractors by said Anti-Kickback Act except as the Secretary of Labor may specifically provide for reasonable limitations, variations and exemptions from the requirements thereof. These regulations are part of this Contract and are included in this Specification.

ARTICLE 48 - EXTRA WORK

In no case shall the Contractor proceed with extra work of additional quantity or dissimilar character unless written approval has been obtained from the Architect. This paragraph supersedes all other Articles in these conditions. The Contractor shall initiate a change order prior to beginning such work unless such an order has come from the Architect or Owner. The change order will specify the quantity and character of work to be performed and designate the cost of the work, both in units and total cost.

END OF SECTION 007000

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SECTION 008000

SPECIAL CONDITIONS

I. It is intended by the execution of this contract to perform the Thornbury Township Meeting Room Renovations in the Township of Thornbury.

II. All areas disturbed by the Contractor shall be graded and seeded in accordance with these specifications and drawings.

III. Prices shown on the proposal sheet shall include all labor, materials and equipment necessary to complete the work in a satisfactory manner, including restoration and cleanup.

IV. All construction equipment operated on improved municipal streets and state highways shall be equipped with rubber tires or otherwise insulated from the paving.

V. During the construction procedure, the Contractor shall take all necessary precautions that may be required to prevent any physical damage or changes from occurring beyond the limits of the work or to buildings or structures adjacent to the proposed construction.

VI. The Contractor shall maintain sufficient barricades and other warning signs during the progress of this work and shall maintain sufficient barricades, lights, danger signals and other devices for the safety of the public and the work must be conducted at all times, both day and night, in such a manner as to offer the least inconvenience for Township Operations and adjacent property owners and tenants.

VII. Erosion Control: The Contractor shall be responsible for scheduling and implementing his work in such a way as to provide protection against any erosion of the sub-base material and he shall generally conform to the Title 25 Rules and Regulations, Chapter 102 - Guidelines for Minimizing Erosion and Sediment.

VIII. The Contractor shall be responsible beyond the limits of work for any and all damage to the existing structures and site due to faulty construction techniques and protective measures.

IX. Area to be Occupied by Contractor: The Contractor shall confine his operation to the property lines as shown on the plan. The Contractor shall be responsible for damage resulting from trespassing upon adjacent lands, or damages to adjacent lands or property resulting from action of his agents and his employees. The Contractor shall indemnify the Owner against the performance of this Contract. The Contractor shall diligently and promptly report in writing to the Owner each such claim of injury or trespass asserted.

X. Permits shall be required in the amounts dictated by municipal ordinances. Permit fees will be waived, however, Contractor licensing fees will not be waived.

XI. The Contractor shall be responsible for cleaning of his refuse. Final inspection and payment will not be considered until this cleaning and removal of all dumpsters and debris has been performed.

XII. Temporary electric, water and toilet facilities required for construction shall be provided by the owner. Any required outages of service or restrictions of access, shall be coordinated with the owner at least 5 working days prior to each occurrence. Outages during working hours for the Township offices and scheduled meetings and events shall be avoided to the greatest extent possible.

XIII. Intoxicating Beverages: At no time shall the Contractor or his workmen deliver or consume intoxicating beverages of any kind during the daily work period or on Township property generally.

XIV. Performance of Work by Contractor: The Contractor shall perform on the site and with his own organization, work equivalent to at least 75% of the total amount of the work to be performed under the Contract. If, during the progress of the work herein under, the Contractor requests a reduction in such percentage, then the Architect determines that it would be to the municipalities' advantage, the percentage of the work required to be performed by the Contractor may be reduced; provided written approval of such reduction is obtained by the Contractor from the Architect.

XV. Storage: The Contractor shall confine his apparatus, the storage of materials and the operations of his workmen, to limits indicated by law, ordinances, permits or directions of the municipality and shall not unreasonably encumber the premises with his materials, parking for employees and other sub-contractors.

XVI. Toilet Facilities: Ample job-site toilet facilities shall be furnished and maintained in strict conformity with State and Local Delaware County health laws by the Contractor for the use of his employees, the Architect and the Inspectors. The contractor shall coordinate any electrical plumbing or other service interruptions at least 3 working days in advance and shall minimize any outages affecting the use of the balance of the building for township business and services throughout the project. Any significant interruption (more than ½ day) of the use of the other restrooms in the building requiring temporary facilities, shall be accounted for within the bid for the project.

XVII. Claims: The successful bidder to whom the Contract is awarded agrees hereby to indemnify and save harmless the municipality and any of its employees from all suits, claims of any character, time and description brought for or on account of any injuries or damages received or sustained by any person persons, or property by or from the successful bidder or by or in consequence of any neglect in safeguarding the work or in the performance of the work, or through defective workmanship or materials or by or on account of any act, omission or misconduct of the successful bidder or any of his representatives, servants or employees.

XVIII. Insurance: Insurance certificates, as follows, in a form satisfactory to the Municipal Solicitor shall be submitted at the time of executing the Contract:

Statutory Worker's Compensation; Public Liability with Contractual Coverage in the amount of $500,000/$1,000,000; Property Damage in the amount of $500,000/$1,000,000 and $100,000 respectively.

Cancellation shall not be effective unless the Owner is notified in writing 20 days prior to the date of any proposed cancellation.

XIX. General Contractor shall comply with the Federal Occupational Safety and Health Act of 1970 (OSHA) including proper records keeping and reporting any incidents.

XX. General Contractor shall be responsible for maintaining all construction improvements for a period of one year from the date of completion in the form of a Maintenance Bond or as an item in the Performance Bond.

XXI. Lines and Levels:

A. General Contractor, through competent personnel and use of instruments, shall determine all

lines, grades and levels, verifying their accuracy from time to time during the progress of the work. Any significant deficiencies or deviations from plum and level shall be brought to the attention of the Architect & Owner, prior to any remedial work being initiated.

B. General Contractor shall work accurately to benchmarks and to proper elevations and dimensions, checking conditions and details of work already in place and proposed in relation to work then to be installed.

C. The method and instruments used for determining all grades, lines and levels shall first be approved by the Architect.

XXII. Non-Collusion Affidavit: The Non-Collusion Affidavit must be submitted along with the Bid proposal or the bid will be held to be invalid.

XXIII. Compliance: Contractor shall comply with the Architectural Barriers Act of 1968 and Section 504 of the Rehabilitation Act of 1973; PA Act 235 of 1965, as amended, Universal Accessibility Act, and American's With Disabilities Act (ADA) of 1990.

XXIV. "Or Equal" Clause: Whenever an item is specified by a manufacturer's name and model number, the Contractor may use a substitute of equal of better quality once approved by the Architect.

XXV. Painting and Markings: All painting and pavement markings to be as per PennDOT Specifications, Section 962. Costs are incidental.

XXVI. General Contractor shall be responsible for notification of all affected residents, tenants and Township Staff. Notification shall be a minimum 24 hours and maximum 72 hours in advance.

END OF SECTION 008000

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DRAFT

AIA® Document A102® – 2017

Standard Form of Agreement Between Owner and Contractor *where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price*

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

« »« »
« »
« »
« »

and the Contractor:
(Name, legal status, address and other information)

« »« »
« »
« »
« »

for the following Project:
(Name, location and detailed description)

« »
« »
« »

The Architect:
(Name, legal status, address and other information)

« »« »
« »
« »
« »

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A102™–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. If anything in the other Contract Documents, other than a Modification, is inconsistent with this Agreement, this Agreement shall govern. An enumeration of the Contract Documents, other than a Modification, appears in Article 16.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 RELATIONSHIP OF THE PARTIES

The Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with the Owner to cooperate with the Architect and exercise the Contractor's skill and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests. The Owner agrees to furnish and approve, in a timely manner, information required by the Contractor and to make payments to the Contractor in accordance with the requirements of the Contract Documents.

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ARTICLE 4 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 4.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[« »] The date of this Agreement.

[« »] A date set forth in a notice to proceed issued by the Owner.

[« »] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

« »

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 4.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 4.3 Substantial Completion

§ 4.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

[« »] Not later than « » (« ») calendar days from the date of commencement of the Work.

[« »] By the following date: « »

§ 4.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 4.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 4.3, liquidated damages, if any, shall be assessed as set forth in Section 5.1.6.

ARTICLE 5 CONTRACT SUM

§ 5.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum is the Cost of the Work as defined in Article 7 plus the Contractor's Fee.

§ 5.1.1 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work, or other provision for determining the Contractor's Fee.)

« »

§ 5.1.2 The method of adjustment of the Contractor's Fee for changes in the Work:

« »

§ 5.1.3 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

« »

§ 5.1.4 Rental rates for Contractor-owned equipment shall not exceed « » percent (« » %) of the standard rental rate paid at the place of the Project.

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§ 5.1.5 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit ($0.00)

§ 5.1.6 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

« »

§ 5.1.7 Other:
(Insert provisions for bonus, cost savings or other incentives, if any, that might result in a change to the Contract Sum.)

« »

§ 5.2 Guaranteed Maximum Price

§ 5.2.1 The Contract Sum is guaranteed by the Contractor not to exceed « » ($ « »), subject to additions and deductions by Change Order as provided in the Contract Documents. This maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.

§ 5.2.2 Alternates

§ 5.2.2.1 Alternates, if any, included in the Guaranteed Maximum Price:

Item	Price

§ 5.2.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 5.2.3 Allowances, if any, included in the Guaranteed Maximum Price:
(Identify each allowance.)

Item	Price

§ 5.2.4 Assumptions, if any, upon which the Guaranteed Maximum Price is based:
(Identify each assumption.)

« »

§ 5.2.5 To the extent that the Contract Documents are anticipated to require further development, the Guaranteed Maximum Price includes the costs attributable to such further development consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include changes in scope, systems, kinds and quality of materials, finishes or equipment, all of which, if required, shall be incorporated by Change Order.

§ 5.2.6 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in Section 5.2.4. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the agreed-upon assumptions contained in Section 5.2.4 and the revised Contract Documents.

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ARTICLE 6 CHANGES IN THE WORK

§ 6.1 Adjustments to the Guaranteed Maximum Price on account of changes in the Work may be determined by any of the methods listed in Article 7 of AIA Document A201™–2017, General Conditions of the Contract for Construction.

§ 6.2 Adjustments to subcontracts awarded on the basis of a stipulated sum shall be determined in accordance with Article 7 of A201–2017, as they refer to "cost" and "fee," and not by Articles 5, 7 and 8 of this Agreement. Adjustments to subcontracts awarded with the Owner's prior written consent on the basis of cost plus a fee shall be calculated in accordance with the terms of those subcontracts.

§ 6.3 In calculating adjustments to the Guaranteed Maximum Price, the terms "cost" and "costs" as used in Article 7 of AIA Document A201–2017 shall mean the Cost of the Work as defined in Article 7 of this Agreement and the term "fee" shall mean the Contractor's Fee as defined in Section 5.1.1 of this Agreement.

§ 6.4 If no specific provision is made in Article 5 for adjustment of the Contractor's Fee in the case of changes in the Work, or if the extent of such changes is such, in the aggregate, that application of the adjustment provisions of Article 5 will cause substantial inequity to the Owner or Contractor, the Contractor's Fee shall be equitably adjusted on the same basis that was used to establish the Fee for the original Work, and the Guaranteed Maximum Price shall be adjusted accordingly.

ARTICLE 7 COSTS TO BE REIMBURSED

§ 7.1 Cost of the Work

§ 7.1.1 The term Cost of the Work shall mean costs necessarily incurred by the Contractor in the proper performance of the Work. The Cost of the Work shall include only the items set forth in this Article 7.

§ 7.1.2 Where, pursuant to the Contract Documents, any cost is subject to the Owner's prior approval, the Contractor shall obtain such approval in writing prior to incurring the cost.

§ 7.1.3 Costs shall be at rates not higher than the standard paid at the place of the Project, except with prior approval of the Owner.

§ 7.2 Labor Costs

§ 7.2.1 Wages or salaries of construction workers directly employed by the Contractor to perform the construction of the Work at the site or, with the Owner's prior approval, at off-site workshops.

§ 7.2.2 Wages or salaries of the Contractor's supervisory and administrative personnel when stationed at the site and performing Work, with the Owner's prior approval.

§ 7.2.2.1 Wages or salaries of the Contractor's supervisory and administrative personnel when performing Work and stationed at a location other than the site, but only for that portion of time required for the Work, and limited to the personnel and activities listed below:
(Identify the personnel, type of activity and, if applicable, any agreed upon percentage of time to be devoted to the Work.)

« »

§ 7.2.3 Wages or salaries of the Contractor's supervisory or administrative personnel engaged at factories, workshops or while traveling, in expediting the production or transportation of materials or equipment required for the Work, but only for that portion of their time required for the Work.

§ 7.2.4 Costs paid or incurred by the Contractor, as required by law or collective bargaining agreements, for taxes, insurance, contributions, assessments, and benefits and, for personnel not covered by collective bargaining agreements, customary benefits such as sick leave, medical and health benefits, holidays, vacations and pensions, provided such costs are based on wages and salaries included in the Cost of the Work under Sections 7.2.1 through 7.2.3.

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§ 7.2.5 If agreed rates for labor costs, in lieu of actual costs, are provided in this Agreement, the rates shall remain unchanged throughout the duration of this Agreement, unless the parties execute a Modification.

§ 7.3 Subcontract Costs

Payments made by the Contractor to Subcontractors in accordance with the requirements of the subcontracts and this Agreement.

§ 7.4 Costs of Materials and Equipment Incorporated in the Completed Construction

§ 7.4.1 Costs, including transportation and storage at the site, of materials and equipment incorporated, or to be incorporated, in the completed construction.

§ 7.4.2 Costs of materials described in the preceding Section 7.4.1 in excess of those actually installed to allow for reasonable waste and spoilage. Unused excess materials, if any, shall become the Owner's property at the completion of the Work or, at the Owner's option, shall be sold by the Contractor. Any amounts realized from such sales shall be credited to the Owner as a deduction from the Cost of the Work.

§ 7.5 Costs of Other Materials and Equipment, Temporary Facilities and Related Items

§ 7.5.1 Costs of transportation, storage, installation, dismantling, maintenance, and removal of materials, supplies, temporary facilities, machinery, equipment and hand tools not customarily owned by construction workers that are provided by the Contractor at the site and fully consumed in the performance of the Work. Costs of materials, supplies, temporary facilities, machinery, equipment, and tools, that are not fully consumed, shall be based on the cost or value of the item at the time it is first used on the Project site less the value of the item when it is no longer used at the Project site. Costs for items not fully consumed by the Contractor shall mean fair market value.

§ 7.5.2 Rental charges for temporary facilities, machinery, equipment, and hand tools not customarily owned by construction workers that are provided by the Contractor at the site, and the costs of transportation, installation, dismantling, minor repairs, and removal of such temporary facilities, machinery, equipment, and hand tools. Rates and quantities of equipment owned by the Contractor, or a related party as defined in Section 7.8, shall be subject to the Owner's prior approval. The total rental cost of any such equipment may not exceed the purchase price of any comparable item.

§ 7.5.3 Costs of removal of debris from the site of the Work and its proper and legal disposal.

§ 7.5.4 Costs of the Contractor's site office, including general office equipment and supplies.

§ 7.5.5 Costs of materials and equipment suitably stored off the site at a mutually acceptable location, subject to the Owner's prior approval.

§ 7.6 Miscellaneous Costs

§ 7.6.1 Premiums for that portion of insurance and bonds required by the Contract Documents that can be directly attributed to this Contract.

§ 7.6.1.1 Costs for self-insurance, for either full or partial amounts of the coverages required by the Contract Documents, with the Owner's prior approval.

§ 7.6.1.2 Costs for insurance through a captive insurer owned or controlled by the Contractor, with the Owner's prior approval.

§ 7.6.2 Sales, use, or similar taxes, imposed by a governmental authority, that are related to the Work and for which the Contractor is liable.

§ 7.6.3 Fees and assessments for the building permit, and for other permits, licenses, and inspections, for which the Contractor is required by the Contract Documents to pay.

§ 7.6.4 Fees of laboratories for tests required by the Contract Documents; except those related to defective or nonconforming Work for which reimbursement is excluded under Article 13 of AIA Document A201–2017 or by other provisions of the Contract Documents, and which do not fall within the scope of Section 7.7.3.

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§ 7.6.5 Royalties and license fees paid for the use of a particular design, process, or product, required by the Contract Documents.

§ 7.6.5.1 The cost of defending suits or claims for infringement of patent rights arising from requirements of the Contract Documents, payments made in accordance with legal judgments against the Contractor resulting from such suits or claims, and payments of settlements made with the Owner's consent, unless the Contractor had reason to believe that the required design, process or product was an infringement of a copyright or a patent, and the Contractor failed to promptly furnish such information to the Architect as required by Article 3 of AIA Document A201–2017. The costs of legal defenses, judgments, and settlements, shall not be included in the Cost of the Work used to calculate the Contractor's Fee or subject to the Guaranteed Maximum Price.

§ 7.6.6 Costs for communications services, electronic equipment, and software, directly related to the Work and located at the site, with the Owner's prior approval.

§ 7.6.7 Costs of document reproductions and delivery charges.

§ 7.6.8 Deposits lost for causes other than the Contractor's negligence or failure to fulfill a specific responsibility in the Contract Documents.

§ 7.6.9 Legal, mediation and arbitration costs, including attorneys' fees, other than those arising from disputes between the Owner and Contractor, reasonably incurred by the Contractor after the execution of this Agreement in the performance of the Work and with the Owner's prior approval, which shall not be unreasonably withheld.

§ 7.6.10 Expenses incurred in accordance with the Contractor's standard written personnel policy for relocation and temporary living allowances of the Contractor's personnel required for the Work, with the Owner's prior approval.

§ 7.6.11 That portion of the reasonable expenses of the Contractor's supervisory or administrative personnel incurred while traveling in discharge of duties connected with the Work.

§ 7.7 Other Costs and Emergencies

§ 7.7.1 Other costs incurred in the performance of the Work, with the Owner's prior approval.

§ 7.7.2 Costs incurred in taking action to prevent threatened damage, injury, or loss, in case of an emergency affecting the safety of persons and property, as provided in Article 10 of AIA Document A201–2017.

§ 7.7.3 Costs of repairing or correcting damaged or nonconforming Work executed by the Contractor, Subcontractors, or suppliers, provided that such damaged or nonconforming Work was not caused by the negligence of, or failure to fulfill a specific responsibility by, the Contractor, and only to the extent that the cost of repair or correction is not recovered by the Contractor from insurance, sureties, Subcontractors, suppliers, or others.

§ 7.8 Related Party Transactions

§ 7.8.1 For purposes of this Section 7.8, the term "related party" shall mean (1) a parent, subsidiary, affiliate, or other entity having common ownership of, or sharing common management with, the Contractor; (2) any entity in which any stockholder in, or management employee of, the Contractor holds an equity interest in excess of ten percent in the aggregate; (3) any entity which has the right to control the business or affairs of the Contractor; or (4) any person, or any member of the immediate family of any person, who has the right to control the business or affairs of the Contractor.

§ 7.8.2 If any of the costs to be reimbursed arise from a transaction between the Contractor and a related party, the Contractor shall notify the Owner of the specific nature of the contemplated transaction, including the identity of the related party and the anticipated cost to be incurred, before any such transaction is consummated or cost incurred. If the Owner, after such notification, authorizes the proposed transaction in writing, then the cost incurred shall be included as a cost to be reimbursed, and the Contractor shall procure the Work, equipment, goods, or service, from the related party, as a Subcontractor, according to the terms of Article 10. If the Owner fails to authorize the transaction in writing, the Contractor shall procure the Work, equipment, goods, or service from some person or entity other than a related party according to the terms of Article 10.

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ARTICLE 8 COSTS NOT TO BE REIMBURSED

§ 8.1 The Cost of the Work shall not include the items listed below:

- **.1** Salaries and other compensation of the Contractor's personnel stationed at the Contractor's principal office or offices other than the site office, except as specifically provided in Section 7.2, or as may be provided in Article 15;
- **.2** Bonuses, profit sharing, incentive compensation, and any other discretionary payments, paid to anyone hired by the Contractor or paid to any Subcontractor or vendor, unless the Owner has provided prior approval;
- **.3** Expenses of the Contractor's principal office and offices other than the site office;
- **.4** Overhead and general expenses, except as may be expressly included in Article 7;
- **.5** The Contractor's capital expenses, including interest on the Contractor's capital employed for the Work;
- **.6** Except as provided in Section 7.7.3 of this Agreement, costs due to the negligence of, or failure to fulfill a specific responsibility of the Contract by, the Contractor, Subcontractors, and suppliers, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable;
- **.7** Any cost not specifically and expressly described in Article 7; and
- **.8** Costs, other than costs included in Change Orders approved by the Owner, that would cause the Guaranteed Maximum Price to be exceeded.

ARTICLE 9 DISCOUNTS, REBATES AND REFUNDS

§ 9.1 Cash discounts obtained on payments made by the Contractor shall accrue to the Owner if (1) before making the payment, the Contractor included the amount to be paid, less such discount, in an Application for Payment and received payment from the Owner, or (2) the Owner has deposited funds with the Contractor with which to make payments; otherwise, cash discounts shall accrue to the Contractor. Trade discounts, rebates, refunds, and amounts received from sales of surplus materials and equipment shall accrue to the Owner, and the Contractor shall make provisions so that they can be obtained.

§ 9.2 Amounts that accrue to the Owner in accordance with the provisions of Section 9.1 shall be credited to the Owner as a deduction from the Cost of the Work.

ARTICLE 10 SUBCONTRACTS AND OTHER AGREEMENTS

§ 10.1 Those portions of the Work that the Contractor does not customarily perform with the Contractor's own personnel shall be performed under subcontracts or other appropriate agreements with the Contractor. The Owner may designate specific persons from whom, or entities from which, the Contractor shall obtain bids. The Contractor shall obtain bids from Subcontractors, and from suppliers of materials or equipment fabricated especially for the Work, who are qualified to perform that portion of the Work in accordance with the requirements of the Contract Documents. The Contractor shall deliver such bids to the Architect and Owner with an indication as to which bids the Contractor intends to accept. The Owner then has the right to review the Contractor's list of proposed subcontractors and suppliers in consultation with the Architect and, subject to Section 10.1.1, to object to any subcontractor or supplier. Any advice of the Architect, or approval or objection by the Owner, shall not relieve the Contractor of its responsibility to perform the Work in accordance with the Contract Documents. The Contractor shall not be required to contract with anyone to whom the Contractor has reasonable objection.

§ 10.1.1 When a specific subcontractor or supplier (1) is recommended to the Owner by the Contractor; (2) is qualified to perform that portion of the Work; and (3) has submitted a bid that conforms to the requirements of the Contract Documents without reservations or exceptions, but the Owner requires that another bid be accepted, then the Contractor may require that a Change Order be issued to adjust the Guaranteed Maximum Price by the difference between the bid of the person or entity recommended to the Owner by the Contractor and the amount of the subcontract or other agreement actually signed with the person or entity designated by the Owner.

§ 10.2 Subcontracts or other agreements shall conform to the applicable payment provisions of this Agreement, and shall not be awarded on the basis of cost plus a fee without the Owner's prior written approval. If a subcontract is awarded on the basis of cost plus a fee, the Contractor shall provide in the subcontract for the Owner to receive the same audit rights with regard to the Subcontractor as the Owner receives with regard to the Contractor in Article 11.

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ARTICLE 11 ACCOUNTING RECORDS

The Contractor shall keep full and detailed records and accounts related to the Cost of the Work, and exercise such controls, as may be necessary for proper financial management under this Contract and to substantiate all costs incurred. The accounting and control systems shall be satisfactory to the Owner. The Owner and the Owner's auditors shall, during regular business hours and upon reasonable notice, be afforded access to, and shall be permitted to audit and copy, the Contractor's records and accounts, including complete documentation supporting accounting entries, books, job cost reports, correspondence, instructions, drawings, receipts, subcontracts, Subcontractor's proposals, Subcontractor's invoices, purchase orders, vouchers, memoranda, and other data relating to this Contract. The Contractor shall preserve these records for a period of three years after final payment, or for such longer period as may be required by law.

ARTICLE 12 PAYMENTS

§ 12.1 Progress Payments

§ 12.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor, and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum, to the Contractor, as provided below and elsewhere in the Contract Documents.

§ 12.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »

§ 12.1.3 Provided that an Application for Payment is received by the Architect not later than the « » day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the « » day of the « » month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than « » (« ») days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 12.1.4 With each Application for Payment, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner or Architect to demonstrate that payments already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor plus payrolls for the period covered by the present Application for Payment, less that portion of the progress payments attributable to the Contractor's Fee.

§ 12.1.5 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Guaranteed Maximum Price among: (1) the various portions of the Work; (2) any contingency for costs that are included in the Guaranteed Maximum Price but not otherwise allocated to another line item or included in a Change Order; and (3) the Contractor's Fee.

§ 12.1.5.1 The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. The schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 12.1.5.2 The allocation of the Guaranteed Maximum Price under this Section 12.1.5 shall not constitute a separate guaranteed maximum price for the Cost of the Work of each individual line item in the schedule of values.

§ 12.1.5.3 When the Contractor allocates costs from a contingency to another line item in the schedule of values, the Contractor shall submit supporting documentation to the Architect.

§ 12.1.6 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment. The percentage of completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed; or (2) the percentage obtained by dividing (a) the expense that has actually been incurred by the Contractor on account of that portion of the Work and for which the Contractor has made payment or intends to make payment prior to the next Application for Payment, by (b) the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values.

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§ 12.1.7 In accordance with AIA Document A201–2017 and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 12.1.7.1 The amount of each progress payment shall first include:

.1 That portion of the Guaranteed Maximum Price properly allocable to completed Work as determined by multiplying the percentage of completion of each portion of the Work by the share of the Guaranteed Maximum Price allocated to that portion of the Work in the most recent schedule of values;

.2 That portion of the Guaranteed Maximum Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction or, if approved in writing in advance by the Owner, suitably stored off the site at a location agreed upon in writing;

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified; and

.4 The Contractor's Fee, computed upon the Cost of the Work described in the preceding Sections 12.1.7.1.1 and 12.1.7.1.2 at the rate stated in Section 5.1.1 or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum fee as the Cost of the Work included in Sections 12.1.7.1.1 and 12.1.7.1.2 bears to a reasonable estimate of the probable Cost of the Work upon its completion.

§ 12.1.7.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017;

.5 The shortfall, if any, indicated by the Contractor in the documentation required by Section 12.1.4 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and

.6 Retainage withheld pursuant to Section 12.1.8.

§ 12.1.8 Retainage

§ 12.1.8.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

« »

§ 12.1.8.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

« »

§ 12.1.8.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 12.1.8.1 is to be modified prior to Substantial Completion of the entire Work, insert provisions for such modification.)

« »

§ 12.1.8.3 Except as set forth in this Section 12.1.8.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 12.1.8. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

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(Insert any other conditions for release of retainage, such as upon completion of the Owner's audit and reconciliation, upon Substantial Completion.)

« »

§ 12.1.9 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 12.1.10 Except with the Owner's prior written approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and suitably stored at the site.

§ 12.1.11 The Owner and the Contractor shall agree upon a mutually acceptable procedure for review and approval of payments to Subcontractors, and the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§ 12.1.12 In taking action on the Contractor's Applications for Payment the Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor, and such action shall not be deemed to be a representation that (1) the Architect has made a detailed examination, audit, or arithmetic verification, of the documentation submitted in accordance with Section 12.1.4 or other supporting data; (2) that the Architect has made exhaustive or continuous on-site inspections; or (3) that the Architect has made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits, and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

§ 12.2 Final Payment

§ 12.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- **.1** the Contractor has fully performed the Contract, except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment;
- **.2** the Contractor has submitted a final accounting for the Cost of the Work and a final Application for Payment; and
- **.3** a final Certificate for Payment has been issued by the Architect in accordance with Section 12.2.2.

§ 12.2.2 Within 30 days of the Owner's receipt of the Contractor's final accounting for the Cost of the Work, the Owner shall conduct an audit of the Cost of the Work or notify the Architect that it will not conduct an audit.

§ 12.2.2.1 If the Owner conducts an audit of the Cost of the Work, the Owner shall, within 10 days after completion of the audit, submit a written report based upon the auditors' findings to the Architect.

§ 12.2.2.2 Within seven days after receipt of the written report described in Section 12.2.2.1, or receipt of notice that the Owner will not conduct an audit, and provided that the other conditions of Section 12.2.1 have been met, the Architect will either issue to the Owner a final Certificate for Payment with a copy to the Contractor, or notify the Contractor and Owner in writing of the Architect's reasons for withholding a certificate as provided in Article 9 of AIA Document A201–2017. The time periods stated in this Section 12.2.2 supersede those stated in Article 9 of AIA Document A201–2017. The Architect is not responsible for verifying the accuracy of the Contractor's final accounting.

§ 12.2.2.3 If the Owner's auditors' report concludes that the Cost of the Work, as substantiated by the Contractor's final accounting, is less than claimed by the Contractor, the Contractor shall be entitled to request mediation of the disputed amount without seeking an initial decision pursuant to Article 15 of AIA Document A201–2017. A request for mediation shall be made by the Contractor within 30 days after the Contractor's receipt of a copy of the Architect's final Certificate for Payment. Failure to request mediation within this 30-day period shall result in the substantiated amount reported by the Owner's auditors becoming binding on the Contractor. Pending a final resolution of the disputed amount, the Owner shall pay the Contractor the amount certified in the Architect's final Certificate for Payment.

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§ 12.2.3 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

« »

§ 12.2.4 If, subsequent to final payment, and at the Owner's request, the Contractor incurs costs, described in Article 7 and not excluded by Article 8, to correct defective or nonconforming Work, the Owner shall reimburse the Contractor for such costs, and the Contractor's Fee applicable thereto, on the same basis as if such costs had been incurred prior to final payment, but not in excess of the Guaranteed Maximum Price. If adjustments to the Contract Sum are provided for in Section 5.1.7, the amount of those adjustments shall be recalculated, taking into account any reimbursements made pursuant to this Section 12.2.4 in determining the net amount to be paid by the Owner to the Contractor.

§ 12.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

« » % « »

ARTICLE 13 DISPUTE RESOLUTION

§ 13.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to the Agreement, to serve as Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

« »
« »
« »
« »

§ 13.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[« »] Arbitration pursuant to Section 15 of AIA Document A201–2017

[« »] Litigation in a court of competent jurisdiction

[« »] Other *(Specify)*

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 14 TERMINATION OR SUSPENSION

§ 14.1 Termination

§ 14.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 14.1.2 Termination by the Owner for Cause

§ 14.1.2.1 If the Owner terminates the Contract for cause as provided in Article 14 of AIA Document A201–2017, the amount, if any, to be paid to the Contractor under Article 14 of AIA Document A201–2017 shall not cause the Guaranteed Maximum Price to be exceeded, nor shall it exceed an amount calculated as follows:

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.1 Take the Cost of the Work incurred by the Contractor to the date of termination;
.2 Add the Contractor's Fee, computed upon the Cost of the Work to the date of termination at the rate stated in Section 5.1.1 or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum Fee as the Cost of the Work at the time of termination bears to a reasonable estimate of the probable Cost of the Work upon its completion;
.3 Subtract the aggregate of previous payments made by the Owner; and
.4 Subtract the costs and damages incurred, or to be incurred, by the Owner under Article 14 of AIA Document A201–2017.

§ 14.1.2.2 The Owner shall also pay the Contractor fair compensation, either by purchase or rental at the election of the Owner, for any equipment owned by the Contractor that the Owner elects to retain and that is not otherwise included in the Cost of the Work under Section 14.1.2.1.1. To the extent that the Owner elects to take legal assignment of subcontracts and purchase orders (including rental agreements), the Contractor shall, as a condition of receiving the payments referred to in this Article 14, execute and deliver all such papers and take all such steps, including the legal assignment of such subcontracts and other contractual rights of the Contractor, as the Owner may require for the purpose of fully vesting in the Owner the rights and benefits of the Contractor under such subcontracts or purchase orders.

§ 14.1.3 Termination by the Owner for Convenience

If the Owner terminates the Contract for convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of or method for determining the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

« »

§ 14.2 Suspension

The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017; in such case, the Guaranteed Maximum Price and Contract Time shall be increased as provided in Article 14 of AIA Document A201–2017, except that the term "profit" shall be understood to mean the Contractor's Fee as described in Article 5 and Section 6.4 of this Agreement.

ARTICLE 15 MISCELLANEOUS PROVISIONS

§ 15.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 15.2 The Owner's representative:
(Name, address, email address and other information)

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§ 15.3 The Contractor's representative:
(Name, address, email address and other information)

« »
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« »

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§ 15.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 15.5 Insurance and Bonds

§ 15.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A102™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 15.5.2 The Contractor shall provide bonds as set forth in AIA Document A102™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 15.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with a building information modeling exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with a building information modeling exhibit, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

« »

§ 15.7 Other provisions:

« »

ARTICLE 16 ENUMERATION OF CONTRACT DOCUMENTS

§ 16.1 This Agreement is comprised of the following documents:

.1 AIA Document A102™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A102™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 Building information modeling exhibit, dated as indicated below:
(Insert the date of the building information modeling exhibit incorporated into this Agreement.)

« »

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 16.

.8 Other Exhibits:
(Check all boxes that apply.)

[« »] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

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« »

[« »] The Sustainability Plan:

Title	Date	Pages

[« »] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

« »

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
« »« »	« »« »
(Printed name and title)	*(Printed name and title)*

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DRAFT

AIA® Document A201® – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)
« »
« »

THE OWNER:
(Name, legal status and address)
« »« »
« »

THE ARCHITECT:
(Name, legal status and address)
« »« »
« »

TABLE OF ARTICLES

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ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the

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portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

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§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

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§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

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§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- **.1** Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- **.2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- **.3** Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

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§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and

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completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

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§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

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§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

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§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- **.1** assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- **.2** assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the

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Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

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ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- **.1** The change in the Work;
- **.2** The amount of the adjustment, if any, in the Contract Sum; and
- **.3** The extent of the adjustment, if any, in the Contract Time.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- **.1** Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- **.2** Unit prices stated in the Contract Documents or subsequently agreed upon;
- **.3** Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- **.4** As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount

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for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

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§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or

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encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a separate contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

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§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

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§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

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§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- **.1** liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents; or
- **.3** terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- **.1** employees on the Work and other persons who may be affected thereby;
- **.2** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- **.3** other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

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§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

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§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- **.1** Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- **.2** Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- **.3** Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- **.4** Claims for damages insured by usual personal injury liability coverage;
- **.5** Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- **.6** Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- **.7** Claims for bodily injury or property damage arising out of completed operations; and
- **.8** Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

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§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment

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property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

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ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

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§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

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§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- **.3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

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.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

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ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- **.1** damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- **.2** damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

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§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

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§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

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SECTION 011100 - SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Description of Work
2. Definitions
3. Work Covered by Contract Documents
4. Contracts
5. Owner Furnished Products
6. Owner Provided Work
7. Allowances

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. The work of this project is shown on the Drawings and described in the various Sections of the Specification.

B. The Drawings and Specifications are complementary and what is required by any one shall be as binding as if required by all.

C. The Project consists of the following:

Renovations including architectural finishes, new doors, new ceiling, new lighting and electrical power throughout all affected areas, and the associated plumbing serving the plumbing fixtures indicated on the drawings. The contractor must perform a walk-through to determine the complete scope of work for inclusion in the bid.

1.03 DEFINITIONS

A. Furnish: Purchase and deliver to project site, ready for installation.

B. Install: Unpack, assemble, set in final position, fasten in place, make final connections, clean, adjust, and leave ready for use.

C. Provide: Furnish and install.

D. Receive: Accepting a delivery.

E. Final Connections: Complete plumbing, mechanical, and electrical connections as required and recommended by manufacturer for optimum operation of equipment.

F. Drawings, Use of: Do not scale the Drawings. If the Contractor chooses to calculate measurements by scaling the Drawings, it is at his own risk and is not considered to be an accurate measurement. The Contractor is responsible for the accuracy of measurements, elevations, lines, and grades of the Work.

1.04 QUALITY ASSURANCE

A. It is the intent of the Owner and the Project Manual to conform with the AMERICANS WITH DISABILITIES ACT OF 1991 and the American National Standard Institute's accessible and Usable Buildings and Facilities 2017 Standards (ANSI's ICC A117.1-2017).

1.05 CONTRACTOR USE OF PREMISES

A. General: Contractors shall limit their use of the premises to construction activities in areas indicated.

1. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

2. Keep driveways and entrances serving the premises clear and available to the Owner at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

B. Contractor shall assume full responsibility for protection and safe keeping of products whether delivered, stockpiled or installed under this Specification.

1.06 BIDDING CLASSIFICATION

A. This project shall be performed under the following Prime Contracts:

1. General Contract

1.07 STANDARD FORM OF CONTRACT BETWEEN OWNER AND CONTRACTOR

A. Contract Description: Construct the Work under the Contract as furnished by Owner.

1.08 OWNER FURNISHED PRODUCTS

A. Owner's Responsibilities:

1. Arrange for and deliver Owner reviewed Shop Drawings, Product Data, and Samples, to Contractor.

2. Coordinate scheduling of, and arrange and pay for Product delivery to site.

3. Submit claims for transportation damage and replace damaged, defective, or deficient items.

4. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:

1. Review Owner provided Shop Drawings, Product Data, and Samples. Provide "takeoff" when requested.

2. Coordinate scheduling, receive and unload Products at site; inspect for completeness or damage. Notify shipper and Owner of incomplete and damaged shipments.

3. Handle, store, install and finish Products.

4. Repair or replace items damaged after receipt.

C. See listing "Owner Furnished Products/Work to be Provided" in Owner/Contractor Agreement.

1.09 OWNER PROVIDED WORK

A. Owner's Responsibilities:

1. Arrange for Shop Drawings, Product Data and Samples, if requested by Contractor.

2. Coordinate scheduling of the Work.

B. Contractor's Responsibilities:

1. Review Owner reviewed Shop Drawings, Product Data, and Samples if necessary.

2. Coordinate schedule and provide supervision of the Work as Owner's on-site representative.

3. Provide access, use of utilities, vertical transportation, and trash dumpster.

C. See listing "Owner Furnished Products/Work to be Provided" in Owner/Contractor Agreement.

1.10 ALLOWANCES

A. Allowances include direct costs only. All costs for overhead, home office and site, and profit are included in the Base Bid.

B. See listing "Owner Furnished Products/Work to be Provided" in Owner-Contractor Agreement.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 011100

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SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 – PRODUCTS

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Add Alternate No. 1:
   1. Base Bid: Interior work for Restrooms, Kitchenette, Meeting Room; including all interior demolition, new work, fixtures & finishes. This shall include replacing the new double doors and single doors at the exterior exits.
   2. Add Alternate: Exterior Porch and new Entry roof resembling the existing at the single exit door.

END OF SECTION 012300

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Contract Modification Procedures:

a. Submittals

b. Documentation of Change in Contract Sum and Contract Time

2. Contract Modification Pricing Guidelines

3. Requests for Information and Supplemental Instructions

4. Change of Contract Procedures

5. Allowances

6. Construction Change Directive

7. Change of Contract:

a. Stipulated price change order

b. Unit price change order

c. Time and material change order

d. Execution of Change of Contract written orders

8. Correlation of Contractor Submittals

B. Related Sections:

1. Agreement: Monetary values of established unit prices and percentage allowances for Contractor's overhead and profit.

2. Section 01 33 00 (01330) - Submittals and Substitutions: Construction Progress Schedules and miscellaneous submittals.

3. Section 01 60 00 (01600) - Material and Equipment: Product options and substitutions.

4. Section 01 77 00 (01770) - Contract Closeout: Project Record Documents.

1.02 SUBMITTALS

A. Submit name of the individual authorized to receive change documents, and be responsible for informing others in Contractor's employ and Subcontractors of changes to the Work.

B. Change of Contract Forms: Furnished by Owner

1.03 DOCUMENTATION OF CHANGE IN CONTRACT SUM AND CONTRACT TIME

A. Maintain detailed records of work performed on a time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.

B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.

C. On request, provide additional data to support computations:

1. Quantities of products, labor, and equipment.

2. Taxes, insurance, and bonds.

3. Overhead and profit.
4. Justification for change in Contract Time.
5. Credit for deletions from Contract, similarly documented.

D. Support each claim for additional costs, and for work done, with additional information:
1. Origin and date of claim.
2. Dates and times work was performed, and by whom.
3. Time records and wage rates paid.
4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

1.04 REQUESTS FOR INFORMATION AND SUPPLEMENTAL INSTRUCTIONS

A. Definition: Requests for Information (RFI), is a formal process used during bidding and during construction to facilitate communication between the Contractor and the Architect with regard to requests for information and clarification of the intent of the Contract Documents.
1. Request for Information form may be used during bidding phase. Refer to Invitation to Bid and Instructions to Bidders.

B. Procedure:
1. Conditions Requiring Clarification of the Contract Documents: Submit a Request for Information to the Architect.
a. Submit Requests for Information from Contractor's office or field office only. Requests for Information submitted directly from subcontractors or suppliers will not be accepted.
b. Generate Requests for Information by one source per project and number accordingly.
c. Submit one request for information per form.
2. The Architect will review formal requests from the Contractor with reasonable promptness and the Contractor will be notified in writing of decisions made, via the RFI form.
a. The Architect’s response shall not be considered as a Change Order or Change Directive, nor does it authorize changes in the Contract Sum or Contract Time.
3. Maintain log of Requests for Information sent to, and responses from the Architect and Owner’s Representative.
4. Scheduling, Costing, and Owner Furnished Products/Work Coordination: Direct to the Owner's Representative.

C. RFI Form: Submit requests for information on attached Request for Information form, attached at end of this Section. The Architect will not respond to requests for information unless this format is utilized.
1. Where submittal form does not provide space needed for complete information, additional sheets may be attached.

1.05 CHANGE PROCEDURES

A. The Architect or Owner’s Representative will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Owner/Architect Agreement, and by issuing supplemental instructions on RFI form attached.

B. The Architect or Owner's Representative may issue a Proposal Request, Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications. Contractor will prepare and submit an estimate within 10 days.

C. The Contractor may propose a change by submitting a request for change to the Owner's Representative, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document requested substitutions in accordance with Section 01 33 00.

1.06 ALLOWANCES

A. Allowance Adjustment: For allowance-cost adjustment, base each Change of Contract Proposal on the difference between the actual purchase amount and the allowance, multiplied by the final measurement of work-in-place. Where applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in the purchase amount only where indicated as part of the allowance.

2. When requested, prepare explanations and documentation to substantiate the margins claimed.

3. The Owner reserves the right to establish the actual quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or the Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change of Contract authorizing work to proceed. The Owner will reject claims submitted later than 21 days.

1. Do not include the Contractor's or Subcontractor's indirect expense in the Change of Contract cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in Contract Documents.

2. No change to the Contractor's indirect expense is permitted for selection of higher or lower-priced materials or systems of the same scope and nature as originally indicated.

1.07 CORRELATION OF CONTRACTOR SUBMITTALS

A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change of Contract as a separate line item and adjust the Contract Sum.

B. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

C. Promptly enter changes in Project Record Documents.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

CONTRACTOR'S REQUEST FOR INFORMATION - RFI AND ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS

Date	# of Pages
To	From
Co.	Co.
Phone #	Phone #
Fax #	Fax #

Project: _____ **RFI No.:** _____

Owner: _____ **Date of Request:** _____

To: _____ **Contractor:** _____

(Architect's Representative)

Project No.: _____ **Contractor's Representative:** _____

Architect's Fax No.: _____ **Fax No.:** _____

Information Requested: (Re: Specification Section/Drawing/Detail Number)

Requested by: _____

Architect's Supplemental Instructions:

Attachments:

Reply By: _____

The Work shall be carried out in accordance with these supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Prior to proceeding with these instructions, indicate acceptance of these instructions below Work as consistent with the Contract Documents and return a copy to the Architect.

Supplemental Instructions Issued:

By: _____
Architect **Date**

Supplemental Instructions Accepted:

By: _____
Contractor **Date**

Cc: ☐ **Owner** ☐ **Architect** ☐ **Consultant** ☐ **Contractor** ☐ **Field** ☐ **Other:** _____

END OF SECTION 012600

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Coordination
2. Administrative Procedures
3. Meetings:
    a. Pre-construction Meetings
    b. Progress Meetings
    c. Preinstallation Meetings
4. Coordination Drawings
5. General Installation Provisions
6. Cleaning and Protection

B. Related Sections:

1. Section 01 71 23 (01720) - Field Engineering
2. Section 01 73 29 (01730) - Cutting and Patching

1.02 COORDINATION:

A. Coordinate construction activities included in various Sections of these Specifications to assure efficient and orderly installation of each component. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.

B. Where installation of one component depends on installation of other components before or after its own installation, schedule activities in the sequence required to obtain the best results.

C. Coordinate installation of different components to assure maximum accessibility for maintenance, service and repair.

D. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

E. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

G. Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.

H. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

I. Make provisions to accommodate items scheduled for later installation.

1.03 ADMINISTRATIVE PROCEDURES

A. Prepare memoranda for distribution to each party involved outlining required coordination procedures. Include required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

B. Coordinate scheduling and timing of administrative procedures with other activities to avoid conflicts and ensure orderly progress. Such activities include:

1. Preparation of Schedules
2. Installation and Removal of Temporary Facilities
3. Delivery and Processing of Submittals
4. Progress Meetings
5. Project Closeout Activities

C. Staff Names: Within 15 days of Notice to Proceed, submit a list of Contractor's staff assignments, including Superintendent and personnel at the site; identify individuals, their duties and responsibilities, addresses and telephone numbers.

1.04 PRE-CONSTRUCTION MEETING

A. Refer to General Conditions, Article 15, for requirements.

B. Agenda:

1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of lists of Subcontractors, Products, Schedule of Values, and Progress Schedule.
5. Designation of personnel representing the parties in Contract.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.

C. Record minutes and distribute copies within one day after meeting faxed to participants, with one copy to Architect, Owner, participants, and those affected by decisions made.

1.05 PROGRESS MEETINGS

A. Refer to General Conditions, Article 15, for requirements.

B. Agenda:

1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems which impede planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.

8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to Work.

1.06 PRE-INSTALLATION MEETINGS

A. When required in individual specification sections, convene a pre-installation meeting at work site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:

1. Review conditions of installation, preparation and installation procedures.
2. Review coordination with related work.

E. Record minutes and distribute copies within one day after meeting faxed to participants, with one copy to Architect, Owner, participants, and those affected by decisions made.

1.07 COORDINATION DRAWINGS:

A. Prepare Coordination Drawings where close coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space necessitates maximum utilization of space for efficient installation of different components.

1. Show relationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.
3. Refer to Division 22 Section "Common Work Results for Plumbing", Division 23 Section "Common Work Results for HVAC", and Division 26 Section "Common Work Results for Electrical", for requirements for plumbing, mechanical and electrical installations.

PART 2 **PRODUCTS**

Not Used

PART 3 **EXECUTION**

3.01 INSPECTION OF CONDITIONS: The installer of each component shall inspect the substrate and conditions under which work is performed. Do not proceed until unsatisfactory conditions have been corrected.

A. Verification of Conditions:

1. Verify that existing conditions, surfaces, and substrates are acceptable for subsequent Work.
2. Verify that field measurements, are as required to receive subsequent Work.
3. Verify that existing substrate is capable of structural attachment of new Work being applied or attached.
4. Examine and verify specific conditions described in individual specification sections.
5. Verify that utility services are available, of the correct characteristics, and in the correct location.

B. Report in writing to the Architect and Owner's Representative prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to Owner.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply any manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 MANUFACTURER'S INSTRUCTIONS: Comply with the manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

A. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

B. Provide attachment and connection devices and methods necessary for securing work. Secure work true to line and level. Allow for expansion and building movement.

3.04 VISUAL EFFECTS: Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

3.05 Recheck measurements and dimensions before starting each installation.

3.06 Install each component during weather conditions and project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

3.07 ENCLOSURE OF THE WORK: Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

3.08 MOUNTING HEIGHTS: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.09 CLEANING AND PROTECTION: During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

A. Clean and maintain completed construction as often as necessary through the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

B. Limiting Exposures: Supervise operations to ensure that no part of construction, completed or in progress, is subject to harmful or deleterious exposure. Such exposures include, but are not necessarily limited to, the following:

1. Excessive Weathering
2. Excessively High or Low Temperatures or Humidity
3. Water or Ice
4. Chemicals or Solvents
5. Heavy Traffic, Soiling, Staining and Corrosion
6. Contact Between Incompatible Materials

7. Theft or Vandalism
8. Excessive Static or Dynamic Loading
9. Thermal Shock
10. Combustion

END OF SECTION 013100

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SECTION 013300 - SUBMITTAL AND SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Wherever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by manufacturer's name and catalog number or reference to recognized industry standards.

2. To ensure that the specified products are furnished and installed in accordance with the design intent, procedures have been established for advance submittal of design data for its review and approval or rejection by the Architect.

3. This Section specifies administrative and procedural requirements for submittals required for performance of the work, including:

a. Contractor's Progress Schedule

b. Shop Drawings, Product Data, and Samples

c. Letters of Conformance

d. Certificates

e. Manufacturer Installation Instructions

4. Substitution Procedures

5. Manuals

6. Miscellaneous Submittals

B. Related Documents:

1. Letter of Conformance Form

2. Contractor’s Substitution Request Form

C. Related Sections:

1. Contractual Requirements for Submittals: General Conditions

a. Two (2) copies of all Submittals, plus number of copies to be returned to Contractor, shall be submitted unless otherwise specified.

b. Provide additional copies as required for use in Project Record Documents.

2. Section 01 77 00 (01770) - Contract Closeout

3. Individual Submittals Required: Pertinent Sections of these Specifications.

1.02 SUBMITTALS

A. Coordination: Coordinate preparation and processing of Submittals with performance of construction activities. Transmit each Submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each Submittal with fabrication, purchasing, testing, delivery, other Submittals and related activities that require sequential activity.

2. Coordinate transmittal of different types of Submittals for related elements of the work so processing will not be delayed by the need to review Submittals concurrently for coordination.

a. The Architect reserves the right to withhold action on a Submittal requiring coordination with other Submittals until related Submittals are received.

b. No extension of Contract Time will be authorized because of failure to transmit Submittals to the Owner's Representative sufficiently in advance of the work to permit processing.

B. Deliver Submittals to the Architect

C. Submittal Preparation: Place a permanent label or title block on each Submittal for identification. Indicate the name of the entity that prepared each Submittal on the label or title block.

1. Provide a space approximately 10" x 10" on the label or beside the title block on Shop Drawings to record the Contractor's and Architect review and approval markings and the action taken.

2. Include the following information on the label for processing and recording action taken:

a. Project Name

b. Name of the Owner

c. Date

d. Name and Address of Architect

e. Name and Address of Contractor

f. Name and Address of Subcontractor or Vendor

g. Location Where Item is to be Used

h. Name of Manufacturer

i. Drawing Number and Detail References, as Appropriate

j. Certification by the Contractor

D. Submittal Transmittal: Package each Submittal appropriately for transmittal and handling. Transmit each Submittal from Contractor to Architect. Submittals received from sources other than the Contractor will be returned without action.

1. Transmit each submittal to the Architect with "AIA Document G810 - Transmittal Letter" and "Letter of Conformance".

2. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

3. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.

4. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

5. After Architect's review of Submittal, revise and resubmit as required, identifying changes made since previous Submittal.

6. When re-submittal is required for any reason, transmit under new letter of transmittal, indicating by reference to a previous Submittal that this is a re-submittal.

a. Identify on submittal all changes made since previous submission.

7. Distribute copies of reviewed Submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.

8. All Submittals shall bear the stamp of approval of the Contractor submitting same as evidence that they have been checked by him, or they will be rejected.

   a. Must be signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

9. Schedule submittals to expedite the Project, and deliver to Architect. Coordinate submission of related items. Instruct parties to promptly report any inability to comply with provisions.

1.03 PROGRESS SCHEDULES

A. Submit initial Construction Progress Schedule in duplicate within 15 days after date of Owner-Contractor Contract. Submit in the form required by the General Conditions of the Contract.

B. Revise and resubmit as required.

C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

1.04 LETTERS OF CONFORMANCE

A. Letter of Conformance: Short-form informational submittals which are to be used instead of shop drawings, product data and samples. They are also to be used to supplement shop drawings, product data and samples. A sample "Letter of Conformance" is located at the end of this Section. Use copies of this form for each submittal unless a more specific Letter of Conformance is located at the end of a particular Specification Section.

B. Within 30 days after date of Owner-Contractor Agreement, submit all Letters of Conformance indicating Contractor's selections for products proposed for use, with name of manufacturer, trade name, and model number of each product. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

C. Procedure:

1. Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Architect.

2. Submit completed Letter of Conformance for products selected as indicated within each Section.

3. Fill-in required information on form and sign in ink by person authorized to sign on behalf of the Contractor.

4. Clearly identify applicable products, characteristics, models, and options. Attach supplemental information including product data to each Letter of Conformance as necessary to communicate all information specific to the product.

5. No modifications to form permitted.

6. Letters of Conformance are not to be used for substitution requests.

D. By submitting a Letter of Conformance, Contractor declares that the product identified by manufacturer's name and model number:

1. Is one of the product(s) specified

2. Is suitable for the intended use as defined within the Contract Documents, and

3. Will be provided and placed in operational condition in accordance with the Contract Documents and manufacturer's published instructions.

1.05 SHOP DRAWINGS

A. Where Shop Drawings are required, submit newly prepared information drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

B. Shop Drawings shall be drawn at a scale to clearly indicate all of the above conditions and allow for corrections or modifications which the Architect may wish to make. The Architect shall be the sole judge as to the acceptability of manufacturer's literature and catalog sheets as Shop Drawings.

C. Shop Drawings shall clearly indicate all dimensional data for all parts of the item; types and materials for all connections; finishes; the exact relation of the item to adjacent materials and equipment in the completed structure including clearance, any necessary isolation, and fastening methods and devices; and mechanical and electrical connections.

D. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates, and similar Drawings. Include the following information:

1. Dimensions

2. Identification of Products and Materials Included

3. Compliance with Specified Standards

4. Notation of Coordination Requirements

5. Notation of Dimensions Established by Field Measurement

E. Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11", but no larger than 36" x 48".

F. Submit in the form of one reproducible transparency and one opaque reproduction, or three opaque reproductions plus required amount to be returned to Contractor. After review, reproduce and distribute to appropriate parties.

G. Do not permit Shop Drawing copies, without an appropriate final "Action" marking by the Architect, to be used in connection with the work.

H. The Contractors shall be responsible for distribution of additional prints to vendors, etc.

1.06 PRODUCT DATA

A. Where Product Data is required, collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

a. Manufacturer's Printed Recommendations

b. Compliance with Recognized Trade Association Standards

c. Compliance with Recognized Testing Agency Standards

d. Application of Testing Agency Labels and Seals

e. Notation of Dimensions Verified by Field Measurement

f. Notation of Coordination Requirements

g. Type and Model Numbers

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

B. Distribution: Furnish copies of final Submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

1. Do not proceed with installation until a copy of Product Data applicable is in the installer's possession.

2. Do not permit use of unmarked copies of Product Data in connection with construction.

1.07 SAMPLES

A. Where Samples are required, submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, full color-range sets, and swatches showing color, texture, and pattern.

1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Include the following:

a. Generic Description of the Sample

b. Sample Source

c. Product Name or Name of Manufacturer

d. Compliance with Recognized Standards

e. Availability and Delivery Time

2. Colors:

a. General: Unless the precise color and pattern is specifically described in the Contract Documents, whenever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to the Architect for his review and selection.

3. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between the final Submittal and the actual component as delivered and installed.

a. Where variation in color, pattern, texture, or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3) that show approximate limits of the variations.

b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample Submittals.

4. Preliminary Submittals: Where Samples are for selection of color, pattern, texture, or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

    a. Preliminary Submittals will be reviewed and returned with the Architect's mark indicating selection and other action.

5. Maintain sets of Samples, as returned, at the Project site for quality comparisons throughout the course of construction.

    a. Unless noncompliance with Contract Document provisions is observed, the Submittal may serve as the final Submittal.

    b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

B. Distribution of Samples: Prepare and distribute additional sets to Subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the work.

1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the work will be judged.

    a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.08 CERTIFICATES

A. When specified in individual specification sections, submit certification by manufacturer to Architect, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect.

1.09 MANUFACTURER INSTALLATION INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing to Architect.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

PART 2 PRODUCTS

2.01 SUBSTITUTIONS

A. Source Limitations: To the greatest extent possible for each unit of work, provide products, materials, or equipment of a singular generic kind from a single source.

B. Compatibility of Options: Where more than one choice is available as options for Contractor's selection of a product or materials, select an option which is compatible with other products and materials already selected (which may have been from among options for those other products and materials). Total compatibility among options, if not assured by limitations within contract documents, must be provided by Contractor. Compatibility is a basic general requirement of product/material selections.

C. Owner's Approval Required:

1. In addition to the following, refer to the General Conditions, Article 4, for additional requirements.

2. The Contract is based on the materials, equipment, and methods described in the Contract Documents.

3. The Contract Drawings and Specifications establish the "minimum standard of quality" each product and/or system must meet to be considered acceptable. Products of other manufacturers will be considered if the product and/or system meets or exceeds the "minimum standard of quality" established by the Contract Documents.

4. The Owner will consider proposals for substitutions under the "or approved substitution" and the "or approved equal" provision of materials, equipment, and methods, only when such proposals are accompanied by full and complete technical data and all other information required by the Owner and Architect to evaluate the proposed substitutions.

   a. It will be the responsibility of the submitting Contractor to prove equality.

   b. Request must include “Contractor’s Substitution Request” Form, a copy of which is attached to this Section.

   c. The Submittal shall include a line-by-line, item-by-item description of the specified and proposed product.

5. Requests for substitutions must be submitted to the Architect NO later than 60 days after date of Owner-Contractor Agreement.

6. DO NOT SUBSTITUTE MATERIALS, EQUIPMENT, OR METHODS UNLESS SUCH SUBSTITUTIONS HAVE BEEN SPECIFICALLY APPROVED FOR THIS WORK IN WRITING.

D. "Or Approved Equal" or "Or Approved Substitution"

1. Where the phrase "or approved equal" or "approved substitution" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved as equal by the Owner and Architect unless the item has been specifically approved for this work by the Owner.

   a. Color choices will be one of the determining factors for approval.

2. The decision of the Owner will be final.

E. Availability of Specified Items:

1. Verify prior to bidding that all specified items will be available in time for installation during orderly and timely progress of the work.

2. In the event specified item or items will not be so available, so notify the Architect prior to the receipt of Bids.

3. Costs of delay caused on non-availability of specified items, when such delays could have been avoided by the Contractor, will be back-charged as necessary and shall not be borne by the Owner.

F. Whenever the Contractor secures approval for changing any items and such change involves a corresponding change or adjustment in any adjacent or related item, the responsibility for making the required change, or seeing that it is made, rests with the Contractor. The cost of these changes and/or adjustments shall be paid for by the Contractor unless it is otherwise agreed, in writing, at the time the change is approved. The acceptance of any change will not, in any way, relieve the Contractor from full compliance with the Contract Documents.

2.02 MANUALS

A. General: Where Manuals are required to be submitted covering items included in this work, prepare all such Manuals in durable plastic binders approximately 8-1/2 x 11 inches in size with at least the following:

1. Identification on or readable through the front cover stating the general nature of the Manual.
2. Neatly typewritten index near the front of the Manual furnishing immediate information as to location of all emergency data regarding the installation.
3. Complete instructions regarding operating and maintenance of all equipment involved.
4. Complete nomenclature of all replaceable parts, their part numbers, current cost, and name and address of nearest vendor of parts.
5. Copy of all guarantees and warranties issued.
6. Copy of approved Shop Drawing(s) with all data concerning all changes made during construction

2.03 MISCELLANEOUS SUBMITTALS

A. Inspection and Test Reports Not Performed by Owner: Classify each inspection and test report as being either "Shop Drawings" or "Product Data" depending on whether the report is specially prepared for the project or a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.

PART 3 EXECUTION

3.01 COORDINATION OF SUBMITTALS

A. General: Prior to submittal for Architect's review, use all means necessary to fully coordinate all material, including the following:

1. Secure all necessary approvals from public agencies and others. Signify by stamp or other means that all required approvals have been obtained.
2. Clearly indicate all deviations from the Contract Documents.

B. The General Contractor shall submit a prioritized tabulation by date of Submittals required during the first 90 days of construction. List those Submittals required to maintain orderly progress of the work, and those required early because of long lead time for manufacture or fabrication.

1. These dates may be shown on Construction Project Schedule at Contractor's option.

3.02 TIMING OF SUBMITTALS

A. General

1. Make all Submittals enough in advance of scheduled dates for installation to provide all required time for reviews for securing necessary approvals, for possible revision and Resubmittals, and for placing orders and securing delivery.
2. In scheduling, allow a minimum of fourteen (14) full calendar days for the Architect’s initial review following receipt of the Submittals. Allow additional time if the Architect requires coordination with subsequent Submittals.
    a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related Submittals are received.
    b. If an Intermediate Submittal is necessary, process the same as the initial Submittal. Allow fourteen (14) calendar days for reprocessing each Submittal.

LETTER OF CONFORMANCE

PROJECT: _____ PROJECT NO.: _____

CITY: _____ STATE: _____

CONTRACTOR: _____

The following product(s) has been selected for use in the above referenced project from the list of specified items.

Section Number: _____ Section Name: _____

Drawing Number(s): _____ Detail Number(s): _____

SPECIFIED ITEM TO BE USED:

_____

_____

_____

Statement of Conformance:

This Letter of Conformance is provided as a Submittal for Information in accordance with Section 01 33 00 - Submittals and Substitutions. The undersigned hereby declares that the Product identified above by manufacturer's name and model number is (one of) the product(s) specified and is suitable for the intended use as defined within the Contract Documents and will be provided and placed in operational condition in accordance with the manufacturer's published instructions and the Contract Documents.

SUBCONTRACTOR/SUPPLIER:

_____ Phone Number: ( ) _____

(Contact name of subcontractor/supplier offering above product)

_____

(Subcontractor / Supplier name and address)

CONTRACTOR:

_____ _____

(Contact name of Contractor) (Contractor signature and Title of Signatory)

CONTRACTOR'S SUBSTITUTION REQUEST

(Use separate form for each request)

Date: _____ Request No.: _____

TO: [Architect] _____
Phone: _____ Fax: _____

PROJECT: _____ Project No.: _____
CONTRACTOR _____

SPECIFIED ITEM: _____
Section: _____ Page: _____ Paragraph: _____ Description: _____
Drawing Number(s): _____ Detail Number(s): _____
The undersigned request consideration of the following:
PROPOSED SUBSTITUTION: _____

REASON FOR NOT GIVING PRIORITY TO SPECIFIED ITEMS: _____

SAVINGS or CREDIT to OWNER for ACCEPTING SUBSTITUTE: $ _____

Attached data includes description, Specifications, Drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments, are correct:

1. Proposed substitution has been fully checked and coordinated with the Contract Documents.
2. The proposed substitution does not affect dimensions shown on Drawings.
3. The proposed substitution does not require revisions to mechanical or electrical work.
4. The undersigned will pay for changes to the building design, including architectural and engineering design, detailing, and construction costs caused by the requested substitution.
5. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements.
6. Maintenance and service parts will be locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item.

Attachments: The attached data is furnished herewith for evaluation of the proposed substitution.
☐ Catalog ☐ Drawings ☐ Samples ☐ Reports ☐ Tests ☐ Other: _____
Submitted by:

_____ _____
(Firm) (Authorized Legal Signature)

_____ ( ) _____
(Address) (Telephone)

For use by the Architect: ☐ Accepted ☐ Accepted as Noted ☐ Rejected: Submit Specified Item
BY: _____
(Authorized Signature)

Date: _____ Remarks: _____

END OF SECTION 013300

SECTION 014219 - REFERENCE STANDARDS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Reference Standards

1.02 QUALITY ASSURANCE

A. Conflicting Requirements: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the Architect for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum with reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the Architect and Owner's Representative for a decision before proceeding.

1.03 INDUSTRY STANDARDS

A. Reference Standards

1. Conform with the provisions or standards referenced in the sections of the Specifications with the same force and effect as if the Standards referenced were bound or copied directly into the section, except that:

a. Conform with more stringent provisions when contained elsewhere in the Contract Documents; and

b. Conform with the more stringent provision when two or more Standards are referenced; and

c. Conform with the more stringent provision when the Standard referenced and the governing regulations differ unless the governing regulation require conformance to the less stringent provision without exception.

2. Submit for clarification and conform to the decision of the Architect when the Standard referenced:

a. Presents options which have not specifically been selected in the Contract Documents; or

b. Contain provisions which conflict with other provisions in the Contract Documents; or

c. It is uncertain or not clear which of differing provisions is the more stringent.

3. Conform to the provisions of the most recent issue of the Standard referenced as of the date of the Contract Documents.

B. Abbreviations and Acronyms of Organizations

1. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-producing organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Gale Research's

"Encyclopedia of Associations" or Columbia Books' "National Trade and Professional Associations of the U.S.," which are available in most libraries.

2. The names, addresses, and telephone numbers given in the List of Organizations are subject to change and are believed to be, but are not assured to be, accurate and up to date as of the issue date of this Section.

3. List of Organizations: Certain Standards issued by the following organizations may be referenced in the Specifications. Copies may be obtained from the issuing organization.

AA	The Aluminum Association, Inc. 1525 Wilson Blvd, Suite 600 Rossyln, Arlington, VA 22209	(703) 358-2967 www.aluminum.org
AABC	Associated Air Balance Council 1518 K St., NW Washington, DC 20005	(202) 737-0202 www.aabchq.com
AAMA	American Architectural Manufacturer's Association 1827 Walden Office Sq., Suite 550 Schaumburg, IL 60173	(847) 303-5664 www.aamanet.org
AASHTO	American Association of State Highway and Transportation Officials 444 Capitol St., Suite 249 Washington, DC 20001	(202) 624-5800 www.transportation.org
AATCC	American Association of Textile Chemists and Colorists P O Box 12215 Research Triangle Park, NC 27709	(919) 549-8141 AATCC
ACI	American Concrete Institute 38800 Country Club Drive Fumington Hills, MI 48331	(248) 848-3700 www.aci-int.org
ACMA	American Composites Manufacturers Association 1010 North Glebe Rd, Suite 450 Arlington, VA 22201	(703) 525-0511 ACMA
ACPA	American Concrete Pipe Association 1303 West Walnut Hill Lane, Suite 305 Irving, TX 75038-3008	(972) 506-7216 www.concrete-pipe.org
ADC	Air Diffusion Council 1901 N. Roselle Road, Suite 800 Schaumburg, IL 60195	(847) 706-6750 www.flexibleduct.org/
AFPA	American Forest & Paper Association 1111 Nineteenth Street, NW, Suite 800 Washington, DC 20036	(800) 878-8878 AFPA
AF&PA	American Wood Council 1111 Nineteenth Street, NW, Suite 800 Washington, DC 20036	(202) 463-2766 AF&PA
AGA	American Gas Association 400 North Capitol St. NW, Suite 450 Washington, DC 20001	(202) 824-7000 www.aga.org
AGC	Associated General Contractors of America	(703) 548-3118

	2300 Wilson Blvd., Suite 400 Arlington, VA 22201	AGC
AHA	American Hardboard Association 1210 W. Northwest Hwy Palatine, IL 60067-1897	(847) 934-8803 domensino.com/AHA
AHAM	Association of Home Appliance Manufacturers 1111 19th Street NW, Suite 402 Washington, DC 20036	(202) 872-5955 www.aham.org
AI	Asphalt Institute 2696 Research Park Dr. Lexington, KY 40511	(859) 288-4960 www.asphaltinstitute.org
AIA	The American Institute of Architects 1735 New York Ave., NW Washington, DC 20006-5292	(202) 626-7492 www.aia.org
AIA	American Insurance Association 2101 L Street NW, Suite 400 Washington, DC 20037	(202) 828-7100 www.aiadc.org
AIMCAL	Association of Industrial Metallizers, Coaters and Laminators 201 Springs Street Fort Mill, SC 29715	(803) 802-7820 AIMCAL
AISC	American Institute of Steel Construction One East Wacker Dr., Suite 700 Chicago, IL 60601-1802	(312) 670-2400 www.aisc.org
AISI	American Iron and Steel Institute 1140 Connecticut Avenue NW #705 Washington, DC 20036	(202) 452-7100 www.steel.org
ALI	Associated Laboratories, Inc. P.O. Box 152837 1323 Wall St. Dallas, TX 75215	(214) 565-0593
ALSO	American Lumber Standards Committee 19715 Waters Road Germantown, MD 20874	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. 30 W. University Dr. Arlington Heights, IL 60004-1893	(847) 394-0150 www.amca.org
ANSI	American National Standards Institute 25 West 43rd Street, 4th Floor New York, NY 10036	(212) 642-4900 www.ansi.org/
APA	APA-The Engineered Wood Association (Formerly: American Plywood Association) 7011 S. 19th Street Tacoma, WA 98466-5333	(253) 565-6600 www.apawood.org
APA	Architectural Precast Association 6710 Winkler Road Fort Myers, FL 33919	(239) 454-6989 www.archprecast.org

AQMD	South Coast Air Quality Management District 21865 Copley Dr Diamond Bar, CA 91765	(909) 396-2000 AQMD
ARI	Air-Conditioning, Heating and Refrigeration Institute 2111 Wilson Blvd., Suite 500 Arlington, VA 22201	(703) 524-8800 www.ari.org
ARMA	Asphalt Roofing Manufacturer's Association 750 National Press Building 529 14th Street, NW Washington, DC 20045	(202) 207-0917 ARMA
ASA	Acoustical Society of America 2 Huntington Quadrangle Melville, NYU 11747-4502	(516) 576-2360 asa.aip.org
ASC	Adhesive and Sealant Council 7101 Wisconsin Ave., Suite 990 Bethesda, MD 20814	(202) 452-1500 www.ascouncil.org
ASCE	American Society of Civil Engineers World Headquarters 1801 Alexander Bell Dr. Reston, VA 20191-4400	(800) 548-2723 (703) 295-6000 www.asce.org
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers 1791 Tullie Circle, NE Atlanta, GA 30329-2305	(800) 527-4723 (404) 636-8400 www.ashrae.org
ASLA	American Society of Landscape Architects 636 Eye Street NW Washington, DC 20001-3736	(202) 898-2444 www.asla.org
ASME	American Society of Mechanical Engineers Three Park Avenue New York, NY 10016-5990	(800) 434-2763 www.asme.org
ASPA	Turfgrass Producers International Formerly: American Sod Producers Association 2 East Main Street East Dundee, IL 60118	(847) 649-5555 ASPA
ASPE	American Society of Plumbing Engineers 8614 Catalpa Avenue, Suite 1007 Chicago, IL 60656-1116	(773) 693-2773 aspe.org
ASSE	American Society of Sanitary Engineering 901 Cantebury Road, Suite A Westlake, OH 44145	(440) 835-3040 www.asse-plumbing.org
ASTM	American Society for Testing and Materials 100 Barr Harbor Dr., PO Box C700 West Conshohocken, PA 19428-2959	(610) 832-9500 www.astm.org
AWCI	Association of the Wall and Ceiling Industry 513 West Broad Street, Suite 210 Falls Church, VA 22046	(703) 538-1600 AWCI
AWI	Architectural Woodwork Institute	(571) 323-3636

	46179 Westlake Drive, Suite 120 Potomac Falls, VA 20165	www.awinet.org
AWPA	American Wood Protection Association 100 Chase Park South, Suite 116 Birmingham, AL 35244-1851	(205) 733-4077 www.awpa.com
AWS	American Welding Society 550 NW Leleune Rd. Miami, FL 33126	(800) 443-9353 (305) 443-9353 www.aws.org/
AWWA	American Water Works Association 6666 W. Quincy Ave. Denver, CO 80235	(800) 926-7337 (303) 794-7711 www.awwa.org
BHMA	Builders Hardware Manufacturers Association 355 Lexington Ave., 15th Floor New York, NY 10017	(212) 297-2122 www.buildershardware.com
BIA	Brick Institute of America 1850 Centennial Park Dr., #301 Reston, VA 20191	(703) 620-0010 www.bia.org
CAGI	Compressed Air and Gas Institute 1300 Sumner Ave. Cleveland, OH 44115-2851	(216) 241-7333 www.cagi.org
CDA	Copper Development Association 260 Madison Avenue, 16th Floor New York, NY 10016	(212) 251-7200 CDA
CFFA	Chemical Fabrics and Film Association 1300 Sumner Avenue Cleveland, Ohio 44115-2851	(216) 241-7333 CFFA
CGA	Compressed Gas Association 4221 Walney Road, 5th Floor Chantilly, VA 20151	(703) 788-2700 www.cganet.com
CISCA	Ceilings & Interior Systems Construction Association 405 Illinois Avenue, Unit 2B St. Charles, IL 60174	(630) 584-1919 CISCA
CISPI	Cast Iron Soil Pipe Institute 5959 Shallowford Rd., Suite 419 Chattanooga, TN 37421	(423) 892-0137 www.cispi.org
CFLMI	Chain Link Fence Manufacturers Institute 10015 Old Columbia Road, Suite B-215 Columbia, MD 21046	(301) 596-2583 CLFMI
CPA/CWC	Composite Panel Association/Composite Wood Council 10465 Deerfield Avenue, Suite 306 Leesburg, VA 20176	(703) 724-1128 CPA/CWC
CPPA	Corrugated Polyethylene Pipe Association 432 N. Superior St. Toledo, OH 43604	(800) 510-2772 (419) 241-2221
CPSC	U.S. Consumer Product Safety Commission 4330 East West Highway	(301) 504-7923 CPSC

	Bethesda, MD 20814	
CRI	Carpet and Rug Institute 730 College Drive Dalton, GA 30720	(706) 278-3176 www.carpet-rug.com
CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Rd. Schaumburg, IL 60173-4758	(847) 517-1200 (800) 328-6306 www.crsi.org
CSA	Canadian Standards Association 5060 Spectrum Way Mississauga, Ontario L4W 5N6 Canada	(416) 747-4000 CSA
CSI	Cast Stone Institute 813 Chestnut Street, PO Box 68 Lebanon, PA 17042	(717) 272-3744 CSI
CSSB	Cedar Shake & Shingle Bureau #2 – 7101 Horne Street Mission, BC V2V 7A2 Canada	(604) 820-7700 CSSB
CTIOA	Ceramic Tile Institute of America 12061 West Jefferson Blvd. Culver City, CA 90230-6219	(310) 574-7800 www.ctioa.org
DHI	Door and Hardware Institute (Formerly: National Builders Hardware Association) 14150 Newbrook Dr. Chantilly, VA20151	(703) 222-2010 www.dhi.org
DIPRA	Ductile Iron Pipe Research Association 245 Riverchase Pkwy East, Suite O Birmingham, AL 35244	(205) 402-8700 www.dipra.org
EIA/TIA	EIA/TIA Standards and Technology 2500 Wilson Blvd. Arlington, VA 22201	(703) 907-8024 www.eia.org
EIMA	EIFS Industry Members Association 3000 Corporate center Drive, #270 Morrow, GA 30260	(800) 294-3462 www.eima.com
EJMA	Expansion Joint Manufacturers Association 25 N. Broadway Tarrytown, NY 10591	(914) 332-0040 www.ejma.org
FCI	Fluid Controls Institute 1300 Sumner Ave. Cleveland, OH 441 15-2851	(216) 241-7333 FCI
FCICA	The Flooring Contractors Association 7439 Millwood Drive West Bloomfield, MI 48322	(248) 661-5015 www.fcica.com
FM	Factory Mutual Research Corporation 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062-9102	(781) 762-4300 www.fmglobal.com
FMG	FM Global	(401) 275-3000

	Factory Mutual Insurance Company 1301 Atwood Avenue P O Box 7500 Johnston, RI 02919	FMG
FTC	Federal Trade Commission 600 Pennsylvania Ave., NW Washington, DC 20580	(202) 326-2222 FTC
FSC	Forest Stewardship Council International Charles de Gaulle Str. 5 53113 Bonn, Germany	49 (0) 228 367 66 0 FSC
GA	Gypsum Association 6525 Belcrest Road #480 Hyattsville, MD 20782	(301) 277-8686 www.gypsum.org
GANA	Glass Association of North America 2945 SW Wanamaker Drive, Suite A Topeka, KS 66614	(785) 271-0208 www.glasswebsite.com
GS	Green Seal, Inc. 1001 Connecticut Avenue, NW, Suite 827 Washington, DC 20036-5525	(202) 872-6400 GS
HI	Hydraulic Institute 6 Campus Drive, First Floor North Pusippuny, NJ 07054	(973) 267-9700 www.pumps.org
AHRI	Hydronics Institute (merged with AHRI 2008) (Division of Gas Appliance Manufacturers Association) 2111 Wilson Blvd., Suite 500 Arlington, VA 22201	(908) 464-8200 Hydronics Institute
HMA	Hardwood Manufacturers Association (Formerly: Southern Hardwood Lumber) Manufacturers Association) 400 Penn Center Blvd., Suite 530 Pittsburgh, PA 15235-5605	(800) 373-WOOD (9663) www.hardwood.org
HPVA	Hardwood Plywood and Veneer Association 1825 Michael Farraday Dr. Reston, VA 20190	(703) 435-2900 www.hpva.org
ICC	International Code Council 500 New Jersey Avenue, NW, 6th Floor Washington, DC 20001-2070	(888) 422-7233 ICC
ICC-ES	International Council Evaluation Service Inc. 5360 Workman Mill Road Whittier, CA 90601	(562) 699-0543 ICC-ES
ICEA	Insulated Cable Engineers Association, Inc. P.O. Box 1569 Carrollton, GA 30117	(770) 830-0369 www.icea.net
ICRI	International Concrete Repair Institute 3166 S. River Road, Suite 132 Des Plaines, IL 60018	(847) 827-0830 ICRI
IEEE	Institute of Electrical and Electronics Engineers	(800) 678-4333

	3 Park Avenue, 17th Floor New York, NY 10016	(212) 419-7900 www.ieee.org
IESNA	Illuminating Engineering Society of North America 120 Wall St., 17th Floor New York, NY 10005-4001	(212) 248-5000 www.iesna.org
IGCC	Insulating Glass Certification Council, Inc. P O Box 730 Sackets Harbor, NY 13685	(315) 646-2234 IGCC
IGMA	Insulating Glass Manufacturers Alliance 27 N. Wacker Drive, Suite 365 Chicago, IL 60606-2800	(613) 233-1510 IGMA
IIDA	International Interior Design Association 222 Merchandise Mart, Suite 567 Chicago, IL 60654	(888) 799-4432 www.iida.com
ILI	Indiana Limestone Institute of America	ILI
INCE	Institute of Noise Control Engineering of the USA 9100 Purdue Road, Suite 200 Indianapolis, IN 46268	(317) 735-4063 www.inceusa.org
ISA	ISA - International Society for Measurement and Control 67 Alexander Dr. Research Triangle Park, NC 27709	(919) 549-8411 www.isa.org
ISO	International Organization for Standardization 1 ch. De la Voie-Creuse Case Postale 56 CH-1211 Geneva 20, Switzerland	+41 22 749 01 11 ISO
ISSFA	International Solid Surface Fabricators Association 910 W. State Street, Unit 1 Lehi, UT 84043	(877) 464-7732 ISFA
ITS	Intelligent Transportation Systems Research and Innovative Technology Administration (RITA) 1200 New Jersey Avenue, S.E Washington, DC 20590	(800) 853-1351 ITS
IWFA	International Window Film Association	(276) 666-4932 IWFA
AIST	Association for Iron & Steel Technology (Formerly: Iron and Steel Society) 186 Thorn Hill Road Warrendale, PA 15086-7512	(724) 814-3000 www.iss.org
KCMA	Kitchen Cabinet Manufacturers Association (Formerly: National Kitchen Cabinet Association) 1899 Preston White Dr. Reston, VA 22091-4326	(703) 264-1690 www.kcma.org
LGSI	Light Gage Structural Institute c/o Loseke Technologies, Inc. P.O. Box 560746 The Colony, TX 75056	(972) 625-4560 www.loseke.com/lgsi.html

LMA	Laminating Materials Association (Formerly: American Laminators Association) 116 Lawrence St. Hillsdale, NJ 07642-2730	
LPI	The Lightning Protection Institute P.O. Box 99 Maryville, MO 64468	(800) 488-6864 LPI
MBMA	Metal Building Manufacturer's Association 1300 Sumner Ave. Cleveland, OH 441158-2851	(216) 241-7333 www.mbma.com
MCAA	Mechanical Contractors Association of America 1385 Piccud Dr. Rockville, MD 20850	(301) 869-5800 www.mcaa.org
MFMA	Metal Framing Manufacturers Association 401 N. Michigan Ave. Chicago, IL 60611	(312) 644-6610 www.metalframingmfg.org
MIA	Marble Institute of America 28901 Clemens Road, Suite 100 Cleveland, OH 44145	(440) 250-9222 www.marble-institute.com
MIA	Masonry Institute of America 22815 Frampton Avenue Torrence, CA 90501	(800) 221-4000 www.masonryinstitute.org
MIHA	Material Handling Industry of America 8720 Red Oak Blvd, Suite 201 Charlotte, NC 28217-3992	(704) 676-1190 MIHA
ML/SFA	Metal Lath/Steel Framing Association (A Division of the NAAMM) 8 South Michigan Ave., Suite 1000 Chicago, IL 60603	(312) 456-5590
MPI	Master Painters Institute	(604) 298-7578 MPI
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry 127 Park St., NE Vienna, VA 22180	(703) 281-6613 mss-hq.org
NAA	National Arborist Association P.O. Box 1094 Amherst, NH 03031-1094	(800) 733-2622 (603) 673-3311
NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Drive, Bldg C, Suite 312 Glen Ellyn, IL 60137	(630) 942-6591 www.naamm.org
NAIMA	North American Insulation Manufacturers Association (Formerly: Thermal Insulation Manufacturers Association) 44 Canal Center Plaza, Suite 310 Alexandria, VA 22314	(703) 684-0084 www.naima.org
NAPA	National Asphalt Pavement Association	(888) 468-6499

	NAPA Building 5100 Forbes Blvd. Lanham, MD 20706-4413	www.hotmix.org
NBFAA	Electronic Life Safety, Security & Systems Professionals (Formerly: National Burglar & Fire Alarm Association) 2300 Valley View Lane Suite 230 Irving, TX 75062	(888) 447-1689 NBFAA
NBGQA	National Building Granite Quarries Association Inc. 1220 L. Street, N.W., Suite 100-167 Washington, DC 20005	(800) 557-2848 NBGQA
NCAA	National Collegiate Athletic Association 700 W. Washington Street Indianapolis, IN 46206	(317) 917-6222 NCAA
NCMA	National Concrete Masonry Association 13750 Sunrise Valley Drive Herndon, VA 20171	(703) 713-1900 www.ncma.org
NCRMA	National Ready Mixed Concrete Association 900 Spring Street Silver Spring, MD 20910	(888) 846-7622 NRMCA
NCSPA	National Corrugated Steel Pipe Association 14070 Proton Road, Suite 100 LB9 Dallas, TX 75244	(972) 850-1907 www.ncspa.org
NEBB	National Environmental Balancing Bureau 8575 Grovemont Circle Gaithersburg, MD 20877-4121	(301) 977-3698 www.nebb.org
NECA	National Electrical Contractors Association 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814-5372	(301) 657-3110 www.necanet.org
NEII	National Elevator Industry, Inc. P.O. Box 838 Salem, NY 12865-0838	(518) 854-3100 www.neii.org
NELMA	Northeastern Lumber Manufacturers Association 272 Tuttle Rd. P.O. Box 87A Cumberland Center, ME 04021	(207) 829-6901 www.nelma.org
NEMA	The Association of and Medical Imaging Equipment Manufacturers 1300 N 17th St., Suite 1752 Rosslyn, VA 22209	(703) 841-3200 www.nema.org
NEPA	The National Environmental Policy Act U.S. Environmental Protection Agency 1200 Pennsylvania Ave., NW Washington, D.C. 20460-0001	(202) 564-7157 NEPA
NFPA	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101	(800) 344-3555 (617) 770 3000 http://www.nfpa.org
NFRC	National Fenestration Rating Council	(301) 589-1776

	6305 Ivy Lane, Suite 140 Greenbelt, MD 20770	NFRC
NFSHSA	National Federation of State High School Association PO Box 690 Indianapolis, IN 46206	(317) 972-6900 NFSHSA
NFS	NSF International PO Box 130140 789 N. Dixboro Road Ann Arbor, MI 48113	(800) 673-6275 NSF
NFSI	National Floor Safety Institute P.O. Box 92607 Southlake, TX 76092	(817) 749-1700 NFSI
NHLA	National Hardwood Lumber Association P.O. Box 34518 Memphis, TN 38184-0518	(901) 377-1818 NHLA
NGA	National Glass Association 8200 Greensboro Drive, Suite 302 McLean, VA 22102-3881	(866) 342-5642 NGA
NLGA	National Lumber Grades Authority #302-960 Quayside Dr. New Westminster, BC V3M 6G2	(604) 524-2393 www.nlga.org
NPA	Composite Panel Association (Formerly: National Particleboard Association) 19465 Deerfield Avenue, Suite 306 Leesburg, VA 20176	(703) 724-1128 www.pbmdf.com
NPCA	National Paint and Coatings Association 1500 Rhode Island Ave., NW Washington, DC 20005-5597	(202) 462-6272 www.paint.org
NRCA	National Roofing Contractors Association O'Hare International Center 10255 W. Higgins Rd., Suite 600 Rosemont, IL 60018-5607	(847) 299-9070 www.nrca.net
NRMCA	National Ready Mixed Concrete Association 900 Spring St. Silver Spring, MD 20910	(301) 587-1400 www.nrmca.org
NSF	NSF International (Formerly: National Sanitation Foundation) P.O. Box 130140 Ann Arbor, MI 48113-0140	(734) 769-8010 www.nsf.org
NTMA	The National Terrazzo & Mosaic Association, Inc. 201 North Maple, Suite 208 Purcellville, VA 20132	(800) 323-9736 NTMA
NUSIG	National Uniform Seismic Installation Guidelines 12 Lahoma Ct. Alamo, CA 94526	(510) 946-0135
NWFA	National Wood Flooring Association 111 Chesterfield Industrial Boulevard	(800) 422-4556 NWFA

	Chesterfield, MO 63005	
NWWDA	National Wood Window and Door Association (Formerly: National Woodwork Manuf. Association) 401 N. Michigan Avenue, Suite 2200 Chicago, IL 60611	(800) 223-2301 www.nwwda.org/
ODNR	Ohio Department of Natural Resources 2045 Morse Road, Building G Columbus, OH 43229-6693	(614) 265-6300 ODNR
PCA	Portland Cement Association 5420 Old Orchard Rd. Skokie, IL 60077-1083	(847) 966-6200 www.cement.org
PCI	Precast/Prestressed Concrete Institute 209 W. Jackson Blvd. #500 Chicago, IL 60606	(312) 786-0300 www.pci.org
PDCA	Painting and Decorating Contractors of America 1801 Park 270 Drive, Suite 220 St. Louis, MO 63146	(800) 332-7322 www.pdca.com
PDI	Plumbing and Drainage Institute 800 Turnpike St., Suite 300 North Andove, MA 01845	(800) 589-8956 www.pdionline.org
PEI	Porcelain Enamel Institute P.O. Box 90220 Norcross, GA 30010	(770) 676-9366 www.porcelainenamel.com
PPFA	Plastic Pipe and Fittings Association 800 Roosevelt Rd., Building C, Suite 312 Glen Ellyn, IL 60137-5833	(630) 858-6540 www.ppfahome.org
PPI	Plastic Pipe Institute (The Society of the Plastics Industry, Inc.) 105 Decker Court, Suite 825 Irving, TX 75062	(469) 499-1044 www.plasticpipe.org
RCSC	Research Council on Structural Connections	RCSC
RFCI	Resilient Floor Covering Institute 115 Broad Street, Suite 201 LaGrange, GA 30240	(706) 882-3833 www.rfci.com
RMA	Rubber Manufacturers Association 1400 K St., NW, Suite 900 Washington, DC 20005	(800) 220-7620 (202) 682-4800 www.rma.org
SAE	SAE International 400 Commonwealth Dr. Warrendale, PA 15096-0001 For publications: Call (412) 776-4970	(877) 606-7323 www.sae.org
SDI	Steel Door Institute 30200 Detroit Rd. Cleveland, OH 44145-1967	(440) 889-0010 www.steeldoor.org
SHLMA	Southern Hardwood Lumber Manufacturers Association (See HMA)	

SIGMA	Sealed Insulating Glass Manufacturers Association 401 N. Michigan Ave. Suite 2400 Chicago, IL 60611-4267	(312) 644-6610
SGCC	Safety Glazing Certification Council PO Box 730 Sackets Harbor, NY 13685	(315) 646-2234 SGCC
SJI	Steel Joist institute 196 Stonebridge Drive, Unit 1 Myrtle Beach, SC 29588	(843) 293-1995 www.steeljoist.org
SMA	Screen Manufacturers Association	SMA
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association, Inc. 4201 Lafayette Center Dr. P.O. Box 221230 Chantilly, VA 20151-1209	(703) 803-2980 www.smacna.org
SMPTE	Society of Motion Picture and Television Engineers 3 Barker Ave., 5th Floor White Plains, NY 10601	(914) 761-1100 SMPTE
SPIB	Southern Pine Inspection Bureau P.O. Box 10915 Pensacola, FL 32524-0915	(850) 434-2611 www.spib.org
SPRI	Single Ply Roofing Industry 411 Waverly Oaks Road, 331B Waltham, MA 02452	(781) 647-7026 www.spri.org
SSPC	The Society for Protective Coatings 40 24th St., 6th Floor Pittsburgh, PA 15222-4643	(412) 281-2331 (877) 281-7772 www.sspc.org
SWRI	Sealant, Waterproofing and Restoration Institute 400 Admiral Blvd. Kansas City, MO 64106	(816) 472-7974 www.swrionline.org
TCIA	Tree Care Industry Association 136 Harvey Road, Suite 101 Londonderry, NH 03053	(800) 733-2622 TCIA
TCNA	Tile Council of North America, Inc. 100 Clemson Rescue Blvd. Anderson, SC 29625	(864) 646-8453 www.tileusa.com
TFS	Texas Forest Service John B. Connally Building, Suite 364 301 Tarrow Street College Station, TX 77840-7896	(979) 458-6606 Texas Forest Service (TFS)
TPI	Truss Plate Institute 218 N. Lee St, #312 Alexandria, VA 22314	(703) 683-1010 www.tpinst.org
TRI	Tile Roofing Institute 230 East Ohio St., Suite 400 Chicago, IL 60611	(312) 670-4177 Tile Roofing Institute (TRI)

UL	Underwriters Laboratories Inc. 2600 N.W. Lake Road Camas, WA 98607	(877) 854-3577 www.ul.com
USGBC	U.S. Green Building Council 2101 L Street, NW, Suite 500 Washington, DC 20037	(800) 795-1747 USGBC
VMMB	Volumetric Mixer Manufacturers Bureau 900 Spring Street Silver Spring, MD 20910	(301) 587-1400 VMMB
WA	Wallcoverings Association 401 N. Michigan Ave. Suite 2200 Chicago, IL 60611-4267	(312) 644-6610 www.wallcoverings.org
WCLIB	West Coast Lumber Inspection Bureau P.O. Box 23145 Portland, OR 97281-3145	(503) 639-0651 www.wclib.org
WCSC	Window Covering Safety Council 355 Lexington Avenue, Suite 1500 New York, NY 10017	(212) 297-2100 WCSC
WDMA	Window & Door Manufacturers Association 401 N. Michigan Avenue, Suite 220 Chicago, IL 60611	(800) 223-2301 WDMA
WHI	Warnock Hersey	WHI
WRCLA	Western Red Cedar Lumber Association 1501-700 West Pender Street Pender Place 1, Business Building Vancouver, B.C., Canada V6C 1G8	(604) 684-0266 WRCLA
WWPA	Western Wood Products Association 522 SW 5th Ave. Portland, OR 97204-2122	(503) 224-3930 www.wwpa.org

FEDERAL GOVERNMENT AGENCIES:

ADA	U.S. Department of Justice 950 Pennsylvania Avenue, NW Civil Rights Division Disability Rights Section – NYA Washington, D.C. 20530	(202) 307-0663 ADA
ADAAG	United States Access Board 1331 F Street, NW, Suite 1000 Washington, D.C. 20004-1111	(800) 872-2253 ADAAG
CFR	Code of Federal Regulations U.S. Government Printing Office Mail Stop: IDCC 732 N. Capitol Street, NW Washington, DC 20401	(866) 512-1800 CFR
CPSC	U.S. Consumer Product Safety Commission East West Towers 4330 East-West Hwy	(301) 504-7906 www.cpsc.gov

	Bethesda, MD 20814	
DOC	U.S. Department of Commerce 1401 Constitution Ave., NW Washington, DC 20230	(202) 482-2000 www.commerce.gov
DOT	U.S. Department of Transportation 1200 New Jersey Avenue SE Washington, DC 20590	(202) 366-4000 www.dot.gov
EPA	U.S. Environmental Protection Agency Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460	(202) 272-0167 EPA
FDA	U.S. Food and Drug Administration GMP Publications, Inc. P.O. Box 335 Medford, NJ 08055	(856) 810-7331 FDA
FHWA	Federal Highway Administration U.S. Department of Transportation 1200 New Jersey Ave., SE Washington, DC 20590	(202) 366-4000 FHWA
FS	General Services Administration Federal Supply Service FSS Product Acquisition Center Supply Standards Division (FLAS Arlington, VA 22202	(703) 605-2567 Federal Specifications (FS)
GSA	U.S. General Services Administration 1800 F Street NW Washington, DC 20405	(800) 488-3111 www.gsa.gov
HUD	U.S. Department of Housing and Urban Development 451 7th Street, S.W. Washington, DC 20410	(202) 708-1112 HUD
NIST	National Institute of Standards and Technology (U.S. Department of Commerce) 100 Bureau Dr., Stop 1070 Gaithersburg, MD 20899-1070	(301) 975-6487 www.nist.gov
NRMCA	National Ready Mix Concrete Association 900 Spring Street Silver Spring, MD 20910	(888) 846-7622 NRMCA
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor) 200 Constitution Ave., NW Washington, DC 20210	(800) 321-6742 www.osha.gov
PS	Product Standard of NBS (U.S. Department of Commerce) Government Printing Office Washington, DC 20402	(202) 512-1800

USDA	U.S. Department of Agriculture 1400 Independence Ave., SW Washington, DC 20250	(202) 456-1111 www.usda.gov

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 014219

SECTION 014500 - QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. References
2. Quality Assurance
    a. Testing Laboratory Qualifications
    b. Control of Installation
3. Tolerances
4. Inspection and Testing Laboratory Services
5. Manufacturers' Field Services and Reports

B. Related Sections:

1. Information Available to Bidders: Soil investigation data.
2. General Conditions: Inspections, testing, and approvals required by public authorities.
3. Section 01 33 00 (01330) - Submittals and Substitutions: Submission of manufacturers' instructions and certificates.
4. Section 01 60 00 (01600) - Material and Equipment: Requirements for material and product quality.
5. Section 01 77 00 (01770) - Contract Closeout: Project Record Documents.
6. Individual Specification Sections: Inspections and tests required, and standards for testing.

1.02 REFERENCES

A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. The contractual relationship, duties, and responsibilities of the parties in Contract nor those of the Architect shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

E. ASTM International Publications:

1. C802 - Practice for Conducting an Inter-laboratory Test Program to Determine the Precision of Test Methods for Construction.
2. C1021 - Practice for Laboratories Engaged in the Testing of Building Sealants.
3. C1077 - Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
4. C1093 - Practice for Accreditation of Testing Agencies for Unit Masonry.
5. D290 - Recommended Practice for Bituminous Mixing Plant Inspection.

6. D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
7. D4561 - Practice for Quality Control Systems for an Inspection and Testing Agency for Bituminous Paving Materials.
8. E329 - Practice for Use in the Evaluation of Inspection and Testing Agencies as Used in Construction.
9. E543 - Practice for Determining the Qualification of Nondestructive Testing Agencies.
10. E699 - Practice for Criteria for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating Building Components in Accordance with Test Methods Promulgated by ASTM Committee E6.

1.03 SUBMITTALS

A. Before start of the Work, submit testing firm name, address, and telephone number and names of full time registered Engineers, specialists, and responsible officer.

B. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.04 QUALITY ASSURANCE

A. Testing Laboratory Qualifications:

1. Comply with requirements of ASTM Publications C802, C1021, C1077, C1093, D290, D3740, D4561, E329, E543, and E699.
2. Laboratory: Authorized to operate in State in which Project is located.
3. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
4. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

B. Control of Installation:

1. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
2. Comply with manufacturers' instructions, including each step in sequence.
3. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
4. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
5. Perform work by persons qualified to produce workmanship of specified quality.
6. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.05 TOLERANCES

A. Monitor tolerance control of installed Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from the Architect and Owner’s Representative before proceeding.

C. Adjust products to appropriate dimensions; position before securing Products in place.

1.06 INSPECTING AND TESTING LABORATORY SERVICES

A. Except as otherwise required in the Owner-Contractor Agreement, the Contractor shall appoint, employ, and pay for specified services of an independent firm to perform inspecting and testing, subject to approval of the Owner and Architect.

1. Refer to General Conditions, Articles 5 and 26, for additional requirements.

B. Employment of testing laboratory in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

C. The testing firm will perform inspections, tests, and other services specified in individual specification sections and as required by the Architect.

D. Inspecting, testing, and source quality control may occur on or off the project site.

E. Retesting required because of non-conformance to specified requirements shall be performed by the same testing firm on instructions by the Architect.

F. Laboratory Responsibilities:

1. Test samples of mixes submitted by Contractor.

2. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.

3. Perform specified inspecting, sampling, and testing of Products in accordance with specified standards.

4. Ascertain compliance of materials and mixes with requirements of Contract Documents.

5. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or Products.

6. Perform additional inspection and tests required by the Architect.

7. Attend preconstruction meetings and progress meetings.

G. Laboratory Reports: After each inspection and test, promptly submit copies of laboratory report to the Architect, Owner's Representative and Contractor. Include the following:

1. Date issued

2. Project title and number

3. Name of inspector

4. Date and time of sampling or inspection

5. Identification of product and specifications section

6. Location in the Project

7. Type of inspection or test

8. Date of test

9. Results of tests

10. Conformance with Contract Documents

11. When requested by Architect, provide interpretation of test results

H. Limits on Testing Laboratory Authority:

1. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Laboratory may not approve or accept any portion of the Work.
3. Laboratory may not assume any duties of Contractor.
4. Laboratory has no authority to stop the Work.

I. Contractor Responsibilities:

1. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
2. Cooperate with testing firm and personnel, and provide access to the Work. Furnish samples of materials, design mix, equipment, tools, storage, and assistance by incidental labor as requested.
3. Provide incidental labor and facilities:
    a. to provide access to Work to be tested
    b. to obtain and handle samples at the site or at source of Products to be tested
    c. to facilitate tests and inspections
    d. to provide storage and curing of test samples
4. Notify Architect and testing firm 24 hours prior to expected time for operations requiring services.
5. Make arrangements with testing firm and pay for additional samples and tests required for Contractor's use.
6. Notify laboratory sufficiently in advance of cancellation of required testing operations. Contractor shall be responsible to laboratory for changes due to failure to notify if requirements for testing are canceled.

1.07 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and erection as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

C. Submit report in duplicate within 15 days of observation to Architect for information.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. This Section specifies temporary services and facilities, including utilities, construction and support facilities, security and protection. Provide facilities ready for use. Maintain, expand and modify as needed. Remove when no longer needed, or when replaced by permanent facilities.
2. Work of this Section shall include, but not necessarily be limited to, the following:
    a. Project/Site Conditions
    b. Use Charges
    c. Field Office and Storage Sheds
    d. Temporary Sanitary Facilities
    e. Temporary Fire Extinguishers
    f. Temporary Water
    g. Temporary Electric Power Service and Interior Lighting
    h. Temporary Telephone Service and Facsimile Service
    i. Temporary Storm and Sanitary Sewer
    j. Temporary Heating, Cooling, and Ventilation
    k. Temporary Paving
    l. Temporary Enclosures
    m. Project Identification
    n. Temporary Exterior Lighting
    o. Progress Cleaning and Waste Removal
    p. Surface and Underground Water Control
    q. Protection of Installed Work
        1) Environmental Protection
        2) Dust Control
        3) Barriers, Barricades, Warning Signs, and Lights
    r. Removal of Construction Facilities and Temporary Controls

B. Related Sections:

1. General Conditions:
    a. Refer to General Conditions for additional requirements.
2. Section 01 35 00.01 (01000) - Special Requirements
3. Section 01 11 00 (01110) - Summary of Work
4. Section 01 74 00 (01740) - Cleaning and Waste Management
5. Section 01 77 00 (01770) – Closeout Procedures

1.02 QUALITY ASSURANCE

A. Regulations: Each Contractor shall comply with industry standards and with applicable laws and regulations of authorities having jurisdiction, including but not limited to:

1. Owner's Requirements
2. Building Code Requirements
3. Health and Safety Regulations
4. Utility Company Regulations
5. Police, Fire Department, and Rescue Squad Rules
6. Environmental Protection Regulations

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."

1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC for industry recommendations.
2. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with the normal application of trade regulations and union jurisdictions.
3. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.03 PROJECT/SITE CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating dates of the implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of the temporary service to use of the permanent service.

1. Temporary Use of Permanent Facilities: The installer of each permanent service or facility shall assume responsibility for its operation, maintenance and protection during its use as a construction service or facility prior to the Owner's acceptance, regardless of previously assigned responsibilities.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on the site.

1.04 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to the Owner or the Architect. Contractor's cost or use charges for temporary services or facilities will not be accepted as a basis of claim for an adjustment in the Contract Sum or Contract Time.

B. Other entities using temporary services and facilities include, but are not limited to:

1. Other Nonprime Contractors
2. The Owner's Work Forces and Separate Contractors
3. Occupants of the Project

4. The Architect
5. The Owner's Representative
6. Testing Agencies
7. Personnel of Government Agencies

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.

B. Lumber and Plywood: Comply with requirements in Section 06 10 00 - Rough Carpentry.

C. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire-retardant tarpaulins.

D. Water: Provide potable water approved by local health authorities.

2.02 EQUIPMENT

A. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.

B. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

C. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

D. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

E. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.

F. Temporary Field Office

1. The General Contractor shall provide and maintain clean, temporary weather-tight offices at the site, in location as approved by the Owner, for the use of the Contractor, his Subcontractors' agents, Owner's Representative, and the Architect, and at which location he or his authorized agent shall be present, or to which either may be readily called at all times. While the work is in progress, copies of permits, approved Shop Drawings, and a complete set of Contract Drawings and Specifications marked up to date with any revisions, shall be kept at said office ready for use at all times.
    a. Provide sturdy furniture, drawing rack, and drawing display table.
2. All expenses in connection with the field office, including the installation cost, and use of heat, light, water, and janitor service shall be borne by the Contractor.
3. Field office shall be maintained until final acceptance and then be removed by the Contractor, no later than 15 days after acceptance of building unless the Owner orders earlier removal by them.

G. Temporary Storage Sheds: Each Subcontractor shall provide and maintain such additional offices, storage sheds, and other temporary buildings or trailers on the project as required for his own use. Location of sheds and trailers shall be located where directed by the Owner.

H. Sanitary Facilities: Toilet rooms within the new building shall not be used by construction personnel. Provide sanitary facilities that include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures. Install where facilities will best serve the Project. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used materials.

1. Toilets: Install self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material. Use of pit-type privies will not be permitted.

2. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up. Dispose of drainage properly. Supply cleaning compounds.

3. Drinking Water Facilities: Provide containerized tap-dispenser bottled-water type drinking water units.

I. First Aid Supplies: Comply with governing regulations.

J. Fire Extinguishers: Provide hand-carried, portable UL-rated, class `A' fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, class `ABC' dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

1. Comply with NFPA 10 and 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 EXECUTION

3.01 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they serve the project adequately and result in minimum interference with performance of the work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are not longer needed, or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company to install temporary service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.

1. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.

B. Water Service:

1. Install water service connected to nearest system, and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.

2. Sterilization: Sterilize temporary water piping prior to use.

C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.

1. Temporary work shall be installed in such a manner as not to interfere with the permanent construction. If such interference does occur, it shall be the responsibility of the Contractor to make such changes as may be required to overcome the interference. The cost of these changes will be included as part of the Contract Sum.

2. The electrical work for construction purposes shall conform to all Federal and State requirements as well as the requirements of the National Electric Code and National Electrical Safety Code. The Contractor shall obtain required applications, permits, and inspection pertaining to this work in accordance with the General Conditions.

D. Temporary Lighting:

1. Whenever overhead floor or roof deck has been installed, provide temporary lighting with local switching.

2. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Sewers and Drainage:

1. If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be sued, provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.

3.03 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access.

1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

1. The Contractor shall provide heat, supplied with air, as follows:

a. At all times during normal working hours, provide sufficient heat to maintain a temperature of not less than 50 degrees F., and from 40 degrees to 50 degrees F. during periods other than specified herein below.

b. At all times during the placing, setting, and curing of concrete, provide sufficient heat to ensure heating of the spaces involved to not less than 50 degrees F.

c. Well before gypsum board work begins and continuous throughout the setting and drying periods, a temperature range between 55 and 70 degrees F. shall be maintained day and night. During this period, no finish woodwork, wood finish flooring, resilient flooring or flexible wall coverings shall be installed or stored in the

buildings, and no finish painting or applying of finish wall coatings shall be undertaken.

d. For a period of ten (10) days previous to the placing of interior wood finish and throughout the placing of this and other interior finishing, varnishing, painting, etc., and until final acceptance of the work or until full occupancy by the Owner, provide sufficient heat to produce a temperature of not less than 70 degrees F.

e. Heat and air shall be supplied in a manner which shall avoid the rapid drying of material but thoroughly dry to such an extent that no remaining moisture will affect finish material.

f. The Contractor shall operate the heating and ventilating systems each day, including Saturdays, Sundays, and holidays; operating shall include necessary labor and approved operating personnel in attendance as required by agencies having jurisdiction.

g. It shall be the Contractor's responsibility to coordinate for the range of temperatures required for temporary heating, during this period, that temperature as recommended by the manufacturer of the materials as mentioned are stored in the building or being installed, and for the length of time recommended, following installation.

2. Temporary heating and ventilating equipment, piping, etc., shall be installed in such a manner as not to interfere with work of other trades or the permanent construction. If such interference does occur, it shall be the responsibility of the Contractor to make any changes required to overcome the interference.

3. Except as hereinafter specified, the permanent heating and ventilating systems shall not be used for temporary heat. The Contractor shall provide, operate, and maintain heating and ventilating units for the purposes specified. The units shall be arranged to bring in sufficient outdoor air (min. 1-1/2 air changes per hour) to ventilate the building and to prevent build-up of harmful dusts and fumes and remove excess moisture, especially to prevent damage to built-up roofing. During warm weather, the Contractor shall provide an adequate supply of fresh air (min. 1-1/2 air changes per hour) when necessary to properly ventilate for moisture, dust, and fumes from paints, cements, or adhesives in tightly enclosed areas where natural ventilation will not be sufficient.

C. Temporary Paving: Construct and maintain temporary roads and paving to adequately support the indicated loading and to withstand exposure to traffic during the construction period. Locate temporary paving for roads, storage areas, and parking, where the same permanent facilities will be located. Review proposed modifications to permanent paving with the Architect.

D. Temporary Enclosures: Provide temporary enclosure for protection of construction from exposure, foul weather, other construction operations, and similar activities. Where heat is needed and the building enclosure is incomplete, provide enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions.

E. Project Identification and Temporary Signs:

1. Prepare project identification and other signs of the size indicated; install signs where indicated to inform the public and persons seeking entrance to the project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.

2. Project Identification signs will not be permitted.

3. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

F. Temporary Exterior Lighting: Install exterior yard and sign lights so that signs are visible when work is being performed.

G. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven (7) days during normal weather or 3 days when the temperature is expected to rise above 80 degrees F. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

H. Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate. Cover finished permanent stairs with a protective covering of plywood or similar material so finishes will be undamaged at the time of acceptance.

I. Surface and Underground Water Control: Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion. Provide dewatering of site as required.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION: Except for use of permanent fire protection as soon as available, do not change from use of temporary security and protection facilities to permanent facilities until Substantial Completion.

A. Fire Protection: Until fire protection is supplied by permanent facilities, install and maintain temporary fire protection of types needed to protect against predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."

B. Permanent Fire Protection: At the earliest date, complete installation of the permanent fire protection facility, including connected services, and place into operation. Instruct key personnel on use of facilities.

1. The permanent Fire Protection System shall be operational before any furniture is installed in facility.

C. Enclosure Fence: Contractor’s option, unless otherwise required by the Owner/Contractor Agreement.

D. Environmental Protection: Operate temporary facilities and conduct construction by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints.

3.05 OPERATION: Enforce strict discipline in use of temporary facilities. Limit availability to intended use to minimize abuse. Maintain facilities in good operating condition until removal.

A. Protect from damage by freezing temperatures and the elements.

1. Maintain operation of enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour day basis to achieve indicated results and to avoid damage.

2. Prevent piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

3.06 TERMINATION AND REMOVAL: Remove each facility when the need has ended, or replaced by a permanent facility, or no later than Substantial Completion. Complete or restore construction delayed because of interference with the facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

A. Temporary facilities are property of the Contractor.

B. Remove paving that is not acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and fill that does not comply with requirements. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials. Repair or replace street paving, curbs, and sidewalks at the temporary entrances.

C. At Substantial Completion, renovate permanent facilities used during the construction period, including but not limited to:

1. Replace air filters and clean inside of ductwork and housings.
2. Replace worn parts and parts subject to unusual operating conditions.
3. Replace lamps burned out or noticeably dimmed by substantial hours of use.

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Products
2. Transportation and Handling
3. Storage and Protection
4. General Product Requirements

B. Related Sections:

1. Section 01 33 00 (01330) - Submittals and Substitutions
2. Section 01 45 00 (01450) - Quality Control: Product quality monitoring.

1.02 QUALITY ASSURANCE

A. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

B. Provide interchangeable components of the same manufacturer, for components being replaced.

1.03 PRODUCT DELIVERY AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.

C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.04 STORAGE AND PROTECTION

A. Store and protect Products in accordance with manufacturers' instructions, with seals and labels intact and legible.

B. Store sensitive Products in weather tight, climate controlled enclosures.

C. For exterior storage of fabricated Products, place on sloped supports, above ground.

D. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

E. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of Product.

F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

H. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

PART 2 PRODUCTS

2.01 General Product Requirements:

A. Semi-Open Proprietary Specification Requirements: Where Specifications name one or more products or manufacturers, provide one of the products indicated.

1. Where Specifications specify products or manufacturers by name, accompanied by the term "Approved Substitution", the Architect will allow products as substitutions only after complying with the requirements of the General Conditions and Section 01 33 00.

B. The Contract Documents and governing regulations govern product selection.

PART 3 EXECUTION

Not Used

END OF SECTION 016000

SECTION 017329 - CUTTING AND PATCHING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Administrative and Procedural Requirements for Cutting and Patching

B. Related Documents:

1. Refer to other Sections of these Specifications, including Divisions 22 (15) through 28 (16), for specific requirements and limitations applicable to cutting and patching individual parts of the work.

1.02 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.03 SUBMITTALS

A. CUTTING AND PATCHING PROPOSAL:

1. Where approval of procedures is required before proceeding, submit a proposal describing procedures in advance of the time cutting and patching will be performed. Include the following information, as applicable:

a. Describe the extent of cutting and patching required and how it is to be performed. Indicate why it cannot be avoided.

b. Describe anticipated results, include changes to structural elements and operating components and changes in the building's appearance and other visual elements.

c. List products to be used and entities that will perform work.

d. Indicate dates when cutting and patching is to be performed.

e. List utilities that will be disturbed, including those that will be relocated and those that will be temporarily out-of service. Indicate how long service will be disrupted.

f. Approval by the Architect to proceed does not waive the Architect’s right to later require complete removal and replacement of work found to be unsatisfactory.

1.04 STRUCTURAL WORK:

A. Do not cut and patch structural elements in a manner that would reduce the load-carrying capacity or load deflection ratio. Obtain approval of the cutting and patching proposal before cutting and patching structural elements.

1.05 OPERATIONAL AND SAFETY LIMITATIONS:

A. Do not cut and patch operating elements or safety components in a manner that would reduce their capacity to perform as intended, or would increase maintenance, or decrease operational life or safety. Obtain approval of the cutting and patching proposal before cutting and patching operating elements or safety related systems.

1.06 VISUAL REQUIREMENTS:

A. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would reduce the building's aesthetic qualities or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

PART 2 PRODUCTS

2.01 MATERIALS:

A. Use materials identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible. Use materials whose performance will equal or surpass that of existing materials.

PART 3 EXECUTION

3.01 EXAMINATION:

A. Before cutting, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding if unsafe or unsatisfactory conditions are encountered.

3.02 PREPARATION:

A. Provide temporary support of work to be cut.

3.03 CLEANING:

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove paint, mortar, oils, putty and similar items. Thoroughly clean piping, conduit, and similar features before painting or finishing is applied. Restore damaged pipe covering to its original condition.

3.04 PROTECTION:

A. Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions that might be exposed during cutting and patching operations.

B. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

C. Take all precautions to avoid cutting existing pipe, conduit, or ductwork serving the building, but scheduled to be removed, or relocated until provisions have been made to bypass them.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems, when possible, before cutting to minimize interruption to occupied areas.

3.05 PERFORMANCE:

A. Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

B. Cut existing construction to provide for the installation of other components or the performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

3.06 CUTTING:

A. All cutting of areas shall be by Contractor requiring cutting, except where noted otherwise in the Specifications and/or Drawings.

B. Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible, review procedures with the original installer. Comply with the original installer's recommendations.

C. Where cutting is required, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

D. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill. Overcuts are **NOT** allowed

1. At concrete slabs on grade cut existing vapor barrier leaving 6-inches of existing vapor barrier material on each side of cut for splicing in new vapor barrier material.

E. Comply with requirements of applicable sections of Division 02 where cutting and patching requires excavating and backfilling.

3.07 PATCHING:

A. All patching shall be provided by Contractor doing cutting work and shall be performed by trade who would customarily be performing that type of work.

B. Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

C. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

1. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch, after the patched area has received primer and second coat.

2. Patch, point or grout flush all voids, holes, chips, cracks, spalls, broken or otherwise damaged surfaces. Patch with materials which match adjacent surfaces in appearance and quality

D. Repair surfaces exposed by removed finishes, fixtures, or equipment.

END OF SECTION 017329

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SECTION 017400 - CLEANING AND WASTE MANAGEMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Throughout all phases and items of the construction period, maintain the building and site in a standard of cleanliness as described in this Section including:

a. Cleaning Materials and Equipment

b. Progress Cleaning

c. Final Cleaning

B. Related Sections:

1. General Conditions.

2. In addition to standards described in this Section, comply with all requirements for cleaning-up as described in various other Sections of these Specifications.

1.02 QUALITY ASSURANCE

A. Inspection: Conduct daily inspection, and more often if necessary, to verify that requirements of cleanliness are being met

B. Codes and Standards: In addition to the standards described in this Section, comply with all pertinent requirements of Governmental agencies having jurisdiction.

C. Disposal of volatile fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer systems or into streams or waterways is not permitted.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS AND EQUIPMENT:

A. Provide all required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.02 COMPATIBILITY:

A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material or as approved by the Owner's Representative.

PART 3 EXECUTION

3.01 PROGRESS CLEANING

A. General:

1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding traffic, and providing the required protection of materials.

2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for the construction of this work.

3. Twice weekly, and more often if necessary, the Contractor shall completely remove all scrap, debris, and waste material from the job site, and shall place into container furnished by the Contractor.

4. Provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection.

B. Project Site; The Contractor shall:

1. Daily, and more often if necessary, inspect the project site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

2. Weekly, and more often if necessary, sweep all interior places clean. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by reasonable diligence using a hand-held broom.

3. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.

4. Following the installation of finish floor materials, protect by covering with temporary coverings and/or clean the finish floor daily (and more often if necessary) at all times while work is being performed in the space in which finish materials have been installed. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from all foreign material, which may be injurious to the finish floor material.

3.02 FINAL CLEANING

A. Definition: Except as otherwise specifically provided, "Clean" (for the purpose of this Article) shall be interpreted as meaning the level of cleanliness generally provided by commercial building maintenance Subcontractors using commercial quality building maintenance equipment and materials.

B. General: Prior to completion of the work, remove from the job site all tools, temporary structures, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.01 above.

C. Interior: Visually inspect all interior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. Remove all paint droppings, spots, stains, and dirt from finished surfaces. Use only the specified cleaning materials and equipment.

D. Repair, patch, and touch-up marred or damaged surfaces to match adjacent finishes.

E. Clean the following if located within the project area:

1. Plumbing Fixtures, Strainers and Floor Drains

2. Light Fixtures and Lamps

3. Replace filters of ventilating equipment when units have been operating during construction. In addition, clean grilles and louvers.

4. Excess lubrication is to be removed from mechanical and electrical equipment.

5. All Electrical Panels

F. Clean all transparent materials, including glass and mirrors. Remove glazing compound and other substances that are noticeable from vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

G. Remove labels that are not permanent labels.

H. Polished and Resilient Surfaces: To all surfaces requiring the routine application of protective waxes and/or buffed polish, apply the specified coating and/or polish as recommended by the manufacturer of the material being treated, as specified in individual Specification Sections.

I. Leave concrete floors broom clean. Vacuum carpeted surfaces.

J. Clean areas traversed by construction personnel.

K. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean. Remove stains, spills, and other foreign deposits.

L. Maintain cleaning until the building, or portion thereof, is accepted by the Owner.

M. Timing: Schedule final cleaning as approved by the Owner's Representative to enable the Owner to accept a completely clean project.

END OF SECTION 017400

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Closeout Procedures
2. Inspection Procedures

B. Related Sections:

1. Section 01 74 00 (01740) - Cleaning and Waste Management
2. Section 01 78 13 (01780) - Bonds and Warranties
3. Section 01 78 23 (01830) - Operating and Maintenance Data
4. Section 01 78 39 (01785) - Project Record Documents
5. Section 01 78 43 (01790) - Spare Parts
6. Section 01 79 00 (01820) – Demonstration and Training

1.02 DEFINITIONS

A. Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner, and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Divisions 2 (02) through 16 (33). Time of closeout is directly related to "Substantial Completion", and shall be a single time period for the entire work.

1.03 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. General: Prior to requesting inspection for Substantial Completion (for either entire work or portions thereof), complete the following and list known exceptions in request:

1. Include supporting documentation for completion as indicated in these Contract Documents.
2. Submit statement showing accounting of changes to Contract Sum.
3. The Contractor shall prepare, submit and complete a punch list in accordance with General Conditions.
4. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications, and similar documents.
5. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including (where required) occupancy permits, operating certificates, waivers of lien, and similar releases.
6. Submit record drawings, maintenance manuals, and similar final record information.
7. Deliver tools, spare parts, extra stocks of materials, and similar physical items to Owner.
8. Complete start-up testing of systems, and instructions of Owner's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.
9. Complete final cleaning up requirements, including touch-up painting of marred surfaces.

10. Touch-up and otherwise repair and restore marred, exposed finishes.

1.04 INSPECTION PROCEDURES:

A. Upon receipt of Contractor's request, the Architect will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, the Architect and /or Owner’s Representative will establish the date of Substantial Completion, or advise Contractor of work which must be performed prior to establishing date; and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form initial "punch-list" for final acceptance.

1.05 RECORD DOCUMENTS

A. General: Specific requirements for record documents are indicated in individual sections of these Specifications. Other requirements are indicated in General Conditions. General submittal requirements are indicated in "Submittals" sections. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for Owner’s Representative and Architect's reference during normal working hours.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 CLEANING

A. General: Special cleaning for specific units of work is specified in sections of Divisions 02 through 33. General cleaning during progress of work is specified in General Conditions and as temporary services in Section 01 74 00. Provide final cleaning of the work, at time indicated, consisting of cleaning each surface or unit of work to normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturer's instructions for cleaning operations.

1. Where extra materials of value remain after completion of associated work have become Owner's property, dispose of these to Owner's best advantage as directed.

END OF SECTION 017700

SECTION 017813 - BONDS AND WARRANTIES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. This Section specifies general administrative and procedural requirements for warranties, guarantees, and bonds required by the Contract Documents, including manufacturers' standard warranties on products and special warranties. Warranties required by the Specifications, Divisions 02 through 33, shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to other warranties made by the Contractor under the Contract Documents.

2. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and Subcontractors required to countersign special warranties with the Contractor.

B. Related Sections:

1. Additional requirements as specified in General Conditions.

2. General closeout requirements are included in Section 01 77 00 (01770) Contract Closeout.

3. Warranties, including requirements for certifications for the work and products and installation that are specified to be warranted, are stated in the individual Specification Sections of Divisions 02 through 33.

4. Specific certification requirements and other commitments and agreements for continuing services to the Owner are specified elsewhere in the Contract Documents.

1.02 DEFINITIONS

A. Categories of Specific Warranties: Warranties on the work are in several categories, including those of General Conditions, and including (but not necessarily limited to) the following specific categories related to individual units of work specified in sections of Divisions 02 through 33 of these Specifications.

1. Special Project Warranty (Guarantee): A warranty specifically written and signed by Contractor for a defined portion of the Work and, where required, countersigned by Subcontractor, installer, manufacturer, or other entity engaged by Contractor.

2. Specified Product Warranty: A warranty which is required by Contract Documents, to be provided for a manufactured product incorporated into the Work, regardless of whether manufacturer has published a similar warranty without regard for specific incorporation of product into the Work, or has written and executed a special project warranty as a direct result of Contract Documents requirements.

3. Coincidental Product Warranty: A warranty which is not specifically required by Contract Documents (other than as specified in this Section), but which is available on a product incorporated into the work by virtue of the fact that manufacturer of product has published warranty in connection with purchases and uses of product without regard for specific applications, except as otherwise limited by terms of warranty.

1.03 SUBMITTALS

A. If the date of Substantial Completion designates a commencement date for warranties other than the proposed date of Substantial Completion for the Work, or a designated portion of the Work, the Contractor shall submit written warranties upon request of the Owner, in accordance with this Section.

B. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, properly executed warranties should be submitted to the Owner within 15 days of completion of that designated portion of the Work.

C. When a special warranty is required to be executed by the Contractor, or the Contractor and a Subcontractor, supplier or manufacturer, a written document should be prepared which contains appropriate terms and identification, ready for execution by the required parties. Draft copies should be submitted for approval prior to final execution.

D. Refer to individual Sections of Divisions 02 through 33 for specific content requirements, and particular requirements for submittal of special warranties.

E. Final Form of Submittal: Prior to certification for Substantial Completion, compile two original copies of each approved warranty and bond properly executed by the Contractor, or by the Contractor, Subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Specifications.

1. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders.

F. Provide additional photocopies of each warranty for inclusion in the appropriate volume of the Operating and Maintenance Manuals.

1.04 QUALITY ASSURANCE

A. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and Subcontractors required to countersign special warranties with the Contractor.

1.05 WARRANTY REQUIREMENTS

A. Conform the following:

1. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

2. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with date of revised warranty beginning from date of repair.

3. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

B. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, right and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

C. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

D. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

E. In the event that the Owner or any of its agents takes possession of the Work or any portion thereof, pursuant to the Contract Provisions, warranties shall not start until such work, or portions thereof, are separately and finally accepted. Warranty coverage for system components shall not become effective until the Owner makes final acceptance of the system or a separate portion of the system containing the component. All affected warranties shall continue in force for a period of at least one (1) year from the date of final acceptance of the work or any portion thereof.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 017813

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SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. This Section specifies the administrative requirements, procedural obligations, terms and conditions and general requirements related to the preparation and submittal of instruction manuals covering the materials installed, care, preservation and maintenance of products, finishes, equipment and systems.

B. Related Sections:

1. Special operating and maintenance data requirements for specific equipment or building operating systems are included in the appropriate Specifications Sections of Divisions 02 through 33.

2. Preparation of Shop Drawings and Product Data are included in Specification Section 01 33 00, "Submittals and Substitutions".

3. General closeout requirements are included in Specification Section 01 77 00, "Contract Closeout".

4. General requirements for submittal of Project Record Documents are included in Section 01 78 39, "Project Record Documents".

1.02 SUBMITTALS

A. Submittal Schedule: Comply with the following schedule for submittal of operating and maintenance manuals:

1. Submit two (2) copies of the first and subsequent drafts of each manual for review. Include a complete index and table of contents for each volume. One (1) copy will be returned within 45 days of receipt with comments. The first draft shall be at least 95% complete. Provide FINAL manuals prior to commencement of training; these manuals shall be utilized as instructional text during the building orientation and training processes. Refer to Section 01 78 39.

B. Form of Submittal: Manuals should be prepared in the form of an instructional manual for use by the Owner's operating personnel and/or property management company. The information should be bound as follows:

1. Binders: For each manual, provide heavy-gauge, commercial quality, vinyl hanging VUE presentation binders in 3" capacity sized to receive 8-1/2" by 11" paper. Binder color shall be white.

a. Identify each binder on the spine with the typed or printed title "OPERATION AND MAINTENANCE MANUAL", project name and subject matter covered.

b. Indicate the volume number for multiple volume sets of manuals.

2. Dividers: Manual contents shall be organized and divided by specification divisions using index maker dividers.

3. Protective Plastic Jackets: Provide protective transparent plastic jackets designed to enclose diagnostic software for computerized electronic equipment.

4. Text Material: Where written material is required as part of the manual, use the manufacturer's standard printed material.

5. Drawings: Where drawings or diagrams are required as part of the manual, provide protective plastic jackets for the drawings and bind in with the text.

1.03 GENERAL MANUAL CONTENT

A. In each manual, include information specified in the individual Specification Section and the following information for each major component of building equipment and its controls:

1. General system or equipment description.
2. Design factors and assumptions.
3. Copies of approved shop drawings, product data, installation instructions and setup/calibration procedures.
4. Load and performance testing reports including equipment and system startup/performance documentation.
5. Fire/flame spread test certificates.
6. System or equipment identification, including:
    a. Name of manufacturer
    b. Model number
    c. Serial number
7. Standard operating instructions.
8. Emergency operating instructions.
9. Wiring diagrams including color coding, labeling and terminal designations.
10. Inspection and test procedures.
11. Detailed preventative maintenance procedures, frequencies and special tool requirements.
12. Operator trouble-shooting guide.
13. Precautions against improper use and maintenance.
14. Copies of warranties, including extended warranty options.
15. General owners operating/service manual.
16. Factory service manuals, including repair instructions and illustrated parts listing.
17. Electronic copies of operating system software (3.5 in. diskettes or CD-ROM).
18. Material safety data sheets.
19. Sources of required maintenance materials repair/replacement parts and related services.
20. Copies of inspections and certifications by governing authorities.

B. Manual Index: Organize each manual into separate Sections for each piece of related equipment. As a minimum each manual shall contain a title page, a table of contents, copies of Product Data, supplemented by drawings and written text, and copies of each warranty, bond and service contract proposal.

C. Title Page: Provide a title page as the first sheet of each manual. Provide the following information.

1. Subject matter covered by the manual.
2. Name and number of the Contract.
3. Date of submittal.
4. Name, address, and telephone number of the Contractor and Subcontractor.

5. Name and address of the Architect/Engineer.

6. Cross reference to related systems in other operating and maintenance manuals.

D. General Table of Contents: After the Title Page, include a typewritten table of contents for each volume (Divisions 02 through 33 inclusive), arranged according to the specification format.

E. General Information: Provide a general information Section immediately following the Table of Contents, listing by Specification Section each major product included in the manual, identified by product name. Under each product, list the name, address, telephone number, and point of contact of the Subcontractor or installer, and the maintenance contractor. Clearly delineate the extent of responsibility of each of these entities. In addition, list a local source for replacement parts and equipment.

F. Product Data: Where manufacturer's standard printed data is included in the manuals, include only sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation. Where more than one item in a tabular format is included, identify each item, using appropriate references from the Contract Documents. Identify data that is applicable to the installation and delete references to information that is not applicable.

1. Manufacturer's Data: Provide complete information on architectural products, including the following, as applicable:

a. Manufacturer's Catalog Number

b. Size

c. Material Composition

d. Color

e. Texture

f. Re-ordering Information for Specially Manufactured Products

2. Care and Maintenance Instructions: Provide information on care and maintenance, including manufacturer's recommendations for types of cleaning agents to be used and methods of cleaning. Provide information regarding cleaning agents and methods that could prove detrimental to the product. Include manufacturer's recommended schedule for cleaning and maintenance.

3. Color Schedules: Provide information showing manufacturer's color name and catalog number for all exposed finishes, including paint, carpet, wallcoverings, and other finish materials.

4. Moisture-Protection and Weather-Exposed Products: Provide complete manufacturer's data with instructions on inspection, maintenance and repair of products exposed to the weather or designed for moisture-protection purposes.

a. Manufacturer's Data: Provide manufacturer's data giving detailed information, including the following, as applicable:

1) Applicable standards

2) Chemical composition

3) Installation details

4) Inspection procedures

5) Maintenance information

6) Repair procedures

G. Equipment and Systems: Provide the following information for each piece of equipment, each building operating system, and each electric or electronic system.

1. Description: Provide a complete description of each unit and related component parts, including the following:
    a. Equipment or system function
    b. Operating characteristics
    c. Limiting conditions
    d. Performance curves
    e. Engineering data and tests
    f. Complete nomenclatures and number of replacement parts
2. Manufacturer's Information: For each manufacturer of a component part or piece of equipment, provide the following:
    a. Printed operating and maintenance instructions.
    b. Assembly drawings and diagrams required for maintenance.
    c. Recommended parts inventory listing.
3. Provide information detailing essential maintenance procedures, including the following:
    a. Routine operations
    b. Trouble-shooting guide
    c. Disassembly, repair and reassembly
    d. Alignment, adjusting and checking
4. Operating Procedures: Provide information on equipment and system operating procedures, including the following:
    a. Start-up procedures
    b. Equipment or system break-in
    c. Routine and normal operating instructions
    d. Regulation and control procedures
    e. Instructions on stopping
    f. Shut-down and emergency instructions
    g. Day and night operating instructions
    h. Summer and winter operating instructions
    i. Required sequences for pneumatic, electric, electronic or direct digital control systems
    j. Special operating instructions
5. Servicing Schedule: Provide a schedule of routine servicing and lubrication requirements, including a list of required lubricants for equipment with moving parts.
6. Controls: Provide a comprehensive description of the sequence of operation and as-installed control diagrams by the control manufacturer for systems requiring controls.
7. Drawings: Provide copies of each Contractor/Subcontractor set of coordination drawings.

8. Valve Tags: Provide charts of valve tag numbers with the room number location and function of each valve. Valve tag locations shall be clearly indicated on the set of record "As-Built" drawings.

9. Circuit Directories: For electric and electronic systems, provide complete circuit directories of panelboards, including the following:

    a. Electric power

    b. Lighting

    c. Communications

    d. Fire Alarm

H. Written Test: Where manufacturer's standard printed data is not available, and information is necessary for proper operation and maintenance of equipment or systems, or it is necessary to provide additional information to supplement data included in the manual, prepare written text to provide necessary information. Organize the text in a consistent format under separate headings for different procedures. Where necessary, provide a logical sequence of instruction for each operating or maintenance procedure.

I. Drawings: Provide specially prepared drawings where necessary to supplement manufacturer's printed data to illustrate the relationship of component parts of equipment or systems, or to provide control or flow diagrams. Coordinate these drawings with information contained in Project Record Drawings to assure correct illustration of the completed installation. Do not use original Project Record Documents as part of the Operating and Maintenance Manuals.

J. Warranties, Bonds, and Service Contracts: Provide a photocopy of each warranty, bond, or service contract in the appropriate manual for the information of the Owner's operating personnel. Provide written data outlining procedures to be followed in the event of product failure including the return policies/procedures. List circumstances and conditions that would affect validly of the warranty or bond. Commencement and expiration dates shall be clearly indicated.

K. Provide complete information in the manual on products specified in Divisions 02 through 33.

1.04 TRAINING OF OPERATING AND MAINTENANCE PERSONNEL

A. Prior to final inspection, instruct the hotel personnel in operation, adjustment, and maintenance of products, equipment and systems.

1. Use operation and maintenance manuals for each piece of equipment or system as the basis of instruction. Review contents in detail to explain all aspects of operation and maintenance.

2. Refer to Specification Section 01 79 00, "Training", for detailed training requirements

1.05 OPERATING MAINTENANCE MANUALS

A. Submit copies of each manual, in the form specified, to the Owner's Representative for distribution.

1. Refer to individual Specification Sections and other paragraphs within this Section for additional requirements.

B. Manuals should be organized into separate and distinct volumes (binders) as described hereafter:

1. "SITE WORK"

    a. Asphalt Concrete Pavement

b. Tack and Prime Coat
c. Concrete Curbs and Sidewalks
d. Pavement Markings
e. Guide Rail
f. Termite Control
g. Traffic Signage

2. "SITE WORK UTILITIES"
   a. Water and Sanitary Sewer Facilities
   b. Drainage Structures
   c. Underdrains
   d. Electrical Power Service
   e. Gas Utility
3. "LANDSCAPE AND SITE IMPROVEMENTS"
   a. Soil Preparation and Seeding
   b. Trees, Plants, and Ground Cover
   c. Fences and Gates
   d. Playfields and Equipment
   e. Site and Street Furnishings
4. "BUILDINGS AND STRUCTURES"
   a. Concrete
   b. Unit Masonry
   c. Metals
   d. Woods and Plastics
   e. Thermal and Moisture Protection
   f. Doors and Windows
   g. Finishes
   h. Specialties
   i. Fixtures, Furnishings, and Equipment
5. "WAYFINDING"
   a. Exterior Signage
   b. Exterior Post/Panel and Overhead Panel Signs
6. "SWIMMING POOL"
   a. Basic Piping and Pumps
   b. Filtering and Deck Equipment
   c. Pool Heater and Controls
   d. Chemical Treatment

7. "ELEVATORS"
8. "MECHANICAL, HVAC"
    a. Basic Materials and Methods
    b. Piping and Specialties
    c. Insulation
    d. Pumping
    e. Refrigeration
    f. Air Handling and Distribution
    g. Automatic Temperature Control
    h. Testing/Adjusting/Balancing
9. "MECHANICAL, PLUMBING"
    a. Basic Materials and Methods
    b. Piping and Specialties
    c. Insulation
    d. Fixtures/Trim/Accessories
    e. Water Heaters
    f. In-Line Circulating Pumps
    g. Water Softening Equipment
10. "FIRE SPRINKLERS"
    a. Basic Materials and Methods
    b. Standpipe and Hose Systems
    c. Fire Pumps
    d. Dry Pipe Sprinkler Systems
    e. Wet Pipe Sprinkler Systems
11. "ELECTRICAL"
    a. Basic Materials and Methods
    b. Service and Distribution
        1) Service Entrance
        2) Switchboards
        3) Disconnects
        4) Grounding
        5) Transformers
        6) Panelboards
        7) Overcurrent Protective Devices
        8) Contactors
        9) Voltage Surge Suppression

10) Heat Tracing

c. Lighting

1) Interior and Exterior Luminaries, Lamps and Accessories

2) Emergency Lighting

3) Lighting Control Equipment

12. "SOUND SYSTEMS"

13. "COMMUNICATIONS"

a. Voice and Data

b. Television Distribution System

c. Security Intercom System

14. "FIRE ALARM SYSTEM"

1.06 MAINTENANCE OF DOCUMENTS AND SAMPLES: Store Record Documents and Samples in the field office apart from Contract Documents used for construction. Do not permit Project Record Documents to be used for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition. Make Documents and Samples available at all times for inspection by the Owner's Representative or Architect.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. This Section specifies administrative and procedural requirements for Project Record Documents to be prepared and submitted by the General Contractor.

2. Project Record Documents required include:

a. Marked-Up Copies of Record Drawings, Specifications, and Product Data

b. Record Samples

c. Miscellaneous Record Submittals

B. Related Sections:

1. General project closeout requirements are included in “Contract Closeout”, Section 01 77 00.

2. General requirements for submittal of Shop Drawings and Product Data are included in General Conditions and the Section “Submittals and Substitutions,” Section 01 33 00.

3. Specific record copy requirements that expand requirements of this Section are included in the individual Sections of Divisions 02 through 33.

4. Operating and maintenance data is specified in Section 01 78 23.

1.02 RECORD DRAWINGS

A. The Contractor shall maintain a white-print set (blue-line or black-line) of Contract Drawings and Shop Drawings in clean, undamaged condition, with mark-up of actual installations which vary substantially from the work as originally shown. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where Shop Drawings are used for mark-up, record a cross reference at corresponding location on working drawings. Mark with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work. Mark-up new information which is recognized to be of importance to Owner, but was for some reason not shown on either Contract Drawings or Shop Drawings. Give particular attention to concealed work, which would be difficult to measure and record at a later date. Note related change order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on cover of each set.

B. Responsibility for Markup: Where feasible, the individual or entity who obtained record data, whether the individual or entity is the installer, Subcontractor, or similar entity, is required to prepare the mark-up on Record Drawings.

C. At time of Substantial Completion, submit Record Drawings to Owner for Owner's records.

1. Refer to Section 01 78 23 for items to be included in manuals.

2. Three (3) copies will be required.

1.03 RECORD SPECIFICATIONS

A. The Contractor shall maintain one copy of specifications, including addenda, change orders, and similar modifications issued in printed form during construction, and mark-up variations (of substance) in actual work in comparison with text of specifications and modifications as issued. Give particular attention to substitutions, selection of option, and similar information on work where it is concealed or cannot otherwise be readily discerned at a alter date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of mark-up, submit to the Owner.

1. The Contractor is responsible for collecting marked-up record Sections from each of the other Subcontractors, and for collating these Sections in proper numeric order with its own Sections to form a complete set of record Specifications. Submit to the Owner.

a. Three (3) copies will be required.

1.04 PRODUCT DATA

A. During the construction period, maintain one copy of each Product Data submittal for Project Record Document purposes.

1. Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submitted. Include significant changes in the product delivered to the site and changes in manufacturer's instructions and recommendations for installation.

2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

3. Note related Change Orders and mark-up of Record Drawings, where applicable.

4. Where record Product Data is required as part of maintenance manuals, submit marked-up Product Data as an insert in the manual instead of submittal as record Product Data. Refer to Section 01 78 23 (01830) for requirements. Submit to the Owner.

5. The Contractor is responsible for mark-up and submittal of record Product Data.

1.05 SAMPLES

A. Immediately prior to date of Substantial Completion, the Contractor shall meet with the Owner at the site to determine which of the Samples maintained during the construction period shall be transmitted to the Owner for record purposes. Comply with the Owner’s instructions for packaging, identification marking, and delivery to Owner's storage space. Dispose of other Samples in manner specified for disposal of surplus and waste materials.

1.06 MISCELLANEOUS RECORD SUBMITTALS

A. Refer to other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the Owner.

1. Categories of requirements resulting in miscellaneous records include, but are not limited to, the following:

a. Field Records on Excavations and Foundations

b. Field Records on Underground Construction and Similar Work

c. Survey Showing Locations and Elevations of Underground Lines

d. Invert Elevations of Drainage Piping

e. Surveys Establishing Building Lines and Levels

f. Authorized Measurements Utilizing Unit Prices or Allowances

g. Batch Mixing and Bulk Delivery Records

h. Load and Performance Testing

i. Inspections and Certifications by Governing Authorities

j. Leakage and Water-Penetration Tests

k. Fire Resistance and Flame Spread Test Results

l. Final Inspection and Correction Procedures

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 RECORDING

A. Post changes and modifications to the Documents as they occur. Do not wait until the end of the Project.

END OF SECTION 017839

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DIVISION 01

GENERAL REQUIREMENTS

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SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.
3. Extent of selective demolition work is indicated on Drawings.

B. Related Work Specified Elsewhere:

1. Cutting non-structural concrete floors and masonry walls for underground piping and ducts, and for above grade piping, ducts, and conduit is included with the work of the respective plumbing, HVAC and electrical Divisions 22, 23, 26 and 27 Specification Sections, unless noted otherwise on the Drawings or in the Specifications.
2. Remodeling construction work and patching is included within the respective Sections of Specifications, including removal of materials for reuse and incorporated into remodeling or new construction.
3. Relocation of pipes, conduits, ducts, other mechanical and electrical work are specified by respective trades.

C. Related Sections

1. Section 01 35 16 - Alteration Project Procedures
2. Section 01 56 16 – Temporary Dust Protection
3. Section 01 73 29 - Cutting and Patching
4. Section 01 74 00 - Cleaning & Waste Management
5. Section 09 21 16 - Gypsum Board Assemblies
6. Section 09 30 00 – Tiling
7. Section 09 65 00 – Resilient Flooring
8. Section 09 72 00 – Wall Coverings
9. Division 21 - 49 Sections

1.02 REFERENCES

A. American National Standards Institute (ANSI) Publications:

1. A10 “Series standards for "Safety Requirements for Construction and Demolition"

B. Environmental Protection Agency (EPA)

C. National Fire Protection Association (NFPA) Publications:

1. 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations"

D. Resilient Floor Covering Institute (RFCI)

1. "Recommended Work Practices for the Removal of Resilient Floor Coverings"

1.03 DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

B. Remove and Salvage: Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area. Items indicated to be removed and salvaged remain the Owner's property.

C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.

D. Existing to Remain: Existing items of construction that are not to be removed. Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Owner, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.04 SUBMITTALS

A. Schedule: Submit schedule indicating proposed methods and sequence of operations for selective demolition work to the Owner for review prior to commencement of work. Include start and end dates for each activity. Ensure Owner's on-site operations are uninterrupted.

1. Schedule shall indicate the following:

a. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure the Owner's on-site operations are uninterrupted.

b. Interruption of utility services. Indicate time period that utilities that will be out of service.

c. Coordination for shutoff, capping, and continuation of utility services.

d. Use and protection of elevator and stairs.

e. Locations of proposed dust- and noise-control temporary partitions and means of egress.

f. Coordination of the Owner's continuing occupancy of portions of existing building.

g. Means of protection for items to remain and items in path of waste removal from building.

B. Inventory: Provide inventory of items to be removed and salvaged or removed by owner.

1.05 QUALITY ASSURANCE

A. In addition to complying with all pertinent codes, the Contractor will also comply with the requirements of those insurance carriers providing coverage for the existing building and this work.

B. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling disposal regulations of authorities having jurisdiction.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

D. Contractor shall provide methods to ensure pollution control during the demolition period.

E. If unanticipated mechanical, electrical, or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Architect and Owner in written, accurate detail. Pending receipt of directive from Architect and Owner rearrange selective demolition schedule as necessary to continue overall job progress without delay.

F. Pre-demolition Conference: Conduct conference at Project site to comply with requirements in "Standard Conditions of Contract for Construction". Review methods and procedures related to selective demolition including, but not limited to, the following:

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

1.06 PROJECT CONDITIONS

A. Occupancy: If the Owner will be continuously occupying areas of building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of the Owner's normal operations. Provide a minimum of 72 hours advance notice to the Owner of demolition activities which will severely impact upon the Owner's normal operations.

B. Maintain access to existing walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.

C. Condition of Structures: The Owner assumes no responsibility for actual condition of items or structures to be demolished.

1. Notify the Architect and Owner of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

1. Under no circumstances will any persons connected with this project use any adjacent property outside the property limits for the purpose of storing or selling demolition materials.

E. Protections: Provide temporary barricades and other forms of protection as required to protect Owner personnel and the general public from injury due to selective demolition work.

1. Erect temporary covered passageways as required by authorities having jurisdiction.
2. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished, and adjacent facilities or work to remain.
3. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
4. Protect floors with suitable coverings when necessary. Use rubber-tired vehicles for conveying materials in building.
5. Construct temporary insulated solid dustproof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks if required.
6. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to insure that no water leakage or damage occurs to structure or interior areas of existing building.
7. Temporary Fire Protection: Provide fire extinguishers of rated capacities and types appropriate for demolition work being conducted within construction areas, but not less than one (1) multipurpose dry chemical fire extinguisher UL-rated 4-A:60-B-C, 10-lb (4.5-kg) nominal capacity of any demolition work, or as required by local authority having

jurisdiction. All combustible waste removed continuously. No smoking allowed. No device above 180 degrees F. allowed.

8. Remove protections at completion of work.

F. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to the Owner.

1.07 UTILITY SERVICES

A. Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations.

B. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Owner's Representative. Provide temporary services during interruptions to existing utilities, as acceptable to the Owner's Representative.

C. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution. Any water damage to portions of building to remain shall be repaired to original condition at not cost to the Owner.

D. Maintain fire-protection facilities in service during selective demolition operations.

1.08 TRAFFIC

A. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

B. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from Owner and other authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by the Owner and other governing regulations.

1.09 EXPLOSIVES

A. Use of explosives will not be permitted.

1.10 HAZARDOUS MATERIALS

A. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before the start of the Work.

2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify the Owner's Representative. Hazardous materials will be removed by Owner under a separate contract.

PART 2 PRODUCTS

2.01 GENERAL

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

2.02 TEMPORARY DUST AND PROTECTION PARTITIONS

A. Dust partition shall be constructed as described within the Contract Drawings and shall be provided in all locations necessary and as directed by the Owner, or as required for protection of existing adjacent finished surfaces, new construction, furniture, etc. Partitions and enclosures shall be erected prior to commencing demolition or alteration work and shall be removed as soon as the work is complete.

B. Dust Protection Materials

1. Refer to Section 01 56 16 “Temporary Dust Protection”

2.03 PROTECTION OF FINISHED ROOFS

A. Any work on the roof must involve the protection of surrounding roof work area as well as walk ways to the work areas. This protection, at minimum, shall be 2 inch thick rigid “Styrofoam” by Dow, covered with one layer of 5/8 inch plywood. Surfaces must be properly ballasted. See Drawings for additional details on protection of these items.

B. Set the layer of foam board onto the roof and butt tight. Tape joints to retain insulation in place. Lay plywood over the entire area. Stagger joints in the layer of insulation and fasten plywood at corners. Ballast plywood appropriately.

C. At completion of work completely remove protection. Restore roof to its original conditions acceptable to the Owner.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing conditions to structure surfaces, equipment or to surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with the Owner's Representative prior to starting work.

B. Verify that utilities have been disconnected and capped.

3.02 PREPARATION

A. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

B. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.

1. Cease operations and notify the Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

C. Cover and protect equipment and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such items have not been removed. Covers shall be dust-tight and secured to prevent dust from construction operations contaminating the furniture, furnishings, and equipment being protected.

D. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.

1. Provide weatherproof closures for exterior openings resulting from demolition work.

E. Locate, identify, stub off and disconnect utility services that are not indicated to remain.

1. Provide by-pass connections as necessary to maintain continuity of service to occupied areas of building. Provide a minimum of two weeks advance notice to the Owner if shut-down of service is necessary during change-over.

F. Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.

3.03 DEMOLITION

A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.
3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
4. Remove decayed, moldy, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
5. For interior concrete slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
6. Completely fill below-grade areas and voids resulting from demolition work. Provide fill consisting of approved compacted material.
7. Remove decayed, moldy, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Neatly cut openings and holes plumb, square and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Temporarily cover openings to remain.
9. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations.
    a. Maintain adequate ventilation when using cutting torches.
    b. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
10. Gypsum Board Partitions: Score and cut gypsum board materials in a manner to minimize generation of airborne dust. Comply with requirements for controlling dust, noise and odor.
    a. Where mold-damaged or water-damaged gypsum board is encountered notify Owner and Architect to determine if project scope and extend of material removal and replacement requires adjustment.
    b. Refer to Section 09 21 16 “Gypsum Board Assemblies” for additional requirements.
11. Ceramic Tile Finishes: Remove from floor and wall surfaces and prepare substrates as required for new finishes indicated.
    a. Where ceramic tile indicated to be removed is installed over existing gypsum board, remove and replace existing gypsum board substrate with new specified materials.
    b. Refer to Section 09 30 00 “Tiling” and Section 09 21 16 “Gypsum Board Assemblies” for additional requirements.
12. Acoustical Tile Ceilings: Where complete removal is indicated, remove all components including wire hangers. Concrete inserts, strap hangers and trapeze assemblies may be retained in place re-used provided they are and remain in full compliance with requirements for new work, including proof load testing, spacing, and types indicated.
    a. Refer to Section 09 51 23 “Acoustical Tile Ceilings” for additional requirements.
13. Remove resilient floor coverings and adhesive according to recommendations of the Resilient Floor Covering Institute's (RFCI) "Recommended Work Practices for the Removal of Resilient Floor Coverings" and Addendum.

a. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI and approved by manufacturer of new floor coverings.

b. Do not use methods requiring solvent-based adhesive strippers

c. Refer to Section 09 65 00 “Resilient Flooring” for additional requirements.

14. Wall Covering Finishes: Remove wall coverings and adhesives and prepare substrates for new finishes indicated, and as follows:

a. Gypsum Board: Replace gypsum board substrate that exhibits mold growth or that fails to retain any portion of the room side paper facing once the wall coverings and residual adhesives are fully removed.

b. Refer to Section 09 21 16 “Gypsum Board Assemblies” and Section 09 72 00 “Wall Coverings” for additional requirements.

15. Roofing:

a. Refer to Division 07 “Thermal and Moisture Protection” Sections for additional requirements.

16. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

a. Refer to Division 23 “Heating Ventilating and Air Conditioning” Sections for additional requirements.

3.04 POLLUTION CONTROLS

A. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.

1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.

C. Clean adjacent areas, structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

3.05 SALVAGE MATERIALS

A. All demolished material shall first be offered to the Owner. If not desired by the Owner, materials shall become Contractor's property to be removed from site and resold as described below. Items not resold shall be disposed of by the Contractor at the Contractor's expense unless noted otherwise on the Drawings.

1. Items having resale value, including but limited to: Furniture; Carpet and carpet padding; Artwork; Furnishings; and other items of similar nature shall be liquidated on behalf of the Owner. The fair market value shall be determined and the cost benefit shall be incorporated into the Contractors Bid for this Work. This amount shall be listed as a separate item on the Bid Proposal.

B. Historic items, relics, artifacts, including cornerstones and their contents, commemorative plaques and tablets, antiques, and other articles of historic significance remain the property of the Owner. Notify the Owner's Representative if such items are encountered and obtain acceptance regarding method of removal and salvage for the Owner.

3.06 REMOVED AND REINSTALLED MATERIALS

A. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.

B. Pack or crate items after cleaning and repairing. Identify contents of containers.

C. Protect items from damage during transport and storage.

D. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

B. Remove debris, rubbish and other materials resulting from demolition operations from building site as soon as possible. Storage of this material will not be permitted on the site. Transport and legally dispose of materials off site, without spillage on public streets.

1. Vehicles: To prevent littering of streets, cover open vehicles carrying debris from the building site.

2. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.

3. Burning of removed materials is not permitted on project site.

3.08 CLEAN-UP AND REPAIR

A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.

B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

C. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new construction as indicated on the Drawings.

1. Patching is specified in Section 01 73 29 “Cutting and Patching”.

END OF SECTION 024119

DIVISION 02

EXISTING CONDITIONS

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DIVISION 03

CONCRETE

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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1. Slabs-on-grade
2. Vapor retarder

B. Related Sections:

1. Section 31 2000 "Earth Moving" for drainage fill under slabs-on-grade.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment.

B. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code - Reinforcing Steel."

D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.

2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
   a. Contractor's superintendent.
   b. Independent testing agency responsible for concrete design mixtures.
   c. Ready-mix concrete manufacturer.
   d. Concrete subcontractor.
2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Metal or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
   a. High-density overlay, Class 1 or better.
   b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
   c. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

D. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

E. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

F. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

G. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Plain-Steel Wire: ASTM A 82, as drawn.

C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:
   a. Fly Ash: ASTM C 618, Class F.

B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: As indicated in design mixes.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94 and potable.

2.5 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Retarding Admixture: ASTM C 494, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

C. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C 494, Type C.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Euclid Chemical Company (The), an RPM company; EUCON CIA.
   b. Grace Construction Products, W. R. Grace & Co.; DCI.
   c. Sika Corporation; Sika CNI.

2.6 WATERSTOPS

A. Flexible PVC Waterstops: CE CRD-C 572, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. BoMetals, Inc.
   b. Greenstreak.
   c. Vinylex Corp.
2. Profile: Ribbed with center bulb.
3. Dimensions: As applicable to location; nontapered.

B. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Concrete Sealants Inc.; Conseal CS-231.
   b. Greenstreak; Swellstop.
   c. Henry Company, Sealants Division; Hydro-Flex.
   d. JP Specialties, Inc.; Earth Shield Type 20.

C. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free hydrophilic polymer modified chloroprene rubber, for adhesive bonding to concrete, 3/8 by 3/4 inch.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Adeka Ultra Seal/OCM, Inc.; Adeka Ultra Seal.
   b. Greenstreak; Hydrotite.
   c. Vinylex Corp.; Swellseal.

2.7 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A, except with a perm rating of less than 0.01 Perms grains/($ft^2 \cdot hr \cdot inHg$) as tested in accordance with ASTM E 1745 Section 7. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Carlisle Coatings & Waterproofing, Inc.; Blackline 400.
   b. Fortifiber Building Systems Group; Moistop Ultra 15.
   c. Grace Construction Products, W. R. Grace & Co.; Florprufe 120.
   d. Insulation Solutions, Inc.; Viper VaporCheck 16.
   e. Meadows, W. R., Inc.; Perminator 15 mil.
   f. Raven Industries Inc.; Vapor Block 15.
   g. Reef Industries, Inc.; Griffolyn 15 mil Green.
   h. Stego Industries, LLC; Stego Wrap 15 mil Class A.

2.8 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. ChemMasters; Chemisil Plus.
   b. ChemTec Int'l; ChemTec One.
   c. Conspec by Dayton Superior; Intraseal.
   d. Edoco by Dayton Superior; Titan Hard.
   e. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
   f. Meadows, W. R., Inc.; LIQUI-HARD.
   g. Symons by Dayton Superior; Buff Hard.

2.9 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Products: Subject to compliance with requirements, provide one of the following:
    a. ChemMasters; SprayFilm.
    b. Conspec by Dayton Superior; Aquafilm.
    c. Edoco by Dayton Superior; BurkeFilm.
    d. Euclid Chemical Company (The), an RPM company; Eucobar.
    e. L&M Construction Chemicals, Inc.; E-CON.
    f. Meadows, W. R., Inc.; EVAPRE.
    g. Sika Corporation; SikaFilm.
    h. Symons by Dayton Superior; Finishing Aid.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 25 percent solids, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

1. Products: Subject to compliance with requirements, provide one of the following:
    a. BASF Construction Chemicals - Building Systems; Kure-N-Seal W.
    b. ChemMasters; Safe-Cure Clear.
    c. Conspec by Dayton Superior; High Seal.
    d. Euclid Chemical Company (The), an RPM company; Diamond Clear VOX; Clearseal WB STD.
    e. L&M Construction Chemicals, Inc.; Dress & Seal WB.
    f. Meadows, W. R., Inc.; Vocomp-20.
    g. Symons by Dayton Superior; Cure & Seal 18 Percent E.

F. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

1. Products: Subject to compliance with requirements, provide one of the following:
    a. BASF Construction Chemicals - Building Systems; Kure-N-Seal 25 LV.
    b. ChemMasters; Spray-Cure & Seal Plus.
    c. Conspec by Dayton Superior; Sealcure 1315.
    d. Edoco by Dayton Superior; Cureseal 1315.
    e. Euclid Chemical Company (The), an RPM company; Super Diamond Clear; LusterSeal 300.
    f. L&M Construction Chemicals, Inc.; Lumiseal Plus.
    g. Meadows, W. R., Inc.; CS-309/30.

2.10 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.11 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

2.12 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 25 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.13 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings and Non-Retaining Walls: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio by Weight: 0.50.
3. Minimum Cementitious Materials Content: 475 lb/cu. yd.
4. Maximum Nominal Aggregate Size: 1 inch.
5. Maximum Slump Limit: 3-1/2 inches, plus 1 inch.
6. Air Content: 4 to 6 percent.

B. Slabs-on-Grade (Interior): Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio by Weight: 0.45.
3. Minimum Cementitious Materials Content: 540 lb/cu. yd.
4. Maximum Nominal Aggregate Size: 1 inch.
5. Maximum Slump Limit: 3-1/2 inches, plus 1 inch.

C. Foundation and Retaining Walls: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio by Weight: 0.45.
3. Minimum Cementitious Materials Content: 590 lb./cu.yd.
4. Maximum Nominal Aggregate Size: 1-1/2 inches.
5. Maximum Slump Limit: 3-1/2 inches, plus 1 inch.
6. Air Content: 4 to 6 percent.

D. Concrete Toppings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio by Weight: 0.45.
3. Minimum Cementitious Materials Content: 590 lb./cu.yd.
4. Maximum Nominal Aggregate Size: 3/8 inch.
5. Maximum Slump Limit: 3-1/2 inches, plus 1 inch.
6. Air Content: 4 to 6 percent.

E. Suspended Slabs: Proportion structural lightweight concrete mixture as follows:

1. Minimum Compressive Strength: 3500 psi at 28 days.
2. Minimum Cementitious Materials Content: 660 lb./cu.yd.
3. Maximum Nominal Aggregate Size: 3/4 inch.
4. Maximum Slump Limit: 2-1/2 inches, plus 1 inch.
5. Air Content: 4 to 8 percent.

2.14 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.15 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class C, 1/2 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 SHORES AND RESHORES

A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.

1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.

B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.

C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.5 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture underslab waterproofing. Repair damage and reseal underslab waterproofing before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one- fourth Insert depth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof

abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 07 9200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 WATERSTOPS

A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.8 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items and underslab waterproofing is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.

2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-

surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one- half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.

1. Apply scratch finish to surfaces to receive concrete floor toppings or to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish or to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film- finish coating system.
2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
3. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch.

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in- place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.12 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
   c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
   a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.13 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.

3.14 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching

mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Inspections:

1. Steel reinforcement placement.
2. Steel reinforcement welding.
3. Headed bolts and studs.
4. Verification of use of required design mixture.
5. Concrete placement, including conveying and depositing.
6. Curing procedures and maintenance of curing temperature.
7. Verification of concrete strength before removal of shores and forms from beams and slabs.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method, for normal-weight concrete;one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
5. Compressive-Strength Tests: ASTM C 39; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
   a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
   b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
6. When strength of field-cured cylinders is less than 85 percent of companion laboratory- cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive

strength by more than 500 psi.

8. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect.
11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

3.16 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 033000

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DIVISION 06

WOOD, PLASTICS, AND COMPOSITES

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SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Wood blocking, cants, and nailers.

2. Wood wall framing

1.3 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.

C. Exposed Framing: Framing not concealed by other construction.

1.4 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 MATERIAL

A. Blocking, nailers & fillers: kiln dried, SPF, construction grade.

B. Framing lumber: Kiln dried, SPF, #2 or better.

C. Rough hardware:

1. Steel items:

a. Comply with ASTM A 307;
b. Use hot-dip (ASTM A 153) galvanized coated at exterior locations and with pressure treated wood;

2. Machine bolts: Comply with ASTM A 307;
3. Lag bolts: Comply with Fed. Spec. FF-B-561;

4. Nails:

a. Use common except as otherwise noted;
b. Use stainless steel at exterior locations and with pressure treated wood.

5. Wood to wood:

a. Galvanized, common, annular ring nail;
b. Length: Sufficient to penetrate underlay blocking 1-1/4 inches.

6. Aluminum/sheet metal to wood:

a. FS FF-N-105B (3) Type II, Style 20, roofing nails; 6061-T913 alloy wire, flat head, diamond point, round barbed shank (use stainless steel in connection with pressure treated wood;
b. Length: Sufficient to penetrate wood 1-1/2 inches minimum.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.

D. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

E. Do not splice structural members between supports unless otherwise indicated.

F. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.

G. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

H. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative- treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
3. ICC-ES evaluation report for fastener.

J. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.

1. Comply with approved fastener patterns where applicable.
2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 PROTECTION

A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet enough that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 064023 - ARCHITECTURAL WOODWORK

PART I -GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cabinetry including: wood stile and rail cabinet doors, adjustable shelving
2. Countertops
3. Cabinet hardware.

B. Related Sections:

1. Blocking and grounds for attachment of woodwork: Elsewhere in Division 6.
2. Caulking between architectural woodwork and any wall, floor, or ceiling joints: Division 7.
3. Wood doors: Division 8.

1.2 SUBMITTALS

A. Shop Drawings: Submit dimensioned plans and elevations and large scale details, showing location of each item, identifying components used, and indicating method of attachment.

1. Show all cabinet hardware, anchors, fastenings and accessories.
2. Show all jointing, joint treatment and butt jointing in veneers and plastic laminate.

B. Samples: Submit samples for each of the following:

1. Plastic laminate, 12 inches square, including a section of outside comer.
2. Rigid plastic (countertop material), 12 inch x 12 inch x 1/2 inch thick; submit in selected colors/patterns.
3. Cabinet hardware.

C. Product Data: Submit manufacturer's complete product information, including maintenance requirements, for rigid plastic, plastic laminate, and coat rack.

D. Coordination Submittals: Submit coordination drawings showing locations and types of all blocking and other anchors to be built into substrates.

1.3 QUALITY ASSURANCE

A. Standard for Materials and Workmanship: Comply with applicable requirements of "Architectural Woodwork Quality Standards", published by Architectural Woodwork Institute

(Awn (hereinafter referred to as "woodworking standard").

l. Grades: As indicated herein.

B. Where contract documents indicate requirements which are less restrictive than the woodworking standard, comply with the minimum requirements of the woodworking standard.

1.4 PRODUCT HANDLING

A. Do not deliver products until ambient conditions required can be and are maintained.

B. Do not deliver woodwork until wet work, painting, grinding, and similar operations in storage and installation areas which could damage, soil, or deteriorate wood work have been completed.

C. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soiling, and deterioration.

D. Store products only in areas where ambient conditions required can be and are maintained.

1.5 PROJECT CONDITIONS

A. Maintain temperature and humidity in storage and installation areas as required to maintain moisture content of installed woodwork within a 1 percent tolerance of the optimum moisture content determined by the fabricator; maintain required conditions from date of delivery through the remainder of the construction period.

B. Areas to receive architectural woodwork must be fully enclosed with windows installed and glazed, exterior doors in place, **HV**AC systems operational and temporary openings closed. Any wet grinding and concrete work shall be fully dry.

C. Obtain field measurements and verify dimensions before fabricating woodwork.

PART 2 - PRODUCTS

2.1 WOOD MATERIALS

A. Lumber: Species and grade as specified in woodworking standard, except as otherwise indicated.

1. Moisture content at time of fabrication: As specified in woodworking standard.

2. Provide lumber dressed on all exposed faces, unless otherwise indicated.

3. Do not used twisted, warped, bowed, or otherwise defective lumber.

4. Sizes indicated are nominal, unless otherwise indicated.

B. Species Quarter sawn, clear white oak; for transparent (sealed and stained) finish.

C. Plywood for Core Construction: Types, grades, and cores as specified in woodworking standard.

2.2 MISCELLANEOUS MATERIALS

A. Plastic Laminate Materials: NEMA LD 3.

1. Horizontal surfaces: 0.050 inch thick, General-Purpose Type.

2. External vertical surfaces: 0.028 inch thick, General-Purpose Type.

3. Postforming: 0.042 inch thick Post-forming Type.

4. Cabinet linings: 0.020 inch thick, Cabinet-Liner Type.

5. Concealed panel backing: 0.020 inch thick Backer Type.

6. Core material: Softwood plywood (interior type, grade B-B) 3/4 inch thick.

7. Fasteners: Type, size, material, and finish as required for each use.

B. Cabinet Hardware: Comply with ANSI/BHMA Al 56.9 "American National Standard for Cabinet Hardware".

1. Hardware: Unless otherwise indicated, provide Architectural grade "Heavy Duty" cabinet hardware as manufactured by Hafele, Knape & Vogt or Stanley; hardware to include (but not necessarily be limited to) wire pulls, concealed hinges, slides, catches, etc.
2. Decorative Hardware: Provide the following:
   a. Hinges: 3” Arts & Crafts Ball-Tipped Door Hinge in Oil Rubbed Bronze by House of Antique Hardware
   b. Drawer Pulls: Arts & Crafts Horizontal Hammered Ring Pull in Oil Rubbed Bronze by House of Antique Hardware
   c. Door Pulls: Roycroft Cabinet knob with Tall Backplate in Oil Rubbed Bronze by House of Antique Hardware

3. Finishes: Provide hardware in finishes shown; if not shown, as selected by Architect from standard BHNA 1301 selections.

C. Solid surfacing countertops: Provide 1/2 inch thick "Corian" counters manufactured by E.I. Du Pont, or approved equal made by Avonite, Wilson Art or Gilbraltar. Counters to be of color as selected by the Architect.

I. Material: Cast, filled, acrylic; not coated, laminated or of composite construction, meeting ANSI Zl24, Type Six, and ISS FA-2.01 "Classification and Standards Publication of Solid Surfacing Material" as published by the International Solid Surface Fabricator Association.

2. Counters shall be adhesively joined with no exposed seams, having edge details shown on drawings.

3. Material shall conform to the published performance characteristics ofISSFA-2-01.

4. Joint adhesive: Manufacturer's standard two-part adhesive kit to create inconspicuous, non-porous joints.

5. Sealant: Manufacturer's standard mildew-resistant, FDA/UL recognized silicone sealant in colors matching components.

2.3 FABRICATION, GENERAL

A. General:

1. Provide lumber framing for architectural woodwork, complete with all bracing and fastening devices as required for a rigid installation, and as required to sustain the imposed loads.

2. Do all fabrication from field measurement with provision for scribing as required to meet built-in conditions.

3. Coordinate the work of this Section with the work of other trades.

4. Fabricate units in largest practicable sections. Assemble in the shop for trial fit, disassemble for shipment and reassemble with concealed fasteners.

5. Maintain relative humidity and temperature during fabrication, storage and finishing operations matching that of the areas of installation.

6. Details indicate the required type and quality of construction. Modifications to conform to manufacturer's standards will be considered providing they comply with the Contract Documents, maintain the profiles shown and subject to acceptance by the Architect.

7. Reinforcing shown is minimum. Provide additional reinforcing as required to ensure a rigid assembly. Exposed surfaces shall be free from tool marks, warpage, buckle, glue and open joints, or other defects affecting serviceability or appearance. Accurately fit all joints, corners and miters. Conceal all fasteners. Make threaded connections up tight so that threads are entirely concealed.

B. Wood Cabinetwork:

1. Comply with AWI Section 500 and its Division 500A; Premium grade.

2. Colors, Patterns and Finishes: As indicated on the drawings.

3. Install cabinet hardware.

PART 3 - EXECUTION

3.1 **PREPARATION**

A. Condition woodwork to humidity and temperature in installation area prior to installing.

B. Verify that blocking and backings have been installed at appropriate locations for anchorage.
C. Examine shop-fabricated work for completion, complete work as required, and remove packing.

3.2 INSTALLATION - GENERAL

A Installation Standard: Installation shall conform to the requirements of Section 1700 of AWI "Quality Standards Illustrated", Latest Edition.

B. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8 inch in 8 feet for plumb and level (including countertops), and with 1/16 inch maximum offset in flush adjoining surfaces, 1/8 inch maximum offset in revealed adjoining surfaces.

C. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.

D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation.

E. Repair damaged and defective work to eliminate visual and functional defects; where repair is not possible, replace work.

3.3 ROUGH CARPENTRY AND HARDWARE

A Framing:

1. Use specified framing lumber, sizes and spacing as indicated on drawings and as required to support loads.

2. Framing shall be cut square on bearings, closely fitted, accurately set to required lines and levels, rigidly secured in place at bearings and connection with nails, lag screws and/or bolts as required by conditions.

B. Grounds, Blocking, Nailers and Furring: Provide all wood grounds, blocking, nailers, furring, and the like for work of this Section, where shown and where required, dressed to size indicated or required to suit the condition. Install grounds, blocking, nailers, furring, etc., rigidly, in proper alignment, trued with a long straight edge.

C. Rough Hardware:

1. Provide all rough hardware, such as nails, screws, bolts, anchors, hangers, clips and similar items. Hardware shall be of the proper size and kind to adequately secure the work together and in place, in a rigid and substantial manner. Use galvanized hardware at exterior walls, and at other locations where subject to moisture or where water will be present.

2. Secure work to concrete and to solid masonry with countersunk bolts in expansion sleeves or other approved manner, to steel with countersunk bolts, to hollow masonry and to drywall with heavy duty countersunk toggle bolts. Space fastenings not more than 16 inches apart. Hardened cut nails, power-

driven fastenings, or other suitable devices may be used where approved by the Architect.

3. Connections and fastenings shall be made in such manner as will compensate for swelling and shrinkage and shall permit the work to remain permanently in place without any splitting or opening of joints.

3.4 CABINETWORK

A. General:

1. Materials and workmanship shall conform to the Quality Standards of the Architectural Woodwork Institute specified herein and to the drawings.

2. Fabricate all cabinetwork and millwork completely in the shop, in complete and/or as large units as practical, leaving only fitting, assembly, installation and a minimum of fabrication and finishing to be done at the building. Assembled work shall be rigidly secured and permanently fastened together with concealed fasteners.

3. As far as practicable, use concealed fastenings for joining and assembling the work. Where this is impossible, the means of securing shall be placed in inconspicuous places and methods of joining and assembling submitted for Architect's approval prior to fabrication.

4. Make all joints hairline tight, fitted accurately and joined with hardwood splines or dowels, glued together, or by other method approved by Architect. Use screws, not nails, for fastenings.

5. Gluing shall, where practicable, be by the hot plate press method and glued surfaces shall be in close contact throughout. Glue stains on finished work will not be permitted.

6. Work which adjoins drywall, concrete, or other finish shall be fitted and scribed in a careful manner and ample allowance shall be given for cutting and scribing.

7. Erect work true to lines, levels and dimensions, square, aligned and plumb, securely and rigidly fastened in place.

B. Cabinet Work: Provide all items of cabinetwork indicated on drawings and as herein specified.

1. Cabinet doors and drawers shall be flush mounted, unless otherwise indicated.

2. Adjustable shelves in cabinets shall have grommets spaced 2 inches o.c.

3. Fixed shelves shall be dadoed into side supports and glued.

4. Countertops, counters, counter fronts, shelves, etc., shall have plastic laminate shop applied to 3/4 inch thick core, with plastic laminate backing sheet on underside or

back of countertops, counters and shelves. Plastic laminate shall be pressure laminated to core with laminate at external comers. Provide concealed wood framing to support plastic laminate counters, securely fastened to wall and to underside of counters.

5. Incorporate rigid plastic countertops to comply with manufacturer's recommendations and approved shop drawings.

C. Installation of Cabinet Hardware:

1. Carefully fit and secure all items of cabinet hardware in place. Locations and positioning of hardware shall be subject to the Architect's approval. Take care not to mar or damage hardware or other work. Install doors plumb and true. Fit hardware to ensure operation without forcing.

2. After preliminary fitting of hardware, remove trim for painting and finishing work; after which reinstall the hardware in a permanent manner.

3. Upon completion of the work, before final acceptance of the building by the Owner, verify that all hardware is in satisfactory working order; fit all keys in their respective locks and, upon acceptance of the work, tag and deliver all keys to the Owner.

4. Adjust and lubricate cabinet hardware for smooth operation.

3.5 CLEAN UP AND PROTECTION

A. Clean Up: At regular intervals during the course of the work, clean up and remove from the site all debris and excess material. Upon completion of installation, clean all spaces of debris caused by woodwork installation.

B. Protection: Protect all woodwork from marring, defacement of other damage until final completion and acceptance of the project by the Owner. Repair or replace all defective units prior to final inspection as directed by the Architect. Any units that cannot be satisfactorily repaired in the opinion of the Architect shall be replaced with new units of same original design, at no additional cost to the Owner.

END OF SECTION 064023

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SECTION 064200 WOOD PANELING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Hardwood veneered panels for interior applications.

1.2 RELATED SECTIONS

A. 064021 Interior Architectural Woodwork

B. 064600 Wood Trim

1.3 REFERENCES

A. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 DEFINITIONS

A. Hardwood Plywood Terms:
1. Backs: Some plywood panels are specified with different grades of veneer on each side. The lower grade side of a plywood panel is called the Back.
2. Bark Pocket: An area on a sheet of veneer where a tree branch grew, thus trapping a small amount of bark, usually around a knot. Core: Inner plies of a panel product, usually composed of veneer. Alternatively, cores can be made of particleboard, MDF or lumber.
3. Crossbar: A defect in panel manufacturing where a piece of veneer runs perpendicular to the length of the board.
4. Crossbanding: Crossbanding refers to the orientation of successive layers of veneer layup by placing them perpendicular to the face and back of a plywood panel.
5. Defects: Any number of imperfections in a panel product's appearance or surface, including splits, stains, voids, holes, open knots, bark pockets and other issues.
6. Delamination: Panel separation caused by adhesive failure.
7. Face: Some plywood panels are specified with different grades of veneer on each side. The higher grade side of a plywood panel is called the Front.
8. Flitch: The complete bundle of thin sheets of veneer after cutting, laid together in sequence as they were sliced or sawn.
9. Grain: The distinctive, natural pattern, size and direction of the fibers in sliced or sawn wood.
10. Gum Spots: Sap or resin left on wood from veneer sawing or slicing. Gum spots can usually be removed by sanding.
11. Half-Round Slicing: When a log is cut tangential to its growth rings, the result is a plain sliced or rotary grain pattern.
12. Hardwood: Any species of deciduous tree lumber or veneer. Coniferous tree lumber is called Softwood. The term Hardwood has no relationship to the density of the wood.
13. Heartwood: The oldest part of a log radiating from the center, consisting of mature
14. Knot (Pin): Very small knots less than 1/4" in diameter.
15. Knot (Sound): Knots that have not separated from the surrounding fiber during the drying process.
16. Knothole: A void in lumber or veneer created when a knot is missing from its original location.
17. Lap: Orientation of two pieces of veneer next to one another in the same layer of ply.
18. Medium Density Fiberboard (MDF): A wood flour material made from pressure-cooked

wood fiber, resin and wax.

19. Mineral Streak: A discoloration of hardwood and hardwood veneer.
20. Particleboard: A panel or core material manufactured from pressed sawmill shavings, resin and wax.
21. Patches: Material placed onto defects in veneers to repair voids and other imperfections.
22. Plain Sliced: When a log is cut tangential to the tree's annual growth rings.
23. Ply: One layer in a wood panel product. Varying numbers of plies make up a sheet of plywood.
24. Plywood, Hardwood: A panel product with a hardwood face veneer. The back veneer is usually hardwood as well. Hardwood plywood may or may not have softwood inner plies.
25. Quarter Slicing: A veneer cutting method in which a log is sliced at right angles to the annular growth rings.
26. Rift Cut: A veneer cutting method in which a log is cut into quarters and then at a 90-degree angle to the grain direction.
27. Rotary Cut: A peeling process whereby a whole log is set in a lathe and turned against a large knife.
28. Sapwood: The youngest, newest wood in a lumber or veneer, located between the heartwood and the bark.
29. Slip Matched: When veneer is carefully aligned to form a whole sheet with a pleasing grain appearance.
30. Splits: Cracks in the wood fiber running parallel to the grain in veneer, usually from drying.
31. Veneer: Peeled or sliced sheets of thin wood used to make the layers of plywood. Wood that has stopped growing. Usually, heartwood is darker than sapwood.
32. Knot: The place on lumber or veneer where a branch once emerged from the trunk of the tree.
33. Knot (Open): The condition of a knot that has separated from the fibers surrounding it due to the drying process.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.

1.6 QUALITY ASSURANCE

A. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship is approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

B. Handling: Handle materials to avoid damage.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Source products from a single manufacturer

2.2 HARDWOOD PANELING - GENERAL

A. Hardwood Panel Face Veneers:
   1. Veneers shall comply with cutting, matching and grading as scheduled or required.
   2. Cores shall be hardwood veneer inner plies as scheduled constructed using formaldehyde-free adhesive.
      a. Cores shall be certified No Added Urea Formaldehyde (NAUF).

B. Hardwood Veneer Core:
   1. Construction: 1/16 inch (1.6 mm) uniform laminations. Tolerances comply with American National Standards Institute (ANSI/HPVA) grade rules, HP-1-2004.

2.3 FABRICATION

A. Paneling: Provide panels having the following characteristics and construction.
   1. Core: Veneer Core laminated core
   2. Core: Composite MDF in density required as manufactured by States Industries.
   3. Species: White Oak (shall match adjacent trim species)
   4. Veneer Matching: Slip match.
   5. Exposed Face Grade: A grade.
   6. Concealed Face Grade: B grade.
   7. Cut: Quarter sliced.
   8. Finish: Field or shop finished

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved submittals.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 064200

SECTION 064600 - WOOD TRIM

PART I - GENERAL

1.1. SUMMARY

A. Section Includes:

1. Interior standing and running trim.

2. Wood fining, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

3. Shop priming of wood trim.

4. Shop finishing of wood trim.

B. Related Requirements:

Section 064023 Interior Architectural Woodwork

Section 064200 Wood Paneling

Section 099300 Staining and Transparent Finishing

13 ACTION SUBMITFALS

A. Product Data: For each type of product, including panel products fire-retardant-treated materials and finishing materials and processes.

C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

D. Samples:

1. Lumber for transparent finish, for each species and cut, finished on one side and one edge.

2. Lumber and panel products with shop-applied opaque finish, for each finish system and color, with exposed surface finished.

1.4 INFORMATIONAL SUBMITTALS

A. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Pro2ram certificates.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Certified participant in AWI's Quality Certification Program.

1.6 FIELD CONDITIONS

A. Weather Limitations for Exterior Work: Proceed with installation of exterior wood trim only when existing and forecasted weather conditions permit work to be performed and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.

B. Environmental Limitations for Interior Work: Do not deliver or install interior wood trim until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during. the remainder of the construction period.

PART 2- PRODUCTS

2.1 WOOD TRIM,

GENERAL A. Quality Standard: Unless otherwise indicated, comply with the 'Architectural Woodwork Standards" for grades of wood trim indicated for construction, finishes, installation, and other requirements.

2.2 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

A. Grade: Custom.

B. Wood Species and Cut: White Oak, quarter sliced, book matched, vertical grain direction,

2.3 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

A. Grade: Custom. . ..

B. Wood Species: Any closed-grain hardwood.

2.4 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of wood trim and quality grade specified unless otherwise indicated.

B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of wood trim and quality grade specified unless otherwise indicated

2.6 MISCELLANEOUS MATERIALS

A. Interior Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.

B. Provide self-drilling screws for metal-framing supports.

C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use non ferrous metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

D. Adhesives: Do not use adhesives that contain urea formaldehyde.

E. VOC Limits for Installation Adhesives and Sealants: Use products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Wood Glues: 30 g/L.

2. Multipurpose Construction Adhesives: 70 gIL.

3. Structural Wood Member Adhesive: 140 g/L.

4. Architectural Sealants: 250 gIL.

2.7 FABRICATION

A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

B. Fabricate wood trim to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:

1. Edges of Solid-Wood (Lumber) Members: 1/16 inch unless otherwise indicated.

2. Edges of Rails and Similar Members More Than 3/4 Inch Thick: 1/8 inch.

C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members except for members with ends exposed in finished work

D. Assemble casings in shop except where shipping limitations require field assembly.

2,8 SHOP FINISHING

A. General: Finish wood trim at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.

B. Finish Materials: Use finish materials that meet the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing wood trim, as applicable to each unit of work.

D. Back-priming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of wood trim. Apply two coats to end-grain surfaces.

E. Transparent Finish for Interior Trim: Custom stain, match Professional's sample, sheen 40 (semi-gloss range).

F. Opaque Finish for Interior Trim: As indicated on Drawings.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition wood trim to average prevailing humidity conditions in installation areas.

3.2 INSTALLATION

A. Grade: Install wood trim to comply with same grade as item to be installed.

B. Install wood trim level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches

C. Scribe and cut wood trim to fit adjoining work, refinish cut surfaces, and repair damaged finish at mats.

D. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork

E. Preservative-Treated Wood: Where cut or drilled in field, treat cut ends and drilled holes according to AWPA M4.

F. Anchor wood trim to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork.

G. For shop-finished items, use filler matching finish of items being installed.

H. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36 inches long except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.

I. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches.

END OF SECTION 064600

DIVISION 07

THERMAL AND MOISTURE PROTECTION

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SECTION 072100 - BUILDING INSULATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY:

A. The Contractor shall provide Building Insulation where shown on the drawings, as specified in this Section, and as needed for a complete and proper installation.

B. Sound attenuation insulation where indicated in the partition types.

C. Where the framing at existing exterior walls is exposed during the course of construction, fill the exposed cavity completely with insulation.

D. Where new lumber framing abuts existing exterior masonry walls, fill cavity with insulation.

1.03 RELATED WORK:

A. Division 7-Foamed·in-Place Masonry Wall Insulation.

B. Division 7-Water Managed EIFS.

C. Division 7-Single-Ply Membrane Roofing System.

D. Division 7-Through-Penetration Firestop Systems.

E. Division 7-Fire-Resistive Joint Systems.

1.04 REFERENCE DOCUMENTS:

A. The following publications are incorporated in this specification by reference and have the same force and effect as if bound herein.

B. American Society for Testing and Materials (ASTM).

1. C423 -Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

2. C518 -Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter.

3. C553 -Standard Specification for Mineral Fiber Blanket and Fell Insulations.

4. C578 -Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

5. C612 -Standard Specification for Mineral Fiber Block and Board Thermal Insulation.

6. C66S -Specification for Mineral Fiber Blanket Thermal Insulation for Light·Frame Construction and Manufactured Housing.

7. 01621--Standard Test Method for Compressive Properties of Rigid Cellular Plastics.

8. E84 -Test Method for Surface Burning Characteristics of Building Materials.

9. E90 -Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

10. E96 -Test Method for Water Vapor Transmission of Materials.

11. E814 -Standard Test Method for Fire Tests of Through·Penetration Fire Stops.

C. Fire-Resistance Ratings: Comply with GA File Numbers in GA-600 Fire Resistance Design Manual, or by design designations from UL's Fire Resistance Directory, or from the listings of another testing and inspecting agency.

1.05 REGULATORY REQUIREMENTS:

A. All insulation materials shall have been tested and approved by Underwriters Laboratories, Inc. (UL) for use in Class A Fire Hazard Classification systems.

1. All insulation materials shall have 0-25 flame spread index and 0-450 smoke-developed index in accordance with ASTM E84.

1.06 SUBMITTALS:

A. Product Data: Within 30 calendar days after the Contractor has received Owner's Notice to Proceed, submit:

B. Manufacturer's technical data on each type of insulation proposed to be used. PART 2 PRODUCTS

2.01 MANUFACTURERS:

A. Rigid Insulation:

1. 1Dow Chemical Company www.dow.com/styrofoam.

B. Fiberglass Batt and Semi-Rigid Board Insulation:

1. Certain Teed Corp. www.certainteed.com.
2. Owens Corning www.Owenscorning.com.
3. Johns Manville www.jm.com.
4. Knauf insulation www.knaufinsulalion.com.

C. Mineral Wool Insulation.

1. Rockwool. Rockwool.com
2. Thermafiber Owens Corning www.Owenscorning.com

D. Fire Stop Insulation:

1. Thermafiber www.thermafiber.com.

2.02 RIGID INSULATION:

A. Perimeter Slab Insulation: Provide rigid closed cell extruded polystyrene thermal board insulation equal to "Dow Styrofoam Scoreboard".

1. Thermal Resistance per inch, ASTM C518: R-5.0
   a. 1-1/2 inch R-7.5
   b. 2 inch R-10
2. Compressive Strength, ASTM D1621: 25 psi
3. Water Vapor Permeance, ASTM E96: 1.1 perm
4. Flame Spread, ASTM E84: 5

5. Smoke Developed, ASTM E84: 165

2.03 FIBERGLASS INSULATION:

A. Exterior Wall Insulation (Fiberglass Batts): Provide FRK/FSK-faced ASTM C665, Type III, Class A.

1. Thermal Resistance, ASTM C518:
   a. 3-1/2 inch R-13
   b. 6-1/4 inch R-19
2. Water Vapor Permeance, ASTM E96: 0.02 perm
3. Flame Spread, ASTM E84: 25
4. Smoke Developed, ASTM E84: 50

B. Exterior Wall Insulation (Fiberglass Semi-Rigid Board): Provide FRK/FSK-faced ASTM C612, Type 1A and 1B.

1. Thermal Resistance per inch, ASTM C518: R-4.3
   a. 1-1/2 inch R-6.5
   b. 2 inch R-B.7
2. Water Vapor Permeance, ASTM E96: 0.02 perm
3. Flame Spread, ASTM E84: 25
4. Smoke Developed. ASTM E84: 50

C. Interior Sound Allenuation (Fiberglass Batts): Provide unfaced batts for interior sound attenuation purposes at walls, ceilings and other locations where shown or scheduled on the drawings, ASTM Ce6S. Type I, Class A.

1. Thickness: To nominally fill cavity.
2. Noise Reduction Coefficient, ASTM C423, (2 inch samples): 1
3. Flame Spread, ASTM E84: 25
4. Smoke Developed, ASTM E84: 50

2.04 MINERAL WOOL INSULATION

A. Exterior Wall Insulation (Mineral Wool): P

1. Thermal Resistance, ASTM C518:
   a. 3-1/2 inch R-13
   b. 5-1/2 inch R-21
2. Water Vapor Permeance, ASTM E96: 0.02 perm
3. Flame Spread, ASTM E84: 25
4. Smoke Developed, ASTM E84: 50

B. Interior Sound Attenuation (Mineral Wool): Provide unfaced batts for interior sound attenuation purposes at walls, ceilings and other locations where shown or scheduled on the drawings, ASTM Ce6S. Type I, Class A.

1. Thickness: To nominally fill cavity.
2. Noise Reduction Coefficient, ASTM C423, (2 inch samples): 1
3. Flame Spread, ASTM E84: 25
4. Smoke Developed, ASTM E84: 50

2.05 FIRE STOP SYSTEM:

A. Wherever firesafing or fire containment is called for, fill voids with unfaced mineral fiber batts equal to Thermafiber meeting ASTM E814 and UL Standard 1479. Comply with all of the manufacturer's system requirements necessary to produce a minimum fire protection rating as shown on the drawings.

1. Curtain Wall Insulation: For gaps between perimeter edge of fire-resistance--rated floor assemblies and non-fire-resistance-rated exterior curtain walls, provide a perimeter fire-containment system with the fire test response characteristics indicated, as determined by testing identical systems per the UL or Intertek (OPL), or another testing and inspecting agency accountable to authorities having jurisdiction.
   a. Type: Thermafiber Firespan Insulation and/or Thermafiber Firespan SS Insulation.
   b. R-Value: 4.2 per inch.
2. Safing Insulation:
   a. Type: Thermafiber Safing Insulation for construction joint application and/or Thermafiber Top-Stop Insulation for head of wall applications.
   b. R-Value: 4.2 per inch.
   c. Facing: Unfaced.
   d. Standard Density: 4.0 pcf (actual).
3. Safing Clips: Z-shaped galvanized steel dips formed from 1 inch (25 mm) wide strips of 20 gauge galvanized steel. 3 inches (76mm) high with 2 inch (51mm) and 3 inch (76mm) upper and lower horizontal legs.
4. Hardware:
   a. Thermafiber Impasse hardware for attaching curtain wall insulation.
   b. Mechanical Fasteners as approved by the manufacturer.
5. Backer Reinforcement Member: Thermafiber Impasse T-Bar or other light gauge steel channel or angle approved by the primary manufacturer. Place horizontally at the safe-off line to support the curtain wall insulation to prevent bowing of curtain wall insulation caused by compression fitting of the Safing insulation.
6. Smoke Barrier: Smoke sealant as listed in the appropriate fire assembly and approved by the manufacturer.

2.06 ACCESSORIES:

A. Adhesive: Type recommended by insulation manufacturer.

B. Tape: Self adhesive vapor retarder tape with 0·25 flame spread index and 0-450 smoke-developed index in accordance with ASTM E84.

C. Insulation Supports: Provide 14 gauge insulation supports as manufactured by Simpson Strong-Tie Company, Inc. www.strongtie.com. Install between joists and rafters at 16” O.C. (Model 1S16) or 24” O.C. (Model IS24) spacing as required. Follow manufacturer's installation instructions.

D. Insulation Fastening System: Provide 12 gauge insulation fasteners as manufactured by Gemco www.gemcoinsulation.com. Provide perforated base hangers adhered with TUFF-BOND adhesive consisting of low carbon steel, copper coated nail; low carbon steel galvanized baseplate, locking washers and accessories. Length as required. Follow manufacturer's installation instructions.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS:

A. The Contractor shall examine the areas and conditions under which work of this Section will be provided, shall correct conditions detrimental to the timely and proper completion of the work, and shall NOT proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION:

A. Install all work of this section in strict accordance with the construction details, requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures.

B. Comply with insulation manufacturer's written instructions applicable to products and application indicated.

C. Water Piping Coordination: If water piping is located on inside of insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.

D. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation.

E. Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.

F. Seal joints between closed cell (non-breathing) insulation units by applying adhesive, mastic or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic or sealant as recommended by insulation manufacturer.

G. Set vapor-retarder-faced units with vapor retarder to warm side of construction, unless otherwise indicated. Do not obstruct ventilation spaces, except for firestopping. Tape ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

H. Surface Application: Apply insulation directly to surface with appropriate spindle or prong-type anchors.

1. Fasten anchors to steel surfaces by welding the pin to metal or by using pre-attached heads and welded through the insulation.

2. Fasten anchors to other substrates with adhesive. Follow manufacturer's recommendations for surface preparation and adhesive pattern.

3. Impale insulation on anchor and secure with washer.
4. Select pin lengths to ensure tight-fit. Protect pin tips where subject to human contact.
5. See manufacturer's diagram for impaling pin pattern.

I. Between Furring Strips, Hat-Channels, and Z-Shaped Furring: Install insulation between furring members; use fastening system recommended by furring strip manufacturer.

J. Between Metal Studs, Rafters and Joists: Friction fit insulation between framing members after cover material has been installed on the one side of the cavity.

1. Unfaced Insulation: In applications without a cover material and where framing depth is larger than insulation thickness, use wire or metal straps to hold insulation in place.
2. Faced Insulation: Tape attachment flanges to face of metal framing prior to applying interior finish.
3. Wall Heights Over 8 feet (2440 mm) and Ceilings: Provide supplementary support to hold insulation in place by taping stapling flanges to flanges of metal studs until finish surface is applied.

K. Between Open Web Bar Joists: Secure with 16 or 18 gauge wire running diagonally or perpendicular to insulation, spaced at 18 to 24 inches (460 to 610 mm).

L. Over Suspended Ceilings: Install insulation with face contacting back of ceiling panels; butt insulation tightly together at edges to prevent thermal leaks.

M. Acoustical Insulation Installation: Install insulation where indicated in sound rated assemblies. Maintain acoustical rating of assembly.

N. Installation of Vapor Retarders:

1. 1Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates.
2. Firmly attach vapor retarders to substrates with mechanical fasteners or adhesives as recommended by vapor retarder manufacturer.
3. Seal joints caused by pipes, conduits, electrical boxes and similar items penetrating vapor retarders with vapor retarder tape to create an airtight seat between penetrating objects and vapor retarder.
4. Repair any tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor retarder tape or another layer of vapor retarder.

O. Install curtain wall and firesafing insulation in accordance with UL / Intertek (OPL) listed system and manufacturer's instructions.

END OF SECTION 072100

SECTION 073126 - SLATE SHINGLES

1.1 SUMMARY

A. Section Includes:

1. Slate shingles.
2. Underlayment.
3. Snow guards (not used).

1.2 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

PART 2 - PRODUCTS

2.1 SLATE SHINGLES

A. Slate Shingles: ASTM C 406, Grade S1; hard, dense, and sound; chamfered edges, with nail holes machine punched or drilled and countersunk. No broken or cracked slates, no broken exposed corners, and no broken corners on covered ends that could sacrifice nailing strength or laying of a watertight roof.

1. Note: if available salvaged or remanufactured slates of similar or exact age, type, size and appearance may be used and installed with similar techniques.

2. If undertaken with a general repair and/or replacement of other portions of the building roof, match those materials and techniques.

3. Some Salvaged Roof sources:

a. Reclaimed Roofs Inc: 4023 Kennett Pike, Ste 213, Greenville, DE 19807; https://www.reclaimedroofs.com/; Phone: 302-369-9187

b. Fairview Demolition: 1045 Hopewell Road, Oxford, PA 19363; (717) 475-7929

B. Manufacturers:

a. Evergreen Slate Company.
b. Greenstone Slate Company, Inc.
c. New England Slate Company (The).
d. U.S. Quarried Slate Products, Inc.
e. Vermont Structural Slate Company, Inc.
f. Glendyne Slate.

2. Thickness: Nominal 1/4 to 3/8 inch (6 to 10 mm).

3. Surface Texture: Smooth.
4. Size: 10 by 16 inches, with 7 inch reveal.
5. Nail Holes: Two per shingle.
6. Butt Shape: Standard square cut.
7. Color: Match existing.
8. Weather-Exposure Color Change: Non-fading.

C. Starter Slate: Slate shingles with chamfered nail holes front-side punched.

1. Length: Exposure of slate shingle plus head lap.

D. Ridge Slate: Slate shingles fabricated with vertical grain orientation.

2.2 UNDERLAYMENT MATERIALS

A. Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D 1970, minimum of 40-mil-(1.0-mm-) thick, slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied.

1. Manufacturers:

a. Carlisle Coatings & Waterproofing, Inc.
b. Grace, W. R. & Co. - Conn.
c. Henry Company.
d. Johns Manville.
e. Owens Corning.
f. Polyguard Products, Inc.
g. Protecto Wrap Company.

2.3 SNOW GUARDS

A. Snow-Guard Pads: Fabricated copper units, designed to be installed without penetrating slate shingles, and complete with predrilled holes or hooks for anchoring.

1. Manufacturers:

a. Alpine SnowGuards, a division of Vermont Slate & Copper Services, Inc.
b. Berger Building Products.
c. Zaleski Snow-Guards for Roofs, Inc.

B. Snow-Guard Rails: Units fabricated from metal baseplate anchored to fixed bracket and equipped with two bars unless otherwise designed.

1. Manufacturers:

a. Alpine SnowGuards, a division of Vermont Slate & Copper Services, Inc.

b. Berger Building Products.

2. Brackets and Baseplate: Bronze or brass.
3. Bars: Brass or bronze tubing.

2.4 ACCESSORIES

A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

B. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in slate-shingle roofing and remain watertight.

C. Slating Nails: ASTM F 1667, copper, smooth shanked, wire nails; 0.135-inch (3.4-mm) minimum thickness; sharp pointed; with 3/8-inch- (10-mm-) minimum diameter flat head; of sufficient length to penetrate a minimum of 3/4 inch (19 mm) into sheathing.

1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

2.5 METAL FLASHING AND TRIM

A. General: Comply with requirements in Chapter 5, Division 07, Section 076200.

1. Sheet Metal: Lead Coated Copper.

B. Fabricate sheet metal flashing and trim to comply with recommendations that apply to design, dimensions, metal, and other characteristics of the item in SMACNA's "Architectural Sheet Metal Manual."

2.6 UNDERLAYMENT INSTALLATION

A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

B. Self-Adhering Sheet Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install at locations indicated, lapped in direction to shed water. Lap sides not less than 3-1/2 inches (89 mm). Lap ends not less than 6 inches (152 mm), staggered 24 inches (600 mm) between courses. Roll laps with roller. Cover underlayment within seven days.

2.7 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Chapter 5, Division 07, Section 076200.

1. Install metal flashings according to recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

B. Apron Flashings: Extend lower flange over and beyond each side of downslope slate shingles and up the vertical surface.

C. Step Flashings: Install with a head lap of 3 inches (75 mm) and extend both horizontally and vertically. Install with lower edge of flashing just upslope of, and concealed by, butt of overlying slate shingle. Fasten to roof deck only.

D. Hip Flashings: Install centrally over hip with lower edge of flashing concealed by butt of overlying slate shingle. Fasten to roof deck.

E. Open-Valley Flashings: Install centrally in valleys, lapping ends at least 8 inches (205 mm) in direction to shed water. Fasten upper end of each length to roof deck beneath overlap.

F. Rake Drip Edges: Install over underlayment and fasten to roof deck.

G. Eave Drip Edges: Install beneath underlayment and fasten to roof deck.

H. Pipe Flashings: Form flashing around pipe penetrations and slate shingles. Fasten and seal to slate shingles.

END OF SECTION 073126

SECTION 079200 – JOINT SEALANTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply 10 this Section.

1.02 SUMMARY:

A. The Contractor shall provide all labor, materials, and equipment for caulking and sealant work, and make all joints wind and weather tight, at the following general locations:
   1. All joints between door, storefront and miscellaneous frames and masonry.
   2. All exterior joints in EIFS.
   3. All joints where a wind and weather tight joint is required, including but not limited to exterior hose bibb and other plumbing, mechanical, electrical and other utility penetrations through the exterior wall assembly, and roof and roof parapet penetrations.
   4. All control joints at interior and exterior masonry and concrete.
   5. All control joints at interior gypsum wallboard partitions.
   6. All saw-cut control joints at exterior concrete slabs.
   7. All joints where a neat appearance is required between dissimilar materials.
   8. Joints at casing trim to receive a painted finish use sealant
   9. Where otherwise shown on the drawings

1.03 RELATED WORK:

A. Division 7-Water Managed EIFS: compound system warranty for EIFS and silicone sealants used with EIFS.

B. Division 7-Through-Penetration Firestop Systems.

C. Division 7-Fire-Resistive Joint Systems.

D. Division 8-Glazing: glazing compound, sealants, and tapes.

1.04 REFERENCE DOCUMENTS:

A. The following publications are incorporated in this specification by reference and have the same force and effect as if bound herein.

B. American Society for Testing and Materials (ASTM).
   1. C834 -Standard Specification for Latex Sealing Compounds.
   2. C920 -Standard Specification for Elastomeric Joint Sealants.
   3. C1184 -Standard Specification for Structural Silicone Sealant.
   4. C1401 -Standard Guide for Structural Sealant Glazing.

1.05 SUBMITIAL:

A. Product Data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

B. Manufacturer's technical product data, installation instructions and recommendations.

C. Samples for initial selection purposes in form of manufacturer's standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.

D. Letter of certification from joint sealant manufacturer attesting that their products comply with specification requirements and are suitable for the use indicated.

E. Letter of certification from joint sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds (VOC).

1.06 QUALITY ASSURANCE:

A. Applicator Qualifications: Company specializing in performing work of this section with minimum of 3 years documented experience, minimum 3 successfully completed projects of similar scope and complexity, and approved by the manufacturer.

1.07 DELIVERY, STORAGE & HANDLING:

A. Strictly comply with manufacturer's recommendations for storage and handling.

B. Do not retain material at the jobsite which has exceeded the shelf life recommended by the manufacturer.

1.08 WARRANTY; CLOSEOUT DOCUMENTS:

A. Manufacturers' Warranties: The Contractor shall include the product manufacturers' standard warranties for a term of 5 years after the Date of Substantial Completion. Provide manufacturer's compound system warranty for EIFS and silicone sealants used with EIFS.

B. Installer's Warranty: The Contractor shall include a copy of the installer's warranty for all work provided for a term of 5 years after the Date of Substantial Completion. The guarantee shall state that this Contractor will pay for all cost of material and labor required to repair all defects which occur in the caulking.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

A. Acceptable Sealant Manufacturers:

1. Pecora Corp. www.pecora.com.
2. Sika Corp. www.sikaconstruction.com.
3. Sonneborn www.chemrex.com.
4. Tremco www.tremcosealants.com.
5. Dow Corning www.dowcorning.com/content/construction.
6. General Electric www.gesealants.com

B. Acceptable Façade and Building Abutment Joint Manufacturer:

C. 1. Emseal Joint Systems Ltd., Westborough MA (508/ 836-0280) www.emseal.com.

2.02 SEALANT MATERIALS / USES:

A. SLNT-1: Two-Component Urethane: ASTM C920, Type M, Grade NS, Class 25, Use T, NT, M, A and O; two component, chemical curing, non-staining, non-breeding. Color: As selected by Architect.

1. Manufacturer / Product:

a. Pecora, "Dynatrol II"

b. Sika, "Silkaflex-2c NS"

c. Tremco, "Dymeric 240"

2. Interior Use: In interior non-traffic bearing building joints as follows:

a. All vertical control joints, interior masonry walls and partitions.

b. All interior joints between unpainted exposed concrete or masonry and aluminum and hollow metal frames.

c. All interior vertical joints where exposed masonry partitions are tied to other partitions, columns or walls.

B. SLNT·2: One Component Silicone: ASTM C920, Type S, Grade NS, Class 100/50, Use NT, G, A, and O; single component, neutral curing, non-staining, non-bleeding with movement capability of +100-50 percent.

1. Manufacturer 1Product:

a. Dow Corning, "790"

b. GE, "Silpruf LM"

c. Tremco, "Spectrem 1"

2. Exterior Use: All EIFS joints. Provide sealant Manufacturer / Product for compound system warranty for EIFS and silicone sealants used with EIFS. Color: To match EIFS, use custom colors if required.

C. SLNT-3: Two-Component Self-Leveling Urethane: ASTM C920, Type M, Grade P. Class 25, Use T: self leveling, multi-component, chemical curing, non-staining, non-bleeding with movement capability of +25 percent. Color: As selected by Architect.

1. Manufacturer I Product:

a. Pecora, "Urexpan NR-200"

b. Sonneborn, "Sonolastic SL2"

c. Tremco, "THC-900"

2. Use: Interior joints in floor tile work. Interior exposed joints in slabs where subject to foot or vehicular traffic. Interior exposed perimeter joints in slabs abutting walls and other vertical surfaces.

D. SLNT-4: One-Component Latex: ASTM C834, single-component, solvent curing, non-staining, non-bleeding, non-sagging, paintable, capable of ± 7.5 percent minimum movement. Color: As selected by Architect.

1. Manufacturer / Product:

a. Pecora, "AC-20 Siliconized"

b. Sonneborn, "Sonolac"

c. Tremco, "Tremflex 834"

2. Use: Miscellaneous interior and exterior joints subject to moderate movement and joints to be painted.
    a. To fill exposed cracks and voids where metal door frames, louvers and other metal fabrications are built into painted interior partitions.
    b. At built-in-millwork, attached and built-in equipment and accessories installed under this contract to complete neat fit at walls.
    c. Between wallboard and metal fabrications to fill cracks and joints for painting.
    d. Around mechanical and electrical equipment, grilles and registers built into painted masonry or other finished partitions, at ducts, pipes and conduit through walls where necessary to fill cracks and voids for finishing.
    e. Other interior non-masonry wall and ceiling non-moving joint locations, specifically noted to receive "caulking" or "sealant", except where elastomeric sealant is specifically identified.

E. SLNT-5: Silicone Sanitary Sealant; ASTM C920, Type S, Grade NS; mildew resistant, USDA approved. Color: To be selected.
    1. Manufacturer / Product:
        a. Dow Corning, "786 Mildew Resistant Silicone Sealant”
        b. General Electric, “GE Silicone Sanitary 1700 Sealant"
        c. Sonneborn, “Omniplus”
    2. Use: Interior joints between plumbing fixtures and walls. Joints surrounding plastic laminate countertops, fixtures and equipment requiring sanitary sealant.

F. SLNT-6: Silicone Building and Glazing Sealant (Non-Structural); ASTM C920, Type S, NS, Class 25, single component; chemical curing. Color: As selected by Architect.
    1. Manufacturer I Product:
        a. Dow Corning, "Dow Corning 999-A"
        b. General Electric, "Silglaze II"
        c. Pecora, "863"
    2. Use: Interior and exterior sealing of metal to metal.

G. SLNT-8: Acoustic Sealant.
    1. Manufacturer / Product (exposed & concealed joints):
        a. Pecora, -AC-20 FRT Acouslical and Insulation Sealant-
        b. USG, SHEETROCK Acoustical Sealant
    2. Manufacturer I Product (concealed joints):
        a. Pecora, BA·98
        b. Tremco, Acoustical Sealant
    3. Use: Interior joints at soundproofed partitions.

H. SLNT-9: Foam Sealer: Preformed closed cell polyvinyl chloride or butyl rubber based foam tape, minimum 30% compression. Resistant to weathering, U.V., mildew, fungi and oxidation. Pressure sensitive adhesive on the non-liner side of tape roll. Provide tape width and thickness recommended by manufacturer for joint conditions.
    1. Manufacturer / Product

a. Norton Performance Plastics, Granville, NY 800/ 724~0883 "Norseal V~740"

b. Fuller, "Architectural Sealant Tape No. 606"

2. Use: Backer for rough substrates on exteri()(walls.

I. SLNT-10: Setting Bed; One-part butyl rubber, aluminum/stone color.

1. Manufacturer / Product:

a. Pecora, "BC~158"

b. Tremco. "Butyl Sealant"

2. Use: Setting beds at thresholds and sill plates.

2.03 FAÇADE AND BUILDING ABUTMENT JOINT MATERIALS:

A. Façade and Building Abutment Joints, above grade: Where new construction abuts existing adjacent construction, provide precompressed, expandable above-grade wall joints equal to Emseal "Greyflex System", closed cell foam, color black, in dimension size(s) as required for closure of field-verified voids. Supplementary primary sealant as further specified in this section shall be applied as a secondary closure to this system.

B. Façade and Building Abutment Joints, below grade: Where new construction abuts existing adjacent construction, provide precompressed, expandable below-grade wall joints equal to Emseal “Series 20H System" of foam, epoxy adhesive and topcoat. in dimension size(s) as required for closure of field-verified voids.

C. Sealant at façade and Building Abutment Joints, above grade: Provide sealant type SLNT-1, as a secondary closure to this joint system.

2.04 SEALANT COLORS:

A. The color for each sealant installation is to be selected to closely match the color of at least one of the adjacent surfaces.

B. When the sealant is NOT painted by a subsequent construction operation as indicated on the drawings, the color for each sealant installation is to be selected to closely match the color of at least one of the adjacent surfaces.

C. Should an acceptable color not be available from an approved substitute manufacturer not herein listed, except at additional charge, the Contractor shall provide such premium colors acceptable by the Owner.

D. In concealed installations, use standard Color Gray or Black sealant.

2.05 PRIMERS: Use only those primers which have been tested for durability on the surfaces to be sealed and are specifically recommended for this installation by the manufacturer of the sealant used.

2.06 BACKUP MATERIALS: Use only those backup materials which are non-absorbent, non-staining, and specifically recommended for this installation by the manufacturer of the sealant used.

A. Backer Rod: Extruded closed cell polyethylene rod in diameter at least 1-1/2 times joint size.

2.07 MASKING TAPE: For masking around joints, provide an appropriate masking tape which will effectively prevent application of sealant on surfaces not scheduled to receive it, and which is removable without damage to substrate.

2.08 OTHER MATERIALS: Provide other materials, not specifically described but required for a complete and proper installation, as selected by the contractor subject to approval.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS: The Contractor shall examine the areas and conditions under which work of this section will be provided, shall correct conditions detrimental to the timely and proper completion of the work, and shall NOT proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION: Prepare all adjacent surfaces to achieve acceptable surface for bond without damage to adjacent finishes.

3.03 INSTALLATION: Install Sealants and Caulking in strict accordance with the manufacturer's recommended installation procedures.

END OF SECTION 079200

DIVISION 08

OPENINGS

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SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Flush wood veneer-faced doors for transparent finish.
2. Factory finishing flush wood doors.
3. Factory fitting flush wood doors to frames and factory machining for hardware.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of door. Include details of core and edge construction, louvers, and trim for openings. Include factory-finishing specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:

1. Door schedule indicating door and frame location, type, size, fire protection rating, and swing.
2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
3. Dimensions and locations of blocking for hardware attachment.
4. Dimensions and locations of mortises and holes for hardware.
5. Clearances and undercuts.
6. Doors to be factory finished and application requirements.
7. Apply AWI Quality Certification Program label to Shop Drawings.

C. Samples for Initial Selection: For factory-finished doors.

D. Samples for Verification:

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.
2. Louver blade and frame sections, 6 inches (150 mm) long, for each material and finish specified.
3. Frames for light openings, 6 inches long, for each material, type, and finish required.

1.4 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Special warranties.

B. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

C. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in plastic bags or cardboard cartons.

C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during remainder of construction period.

1.8 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

    a. Delamination of veneer.
    b. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
    c. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.

2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Rated Wood Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings and temperature-rise limits indicated on Drawings, based on testing at positive pressure in accordance with UL 10C.

1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire- test exposure.

B. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Algoma Hardwoods, Inc.
2. Chappell Door Co.
3. Graham Wood Doors; ASSA ABLOY Group company.
4. Marshfield DoorSystems, Inc.
5. Mohawk Flush Doors, Inc.
6. Oshkosh Door Company.
7. VT Industries Inc.

B. Source Limitations: Obtain flush wood doors from single manufacturer.

2.3 FLUSH WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with AWI's "Architectural Woodwork Standards."

1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.

B. Particleboard-Core Doors:

1. Particleboard: ANSI A208.1, Grade LD-2.
2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
3. Provide doors with glued-wood-stave or structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.

2.4 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Performance Grade: WDMA I.S. 1A Heavy Duty.

B. Interior Solid-Core Doors:

1. Faces: Single-ply wood veneer not less than 1/50 inch (0.508 mm) thick.
2. Grade: Custom (Grade A faces).

3. Species: Select white maple.
4. Cut: Plain sliced (flat sliced).
5. Match between Veneer Leaves: Book match.
6. Assembly of Veneer Leaves on Door Faces: Running match.
7. Pair and Set Match: Provide for doors hung in same opening.
8. Exposed Vertical and Top Edges: Same species as faces - edge Type A.
9. Core: Particleboard.
10. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.

C. Fire-Rated Single Doors: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed vertical edges.

2.5 LIGHT FRAMES AND LOUVERS

A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise indicated.

1. Wood Species: Same species as door faces.
2. Profile: Manufacturer's standard shape.

B. Metal Louvers:

1. Blade Type: Vision-proof, inverted V or Y.
2. Metal and Finish: Extruded aluminum with Class II, clear anodic finish, AA-M12C22A31.

2.6 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

B. Comply with NFPA 80 requirements for fire-rated doors.

C. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.

1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

D. Openings: Factory cut and trim openings through doors.

1. Light Openings: Trim openings with moldings of material and profile indicated.
2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."
3. Factory install louvers in prepared openings.

2.7 FACTORY FINISHING

A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.

1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.

B. Factory finish doors.

C. Transparent Finish:

1. Grade: Custom.
2. Finish: AWI's "Architectural Woodwork Standards" System 11, catalyzed polyurethane.
3. Staining: As selected by Architect from manufacturer's full range.
4. Effect: Semifilled finish, produced by applying an additional finish coat to partially fill the wood pores.
5. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and installed door frames, with Installer present, before hanging doors.

1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
2. Reject doors with defects.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Hardware: For installation, see Section 087111 "Door Hardware (Descriptive Specification)."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

C. Install frames level, plumb, true, and straight.

1. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3.2 mm in 2400 mm).
2. Anchor frames to anchors or blocking built in or directly attached to substrates.

a. Secure with countersunk, concealed fasteners and blind nailing.
b. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.

1) For factory-finished items, use filler matching finish of items being installed.

3. Install fire-rated doors and frames in accordance with NFPA 80.
4. Install smoke- and draft-control doors in accordance with NFPA 105.

D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

SECTION 081433 STILE & RAIL WOOD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section specifies stile and rail wood doors of the following types:

1. Exterior wood doors and sidelights.
2. Interior wood doors and sidelights.

B. Related Work: The following items are not included in this Section and are specified under the designated Sections.

1. Section 061000 - Rough Carpentry: For rough opening and blocking.
2. Section 062000 - Finish Carpentry: For casing and trim.
3. Section 087100 - Door Hardware: For operating and locking hardware.
4. Section 099000 - Painting and Coating: For staining of doors and sidelights.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data for each type of stile-and-rail wood door including elevations and details of construction.

B. Shop Drawings: Submit shop drawings of wood doors including door type, door design number, door size, fire rating if applicable, hardware types and locations, hardware blocking requirements and location, panel layout, molding and sticking profile, vision panel, louver cutout or lite opening sizes and locations, and finishing.

C. Verification Samples: Submit two corner samples, minimum 6 inches by 6 inches representing actual products and materials specified indicating visual characteristics and finish. Include range samples if variation of appearance is anticipated.

D. Warranty: Submit manufacturer’s standard warranty.

1.3 QUALITY ASSURANCE

A. Manufacturer’s Qualifications: Company specializing in manufacturing doors with a minimum of five years documented experience.

B. Single Source Requirements: To the greatest extent practical, wood doors shall be supplied from a single manufacturer.

C. Sustainable Construction: Paneled door construction shall limit use of formaldehyde products during fabrication. Paneled door shall bear the Four Star rating from the Japanese Ministry of Land, Infrastructure, Transportation and be compliant with California’s CARB Phase II program.

D. Project Conditions: Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer’s recommended limits.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions, recommendations and industry standards.

B. Store materials in manufacturer's original labeled packaging until ready for installation and in accordance with manufacturer's instructions. Protect from damage.

1.5 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard limited warranty that each panel door bearing the manufacturer's brand and identification mark complies with Industry Standard WDMA I.S.6A and all revisions in effect as of the date of manufacture, and that each such door, at the time of the shipment, is of good material and workmanship and free from defects that would render such door unserviceable or unfit for the ordinary, recommended use. This limited warranty applies to new doors other than those sold "as is".

1. Warranty Period: Exterior Door And Fire Door Limited Warranty – One year.
2. Warranty Period: Innerbond® Panels – Lifetime.
3. Warranty Period: Interior Doors – 10 years.
4. Warranty Period: Insulated Glass – 5 years.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Manufacturers

Simpson Door Company

Vermont Industries

Reeb Doors

2.2 EXTERIOR DOORS

B. Basis of Design: Craftsman Collection as manufactured by Simpson Door Company.

Basis of design model no.: Simpson #36843 "Valencia II"

1. Construction:
   a. Stile-and-rail construction
   b. Decorative glass with caming detail and insulated glass
   c. UltraBlock® technology - composite block material finger-jointed into the bottom of the stiles eliminates water infiltration, 5-year warranty
   d. WaterBarrier® technology upgrade available: Medium density overlay (MDO) over the exterior surface of the door with PVC bars and glazing beads, primed ready for field paint. Wood species on the inside face. 5-year warranty with no building overhang required.
2. Door Design See door and sidelite elevations on drawings

5. Wood Species: Quarter Sawn White Oak.
5. Thickness: 1-3/4"
6. Panel Detail: ¾" (19 mm) flat panel.
7. Moulding: Ovolo sticking or Shaker sticking
8. Rail: Arched.
9. Mutton: Angled.

11. Glass Detail:
    a. 3/4" Insulated Decorative Glazing: Caming options – Black, Silver, Brass

b. 3/4” Insulated Glazing: Options - P-516, O32 Clear, Bronze. Grey, , Narrow Reed, Glue Chip, Rain, Delta Frost, Cross Reed, White Laminate, Clear Laminate, Seedy Baroque, , Heavy Water, Sable, Large Leaf, , Screen Dot, Rooftop, Sea Spray, Taffeta and Beveled.

4. INTERIOR WOOD DOORS

A. Interior Wood Doors: Interior Panel & Bifold Doors as manufactured by Simpson Door Company.

1. Construction
    a. Stile-and-rail construction
2. Door Design: See door elevation on the drawings
3. Wood species: (_____).
    a. Popular species include: Quarter Sawn White Oak
4. Thickness: 1-3/8” or 1-3/4”.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Examine and prepare openings and substrates using the methods recommended by manufacturer.

3.2 INSTALLATION

A. Install in accordance with manufacturer’s instructions and in proper relationship with adjacent construction. Operate doors and adjust installation to provide proper operation of opening.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 081433

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SECTION 087100 – DOOR HARDWARE

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes furnishing, installation and commissioning of mechanical door hardware for doors specified in “Hardware Sets” and required by actual conditions: including screws, bolts, expansion shields, electrified door hardware, and other devices for proper application of hardware.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

C. Related Divisions:
   1. Division 03 Concrete
   2. Division 06 Rough & Finish Carpentry
   3. Division 07 Joint Sealants
   4. Division 08 Openings
   5. Division 09 Finishes

1.02 REFERENCES

A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI):
   1. ANSI/BHMA A156.1 Butts & Hinges (2016)
   2. ANSI/BHMA A156.3 Exit Devices (2014)
   3. ANSI/BHMA A156.4 Door Controls – Closers (2013)
   4. ANSI/BHMA A156.5 Cylinders and Input Devices for Locks (2014)
   5. ANSI/BHMA A156.6 Architectural Door Trim (2015)
   6. ANSI/BHMA A156.7 Template Hinge Dimensions (2016)
   7. ANSI/BHMA A156.8 Door Controls – Overhead Stops and Holders (2015)
   8. ANSI/BHMA A156.13 Mortise Locks & Latches (2012)
   9. ANSI/BHMA A156.14 Sliding & Folding Door Hardware (2013)
   10. ANSI/BHMA A156.16 Auxiliary Hardware (2013)
   11. ANSI/BHMA A156.17 Self-Closing Hinges & Pivots (2014)
   12. ANSI/BHMA A156.18 Materials & Finishes (2016)
   13. ANSI/BHMA A156.21 Thresholds (2014)
   14. ANSI/BHMA A156.22 Door Gasketing Systems (2012)
   15. ANSI/BHMA A156.26 Continuous Hinges (2012)
   16. ANSI/BHMA A156.28 Keying Systems (2013)
   17. ANSI/BHMA A156.36 Auxiliary Locks (2016)
   18. ANSI/BHMA A156.115 Hardware Preparation in Steel Doors and Steel Frames (2014)
   19. ANSI/BHMA A156.115W Hardware Preparation in Wood Doors with Wood or Steel Frames (2016)

B. International Code Council/American National Standards Institute (ICC/ANSI)/ADA:
   1. ICC/ANSI A117.1 Standards for Accessible and Usable Buildings and Facilities 2017.

C. Underwriters Laboratories, Inc. (UL):
   1. UL 10C Positive Pressure Fire Test of Door Assemblies.
   2. UL 1784 Air Leakage Test of Door Assemblies.
   3. UL 294 Access Control System Units

D. Door and Hardware Institute (DHI):

1. DHI Publication – Abbreviations and Symbols.
2. DHI Publication – Installation Guide for Doors and Hardware.
3. DHI Publication – Sequence and Format of Hardware Schedule (1996).

E. National Fire Protection Agency (NFPA):
1. NFPA 80 Standard for Fire Doors and Other Opening Protectives
2. NFPA 101 Life Safety Code

1.03 SUBMITTALS

A. Submit in accordance with Conditions of the Contract and Division 1 Administrative Requirements and Submittal Procedures Section.

B. Shop Drawings:
1. Organize hardware schedule in vertical format as illustrated in DHI Publications Sequence and Formatting for the Hardware Schedule. Include abbreviations and symbols page according to DHI Publications Abbreviations and Symbols. Complete nomenclature of items required for each door opening as indicated.
2. Coordinate final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of hardware.
3. Architectural Hardware Consultant (AHC), as certified by DHI, who will affix seal attesting to completeness and correctness, including the review of the hardware schedule prior to submittal.

C. Submit manufacturer's catalog sheet on design, grade, and function of items listed in hardware schedule. Identify specific hardware item per sheet, provide an index, and cover sheet.

D. Templates:
1. Upon final approval of the architectural hardware schedules, submit one set of complete templates for each hardware item to the door manufacturers, frame manufacturers, and the installers. Date and index these 8-1/2 inch x 11 inch papers in a three ring binder, including detailed lists of the hardware location requirements for mortised and surface applied hardware within fourteen days of receiving approved door hardware submittals.

E. Closeout Submittals: Submit to Owner in a three-ring binder or CD if requested.
1. Warranties.
2. Maintenance and operating manual.
3. Maintenance service agreement.
4. Record documents.
5. Copy of approved hardware schedule.
6. Copy of approved keying schedule with bitting list.
7. Door hardware supplier name, phone number, and fax number.

1.04 QUALITY ASSURANCE

A. Listed and Labeled electrified door hardware as defined in NFPA 70, Article 100, by a testing agency acceptable to authority having jurisdiction.

B. Hardware supplier will employ an Architectural Hardware Consultant (AHC) as certified by DHI and a member of the seal program who will be available at reasonable times during course of work for Project hardware consultation.

C. Door hardware conforming to ICC/ANSI A117.1: Handles pulls, latches locks and operating devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.

D. Fire Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and/or labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL 10C, unless otherwise indicated.

E. Fire Door Inspection: Prior to receiving certificate of occupancy have fire rated doors inspected by an independent Certified Fire and Egress Door Assembly Inspector (FDAI), as certified by Intertek (ITS), a written report be submitted to Owner and Contractor. Doors failing inspection must be adjusted, replaced or modified to be within appropriate code requirements. (Use for a building under IBC 2009 or newer.)

F. Smoke and Draft Control Door Assemblies: Where smoke and draft control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

G. Door hardware certified to ANSI/BHMA standards as noted, participate and be listed in BHMA Certified Products Directory.

H. Substitution request: create a comparison chart that includes the testing information as well as the warranty for both the specified product and the proposed substitution. Include the reason for requesting the substitution, clear catalog copy highlighting the proposed product and options, compliance statement, technical data, product warranty and lead time, to show how the proposed can meet or exceed established level of design, function, and quality. Approval of request is at the discretion of the owner, architect, and their designated consultants and will be addressed via addendum prior to bid date.
   1. Items listed with no substitute manufacturers have been requested by the Owner to meet existing standard and will not be reviewed for substitution, unless the product is no longer available.

I. Meetings: Comply with requirements in Division 1 Section “Project Meetings.”
   1. Keying Meeting
      a. Within fourteen days of receipt of approved door hardware submittals, contact Owner with representative from hardware supplier to establish a keying conference. Verify keyway, visual key identification, number of master keys and keys per lock. Provide keying system per Owner’s instructions.
   2. Pre-installation Meeting
      a. Convene meeting within fourteen days of receipt of approved door hardware submittals. Participants required to attend: Contractor, installer, material supplier, manufacturer representatives.
      b. Include in-conference decisions regarding proper installation methods and procedures for receiving and handling hardware.
      c. Review and finalize construction schedule and verify availability of materials, installer’s personnel, equipment and facilities needed to make progress and avoid delays.

J. Installer Qualifications: Specialized in performing installation of this Section and have five years minimum documented experience.

K. Hardware listed in 3.07 – Hardware Schedule is intended to establish minimum level of design, type, function and grade of hardware to be used.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Provide clean, dry and secure room for hardware delivered to Project but not yet installed. Shelve hardware off of the floor and with larger items of hardware being stored on wooden pallets. Arrange locksets and keyed cylinders by opening number. Organize the balance of hardware by brand, model of hardware, and hardware set number. Leave the door markings of the hardware visible for installers.

B. Furnish hardware that is not bulk packed with each unit marked and numbered in accordance with approved finish hardware schedule. Include architect's opening number, hardware set number, and item number for each type of hardware. Include keyset symbols and corresponding hardware component for keyed products.

C. Pack each item complete with necessary parts and fasteners in manufacturer's original packaging.

D. Deliver architectural hardware to the job site according to the phasing agreed upon in the pre-installation meeting. Inventory the delivery with the supplier's assistance. Immediately note shortages and damages on the shipping receipts and bill of ladings. Coordinate replacement or repair with the supplier.

E. Deliver permanent keys, cores, and related accessories directly to Owner via registered mail or overnight package service. Establish the instructions for delivery to Owner at "Keying Conference."

F. Waste Management and Disposal: Separate waste materials for use or recycling in accordance with Division 1.

1.06 WARRANTY

A. General Warranty: Owner may have under provisions of the Contract Documents and be an addition and run concurrently with other warranties made by Contractor under requirements of the Contract documents.

B. Special Warranty: Warranties specified in this article will not deprive Owner of other rights.
   1. Ten years for manual door closers.
   2. Five years for mortise, auxiliary and bored locks.
   3. Five years for exit devices.

C. Replace or repair defective products during warranty period in accordance with manufacturer's warranty at no cost to Owner. There is no warranty against defects due to improper installation, abuse, and failure to exercise normal maintenance.

D. Maintenance Tool and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, removal and replacement of door hardware.

PART 2 – PRODUCTS

2.01 HINGES

A. Hinges, electric hinges, and self-closing hinges of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Products to be certified and listed by the following:

1. Butts and Hinges: ANSI/BHMA A156.1.
2. Template Hinge Dimensions: ANSI/BHMA A156.7.
3. Self-Closing Hinges: ANSI/BHMA A156.17.

C. Butt Hinges:
   1. Hinge weight and size unless otherwise indicated in hardware sets:
      a. Doors up to 36” wide and up to 1-3/4” thick provide hinges with a minimum thickness of .134” and a minimum of 4-1/2” in height.
      b. Doors from 36” wide up to 42” wide and up to 1-3/4” thick provide hinges with a minimum thickness of .145” and a minimum of 4-1/2” in height.
      c. For doors from 42” wide up to 48” wide and up to 1-3/4” thick provide hinges with a minimum thickness of .180” and a minimum of 5” in height.
      d. Doors greater than 1-3/4” thick provide hinges with a minimum thickness of .180” and a minimum of 5” in height.
      e. Width of hinge is to be minimum required to clear surrounding trim.
   2. Base material unless otherwise indicated in hardware sets:
      a. Exterior Doors: 304 Stainless Steel, Brass or Bronze material.
      b. Interior Doors: Steel material.
      c. Fire Rated Doors: Steel or 304 Stainless Steel materials.
      d. Stainless Steel ball bearing hinges to have stainless steel ball bearings. Steel ball bearings are unacceptable.
   3. Quantity of hinges per door unless otherwise stated in hardware sets:
      a. Doors up to 60” in height provide 2 hinges.
      b. Doors 60” up to 90” in height provide 3 hinges.
      c. Doors 90” up to 120” in height provide 4 hinges.
      d. Doors over 120” in height add 1 additional hinge per each additional 30” in height.
      e. Dutch doors provide 4 hinges.
   4. Hinge design and options unless otherwise indicated in hardware sets:
      a. Hinges are to be of a square corner five-knuckle design, flat button tips and have ball bearings unless otherwise indicated in hardware sets.
      b. Out-swinging exterior and out-swinging access controlled doors are required to have Non-Removable Pins (NRP) to prevent removal of pin while door is in closed position.
      c. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.
      d. When shims are necessary to correct frame or door irregularities, provide metal shims only.

   5. Acceptable Manufacturers:

      Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

	Standard Weight	Heavy Weight
Hager	BB1279/BB1191	BB1168/BB1199
Bommer	BB5000/BB5002	BB5004/BB5006
McKinney	TA2714/TA2314	T4A3786/T4A3386

2.02 CONTINUOUS HINGES

A. Continuous hinges of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Products to be certified and listed by ANSI/BHMA A156.26 Grade 1.

C. Continuous Geared Hinges:
   1. Determine model number by door and frame application, door thickness, frequency of use, and fire rating requirements according to manufacturer's recommendations.
      a. Size length of hinge to equal the actual door height unless otherwise stated in hardware sets.

D. Material and Design:
   1. Base material: Anodized aluminum manufactured from 6063-T6 material, unexposed working metal surfaces be coated with TFE dry lubricant.
   2. Bearings:
      a. Vertical loads be carried on Lubriloy RL bearings for non-fire rated doors.
      b. Continuous hinges are to have a minimum spacing between bearings of 2-9/16". Typical door from 80" to 84" in height to have a minimum of 32 bearings.
   3. Options:
      a. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.
      b. At fire rated openings provide hinges that carry a UL certification, up to and including 90-minute applications for wood doors and up to 3-hour applications for metal doors.

E. Acceptable Manufacturers:

   Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

	Heavy Duty
Hager	780-111HD/780-112HD
Bommer	FMHD/FMSLFHD
Zero	914A/910A

2.03 FLUSH BOLTS AND COORDINATORS

A. Flush bolts of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Manufacturer to be listed by the following: Auxiliary Hardware: ANSI/BHMI A156.16.

C. Labeled openings: Provide automatic or constant latching flush bolts per hardware schedule for inactive leaf of pairs of doors. Provide dust proof strikes for bottom bolt.

D. Non-Labeled openings: Provide two flush bolts for inactive leaf of pairs of doors per hardware schedule. Provide extension rods so that the center line of the top flush bolt is not more than 78" above the finish floor. Provide dust proof strike from bottom bolt.

E. Acceptable Manufacturers:

   Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

	Manual Flush Bolt	Auto Flush Bolt	Dust Proof Strike
Hager	282D	292D/295W/296W	280X
Rockwood	555	1942	570

Trimco	3917	3815	3911

F. Coordinators: Provide for labeled pairs of doors with automatic flush bolts or with vertical rod exit device with a mortise-locking device per hardware schedule. Provide filler piece to extend full width of stop on frame. Provide mounting brackets for closers and special preparation for latches where applicable.

G. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

	Coordinator	Bracket	Bracket for stops greater than 2-1/4."
Hager	297	297M	297N
Rockwood	1600	1601AB	1601C
Trimco	3094	3095	3096

2.04 FLUSH BOLTS FOR ALUMINUM DOORS

A. Provide two-point flush bolt for inactive leaf of pairs of doors with locked and unlocked indicator. Match cylinder height of lock on active leaf with indicator. Provide stainless steel top and bottom bolts.

B. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Adams Rite	MS1880, MS1881

2.05 LOCKS AND LATCHES (GRADE 1 CYLINDRICAL)

A. Locks and latches of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Product to be certified and listed by following:
1. ANSI/BHMA A156.2 Series 4000 Certified to Grade 1.
2. ANSI/BHMA A250.13 Certified for a minimum design load of 1150 lbf (100 psf) for single out-swinging doors measuring 36" in width and 84" in height and a minimum design load of 1150lbf (70psf) for out-swinging single doors measuring 48" in width and 84" in height.
3. UL/cUL Labeled and listed for functions up to 3 hours for single doors up to 48" in width and up to 96" in height.
4. UL10C/UBC 7-2 Positive Pressure Rated.
5. ICC/ANSI A1117.1

C. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets.

D. Material and Design:
   1. Lock and latch chassis to be zinc dichromate for corrosion resistance.
   2. Keyed functions to be of a freewheeling design to help resist against vandalism.
   3. Non-handed, field reversible.
   4. Thru-bolt mounting with no exposed screws.
   5. Levers, zinc cast and plated to match finished designation in hardware sets.
   6. Roses, wrought brass or stainless steel material.

E. Latch and Strike:
   1. Stainless Steel latch bolt with minimum of 1/2" throw and deadlocking for keyed and exterior functions. Provide 3/4" latch bolt for pairs of fire-rated doors where required by door manufacturer. Standard backset to be 2-3/4" and adjustable faceplate to accommodate a square edge door or a standard 1/8" beveled edge door.
   2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4" x 4-7/8" with proper lip length to protect surrounding trim.

F. Options:
   1. Doors requiring lead line protection – provide locks with 1/16" lead applied to lock and 1/16" lead wrapped around latch bolt.
   2. Provide knurled levers on entry side of doors that are potentially dangerous to visually impaired persons.

G. Acceptable manufacturers:

   Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	3400 Series
Sargent	10 Line
Best	9K Series

2.06 LOCKS AND LATCHES (GRADE 2 CYLINDRICAL)

A. Locks and latches of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Product to be certified and listed by following:
   1. ANSI/BHMA A156.2 Series 4000 Certified to Grade 2.
   2. ANSI/BHMA A250.13 Certified for a minimum design load of 860 lbf (80 psf) for a single out swinging doors measuring 36" in width and 84" height and a minimum design of 860 lbf (50 psf) for out swinging single doors measuring 48" in width and 84" I height.
   3. UL/cUL Labeled and listed for functions up to 3 hours for single doors up to 48" in width and up to 96" in height.
   4. UL10C/UBC 7-2 Positive Pressure Rated.

C. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets.

D. Material and Design:
   1. Lock and latch chassis to be zinc dichromate for corrosion resistance.
   2. Keyed functions to be of a freewheeling design to help resist against vandalism.
   3. Non-handed, field reversible.

4. Thru-bolt mounting with no exposed screws.
5. Levers, zinc cast and plated to match finish designation in hardware sets.
6. Roses, wrought brass or stainless steel material.

E. Latch and Strike:
1. Stainless steel latch bolt with minimum of 1/2" throw and deadlocking for keyed and exterior functions. Provide 3/4" latch bolt for pairs of fire-rated doors where required by door manufacturer. Standard backset to be 2-3/4" and adjustable faceplate to accommodate a square edge door or a standard 1/8" beveled edge door.
2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4" x 4-7/8" with proper lip length to protect surrounding trim.

F. Options:
1. Doors requiring lead line protection – provide locks with 1/16" lead applied to lock and 1/16" lead wrapped around latch bolt.
2. Provide knurled levers on entry side of doors that are potentially dangerous to visually impaired persons.

G. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	3500 Series
Sargent	6 Line
Best	7K Series

2.07 LOCKS AND LATCHES (GRADE 1 MORTISE)

A. Locks and latches of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Product to be certified and listed by following:
1. ANSI/BHMA A156.13 Series 1000 Certified to Grade 1 for Operational and Security.
2. UL/cUL Labeled and listed up to 3 hours for single doors up to 48" in width and up to 96" in height.
3. UL10C/UBC 7-2 Positive Pressure Rated.
4. ICC/ANSI A117.1.

C. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets.

D. Material and Design:
1. Lock cases from fully wrapped, 12 gauge steel, zinc dichromate for corrosion resistance.
2. Non-handed, field reversible without opening lock case.
3. Break-away spindles to prevent unlocking during forced entry or vandalism.
4. Levers, zinc cast, forged brass or stainless steel and plated to match finish designation in hardware sets.
5. Sectional Roses, solid brass or stainless steel material and have a minimum diameter of 2-7/16".

6. Armor fronts, self-adjusting to accommodate a square edge door or a standard 1/8” beveled edge door.

E. Latch and Strike:
   1. Stainless steel latch bolt with minimum of 3/4” throw and deadlocking for keyed and exterior functions.
   2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4” x 4-7/8” with proper lip length to protect surrounding trim.
   3. Deadbolts to be 1-3/4” total length with a minimum of a 1” throw and 3/4” internal engagement when fully extended and made of stainless steel material.

F. Acceptable Manufacturers:

   Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	3800 Series
Sargent	8200 Series
Best	45H Series

2.08 ALUMINUM DOOR DEADLATCHES

A. Deadlatches for aluminum doors of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Auxiliary Locks and Associated Products: ANSI/BHMA Certified A156.5 Grade 1.

C. Material and Design:
   1. Cylinder Backset: 31/32”, 1-1/8”, or 1-1/2”.
   2. Case: Measures 7/8” x 5-13/16” x depth. Depth varies by backset. Steel with corrosion-resistant plating. Screw-fastened tube spacer brackets allow for cleaner removal when tab mounting.
   3. Faceplates: Measures 1” x 6-7/8”. Both flat and radius faceplates are supplied. Flat faceplates can also be adjusted in the field for right or left beveled edge doors.

D. Latches and Strike:
   1. Latchbolt: 5/8” x 1” x 5/8” throw. Solid brass. Handing is easily reversible using only a screwdriver.
   2. Auxiliary Latchpin: Stainless steel. Deadlocks latchbolt to prevent “loiding” or case-knife entry.
   3. Strikes: Standard strike furnished is 4902 for flat jamb where door closes flush or nearly flush.

E. Cylinder Cam:
   1. 4900 Heavy-Duty Deadlatches are operable by any standard 1-5/32” diameter mortise cylinder with Adams Rite-type cam.

F. Options:
   1. Bolt Holdback: While bolt is held fully retracted, a reverse turn of the key retains the bolt, allowing the door to be free swinging.

G. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Adams Rite	MS1850S

2.09 ALUMINUM DOOR DEADLATCH PADDLES

A. Deadlatch paddles for aluminum doors of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Auxiliary Locks and Associated Products: ANSI/BHMA Certified A156.5 Grade 1.

C. Material and Design:
   1. Paddle: Extruded aluminum, 628 Clear Anodized finished (US28).
   2. Escutcheon: 1-3/8” x 4”. Zinc alloy with black finish. Houses steel operating mechanism. Secured to door stile with special binder posts that extend into the escutcheon to rigidly resist torque loads in any direction. A 1/4” square heat-treated spindle is part of escutcheon assembly, which interlocks with the cam plug.
   3. Cam Plug: Furnished for use with 4900 Series Deadlatches. Secured in latch body by cylinder set screw, plug is also rigidly tied to escutcheon by hardened steel pins. Handing can be reversed by removing a spring clip, reversing the cam, and replacing the clip.

D. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Adams Rite	4591

2.10 SLIDING DOOR LOCKS AND FLUSH PULLS

A. Sliding door locks of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Auxiliary Locks and Associated Products: ANSI/BHMA Certified A156.5.

C. Material and Design:
   1. Case: Heavy Gage, Wrought (11/16” Thick).
   2. Various backsets, Customer backsets available.
   3. Deadbolt: 1/2” thick, 7/32” high, 1” throw.
   4. Thumb Turn Hub: 3/16” on the diamond.
   5. Armor Front: Brass, bronze, or stainless steel.
   6. Strike 3-1/2” x 1” deadlock type standard. Custom strikes available.
   7. Dust Box: Brass, stainless steel, or oil rubbed bronze.
   8. Accessories: Solid brass flush pulls that work in coordination with lock function.

D. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

		Sliding Door Lock	Flush Pulls
Hager		3830 SERIES	
Accurate Lock		2001SDL-3	S2002B, S2002C, S2002T

2.11 BARN DOOR PRIVACY LOCKS

A. Sliding door locks of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Auxiliary Locks and Associated Products: ANSI/BHMA Certified A156.5.

C. Material and Design:
   9. Materials: Brass/Stainless Steel.
   10. Latch bolt:
      a. ½" Diameter
      b. Stainless Steel
      c. 1" throw
   4. ADA Thumb Turn.
   5. Strike:
      a. 1-1/4" diameter spring-loaded dust proof strike. Strike mounted in barn door (standard)

D. Acceptable Manufacturers:

E. Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

	Sliding Door Lock
Hager	9458
Approved Equal	

2.12 EXIT DEVICES

A. Exit Devices of one manufacturer as listed for continuity of design and consideration of warranty. Touchpad type, finish to match balance of door hardware.

B. Standards: Manufacturer to be certified and/or listed by the following:
   1. BHMA Certified ANSI A156.3 Grade 1.
   2. UL/cUL Listed for up to 3 hours for "A" labeled doors.
   3. UL10C/UBC 7-2 Positive Pressure Rated.
   4. UL10B Neutral Pressure Rated.
   5. UL 305 Listed for Panic Hardware.

C. Material and Design:
   1. Provide exit devices with actuators that extend a minimum of one-half of door width.
   2. Where trim is indicated in hardware sets provide the lever design to match design of lock levers.
   3. Exit device to mount flush with door.
   4. Latchbolts:

a. Rim device – 3/4” throw, Pullman type with automatic dead-latching, stainless steel
b. Surface vertical rod device – Top 1/2” throw, Pullman type with automatic dead-latching, stainless steel. Bottom 1/2” throw, Pullman type, held retracted during door swing, stainless steel.

5. Fasteners: Wood screws, machine screws, and thru-bolts.

D. Lock and Latch Functions: Function numbers and descriptions of manufacturer’s series and lever styles indicated in door hardware sets.

E. Acceptable Manufactures:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	4500 Series	4600 Series
Von Duprin	99 Series	33 Series
Sargent	80 Series	8500 Series

2.13 CYLINDERS AND KEYING

A. Cylinders of one manufacturer as listed for continuity of design and consideration of warranty.

B. Products to be certified and listed by the following:
1. Auxiliary Locks: ANSI/BHMA A156.5

C. Cylinders:
1. Provide cylinders matched to the types required for hardware that has a locking function and for keyed electronic functions. Furnish with appropriate collars, cams, and tailpieces to fit and operate associated hardware. Stacking collars is not acceptable, a single collar of proper size is required.
2. Manufacturer’s standard tumbler type six-pin conventional cylinder.
3. Provide concealed key control (CKC) at cylinder by stamping or permanently marking the keyset symbol in a location on the cylinder that is concealed when installed.

D. Keying:
1. Provide a new factory registered key system.
2. Provide a bitting list to Owner of combinations as established, and expand to twenty-five percent for future use or as directed by Owner.
3. Keys to be shipped directly to the Owner’s Representative as established during the keying conference.
a. Package the keys in individual envelopes, grouped by keyset symbol, and label envelopes with project name, factory registry number, and keyset symbol.
4. Stamp large bow key blanks with visual key control (keyset symbol) and “Do Not Duplicate”.

E. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager
Schlage

Sargent

2.14 PUSH/PULL PLATES AND BARS

A. Push/Pull plates and bars of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Manufacturer to be certified by the following:
   1. Architectural Door Trim: ANSI/BHMA A156.6.
   2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).

C. Push plates: .050" thick, square corner and beveled edges with countersunk screw holes. Width and height as stated in hardware sets.

D. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	30S
Rockwood	
Trimco	

E. Pull Plates: .050" thick, square corner and beveled edges. Width and height as stated in hardware sets, 3/4" diameter pull, with clearance of 2-1/2" from face of door.

F. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	H33J
Rockwood	
Trimco	

G. Push Pull Bar Sets: 1" round bar stock with 2 –1/2" clearances from face of door. Offset 3", 90-degree standard. Center to center size should be door width less 1 stile width.

H. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	H159D
Rockwood	
Trimco	

I. Pull Bar Sets: 1" round bar stock with 2 –1/2" clearances from face of door.

J. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	H14J
Rockwood	
Trimco	

2.15 CLOSERS (CAST IRON BODY GRADE 1)

A. Closers of one manufacturer as listed for continuity of design and consideration of warranty, unless otherwise indicated on hardware schedule, comply with manufacturer's recommendations for size of closer, depending on width of door, frequency of use, atmospheric pressure, ADAAG requirement, and fire rating.

B. Standards: Manufacturer to be certified and or listed by the following:
   1. BHMA Certified ANSI A156.4 Grade 1.
   2. ADA Complaint ANSI A117.1.
   3. UL/cUL Listed up to 3 hours.
   4. UL10C Positive Pressure Rated.
   5. UL10B Neutral Pressure Rated.

C. Material and Design:
   1. Provide cast iron non-handed bodies with full plastic covers.
   2. Closers will have separated staked adjustable valve screws for latch speed, sweep speed, and backcheck.
   3. Provide Tri-Pack arms and brackets for regular arm, top jamb, and parallel arm mounting.
   4. One-piece seamless steel spring tube sealed in hydraulic fluid.
   5. Double heat-treated steel tempered springs.
   6. Precision-machined heat-treated steel piston.
   7. Triple heat-treated steel spindle.
   8. Full rack and pinion operation.

D. Mounting:
   1. Out-swing doors use surface parallel arm mount closers except where noted on hardware schedule.
   2. In-swing doors use surface regular arm mount closers except where noted on hardware schedule.
   3. Provide brackets and shoe supports for aluminum doors and frames to mount fifth screw.
   4. Furnish drop plates where top rail conditions on door do not allow for mounting of closer and where backside of closer is exposed through glass.

E. Size closers in compliance with requirements for accessibility (ADAAG). Comply with following maximum opening force requirements.
   1. Interior hinged openings: 5.0 lbs.
   2. Fire-rated and exterior openings use minimum opening force allowable by authority having jurisdiction.

F. Fasteners: Provide self-reaming, self-tapping wood and machine screws, and sex nuts and bolts for each closer.

G. Acceptable manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	5100 Series
LCN	4040XP Series
Yale	5800

2.16 CLOSERS (ALUMINUM BODY GRADE 1)

A. Closers of one manufacturer as listed for continuity of design and consideration of warranty. Unless otherwise indicated on hardware schedule, comply with manufacturer's recommendations for size of closer, depending on width of door, frequency of use, atmospheric pressure, ADAAG requirements, and fire rating.

B. Standards: Manufacturer to be certified by the following:
   1. BHMA Certified ANSI A156.4 Grade 1.
   2. ADA Complaint ANSI A117.1.
   3. UL/cUL Listed up to 3 hours.
   4. UL10C Positive Pressure Rated.
   5. UL10B Neutral Pressure Rated.

C. Material and Design:
   1. Provide aluminum non-handed bodies with full plastic covers.
   2. Closers will have separate staked adjustable valve screws for latch speed, sweep speed, and backcheck.
   3. Provide Tri-Pack arms and brackets for regular arm, top jamb, and parallel arm mounting.
   4. Double heat-treated steel, tempered springs.
   5. Precision machined heat-treated steel piston.
   6. Triple heat-treated steel spindle.
   7. Full rack and pinion operation.

D. Mounting:
   1. Out-swing doors surface parallel arm mount closers except where noted on hardware schedule.
   2. In-swing doors surface regular arm mount closers except where noted on hardware schedule.
   3. Provide brackets and shoe supports for aluminum doors and frames to mount fifth screw.
   4. Furnish drop plates where top rail conditions on door do not allow for mounting of closer and where backside of closer is exposed through glass.

E. Size closers in compliance with requirements for accessibility (ADAAG). Comply with following maximum opening force requirements.
   1. Interior hinged openings: 5.0 lbs.
   2. Fire-rated and exterior openings are to be adjusted to have minimum opening force allowable by authority having jurisdiction.

F. Fasteners: Provide self-reaming, self-tapping wood and machine screws, and sex nuts and bolts for each closer.

G. Acceptable manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	5200 Series
LCN	1450

Yale	2700

2.17 PROTECTIVE TRIM

A. Protective trim of one manufacturer as listed for continuity of design and consideration of warranty.

B. Size of protection plate: single doors, size two inches less door width (LDW) on push side of door, and one inch less door width on pull side of door. For pairs of doors, size one inch less door width (LDW) on push side of door, and 1/2 inch on pull side of door. Adjust sizes to accommodate accompanying hardware, such as, edge guards, astragals and others.
   1. Kick Plates 10” high or sized to door bottom rail height.
   2. Mop Plates 4” high.
   3. Armor Plates 36” high.

C. Products to be certified and listed by the following:
   1. Architectural Door Trim: ANSI/BHMA A156.6.
   2. UL.

D. Material and Design:
   1. 0.050” gage stainless steel.
   2. Corners square, polishing lines or dominant direction of surface pattern so they run across door width of plate.
   3. Bevel top, bottom, and sides uniformly leaving no sharp edges.
   4. Countersink holes for screws. Space screw holes so they are no more than eight inches CTC, along a centerline not over 1/2” in from edge around plate. End screws maximum of 0.53” from corners.

E. UL label stamp required on protection plates when top of plate is more than 16 inches above bottom of door on fire rated openings. Verify door manufacturer’s UL listing for maximum height and width of protection plate to be used.

F. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	190S
Trimco	
Burns	

2.18 STOPS AND HOLDERS

A. Stops and holders of one manufacturer as listed for continuity of design and consideration of warranty.

B. Wall Stops: Provide door stops wherever necessary to prevent door or hardware from striking an adjacent partition or obstruction. Provide wall stops when possible. Door stops and holders mounted in concrete floor or masonry walls have stainless steel machine screws and lead expansion shields.

C. Products to be certified and listed by the following:

1. Auxiliary Hardware: ANSI/BHMA A156.16.

D. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

	Convex	Concave
Hager	232W	236W
Rockwood		
Burns		

E. Overhead Stops and Holders: Provide overhead stops and holders for doors that open against equipment, casework sidelights and other objects that would make wall stops/holders and floor stops/holders inappropriate. Provide sex bolt attachments for mineral core wood door applications.

F. Products to be certified and listed by the following:
1. Overhead Stops and Holders: ANSI/BHMA A156.8 Grade 1.

G. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

	Heavy Duty Surface	Heavy Duty Concealed
Hager	7000 SRF Series	7000 CON Series
Glynn Johnson	90 SRF Series	100 Series
Sargent	590 Series	690 Series

2.19 THRESHOLDS

A. Thresholds of one manufacturer as listed for continuity of design and consideration of warranty.

B. Set thresholds for exterior and acoustical openings in full bed of sealant with lead expansion shields and stainless steel machine screws complying with requirements specified in Division 7 Section “Joint Sealants: Notched in field to fit frame by hardware installer. Refer to Drawings for special details.

C. Standards: Manufacturer to be certified by the following:
1. Thresholds: ANSI/BHMA A156.21.
2. American with Disabilities Act Accessibility Guidelines (ADAAG).

D. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	412S
K.N. Crowder	
Reese	

2.20 DOOR GASKETING AND WEATHERSTRIP

A. Door gasketing and weatherstrip of one manufacturer as listed for continuity of design and consideration of warranty.

B. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing where indicated on hardware schedule. Provide noncorrosive fasteners for exterior applications.
   1. Perimeter gasketing: Apply to head and jamb, forming seal between door and frame.
   2. Meeting stile gasketing: Fasten to meeting stiles, forming seal when doors are in closed position.
   3. Door bottoms: Apply to bottom of door, forming seal with threshold or floor when door is in closed position.
   4. Sound Gasketing: Cutting or notching for stop mounted hardware not permitted.
   5. Drip Guard: Apply to exterior face of frame header. Lip length to extend 4" beyond width of door.

C. Products to be certified and listed by the following:
   1. Door Gasketing and Edge Seal Systems: ANSI/BHMA A156.22.
   2. BHMA certified for door sweeps, automatic door bottoms, and adhesive applied gasketing.

D. Smoke-Labeled Gasketing: Comply with NFPA 105 listed, labeled, and acceptable to Authorities Having Jurisdiction, for smoke control indicated.
   1. Provide smoke-labeled gasketing on 20 minute rated doors and on smoke rated doors.

E. Fire-Rated Gasketing: Comply with NFPA 80 listed, labeled, and acceptable to Authorities Having Jurisdiction, for fire ratings indicated.

F. Refer to Section 08 1416 Wood Doors for Category A or Category B. Comply with UBC 7-2 and UL10C positive pressure where frame applied intumescent seals are required.

G. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

1. Perimeter Gasketing:

	Stop Applied	Adhesive Applied
Hager	881S	726
K.N. Crowder		
Reese		

2. Sound Seal:

Hager	864S
K.N. Crowder	
Reese	

3. Meeting Stile Weatherstrip:

Hager	872SN
K.N. Crowder	
Reese	

4. Overlapping Astragal:

Hager	835S / 874SN
K.N. Crowder	

Reese	

5. Door Bottom Sweeps:

Hager	750S / 770SV
K.N. Crowder	
Reese	

6. Automatic Door Bottoms:

Hager	742S / 743S
K.N. Crowder	
Reese	

7. Overhead Drip Guard

Hager	810S
K.N. Crowder	
Reese	

2.21 BARN DOOR HARDWARE

A. Stainless Steel Barn Door Hardware: Provide complete sets of rails, hangers, supports, bumpers, floor guides, and accessories indicated. Products to be certified and listed by ANSI/BHMA A156.14 Grade 1.

B. Rated for doors weighing up to 250 lbs. depending on hanger style.

C. System includes Stainless steel track with two end caps, hanger wall brackets, door bottom guide, mounting and installation hardware.

D. Acceptable Manufacturers:
   1. Hager
      a. 9432 Door Weight 250 lbs. hanger height 4-1/4”, top mount stick
      b. 9433 Door Weight 250 lbs. hanger height 4-1/16”, top mount dual wheel
      c. 9435 Door Weight 200 lbs. hanger height 5-3/16”, top mount spoke wheel
      d. 9436 Door Weight 250 lbs. hanger height 3-11/16” face mount stick
      e. 9437 Door Weight 250 lbs. hanger height 3-11/16” face mount dual wheel
      f. 9438 Door Weight 250 lbs. hanger height 3-5/8” face mount triangle
      g. 9462 Door Weight 250 lbs. hanger height 2-1/2”, flat stick strap
   2. Approved equal:

E. Black Aluminum Rail Barn Door Hardware: Provide complete sets of rails, hangers, supports, bumpers, floor guides, and accessories indicated. Products to be certified and listed by ANSI/BHMA A156.14 Grade 1.

F. Rated for doors weighing up to 250 lbs.

G. System includes: Black aluminum rail, two carriers, two stops, floor guide, rail mounting brackets, and fasteners.

H. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

1. Hager:
   a. 9452 3” hook, face mount
   b. 9453 5” hook, face mount
   c. 9454 3” strap, face mount
   d. 9455 3” top mount
   e. 1-269-9693 privacy latch
   f. 1-269-8694 flush pull

2.22 DOOR VIEWER

A. Door viewer of one manufacturer as listed for continuity of design and consideration of warranty.

B. Products to be certified and listed by the following:
   1. Auxiliary Hardware: ANSI/BHMA A156.16 for L033221.

C. Design:
   1. Adjustable for use on doors 1-3/8” to 2-1/8” thick doors, 9/16” hole required.
   2. One way 200-degree view.
   3. Tamper resistant with a privacy flap.
   4. 90 min. fire rating.

D. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	1759
Rockwood	
Trimco	

2.23 PRIVACY DOOR LATCH

A. Privacy door latch of one manufacturer as listed for continuity of design and consideration of warranty.

B. Products to be certified and listed by the following:
   1. UL Classification as Fire Door Accessory.
   2. NFPA 80.
   3. ICC/ANSI A117.1

C. Design:
   1. Allows visitor identification, cannot be used to keep door ajar.
   2. Does not allow door to be held open.

D. Acceptable Manufacturers:

E.

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	277D
Pemko	PDL

2.24 SILENCERS

A. Where smoke, light, or weather seal are not required, provide three silencers per single door frame, two per double door frame and four per Dutch door frame.

B. Products to be certified and listed by the following:
   1. Auxiliary Hardware: ANSI/BHMA A156.16

C. Acceptable Manufacturers:

   Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

	Hollow Metal Frame	Wood Frame
Hager	307D	308D
Rockwood		
Trimco		

2.25 KEY CABINET

A. Provide key cabinet; surface mounted to wall.

B. Key control system:
   1. Include two sets of key tags, hooks, labels, and envelopes.
   2. Contain system in metal cabinet with baked enamel finish.
   3. Capacity will be able to hold actual quantities of keys, plus 50 percent.
   4. Provide tools, instruction sheets, and accessories required to complete installation.

C. Acceptable Manufacturers:

   Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Lund Equipment
Telkee Incorporated
Key Control

2.26 SIGNAGE

A. Signage of one manufacturer as listed for continuity of design and consideration of warranty.

B. Products to be certified and listed by the following:
   1. Signage: ANSI/BHMA A156.16
   2. Grade 2 Braille Translation conforming to Section 4.3 requirements.

C. Materials and Design: Provide 0.125” thick plastic. Size of sign to be 6” x 8” fastened with double-sided pressure-sensitive tape.

D. Acceptable Manufacturers:

Basis of design specified on the hardware schedule. Provide specified product or equivalent by one of the available manufacturers including but not limited to:

Hager	368M/W, 368U
Rockwood	
Trimco	

2.27 FINISHES

A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if within range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within range of approved samples.

B. Comply with base material and finish requirements indicated by ANSI/BHMA A156.18 designations in hardware schedule.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine doors and frames, with Installers present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify Architect via a prepared written report and endorsed by Installer of any discrepancies between the door schedule, door types, drawings and scheduled hardware. Report will have a list of conditions detrimental to application, to the proper and timely completion of the work and performance of the hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.02 INSTALLATION

A. Install hardware using manufactures recommended fasteners and installation instructions, at height locations and clearance tolerances that comply with:
   1. NFPA 80
   2. NFPA 105
   3. ICC/ANSI A117.1
   4. DHI Publication – Installation Guide for Doors and Hardware
   5. Approved shop drawings
   6. Approved finish hardware schedule

B. Install soffit mounted gaskets prior other soffit mounted hardware to provide a continuous seal around the perimeter of the opening without cutting or notching.

C. Install door closers so they are on the interior of the room side of the door. Stairwell doors will have closers mounted on the stair side and exterior doors will be mounted on the interior side of the building.

D. In drywall applications provide blocking material of sufficient type and size for hardware items that mount directly to the wall.

E. Locate wall mounted bumper to contact the trim of the operating trim.

F. Mount mop and kick plates flush with the bottom of the door and centered horizontally on the door.

G. Set thresholds for exterior, and acoustical doors at sound control openings in full bed of sealant complying with requirements specified in Division 07 Section “Joint Sealants” forming a tight seal between threshold and surface to which set.

H. Anchor all components firmly into position and use anchoring devices furnished with the hardware item, unless otherwise specified.

I. Do not install surface mounted items until finishes have been completed on substrates involved. Set unit level, plumb and true to line location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

3.03 FIELD QUALITY CONTROL

A. Material supplier to schedule final walk through to inspect hardware installation ten (10) business days before final acceptance of Owner. Material supplier will provide a written report detailing discrepancies of each opening to General Contractor within seven (7) calendar days of walk through.

3.04 ADJUSTMENT, CLEANING, AND DEMONSTRATING

A. Adjustment: Adjust and check each opening to ensure proper operation of each item of finish hardware. Replace items that cannot be adjusted to operate freely and smoothly or as intended for application at no cost to Owner.

B. Cleaning: Clean adjacent surfaces soiled by hardware installation. Clean finish hardware per manufacturer’s instructions after final adjustments have been made. Replace items that cannot be cleaned to manufacturer’s level of finish quality at no cost to Owner.

C. Conduct a training class for building maintenance personnel demonstrating the adjustment, operation of mechanical and electrical hardware. Special tools for finish hardware to be turned over and explained usage at the meeting. Record all training and provide to the Owner for future reference.

3.05 PROTECTION

A. Leave manufacturer’s protective film intact and provide proper protection for all other finish hardware items that do not have protective material from the manufacture until Owner accepts project as complete.

3.06 HARDWARE SET SCHEDULE

A. Intent of Hardware Groups
   1. Should items of hardware not specified be required for completion of the Work, furnish such items of type and quality comparable to adjacent hardware and appropriate for service required.
   2. Where items of hardware aren’t correctly specified and are required for completion of the Work, a written statement of such omission, error, or other discrepancy is required to be submitted to Architect, prior to date specified for receipt of bids for clarification by addendum; or, furnish such items in the type and quality established by this specification, and appropriate to the service intended.

B. Guide: Door hardware items have been placed in sets which are intended to be a guide of design, grade, quality, function, operation, performance, exposure, and like characteristics of door hardware, and may not be complete. Provide door hardware required to make each set complete and operational.

C. Hardware schedule does not reflect handing, backset, method of fastening, and like characteristics of door hardware and door operation.

D. Review door hardware sets with door types, frames, sizes and details on drawings. Verify suitability and adaptability of items specified in relation to details and surrounding conditions.

3.07 HARDWARE SCHEDULE

A. See hardware schedule shown on the drawings

END OF SECTION 087100

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DIVISION 08

OPENINGS – ATTACHMENTS

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Corbin Russwin

ASSA ABLOY











ED3000 Series

Product Catalog

Experience a safer
and more open world

Corbin Russwin
ASSA ABLOY

Introduction

ED3000 Series



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ED3000 Series

Applications

Since patenting some of the first exit devices nearly a century ago, Corbin Russwin has met rigorous life safety and security requirements, while offering pleasing aesthetics and trouble-free operation. Designed for applications in high-use, high-abuse situations, ED3000 Crossbar Exit Devices can be teamed with a variety of Corbin Russwin trims to provide desired functions, styles and finishes in new construction and renovations, including:

- Schools and universities
- Health care facilities
- Government and municipal buildings
- Commercial and industrial
- Office and retail complexes
- Transportation facilities
- Hotels and conference centers
- Religious facilities

Advantages

- Heavy-duty construction
- Base metals (brass, bronze and stainless steel) for durability
- Easy-to-use crossbar operation for quick egress
- Dogging standard on all panic listed devices
- Thru-bolted trims for strength and security
- Wide range of finishes, trims and styles to match other Corbin Russwin products
- Devices available to satisfy panic and fire opening requirements
- ADA compliant

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Applications and Listings

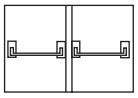
ED3000 Series

UL UL listed as fire exit hardware by Underwriters Laboratories Inc.

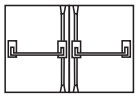
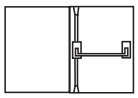
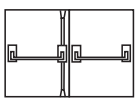
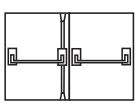
Single Door

	Max. Door Opening	Fire Door Ratings A 3 Hr.	Application	
Rim				
ED3200	4'	Devices are panic listed only.	Surface applied; single point latching.	
ED3200A	4' x 8'	UL		
Vertical Rod				
ED3400	4' x 8'	Devices are panic listed only.	Surface applied; two point latching.	
ED3400A	N/A	Fire ratings do not apply for single door applications.		
Mortise				
ED3600	4'	Devices are panic listed only.	Mortised in door; two point latching.	
ED3600A	4' x 7'2"	UL		

Pair of Doors with Removable Mullion

	Max. Door Opening	Fire Door Ratings A 3 Hr.	Application	
Rim x Rim				
ED3200 x ED3200 x CR972	8' x 8'	Devices are panic listed only.	2 independent, active doors with removable mullion.	
ED3200 x ED3200 x CR910A	8' x 10'	Devices are panic listed only.		
ED3200A x ED3200A x CR972A	8' x 8'	UL		

Pair of Doors

	Max. Door Opening	Fire Door Ratings A 3 Hr.	Application	
Vertical Rod (Swinging in the Same Direction)				
ED3400 x ED3400	8' x 8'	Devices are panic listed only.	2 independent doors with 2 point latching – overlapping astragal not required	
ED3400A x ED3400A	8' x 8'	UL		
Vertical Rod (Swinging in Opposite Directions)				
ED3400 x ED3400	8' x 10'	Devices are panic listed only.	2 independent doors with 2 point latching – overlapping astragal required for 3 hour openings.	
ED3400A x ED3400A	8' x 8'	UL		
Vertical Rod x Mortise				
ED3400 x ED3600	8' x 7'2"	Devices are panic listed only.	Overlapping astragal required for 3 hour openings. Coordinator required with standard strike.	
ED3400A x ED3600A	8' x 7'2"	UL		
Vertical Rod x Rim				
ED3400 x ED3200 x S02	8' x 8'	Devices are panic listed only.	Non-prepped doors only; S02 strike required on inactive door; coordinator recommended.	

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Functions

ED3000 Series

Device with Trim				
Device	Type	ANSI #	Description	Trim Designation*
ED3210, ED3410, ED3610	Passage	14	Free at all times	XX3310
ED3210A, ED3410A, ED3610A	Passage	14	3-hour fire-rated, Free at all times	XX3310
ED3210AT, ED3410AT, ED3610AT	Thumbpiece Passage	15	3-hour fire-rated, Free at all times	T3X10
ED3210T, ED3410T, ED3610T	Thumbpiece Passage	15	Free at all times	T3X10
ED3250, ED3450, ED3650	Dummy/Exit Only	01/02	Always rigid; Exit only	XX3350, T3X50
ED3250A, ED3450A, ED3650A	Dummy/Exit Only	01/02	3-hour fire-rated, Always rigid; Exit only	XX3350, T3X50
ED3255, ED3455, ED3655	Classroom	08	Free at all times except when locked by key	XX3355
ED3255A, ED3455A, ED3655A	Classroom	08	3-hour fire-rated, free at all times except when locked by key	XX3355
ED3255AT, ED3455AT, ED3655AT	Thumbpiece Classroom	05	3-hour fire-rated, free at all times except when locked by key	T3X55, T3XM55
ED3255T, ED3455T, ED3655T	Thumbpiece Classroom	05	Free at all times except when locked by key	T3X55, T3XM55
ED3257, ED3257A	Nightlatch	03	Entrance by trim when latchbolt is retracted by key. Key removable only when locked	XX3357, T3X57
ED3457, ED3457A	Nightlatch	09	Entrance by trim when latchbolt is retracted by key. Key removable only when locked	XX33V57
ED3657, ED3657A	Nightlatch	03	Entrance by trim when latchbolt is retracted by key. Key removable only when locked	XX33M57, T3XM57

*** When ordering a device, the function must be included in the device component of the order string and must match the trim function (e.g. ED3255/A3355). See pages 11-12.**

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ED3200 Series Panic Listed Rim Exit Device
ED3200A Series 3-Hour Fire Listed Rim Exit Device

Features

Handing
Field reversible (ED3200 Series only); specify hand.

Bar Length
Easily field cut to size.
Standard: 36" (914mm) bar fits up to 36" (914mm) door.
Optional: 48" (1219mm) bar fits up to 48" (1219mm) door; specify W048.

Door Thickness
1-3/4" (44mm) standard.
Optional: 2" (51mm); specify D200.
Optional: 2-1/4" (57mm); specify D214.

Stile
Minimum width 4-1/8" (105mm).

Latchbolt
3/4" (19mm) pivoted.

Materials
Brass, bronze or stainless steel.

Cases
Heavy wrought, 8-3/8" (213mm) x 2-5/8" (67mm).

Projection
4" (102mm); 2-7/8" (74mm) depressed.

Crossbar
Standard: round seamless tubing.
Optional: reinforced crossbar; see Quick Codes, page 20.

Dogging
Standard on ED3200 Series devices.
Dogging not available on ED3200A Series devices.

Fasteners
Standard: machine and wood screws.
Optional: sex nuts and bolts or spanner head screws; see Quick Codes, page 20.

Strike
See Options and Accessories, page 14.

Removable Mullion
See Mullions, page 16.

Cylinders
Cylinder not included unless specified. See How to Order, page 19.

Applications and Listings
See page 3.

Warranty
One-year limited.

Certification/Compliance

ANSI
Meets A156.3, Grade 1.
Meets A117.1 Accessibility Code.
ADA Compliant.

C-UL US
All devices listed for safety as panic hardware; devices comply with UL 305 standards for panic hardware. 3-hour fire-rated devices listed as fire exit hardware for use on 4' x 8' single doors and 8' x 8' double doors. UL symbol on active case cover indicates listing.

Any retrofit or other field modification to a fire-rated opening can potentially impact the fire rating of the opening, and Corbin Russwin, Inc. makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire-rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

California State Reference Code
This product has been approved by the California State Fire Marshal pursuant to section 13144.1 of the California Health and Safety Code.

NFPA
All exit devices comply with NFPA 101 Life Safety Code. All fire-rated devices comply with NFPA 80 Fire Doors and Windows.

Finishes

BHMA 605	Bright Brass
BHMA 606	Satin Brass
BHMA 611	Bright Bronze
BHMA 612	Satin Bronze
BHMA 613	Oxidized Bronze, oil rubbed
613E	Dark Oxidized Satin Bronze - Equivalent
BHMA 629	Bright Stainless Steel
BHMA 630	Satin Stainless Steel
630C*	Satin Stainless Steel with MicroShield®

***Finish available with MicroShield® antimicrobial coating.**

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Rim Exit Features

ED3000 Series

ED3200 and ED3200A Series Rim Exit Devices



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Surface Vertical Rod Exit Features

ED3400(A) Series

ED3400 Series Panic Listed Surface Vertical Rod Exit Device
ED3400A Series 3-Hour Fire Listed Surface Vertical Rod Exit Device

Features

Handing
Device non-handed (ED3400 Series only); specify hand.

Bar Length
Easily field cut to size.
Standard: 36" (914mm) bar fits up to 36" (762mm-914mm) door.
Optional: 48" (1219mm) bar fits up to 48" (1219mm) door; specify W048.

Door Thickness
1-3/4" (44mm) standard.
Optional: 2" (51mm); specify D200.
Optional: 2-1/4" (57mm); specify D214.

Stile
Minimum width 3" (76mm).

Door Height
All top rods easily field cut to size.
Standard: Top rod is for doors up to 8'.
Optional: Top rod for doors up to 10'. See Quick Codes, page 21.

Latchbolt
ED3400 Series devices:
Top: 1/2" throw.
Bottom: 5/8" throw; acts independently, allowing top latch to remain engaged even when bottom latch is not projected.
ED3400A Series devices:
Top: 5/8" throw.
Bottom: 1" throw; acts independently, allowing top latch to remain engaged even when bottom latch is not projected

Latchbolt Operation
Standard on ED3400 and ED3400A Series devices: latchbolts held in retraced position until door closes.

Vertical Rods
1/2" round tubing

Materials
Brass, bronze or stainless steel.

Cases
Heavy wrought, 8-3/8" (213mm) x 2-5/8" (67mm).

Projection
4" (102mm); 2-7/8" (74mm) depressed.

Crossbar
Standard: round seamless tubing.
Optional: reinforced crossbar; see Quick Codes, page 20.

Dogging
Standard on ED3400 Series devices.
Dogging not available on ED3400A Series devices.

Fasteners
Standard: machine and wood screws.
Optional: sex nuts and bolts or spanner head screws; see Quick Codes, page 20.

Strike
See Options and Accessories, page 14.

Cylinders
Cylinder not included unless specified. See How to Order, page 19.

Applications and Listings
See page 3.

Warranty
One-year limited.

Certification/Compliance

ANSI
Meets A156.3, Grade 2.
Meets A117.1 Accessibility Code.

C-UL US
All devices listed for safety as panic hardware; devices comply with UL 305 standards for panic hardware. 3-hour fire-rated devices listed as fire exit hardware for use on 4' x 8' single doors and 8' x 8' double doors. UL symbol on active head indicates listing.

Any retrofit or other field modification to a fire-rated opening can potentially impact the fire rating of the opening, and Corbin Russwin, Inc. makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire-rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

California State Reference Code
This product has been approved by the California State Fire Marshal pursuant to section 13144.1 of the California Health and Safety Code.

NFPA
All exit devices comply with NFPA 101 Life Safety Code. All fire-rated devices comply with NFPA 80 Fire Doors and Windows.

Finishes

BHMA 605	Bright Brass
BHMA 606	Satin Brass
BHMA 611	Bright Bronze
BHMA 612	Satin Bronze
BHMA 613	Oxidized Bronze, oil rubbed
613E	Dark Oxidized Satin Bronze - Equivalent
BHMA 629	Bright Stainless Steel
BHMA 630	Satin Stainless Steel
630C*	Satin Stainless Steel with MicroShield®

***Finish available with MicroShield® antimicrobial coating.**

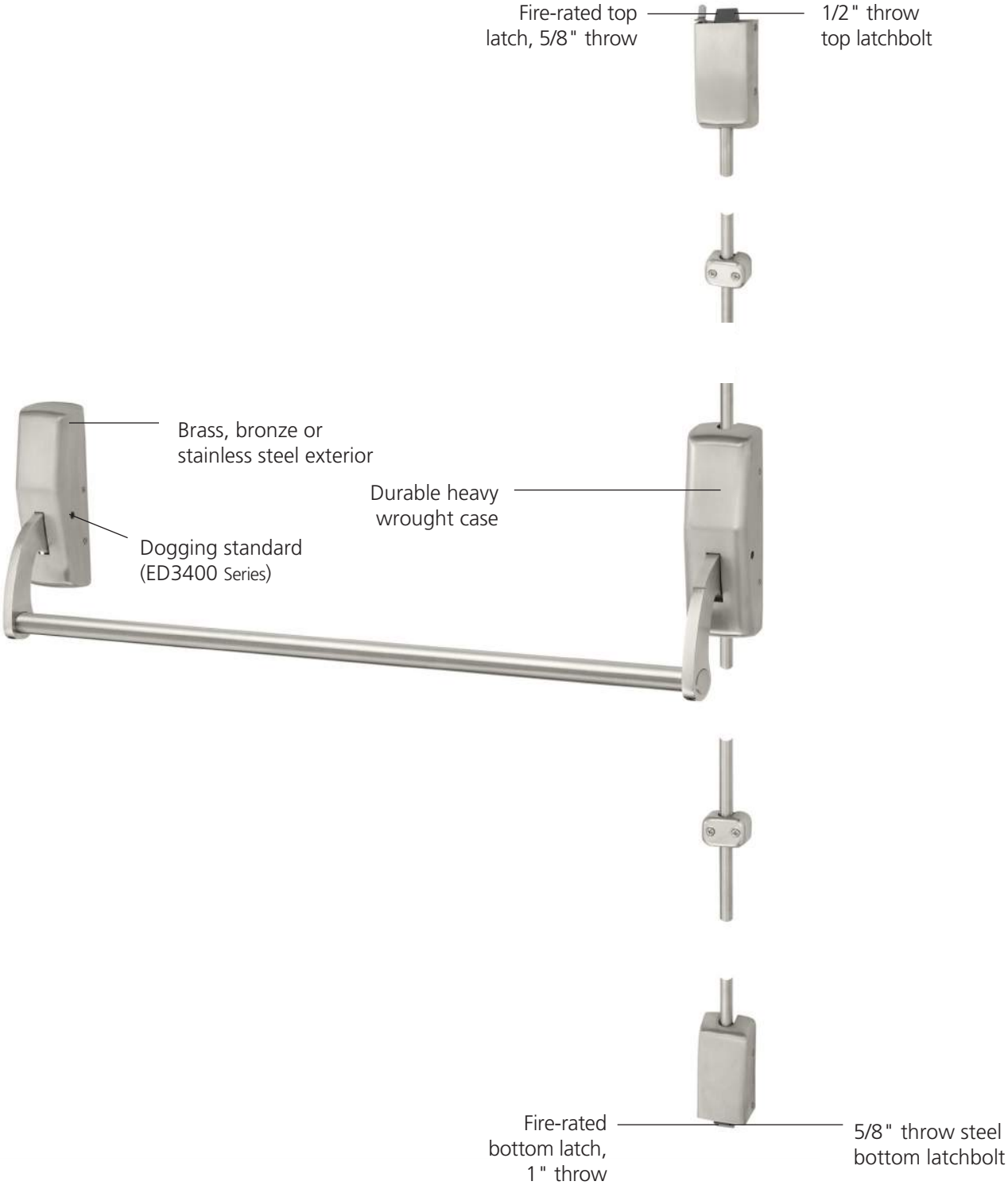
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Surface Vertical Rod Exit Features

ED3400(A) Series

ED3400 and ED3400A Series
Surface Vertical Rod Exit Devices



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Mortise Exit Features

ED3600(A) Series

ED3600 Series Panic-Listed Mortise Exit Device
ED3600A Series 3-Hour Fire-Listed Mortise Exit Device

Features

Handing
Handed, specify hand when ordering.

Bar Length
Easily field cut to size.
Standard: 36" (914mm) bar fits up to 36" (762mm-914mm) door.
Optional: 48" (1219mm) bar fits up to 48" (1219mm) door; specify W048.

Door Thickness
1-3/4" (44mm) standard.
Optional: 2" (51mm); specify D200.
Optional: 2-1/4" (57mm); specify D214.

Stile
Minimum width 4-1/2" (114mm).

Latchbolt
Brass, 3/4"(19mm) throw.

Auxiliary Latch
Brass.

Front
8" x 1-1/4" (203mm x 32mm) heavy gauge brass.
Accommodates flat doors and doors beveled 1/8" (3mm) in 2" (51mm).

Materials
Brass, bronze or stainless steel.

Cases
Heavy wrought, 8-3/8" (213mm) x 2-5/8" (67mm).

Projection
4" (102mm); 2-7/8" (74mm) depressed.

Crossbar
Standard: round seamless tubing.
Optional: reinforced crossbar; see Quick Codes, page 20.

Dogging
Standard on ED3600 Series devices.
Dogging not available on ED3600A Series devices.

Fasteners
Standard: machine and wood screws.
Optional: sex nuts and bolts or spanner head screws; see Quick Codes, page 20.

Strike
See Options and Accessories, page 15.

Cylinders
Cylinder not included unless specified. See How to Order, page 19.

Applications and Listings
See page 3.

Warranty
One-year limited.

Certification/Compliance

ANSI
Meets A156.3, Grade 1.
Meets A117.1 Accessibility Code.
ADA Compliant.

C-UL US
All devices listed for safety as panic hardware; devices comply with UL 305 standards for panic hardware. 3-hour fire-rated devices listed as fire exit hardware for use on 4' x 7'2"' single doors and 8'x7'2" double doors. UL symbol on active head indicates listing.

Any retrofit or other field modification to a fire-rated opening can potentially impact the fire rating of the opening, and Corbin Russwin, Inc. makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire-rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

California State Reference Code
This product has been approved by the California State Fire Marshal pursuant to section 13144.1 of the California Health and Safety Code.

NFPA
All exit devices comply with NFPA 101 Life Safety Code. All fire-rated devices comply with NFPA 80 Fire Doors and Windows.

Finishes

BHMA 605	Bright Brass
BHMA 606	Satin Brass
BHMA 611	Bright Bronze
BHMA 612	Satin Bronze
BHMA 613	Oxidized Bronze, oil rubbed
613E	Dark Oxidized Satin Bronze - Equivalent
BHMA 629	Bright Stainless Steel
BHMA 630	Satin Stainless Steel
630C*	Satin Stainless Steel with MicroShield®

***Finish available with MicroShield® antimicrobial coating.**

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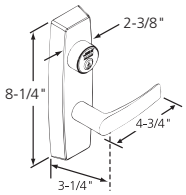
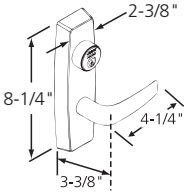
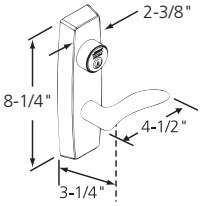
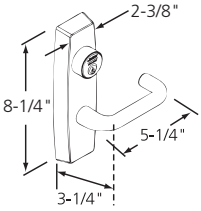
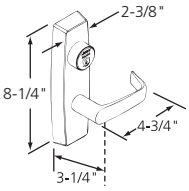
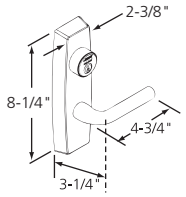
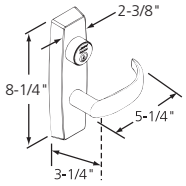
Mortise Exit Features

ED3600(A) Series

ED3600 and ED3600A Series Mortise Exit Devices



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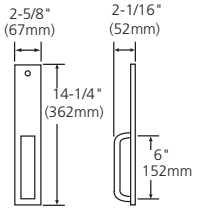
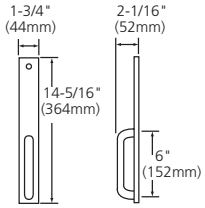
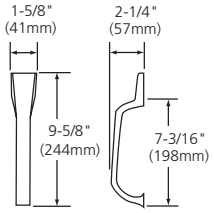
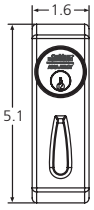
Lever Trim Design			
	**Armstrong** **A33** Lever: Cast Escutcheon: Cast		**Trim Designation** / **ANSI #** A3310ET - Passage 14 A3350ET - Dummy 02 A3355ET - Classroom 08 A3357ET - Nightlatch (Rim) 03 A33V57ET - Nightlatch (SVR) 09 A33M57ET - Nightlatch (Mortise) 03
	**Citation** **C33** Lever: Cast Escutcheon: Cast		**Trim Designation** / **ANSI #** C3310ET - Passage 14 C3350ET - Dummy 02 C3355ET - Classroom 08 C3357ET - Nightlatch (Rim) 03 C33V57ET - Nightlatch (SVR) 09 C33M57ET - Nightlatch (Mortise) 03
	**Dirke** **D33** Lever: Cast Escutcheon: Cast		**Trim Designation** / **ANSI #** D3310ET - Passage 14 D3350ET - Dummy 02 D3355ET - Classroom 08 D3357ET - Nightlatch (Rim) 03 D33V57ET - Nightlatch (SVR) 09 D33M57ET - Nightlatch (Mortise) 03
	**Lustra** **L33** Lever: Cast Escutcheon: Cast		**Trim Designation** / **ANSI #** L3310ET - Passage 14 L3350ET - Dummy 02 L3355ET - Classroom 08 L3357ET - Nightlatch (Rim) 03 L33V57ET - Nightlatch (SVR) 09 L33M57ET - Nightlatch (Mortise) 03
	**Newport** **N33** Lever: Cast Escutcheon: Cast		**Trim Designation** / **ANSI #** N3310ET - Passage 14 N3350ET - Dummy 02 N3355ET - Classroom 08 N3357ET - Nightlatch (Rim) 03 N33V57ET - Nightlatch (SVR) 09 N33M57ET - Nightlatch (Mortise) 03
	**Regis** **R33** Lever: Cast Escutcheon: Cast		**Trim Designation** / **ANSI #** R3310ET - Passage 14 R3350ET - Dummy 02 R3355ET - Classroom 08 R3357ET - Nightlatch (Rim) 03 R33V57ET - Nightlatch (SVR) 09 R33M57ET - Nightlatch (Mortise) 03
	**Princeton** **PR33** Lever: Cast Escutcheon: Cast		**Trim Designation** / **ANSI #** PR3310ET - Passage 14 PR3350ET - Dummy 02 PR3355ET - Classroom 08 PR3357ET - Nightlatch (Rim) 03 PR33V57ET - Nightlatch (SVR) 09 PR33M57ET - Nightlatch (Mortise) 03

See Page 21 for available finishes

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Trim

ED3000 Series

Pull Trim/Thumbpiece Design[1]			
	**D Grip** **T33** Grip: Extruded Escutcheon: Wrought		
	**Round Grip** **T34** Grip: Extruded Escutcheon: Wrought		
	**Sectional Grip** **T35** Grip: Extruded		
	**Auxiliary Control/ Inside Lever Assembly**		

Trim Designation	ANSI #
T3310ET - Passage	15
T3350ET - Dummy	02
T3355ET - Classroom (Rim/SVR)	05
T33M55ET - Classroom (Mortise)	05
T3357ET - Nightlatch (Rim)[2]	03
T33M57ET - Nightlatch (Mortise)	03

Trim Designation	ANSI #
T3410ET - Passage	15
T3450ET - Dummy	02
T3455ET - Classroom (Rim/SVR)	05
T34M55ET - Classroom (Mortise)	05
T3457ET - Nightlatch (Rim)[2]	03
T34M57ET - Nightlatch (Mortise)	03

Trim Designation	ANSI #
T3510ET - Passage	15
T3550ET - Dummy	02
T3555ET - Classroom (rim)	05
T35M55ET - Classroom (Mortise)	05
T3557ET - Nightlatch (Rim)[2]	03
T35M57ET - Nightlatch (Mortise)	03

Trim Designation	ANSI #
3357TET - Nightlatch (SVR)	12

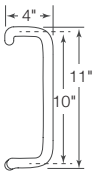
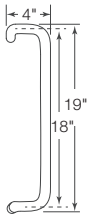
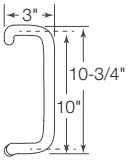
1. **Passage and Classroom functions have thumbpiece. Dummy and Nightlatch functions are pull only.**
2. **Not available with Surface Vertical Rod devices. For SVR X Night-latch x pull trim requirement - must order ED3450(A) x Dummy pull trim and 3357T Auxiliary Control.**
3. **T33, T34 and T35 trim only available in 629 or 630 finish**

See Page 21 for available finishes.

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Offset Pull Trim

ED3000 Series

Offset Pull Trim: P12, P13, P14*			
	**Offset Pull** **P12** Clearance: 2-1/2"		Specify Part Number, 716F50M x Finish[1]
	**Offset Pull** **P13** Clearance: 2-1/2"		Specify Part Number, 716F51M x Finish[1]
	**Offset Pull** **P14** Clearance: 2-1/2"		Specify Part Number, 716F52M x Finish[1]

1. Available in 605, 606, 612, 613, 626, 629 and 630 finishes.
*Available on 1-3/4" thick doors only.

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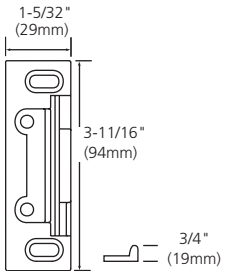
Corbin Russwin
ASSA ABLOY

Options and Accessories

ED3000 Series

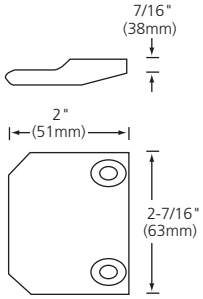
Rim Strikes

(Screws Included)



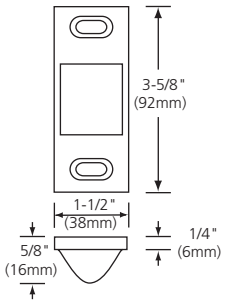
Rim Strike

Standard on ED3200 Series devices. For doors with 1/2" (13mm) or 5/8" (16mm) stop. Adjustable to compensate for shrinkage and swelling of door. Nylon anti-friction inserts for quieter operation. 3-1/4" x 1-1/16" (82mm x 27mm). To order separately, specify 787F44. 1/8" (3mm) shim available for 1/2" (13mm) stop; specify 786F72.



Rim x Vertical Rod Strike

Required for ED3200 Series devices when used with ED3400 Series device on a pair of doors. To order with device, specify option S02. To order separately, specify 786F53.

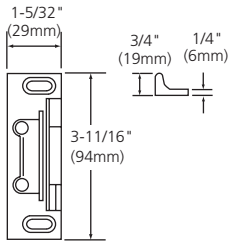


Mortised Adjustable Rim Strike

Optional for ED3200 Series devices only. Adjustable to compensate for shrinkage and swelling of door. 3-5/8" x 1-1/2" (92mm x 38mm). To order with device, specify option S04. To order separately specify 786F51.

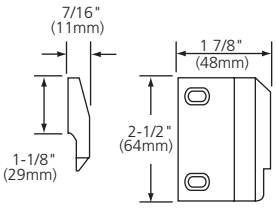
Vertical Rod Strikes

(Screws Included)



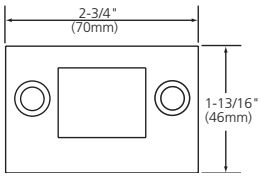
Top Strike

Standard Top Strike for both Panic & Fire Hardware. Surface applied to frame. Black nylon coated. 3-11/16" x 1-5/32" (94mm x 29mm). Specify 787F42



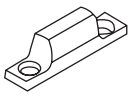
Flush Transom Strike

For doors having transom panel applications. 2-1/2" x 1-7/8" (64mm x 48mm). To order with device, specify option M67. To order separately, specify 787F41.



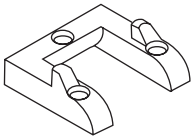
Bottom Strike

Optional for ED3400 Series devices. 2-3/4" x 1-13/16" (70mm x 46mm). To order with device specify option S03. To order separately, specify 786F56.



Surface Projecting Bottom Strike

Standard on ED3400 Series devices. 2-9/16" x 19/32" x 5/8" (65mm x 15mm x 16mm) high. To order separately, specify 786F52.



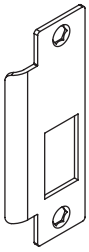
Bottom Strike for Threshold

Optional on ED3400A Series devices. For use with threshold. To order with device, specify option S06. To order separately, specify 786F55.

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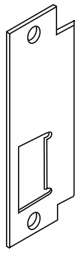
Mortise Strikes



Curved Lip ANSI Strike

Standard on ED3600 and ED3600A Series. Handed. 1-1/4" lip standard, longer lips in increments of 1/4" through 2-7/8" available. 4-7/8" x 1-1/4" x 1-1/8" (124mm x 32mm x 28mm) lip to center, for 1-3/4" (44mm) doors.

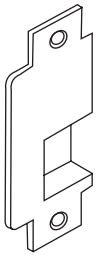
Hand	Door Thickness	Part No.
LHR	1-3/4"	786F66
	2"	786F67
	2-1/4"	786F68
RHR	1-3/4"	786F69
	2"	786F70
	2-1/4"	786F71



Straight Lip ANSI Strike

4-7/8" x 1-1/4" x 1-1/8" (124mm x 32mm x 28mm) lip to center, for 1-3/4" (44mm) doors. To order separately, specify Part No.

Door Thickness	Part No.
1-3/4"	786F63
2"	786F64
2-1/4"	786F65



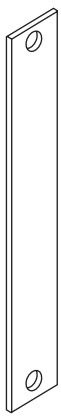
Open Back Strike

Optional for use with ED3400 x ED3600 Series devices on a pair of doors. See How to Order, page 20. To order separately, specify Part No. x Door Thickness x Finish.

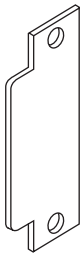
Hand	Door Thickness	Part No.
LHR	1-3/4"	786F57
	2"	786F58
	2-1/4"	786F59
RHR	1-3/4"	786F60
	2"	786F61
	2-1/4"	786F62

Filler Plates

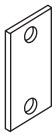
Optional for use on stock metal doors when required. To order, specify Part No. x Finish.



Front
334F99-8 600



Strike
236L708018



Front
077F19-8 600

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Mullions

ED3000 Series

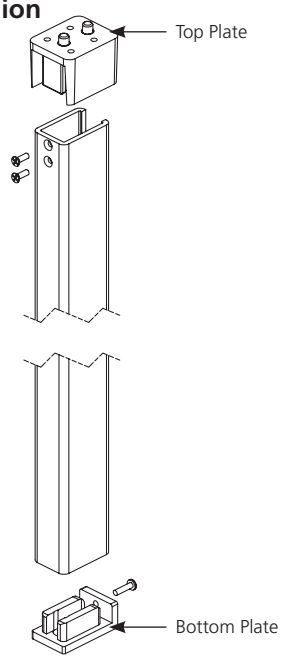
CR900 Series Removable Mullions

The CR900 series mullions are used to install two ED3200 Series Rim Exit Devices in a double door opening. They may be quickly and easily removed, then reinstalled, when a full double door opening is temporarily required. The CR900 series mullions meet ANSI A156.3, Type 22.

Materials and Finish

Steel mullion with malleable iron top and bottom plates; furnished with zinc plated fasteners for metal frames and concrete floors. May be cut, drilled and tapped in the field for Rim Exit Devices. The CR900 series mullions are primed for painting, BHMA 600, red.

CR900 Mullion



CR900 Series Mullions - How to Order

Removable Mullions

UL Fire Rating[1]	Mullion Opening Height[2]	Catalog Number
Panic Only	Up to 7'2"	CR972
Panic Only	Up to 8'	CR908SM
3-Hour	Up to 7'2"	CR972A
3-Hour (Only fire rated up to 8')	Up to 10'0"	CR910A[4]

Key Removable Mullions

UL Fire Rating[1]	Mullion Opening Height[2]	Catalog Number
Panic Only	Up to 8'	CR908KMSM
1-1/2 Hour	Up to 7'2"	CR972BKM[3]
1-1/2 Hour (Only fire rated up to 8')	Up to 10'0"	CR910BKM[3]

Notes:
1. UL label on mullion indicates listing.
2. May be field cut for doors.
3. Cylinder and collars not included, specify separately. See Cylinders on page 18.
4. For 8' length mullion must be ordered as CR910A option and cut in the field to 8' size.

CR900 Series Mullions - Options

M95- Spacer Block

Recommended for double rabbeted frames where the stop face width is less than the mounting hole spacing and also for door frames 5-3/4" (176mm) or less. To order with a mullion, specify M95. To order separately, specify Part No. 683F29-8.

M96- Angle Bracket

Recommended for any header configuration with less than 3" (76mm) of mounting surface. To order with a mullion, specify M96. To order separately, specify Part No. 655F63-8.

M57- Mullion Stabilizer Kit

Controls the movement of the mullion. Recommended for opening over 7' high, or whenever door movement must be minimized. To order with mullion, specify M57. To order separately, specify Part No. 653F11-1 x 695 or 628.

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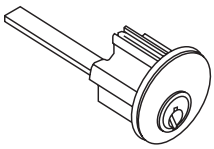
Cylinders

ED3000 Series

Cylinders

- L4 keyway standard; specify other keyways.
- Specify Collar.
- To order with Exit Device, see How to Order, page 19.
- To order separately, specify Cylinder Type x Keyways Finish (e.g., 3000-200 x L4 x 626).

Rim

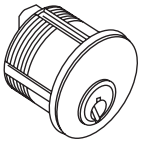


Available with the following trim:

*3357	T3357
T3355	T3457
T3455	T3557
T3555	

Description	Lever Trim		Thumbpiece Trim
	1-3/4" Door	2" and 2-1/4" Door	
6 Pin	CR3000-200	CR3000-312	CR3000-200
7 Pin	CR3000-200-7	CR3000-312-7	CR3000-200-7
Access 3® Patented	CR3500-200	CR3500-312	CR3500-200
Access 3® Security	CR3600-200	CR3600-312	CR3600-200
Access 3® High Security	CR3700-200	CR3700-312	CR3700-200
Access 3® IC Patented	CR3580-178	CR3580-318	CR3580-178
Access 3® IC Security	CR3680-178	CR3680-318	CR3680-178
Access 3® IC High Security	CR3780-178	CR3780-318	CR3780-178
Pyramid Security	CR3027-200	CR3027-312	CR3027-200
Pyramid Security IC	CR3037-178	CR3037-312	CR3037-178
Pyramid High Security	CR3020-200	CR3020-312	CR3020-200
Pyramid High Security IC	CR3030-178	CR3030-312	CR3030-178
Pyramid IC LFIC 6 Pin LFIC 6 Pin - Red LFIC 6 Pin - Blue LFIC 6 Pin - Green	CR3080-178	CR3080-318	CR3080-178
Pyramid IC (Disposable) Pyramid IC Less Core LFIC 6 Pin Less Core LFIC 6 Pin (Disposable)	CR3070-178	CR3070-318	CR3070-178
SFIC 6 Pin	CR3050-178	CR3050-318	CR3050-178
SFIC 6 Pin - Blue	CR3050-178	CR3050-318	CR3050-178
SFIC 6 Pin Less Core	CR3040-178	CR3040-318	CR3040-178
SFIC 6 Pin (Disposable)	CR3040-178	CR3040-318	CR3040-178
Security	CR3010-200	CR3010-312	CR3010-200
Security IC	CR3090-178	CR3090-318	CR3090-178
LFIC 7 Pin LFIC 7 Pin - Red LFIC 7 Pin - Blue LFIC 7 Pin - Green	CR3080-178-7	CR3080-318-7	CR3080-178-7
LFIC 7 Pin Less Core LFIC 7 Pin (Disposable)	CR3070-178-7	CR3070-318-7	CR3070-178-7
SFIC 7 Pin	CR3050-178-7	CR3050-318-7	CR3050-178-7
SFIC 7 Pin - Blue	CR3050-178-7	CR3050-318-7	CR3050-178-7
SFIC 7 Pin Less Core	CR3040-178-7	CR3040-318-7	CR3040-178-7
SFIC 7 Pin (Disposable)	CR3040-178-7	CR3040-318-7	CR3040-178-7

CR900 Series Key Removable Mullion Mortise Cylinders

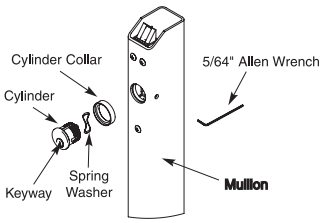


Description	Cylinder Type
6-Pin	CR1000-118-A62
7-Pin	CR1000-114-A62-7
6-Pin, IC	CR1080-114-A62
7-Pin, IC	CR1080-112-A62-7
Pyramid High Security	CR1020-114-A62
Pyramid Security	CR1027-114-A62
Pyramid High Security IC	CR1030-114-A62
Pyramid Security IC	CR1037-114-A62
Security	CR1010-118-A62
Security IC	CR1090-114-A62
6-pin, IC, less core	CR1070-114-A62
7-pin, IC, less core	CR1070-112-A62-7
Access 3® – Patented	CR1500-114-A62
Access 3® - Security	CR1600-114-A62
Access 3® - High Security	CR1700-114-A62
Access 3® IC - Patented	CR1580-114-A62
Access 3® IC - Security	CR1680-114-A62
Access 3® IC- High Security	CR1788-114-A62

CR900 Series Key Removable Mullion Cylinder Collar Packet

Mullion Series	Cylinder Length and Type			
	1-1/8"	1-1/4"	1-1/4" IC	1-1/2" IC
CR972BKM CR910BKM CR908KMSM	610F01*	447F43*		609F37*

Note: Cylinder collar packets contain a collar and spring washer.
****Specify finish when ordering packets.***



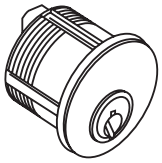
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Cylinders

ED3000 Series

Mortise



Description	Cylinder Type	Trim Functions									
		55	M57	V57	T33M55	T34M55	T35M55	T33M57	T34M57	T35M57	3357T
6 Pin	CR1000-118-A07	X		X	X	X	X	X	X	X	X
	CR1000-134-A07		X								
	CR3000-200	X		X							
7 Pin	CR1000-114-A07-7	X		X							X
	CR1000-134-A07-7		X		X	X	X	X	X	X	
Access 3 Patented	CR1500-114-A07	X		X							X
	CR1500-134-A07		X		X	X	X	X	X	X	
Access 3 Security	CR1600-114-A07	X		X							X
	CR1600-134-A07		X		X	X	X	X	X	X	
Access 3 High Security	CR1700-114-A07	X		X							X
	CR1700-134-A07		X		X	X	X	X	X	X	
Acess3 IC Patented	CR1580-114-A07	X		X							X
	CR1580-134-A07		X		X	X	X	X	X	X	
Access 3 IC Security	CR1680-114-A07	X		X							X
	CR1680-134-A07		X		X	X	X	X	X	X	
Access 3 IC High Security	CR1788-114-A07	X		X							X
	CR1788-134-A07		X		X	X	X	X	X	X	
Pyramid Security	CR1027-114-A07	X		X							X
Pyramid Security IC	CR1037-114-A07	X		X							X
	CR1037-134-A07		X		X	X	X	X	X	X	
Pyramid High Security	CR1020-114-A07	X		X							X
Pyramid High Security IC	CR1030-114-A07	X		X							X
	CR1030-134-A07		X		X	X	X	X	X	X	
Pyramid IC LFIC 6 Pin LFIC 6 Pin - Red LFIC 6 Pin - Blue LFIC 6 Pin - Green	CR1080-114-A07	X		X							X
	CR1080-134-A07		X		X	X	X	X	X	X	
Pyramid IC (Disposable) Pyramid IC Less Core LFIC 6 Pin Less Core LFIC 6 Pin (Disposable)	CR1070-114-A07	X		X							X
	CR1070-134-A07		X		X	X	X	X	X	X	
SFIC 6 Pin	CR1050-114-A07	X		X							X
SFIC 6 Pin - Blue		X		X							X
SFIC 6 Pin Less Core SFIC 6 Pin (Disposable)	CR1040-114-A07	X		X							X
		X		X							X
Security	CR1010-114-A07	X		X							X
	CR1010-134-A07		X		X	X	X	X	X	X	
Security IC	CR1090-114-A07	X		X							X
	CR1090-134-A04		X		X	X	X	X	X	X	
LFIC 7 Pin LFIC 7 Pin - Red LFIC 7 Pin - Blue LFIC 7 Pin - Green	CR1080-134-A07-7		X		X	X	X	X	X	X	
LFIC 7 Pin Less Core LFIC 7 Pin (Disposable)	CR1070-134-A07										
SFIC 7 Pin SFIC 7 Pin - Blue	CR1050-134-A07		X		X	X	X	X	X	X	
SFIC 7 Pin Less Core SFIC 7 Pin (Disposable)	CR1040-134-A07										

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How to Order

ED3000 Series

Exit Device

Quantity	Exit Device	Finish	Hand	Misc. Options
27	ED3250	630	RHR	M54

Removable Mullion

Quantity	Mullion
9	CR972

Trim Only (For ExitDevice)

Quantity	Trim	Finish	Hand	Door Thickness
34	L3310ET	625	RHR	D214

Where to find ordering information and Quick Codes

Trims	Pages 11-12
Offset Pull Trims	Page 13
Cylinder and Keying	Page 20
Miscellaneous Options	Page 20
Strike	Page 21
Finish	Page 21
Door Height	Page 21
Handing	Page 21
Door Width	Page 21
Door Thickness	Page 21

Exit Device with Trim

Quantity	Exit Device	Trim	Finish	Hand	Door Thickness	Optional Strike	Door Width	Misc. Options
18	ED3255	R3355ET	605	LHR	D200	S04	W048	M53

Contract/Detailed Order - Exit Device with Trim

Quantity	Keyset	Exit Device	Trim	Finish	Hand	Door Thickness	Door Width	Door Options	Misc. Options	Cylinder Keying	Keyway
68	AA1	ED3255	A3355ET	626	RHR	D200	W048	M54	7P	VKC3	59A1

Note: When ordering a device, the function must be included in the device component of the order string and must match the trim function. e.g. ED3255/A3355

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Quick Codes

ED3000 Series

Cylinder and Keying

Description	Specify
Conventional 6-pin	6P
Conventional 7-pin	7P
LFIC	
LFIC 6-pin[1]	C6
LFIC 6-pin less core	CL6
LFIC 6-pin with temporary construction core (Red)	CT6R
LFIC 6-pin with temporary construction core (Blue)	CT6B
LFIC 6-pin with temporary construction core (Green)	CT6G
LFIC 6-pin with temporary disposable core	CT6D
LFIC 7-pin	C7*
LFIC 7-pin less core	CL7*
LFIC 7-pin with temporary construction core (Red)	CT7R*
LFIC 7-pin with temporary construction core (Blue)	CT7B*
LFIC 7-pin with temporary construction core (Green)	CT7G*
LFIC 7-pin with temporary disposable core	CT7D*
SFIC	
SFIC 6-pin	C6S
SFIC 6-pin with temporary construction core (Blue)	CT6SB
SFIC 6-pin with Less Core	CLS6
SFIC 6-pin with SFIC disposable temporary core	CT6SD
SFIC 7-pin	C7S
SFIC 7-pin with temporary construction core (Blue)	CT7SB
SFIC 7-pin with Less Core	CLS7*+
SFIC 7-pin with SFIC disposable temporary core	CT7SD*
Security	
Security	HS
Security IC	CHS
Access 3®	
Access 3® - Patented	AP
Access 3® - Security	AS
Access 3® - High Security	AHS
Access 3® IC - Patented	ACP
Access 3® IC - Security	ACS
Access 3® IC- High Security	ACHS
Pyramid	
Pyramid Security fixed core	PS
Pyramid Security IC	PCS
Pyramid High Security fixed core	PHS
Pyramid High Security IC	PCHS
Pyramid IC with temporary construction core	CTP
Pyramid IC with temporary disposable core	CTPD
Pyramid IC less core	CLP
Keying and Keys	
0-bitted with 2 blank keys	(standard)
Keyed random	KR
Construction master keyed	CMK (not available for Pyramid)
2 keys per lock	(standard)
More than 2 keys	KY# (e.g., KY6)
Visual key control (VKC)	
No keying data stamped on key or cylinder	VKC0
Keys only	VKC1
Cylinders and keys (not for HS, CHS, PHS or PCHS)	VKC2
Cylinders only (not for HS, CHS, PHS or PCHS)	VKC3
Concealed key control (CKC)	
CKC cylinders with VKC keys	CKC2
CKC cylinders only (not for HS, CHS, PHS or PCHS)	CKC3

*Not available with Rim or SVR lever trim - Classroom Function
+Not available with 55 function

Miscellaneous Options

Description	Specify
Spanner Head Screws	M02
Torx Head Screws	M04
Abrasive coat outside and inside (trim and device)	M23
Abrasive coat inside only (device side)	M24
Abrasive coat outside only (trim side)	M25
Steel reinforced crossbar	M53
Sex nuts and bolts (SNBs)	M54
Mullion stabilizer kit	M57
Shim for 2-3/4" backset on doors with 1/2" stop (rim devices only)	M59
Mullion spacer block	M95
Mullion angle bracket	M96

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Quick Codes

ED3000 Series

Strike

Description	Specify
Rim	
Mortised adjustable	S04
Rim x Vertical Rod	S02
Vertical Rod	
Flush bottom (ED3400 devices only)	S03
3-hour fire-rated bottom for use with threshold	S06
Flush Transom Strike	M67
Mortise	
Open back strike	
1-3/4" door thickness	SB134
2" door thickness	SB200
2-1/4" door thickness	SB214
Straight Lip ANSI Strike	
1-3/4" door thickness	SS118
2" door thickness	SS138
2-1/4" door thickness	SS158
Curved Lip ANSI Strike	
1-3/4" door thickness	SA114 (standard)
2" door thickness	SA138
2-1/4" door thickness	SA158

Finish

Description		Specify
US3	Bright Brass	605
US4	Satin Brass	606
US9	Bright Bronze	611
US10	Satin Bronze	612
US10B	Dark Oxidized Satin Bronze, oil rubbed	613
US10BE	Dark Oxidized Satin Bronze - Equivalent	613E
US14	Bright Nickel Plated	618[1]
US15	Satin Nickel Plated	619[1]
US26	Bright Chromium Plated	625[1]
US26D	Satin Chromium Plated	626[1]
	Satin Chromium Plated with MicroShield	626C[1,3]
US32	Bright Stainless Steel	629[2]
US32D	Satin Stainless Steel	630[2]
—	Satin Stainless Steel with MicroShield®	630C[2,3]
—	Black Suede Powder Coat	BSP[1]
—	White Suede Powder Coat	WSP[1]

1. Outside trim only
2. Not available on lever trim or T34 trim
3. Finish available with MicroShield® antimicrobial coating.

Lock/Cylinder Finish

Lock	Cylinder/Core*
605,606,611,612,613,613E,722	606
618,619,625,626,626C,629,630,630C,WSP	626
BSP	BSP

*Finish when cylinder provided with lock

Door Height (SVR Only)

Door	Specify
7'0"	H0700
7'2"	H0702
7'6"	H0706
8'	(standard)
8'6"	H0806 (ED3400 device only)
9'	H0900 (ED3400 device only)
10'	H1000 (ED3400 device only)

Handing

Hand	Specify
Right Hand Reverse	RHR
Left Hand Reverse	LHR

Door Width

Door	Specify
36" (914mm)	(standard)
48" (1219mm)	W048

Door Thickness

Door	Specify
1-3/4" (44mm)	(standard)
2" (51mm)	D200
2-1/4" (57mm)	D214

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How to Specify

ED3000 Series

Suggested Specification
ED3000 Series

All exit devices shall be ED3000 Series Crossbar Exit Devices as manufactured by Corbin Russwin Architectural Hardware.

The maximum projection shall be 4" (102mm) and 2-7/8" (74mm) when crossbar is depressed. Exit devices shall have matched twin cases mounted with concealed fastening screws and shall be constructed of brass, bronze or stainless steel. Non-matched twin cases shall not be acceptable. Crossbar lever arms shall be drop forged.

Crossbar must have minimum wall thickness of .062" or be reinforced. Main arm pivots and springs shall be stainless steel. Crossbars and arms shall be counter balanced by springs in both center case and hinge style cases. All exit devices shall be of chassis mounted unit construction with removable covers. Top and bottom rods of vertical rod devices shall be a minimum of 3/8" diameter.

Panic listed exit devices shall have dogging standard. Dogging screws shall seat into heat-treated pivots for long life and minimum wear. All crossbars on exit devices to be locked down by inside dogging feature accomplished by depressing crossbar and turning key.

All exit devices shall have ample allowances for easy alignment.

Trims shall be through-bolted with concealed fasteners. Escutcheon and pull trims shall be constructed of brass, bronze or stainless steel. All lever trims shall use cast levers. Wrought levers shall not be acceptable. Lever trims shall match those on Corbin Russwin Mortise and Cylindrical Locksets.

All devices and trims shall be furnished in architectural finishes.

All devices shall be listed by Underwriters Laboratories (UL) for safety as panic hardware. Fire-rated devices shall be UL listed for mortise: 4' x 7'2" single and 8' x 7'2" pair; rim and surface vertical rod - 4' x 8' single and 8' x 8' pair.

Certification:
ANSI A156.3, Grade 1
ANSI A156.3, Grade 2 (ED3400 Series)
ANSI A117.1 Accessibility Code
California State Fire Marshal pursuant to section 13144.1 of the California Health and Safety Code.
ADA Complaint

All devices, trims and cylinders shall be from one manufacturer.

All mechanical devices and trims shall carry a one-year limited warranty.

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Notes

ED3000 Series

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ASSA ABLOY Opening Solutions leads the development within door openings and products for access solutions in homes, businesses and institutions. Our offering includes doors, frames, door and window hardware, mechanical and smart locks, access control and service.

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For additional information, contact your ASSA ABLOY Door Security Solutions sales consultant or visit **www.corbinrusswin.com.**

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agion

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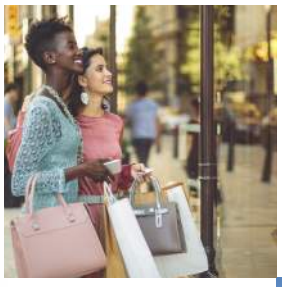
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45390-04/24

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ML2000 Series

Mortise Locksets

Product Catalog

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Overview

ML2000 Series

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Quality

The ML2000 Series is a Grade 1 mortise lock designed to meet the rigors of high-traffic commercial, institutional, industrial and government applications. Constructed of heavy-gauge steel, the lockbody features our patented Quick Reversible latchbolt, and a 1" stainless steel deadbolt. A wide variety of trim designs and functions and a 10-year warranty lend to the ML2000's versatility and reliability, making it the ideal choice for use in offices, schools, hospitals, hotels and other high-use applications.

Security

Further discourage intrusion and abuse with the ML2000VR (Vandal Resistant) series mortise lock. This lock features vandal-resistant stainless steel escutcheons with tapered edges and Torx® pin tamper resistant screws. When matched with Corbin Russwin patented high-security cylinders, any door can become a formidable barrier to intruders.

Flexible

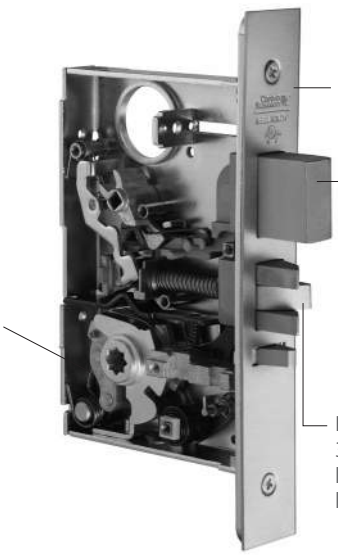
The ML2000 Series has a multi-function capability, allowing 12 functions to be configured from one lockbody. The ML2054 entrance function (ANSI F04) uses a universal lockbody with the ability to reconfigure into other functions without dissembling the lock case.

Aesthetics

Complement any application with the full range of trim designs and finishes offered with ML2000 Series. From stainless steel security trims to bright brass Vineyard™ levers, design continuum can be achieved without forfeiting aesthetics. For additional information regarding designer trim, see the Corbin Russwin Vineyard™ Collection and Muséo® Collection catalogs.

Key Advantages

- UL Cycle above and beyond test completed at 14.5 Million Cycles. Verification ID: V875753
- Patented Quick Reversible feature enables reversal of hands without disassembling the lock case (Patent pending and/or patent www.assaabloydss.com/patents)
- Security trims provide a vandal-resistant barrier
- Can be used with new or existing Corbin Russwin key systems. Also accepts cylinders of most other manufacturers.
- Provides life safety and security in a single door prep, saving the additional cost of a deadlock
- Thru-bolted trim designs for proper alignment and increased security
- Multi-function lockbody
- Status indicator options provide peace of mind on the locked/unlocked status of a door



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45300 05/24

Features

ML2000 Series

Features

Handing
Handed; quick reversible. The lockset can be re-handed without disassembling the lock case; see page 88.

Door Thickness
1-3/4" (44mm) standard.
Optional door thicknesses available; see Quick Codes, page 82.

Backset
2-3/4" (70mm).

Lockcase
Heavy-gauge steel, 5-7/8" (149mm) x 4" (102mm) x 15/16" (24mm).
Optional: non-ferrous lockcase for corrosion resistance; see Quick Codes, page 82.

Front
Heavy-gauge steel, 8" (203mm) x 1-1/4" (32mm) x -3/32" (2mm). Accommodates flat doors and doors beveled 1/8" (3mm) in 2" (51mm). Furnished 1-1/16" (27mm), optional D138, wide for 1-3/8" (35mm) doors.

Armored Front
Wrought brass, bronze or stainless steel attached by machine screws to lockcase front. ML2000VR utilizes security Torx® screws.

Latchbolt
2-piece mechanical with anti-friction insert, 5/8" (16mm) x 1" (25mm) x 3/4" (19mm) throw.

Auxiliary Latchbolt
9/16" (14mm) effective throw and 3/8" (10mm) effective auxiliary latch deadlocking.

Deadbolt
One-piece stainless steel, 19/32" (15mm) x 1-1/4" (32mm) x 1" (25mm) throw.

Indicators
Status indicators available in sectional or escutcheon trim with many options providing clarity of the locked/unlocked status of a door.

Hub
Standard knob/lever hub is steel, 5/16" (8mm)

Spacing
C. to c. knob/lever to cylinder: 3-5/8" (92mm).
C. to c. knob/lever to thumbturn: 2-7/16" (62mm).

Strike
Wrought brass, bronze or stainless steel, ANSI straight lip standard, 4-7/8" (124mm) x 1-1/4" (32mm) x 1-1/8" (29mm) lip to center. Optional strikes, lip lengths and ANSI wrought strike box available; see Quick Codes, page 82.

Cylinder
Brass, 6-pin, L4 keyway, 0-bitted standard.
Optional cylinders available; see Quick Codes, page 74.

Keys
Two nickel silver standard.

Keying Features Available
Master keying
Construction master keying
Visual key control
Concealed key control
Plug only to show (concealed shell)
7-pin cylinder
Security cylinder
Access 3® cylinder
Pyramid cylinder
Interchangeable core (LFIC or SFIC)
Security LFIC
Pyramid LFIC
Access 3® LFIC
Master ring cylinder
Flex head cylinder

Warranty
Ten-year limited.

Certification/Compliance*

ANSI/BHMA
BHMA CERTIFIED
Certified A156.13 Series 1000, Operational and Security Grade 1. Meets A117.1 Accessibility Code.

UL/cUL-UL10C Positive Pressure
All locks listed for A label and lesser class doors, 4' (122cm) x 10' (305cm) single or 8' (244cm) x 10' (305cm) pair (3 hour fire door). Letter F and UL symbol on armored front indicate listing.

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Corbin Russwin, Inc. makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire-rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

California State Reference Code
(Formerly Title 19, California State Fire Marshal Standard)
All levers with returns, return to within 1/2" (13mm) of door face.

Windstorm/Hurricane
Certified (refer to local codes).

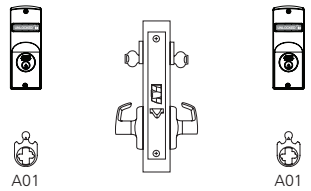
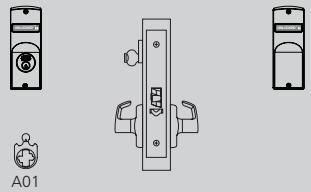
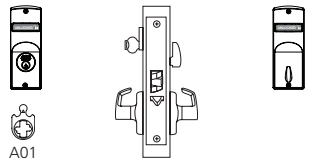
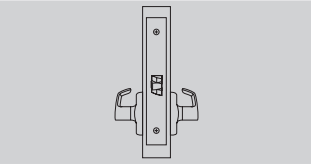
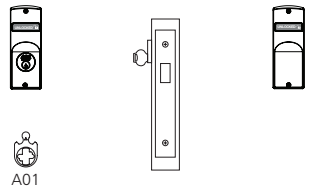
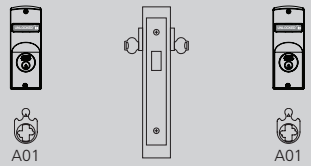
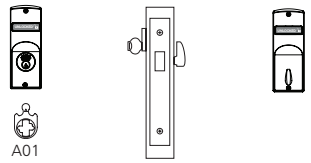
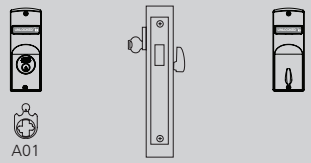
*Any undated reference to a code or standard appearing in the this catalog shall be interpreted as referring to the latest edition of that code or standard.

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Functions

ML2000 Series

Outside	Inside	Function (ANSI No.)	Type	Function Description
 A01 A01		ML2002	Classroom Intruder	• Latchbolt by grip either side, unless outside grip is locked by key either side. • Outside grip locked or unlocked by cylinder either side. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.
 A01		ML2003	Classroom	• Lock or unlock outside grip by key. • Latchbolt by grip either side, unless outside grip is locked. • Inside grip always free. • Auxiliary latch deadlocks latchbolt.
 A01		ML2004	Classroom	• Latchbolt by grip either side, unless outside grip is locked by key outside or thumbturn inside. • Outside grip locked or unlocked by key or thumbturn. • Inside grip always free. • Auxiliary latch deadlocks latchbolt.
		ML2010 (F01)	Passage or Closet	• Latchbolt by grip either side. • Both grips always free.
 A01		ML2011 (F18)	Deadlock	• Deadbolt by key outside. • No inside operation. Note: Indicators available for sectional trim only.
 A01 A01		ML2012 (F16)	Deadlock	• Deadbolt by key either side. Note: Indicators available for sectional trim only.
 A01		ML2013 (F17)	Deadlock	• Deadbolt by key outside or by thumbturn grip inside. Note: Indicators available for sectional trim only.
 A01		ML2017 (F29)	Classroom Deadlock	• Deadbolt by key outside. • Thumbturn grip inside retracts deadbolt only; will not project deadbolt.

Indicator options available for both sectional and VN escutcheon trim.

Cylinder cam required.

Indicates rigid grip.

* When lever handles are furnished, both outside and inside are locked when deadbolt is projected.

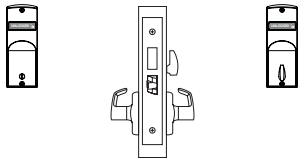
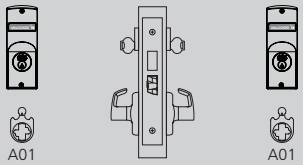
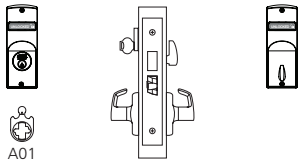
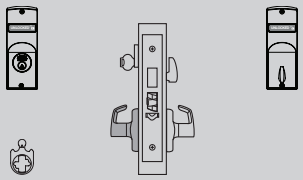
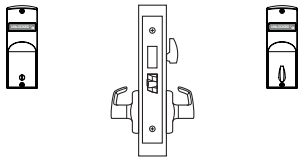
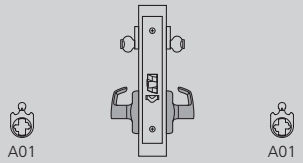
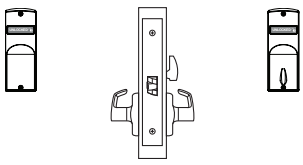
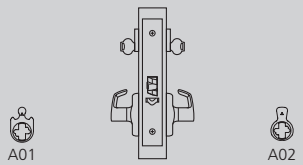
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Functions

ML2000 Series

Outside	Inside	Function (ANSI No.)	Type	Function Description
		ML2020 (F02)	Privacy Bedroom or Bathroom	• Latchbolt by grip* either side, when deadbolt is retracted. • Deadbolt by thumbturn grip inside or by emergency release tool outside. • No simultaneous deadbolt and latch retraction. • Non-panic release. • Not available with M19S or M19SN.
 A01	A01	ML2022 (F14)	Store Door	• Latchbolt by grip* either side when deadbolt is retracted. • Deadbolt by key either side. • Latchbolt retracted by key either side. • Non-panic release. • No simultaneous deadbolt and latch retraction.
 A01		ML2024 (F21)	Entrance or Storeroom	• Latchbolt by grip* either side when deadbolt is retracted. • Deadbolt by key outside or by thumbturn grip inside. • Latchbolt retracted by key outside. • Non-panic release. • No simultaneous deadbolt and latch retraction.
 A01		ML2029 (F15)	Hotel or Motel	• Latchbolt by grip inside and by guest key or master key outside. • Outside grip always rigid. • Deadbolt by thumbturn grip inside or by emergency key outside. • Inside grip simultaneously retracts latchbolt and deadbolt. • Emergency key shuts out all other keys. • Auxiliary latch deadlocks latchbolt. Note: Indicator shows deadbolt position only.
		ML2030 (F19)	Privacy Bedroom or Bathroom	• Latchbolt by grip either side unless outside grip locked by thumbturn. • Deadbolt by thumbturn grip inside or by emergency release tool outside. • Inside grip simultaneously retracts latchbolt and deadbolt and unlocks outside grip. • Not available with M19S or M19SN.
 A01	A01	ML2032 (F30)	Institution or Utility	• Latchbolt by key either side. • Both grips always rigid. • Auxiliary latch deadlocks latchbolt. Note: This function does not allow free egress and can pose a life safety hazard in event of an emergency. Installation should be in accordance with approved codes only.
		ML2040	Passage with Indicator	• For doors with indicator that do not require locking • Latchbolt retracted by grip either side at all times • Throwing thumbturn on inside changes state of status indicator • Rotating either grip returns indicator to previous state Note: Only available with "V" series indicators. Indicator option code must be specified with this function
 A01	A02	ML2042 (F09)	Entrance or Public Restroom	• Latchbolt by grip either side, unless outside grip is locked by key from inside. • Latchbolt by key outside when outside grip is locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.

Indicator options available for both sectional and VN escutcheon trim.

Cylinder cam required.

Indicates rigid grip.

* When lever handles are furnished, both outside and inside are locked when deadbolt is projected.

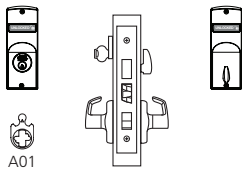
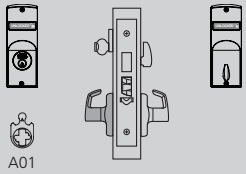
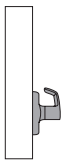
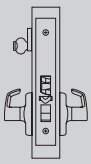
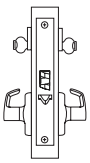
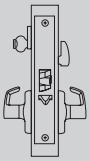
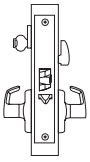
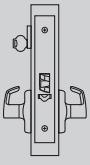
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Functions

ML2000 Series

Outside	Inside	Function (ANSI No.)	Type	Function Description
 A01		ML2048 (F08/F10)	Entrance or Apartment	• Latchbolt* by key outside or by grip either side, unless outside grip is locked by toggle-action stop. • Deadbolt by key outside or by thumbturn grip inside. • Inside grip free when deadbolt is retracted. • Non-panic release. • No simultaneous deadbolt and latch retraction. Note: Indicator shows deadbolt position only.
 A01		ML2049	Storeroom Deadbolt	• Latchbolt and deadbolt by grip inside or by key outside. • Inside grip simultaneously retracts deadbolt and latchbolt. • Outside grip always rigid. • Deadbolt thrown or retracted by key outside or thumbturn grip inside. • Auxiliary latch deadlocks latchbolt. • Inside grip always free. Note: Indicator shows deadbolt position only.
		ML2050	Half Dummy Trim	• Grip acts as pull only; no operation.
 A01		ML2051 (F04)	Entrance or Office	• Latchbolt by key when outside grip locked by toggle action stop. • Latchbolt by grip either side, unless outside grip is locked by toggle-action stop. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.
 A02	A02	ML2052 (F32)	Classroom Intruder	• Latchbolt by grip either side, unless outside grip is locked by key either side. • Latchbolt by key when outside grip locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free. • Outside grip remains locked unless unlocked by key either side. Note: Not available with indicator, specify ML2002.
 A02		ML2053	Entrance or Office	• Latchbolt by grip either side, unless outside grip is locked or unlocked by key or thumbturn. • Outside grip locked or unlocked by key or thumbturn. • Latchbolt by key when outside grip locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.
 A01		ML2054 (F04)	Entrance or Office	• Latchbolt by grip either side, unless outside grip is locked. • Outside grip locked or unlocked by thumbturn. • Latchbolt by key when outside grip locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free. • Multi-function capable, see page 10 for more info.
 A02		ML2055 (F05)	Classroom	• Latchbolt by grip either side, unless outside grip is locked by key outside • Latchbolt by key when outside grip locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free. • Outside grip remains locked unless unlocked by key. Note: Not available with indicator, specify ML2003.

Indicator options available for both sectional and VN escutcheon trim.

Cylinder cam required.

Indicates rigid grip.

* When lever handles are furnished, both outside and inside are locked when deadbolt is projected.

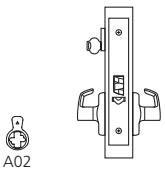
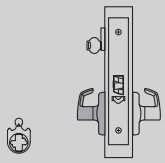
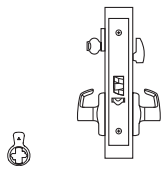
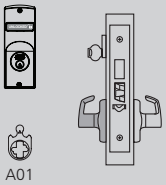
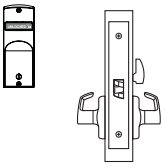
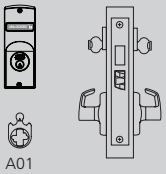
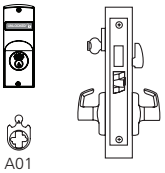
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Functions

ML2000 Series

Outside	Inside	Function (ANSI No.)	Type	Function Description
 A02		ML2056 (F06)	Classroom Holdback	• Latchbolt by grip either side, unless outside grip is locked or unlocked by key. • Latchbolt by key outside when outside grip is locked. • Latchbolt can be held in a retracted position by key, or released by key. • Auxiliary latch deadlocks latchbolt. • Inside grip always free. Note: Not Listed for use in fire rated applications.
 A01		ML2057 (F07)	Storeroom or Closet	• Latchbolt by grip inside or by key outside. • Outside grip always rigid. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.
 A02		ML2058	Entrance or Office Holdback	• Latchbolt by grip either side, unless outside grip is locked. • Outside grip locked or unlocked by key or thumbturn. • Latchbolt retracted by key outside when outside grip is locked. • Latchbolt can be held in a retracted position by key or thumbturn, or released by key or thumbturn. • Auxiliary latch deadlocks latchbolt. • Inside grip always free. Note: Not Listed for use in fire rated applications.
 A01		ML2059	Security Storeroom or Closet	• Latchbolt and deadbolt by grip inside or by key outside. • Inside grip simultaneously retracts deadbolt & latchbolt. • Outside grip always rigid. • Auxiliary latch deadlocks latchbolt. • Inside grip always free. Note: Indicator shows deadbolt position only.
		ML2060 (F22)	Privacy	• Latchbolt by grip either side, except when outside grip is locked by thumbturn inside. • Operating inside grip, closing door or operating emergency key outside unlocks outside grip. • Inside grip always free. • Not available with M19S or M19SN.
 A01	 A01	ML2062 (F33)	Intruder Deadbolt	• Latchbolt by grip either side, unless outside grip is locked by projection of deadbolt. • Deadbolt thrown or retracted by key from either side. • Inside grip simultaneously retracts latchbolt and deadbolt and unlocks outside grip. • Inside grip always free.
 A01		ML2065 (F13)	Dormitory or Entrance	• Latchbolt by grip either side unless outside grip locked by projection of deadbolt. • Deadbolt thrown or retracted by key outside or by thumbturn grip inside. • Inside grip simultaneously retracts latchbolt and deadbolt and unlocks outside grip. • Inside grip always free.

 Indicator options available for both sectional and VN escutcheon trim.

 Cylinder cam required.

 Indicates rigid grip.

* When lever handles are furnished, both outside and inside are locked when deadbolt is projected.

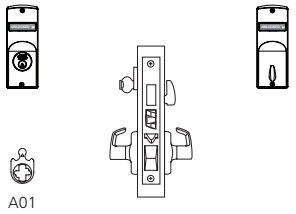
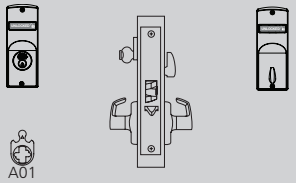
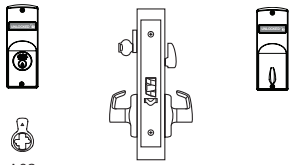
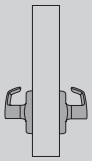
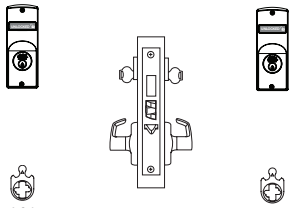
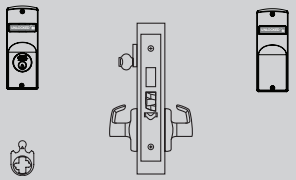
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Functions

ML2000 Series

Outside	Inside	Function (ANSI No.)	Type	Function Description
 A01		ML2067 (F20)	Apartment or Dormitory	• Latchbolt by grip either side, unless outside grip is locked by toggle-action stop or by projection of deadbolt. • Deadbolt thrown or retracted by key outside or by thumbturn grip inside. • Latchbolt and deadbolt retracted by key when outside grip is locked by toggle-action stop. • Inside grip simultaneously retracts latchbolt and deadbolt; outside grip remains locked. • Auxiliary latch deadlocks latchbolt. • Outside grip unlocked by toggle-action stop. Note: Indicator shows deadbolt position only.
 A01		ML2068	Privacy or Apartment	• Latchbolt by grip either side, unless outside grip is locked. • Outside grip locked or unlocked by key or thumbturn. • Operating inside grip, closing the door or using key unlocks outside grip. • Inside grip always free. • Auxiliary latch deadlocks latch.
 A02		ML2069 (F26)	Institutional Privacy	• Latchbolt by grip either side, except when outside is locked by thumbturn inside. • Operating inside grip or closing door unlocks outside grip. • Key outside retracts latch at all times, even if thumbturn is held in locked position. • Auxiliary latch deadlocks latchbolt. • Not available with M19S, M19N, M19V, M19SN, M19VN.
		ML2070	Full Dummy Trim	• Grips act as pulls only; no operation.
 A01	A01	ML2072	Classroom Intruder	• Latchbolt by grip from either side unless outside grip is locked by projection of deadbolt. • Deadbolt thrown or retracted by key from either side. • Inside grip simultaneously retracts latchbolt and deadbolt; outside grip remains locked. • Key either side unlocks outside grip; outside grip remains locked unless unlocked by key. • Auxiliary latch deadlocks latchbolt. Note: Indicator shows deadbolt position only.
 A01		ML2073	Classroom Security	• Latchbolt by grip from either side unless outside grip is locked by projection of deadbolt. • Deadbolt thrown or retracted by key . • Inside grip simultaneously retracts latchbolt and deadbolt; outside grip remains locked. • Key unlocks outside grip; outside grip remains locked unless unlocked by key. • Auxiliary latch deadlocks latchbolt. Note: Indicator shows deadbolt position only.

Indicator options available for both sectional and VN escutcheon trim.

Cylinder cam required.

Indicates rigid grip.

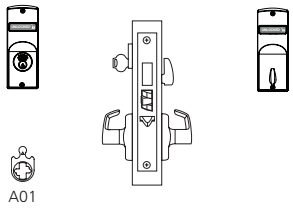
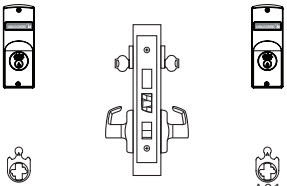
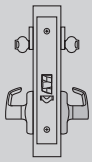
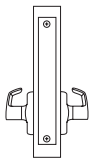
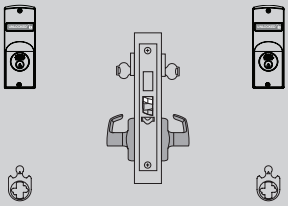
* When lever handles are furnished, both outside and inside are locked when deadbolt is projected.

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Functions

ML2000 Series

Outside	Inside	Function (ANSI No.)	Type	Function Description
 A01		ML2075	Security Entrance or Office	• Latchbolt by grip from either side unless outside grip is locked by projection of deadbolt. • Deadbolt thrown or retracted by outside key or inside thumbturn. • Inside grip simultaneously retracts latchbolt and deadbolt; outside grip remains locked. • Key unlocks outside grip; outside grip remains locked unless unlocked by key. • Auxiliary latch deadlocks latchbolt. Note: Indicator shows deadbolt position only.
		ML2080	Half Active Dummy Trim	• Non-latching operation. • Grip always active; acts as push or pull only. Note: Not available for doors over 2-1/4"
 A01	A01	ML2082 (F11)	Dormitory or Exit	• Latchbolt by grip either side, unless outside grip is locked by toggle-action stop or by projection of deadbolt. • Deadbolt thrown by key from either side. • Deadbolt and latchbolt retracted by outside key when outside grip locked. • Outside grip unlocked by toggle-action stop. • Inside grip simultaneously retracts latchbolt and deadbolt; outside grip remains locked. Note: Indicator shows deadbolt position only.
 A02	A01	ML2087	Security Vestibule	• Latchbolt by grip outside, unless outside grip is locked by key outside. • Outside grip remains locked unless unlocked by key outside. • Latchbolt by key outside when outside grip locked. • Latchbolt by key inside. • Inside grip always rigid. • Auxiliary latch deadlocks latchbolt. Notes: - Handing must be specified, units are handed from the classroom function side of the door. This function can only be field handed for door swing i.e. LH to LHR or RH to RHR. - Not available with L, R or V escutcheon trim. - This function does not allow free egress when inside locked and can pose a life safety hazard in event of an emergency. Installation should be in accordance with approved codes only.
		ML2090	Full Active Dummy Trim	• Non-latching operation. • Both grips always active; acts as push or pulls only.
 A01	A01	ML2092	Security Institution or Utility	• Latchbolt by key either side. • Deadbolt thrown and retracted by key either side. • Auxiliary latch deadlocks latchbolt. • Inside and outside grips remain locked at all times. Notes: - Indicator shows deadbolt position only. - This function does not allow free egress and can pose a life safety hazard in event of an emergency. Installation should be in accordance with approved codes only.

Indicator options available for both sectional and VN escutcheon trim.

Cylinder cam required.

Indicates rigid grip.

* When lever handles are furnished, both outside and inside are locked when deadbolt is projected.

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Multi-Function Configuration

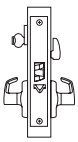
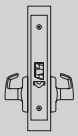
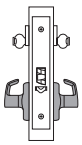
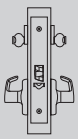
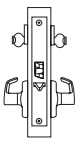
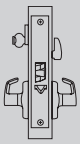
ML2000 Series

Multi-Function Capability for ML2000 Series

Corbin Russwin ML2000 Series mortise locks provide multi-function capability, allowing 12 functions to be configured using one lockbody.

The current ML2054 entrance function (ANSI F04) uses a universal lockbody with the ability to reconfigure into 11 other functions without disassembling the lock case and using few additional parts. All new and existing ML2054 function mortise locks provide this flexibility.

By specifying the ML2054, stock ordering is easier and facility maintenance is simplified.

Illustration	Function (ANSI No.)	Type	Function Description	Instructions	Additional Part(s) Required
	ML2054 (F04)	Entrance or Office	• Latchbolt by grip either side, unless outside grip is locked by thumbturn. • Outside grip locked or unlocked by thumbturn. • Latchbolt by key when outside grip locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.	• Install thumbturn on inside. • Install cylinder with A01 cam on outside. 	• No additional parts required
	ML2010 (F01)	Passage or Closet	• Latchbolt by grip either side. • Both grips always free. *Multi-Function lockbody comes with auxiliary latchbolt, does not affect the operation of the function	• Do not install thumbturn or cylinder. • Remove red locking screw from lockbody. • Install lock in unlocked condition.	• No additional parts required
	ML2032 (F30)	Institution or Utility	• Latchbolt by key either side. • Both grips always rigid. • Auxiliary latch deadlocks latchbolt. Note: This function does not allow free egress and can pose a life safety hazard in event of an emergency. Installation should be in accordance with approved codes only.	• Do not install thumbturn on inside. • Install cylinders with A01 cam on both inside and outside. • Add second red locking screw. • Install lock in locked condition.	• Red locking screw (part number 684F067) • Mortise cylinder with A01 cam 
	ML2042 (F09)	Entrance or Public Restroom	• Latchbolt by grip either side, unless outside grip is locked by key from inside. • Latchbolt by key outside when outside grip is locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.	• Do not install thumbturn on inside. • Install cylinders with A01 cam on outside and A02 cam on inside.	• Mortise cylinder with A02 cam 
	ML2052 (F32)	Classroom Intruder	• Latchbolt by grip either side, unless outside grip is locked by key either side. • Latchbolt by key when outside grip is locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free. • Outside grip remains locked unless unlocked by key either side.	• Do not install thumbturn on inside. • Change cam on cylinder to A02. • Install cylinders with A02 cam on both inside and outside.	• A02 cam (part number 756F517) • Mortise cylinder with A02 cam 
	ML2053	Entrance or Office	• Latchbolt by grip either side, unless outside grip is unlocked by key or thumbturn. • Outside grip remains locked unless unlocked by key or thumbturn. • Latchbolt by key when outside grip locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.	• Install thumbturn on inside. • Change cam on cylinder to A02. • Install cylinder on outside.	• A02 cam (part number 756F517) 

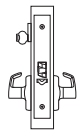
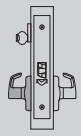
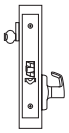
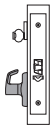
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Multi-Function Configuration

ML2000 Series

Illustration	Function (ANSI No.)	Type	Function Description	Instructions	Additional Part(s) Required
	ML2055 (F05)	Classroom	• Latchbolt by grip either side, unless outside grip is locked by key outside. • Latchbolt by key when outside grip locked. • Auxiliary latch deadlocks latchbolt. • Inside grip always free. • Outside grip remains locked unless unlocked by key.	• Do not install thumbturn on inside. • Change cam on cylinder to A02. • Install cylinder on outside.	• A02 cam (part number 756F517) 
	ML2057 (F07)	Storeroom or Closet	• Latchbolt by grip inside or by key outside. • Outside grip always rigid. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.	• Do not install thumbturn on inside. • Install cylinder with A01 cam on outside. • Install lock in locked condition.	• No additional parts required
	*Configured thru multi-function lock only*	Storeroom or Service	• Latchbolt by grip inside or by key outside. • Auxiliary latch deadlocks latchbolt. • Inside grip always free.	• Do not install thumbturn on inside. • Install cylinder with A01 cam on outside. • Install 1/2 trim multi-function kit on outside.	• 1/2 trim multi-function kit (part number 853F958)*
	*Configured thru multi-function lock only* (F31)	Exit Latch	• Latchbolt by grip inside. • Auxiliary latch. • Inside grip always free.	• Do not install thumbturn on inside. • Do not install cylinders. • Install 1/2 trim multi-function kit on outside.	• 1/2 trim multi-function kit (part number 853F958)*
	*Configured thru multi-function lock only*	Utility	• Latchbolt by key outside. • Outside grip always rigid. • Auxiliary latch deadlocks latchbolt. Note: This function does not allow free egress and can pose a life safety hazard in event of an emergency. Installation should be in accordance with approved codes only.	• Do not install thumbturn on inside. • Install cylinder with A01 cam on outside. • Install 1/2 trim multi-function kit on inside. • Install inside lever on outside.	• 1/2 trim multi-function kit (part number 853F958)*
	*Configured thru multi-function lock only*	Closet	• Latchbolt by grip outside, unless grip is locked by key outside. • Latchbolt by key when outside grip locked. • Auxiliary latch deadlocks latchbolt. • Outside grip remains locked unless unlocked by key. Note: This function does not allow free egress and can pose a life safety hazard in event of an emergency. Installation should be in accordance with approved codes only.	• Do not install thumbturn on inside. • Install cylinder with A02 cam on the outside. • Install 1/2 trim multi-function kit on inside.	• A02 cam (part number 756F517)  • 1/2 trim multi-function kit (part number 853F958)*

*1/2 trim multi-function kit includes: M30 adapter plate (p/n 488F278), 2 retainer rings (p/n 427F078), 2 spacers (p/n 426F918), and 2 screws (p/n 814F808).

The information detailed pertains to sectional trim for standard 1-3/4" thick doors. For escutcheon trim and other applications, please contact our Technical Product Support specialists for information and details.

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Motorized Electric Latch Retraction

ML2000 Series

ML2000 Series with Motorized Electric Latch Retraction

The Motorized Electric Latch Retraction (MELR) mortise lock is designed for commercial, institutional, and industrial facilities for access control of openings where code compliance, dependable operation and resistance to physical abuse is required.

This unique option brings motorized electric latch retraction to passage, storeroom or institutional function mortise locksets. The ML2000 Series MELR mortise lock is the perfect solution for push-pull conditions or handicap access and is ideal for use with automatic operators to facilitate accessibility/ ADA compliance and possible hands-free access.



Features

- Latchbolt retracts in ½ of a second with applied power. Removing power allows latch to be projected back to the extended position.
- Request to Exit available as an option (storeroom and passage functions only)
- No heating detectable with extended latch holdback
- Field reversible for handing
- Can be used in conjunction with any access control application using standard mortise locks
- Creates a push/pull operation that satisfies both in-swing and out-swing doors
- Access controlled via an access control system or by physical key override
- Environmentally friendly with low power requirements
- Motorized latch retraction and spring back extension provides quiet operation
- Smooth latch retraction with applied pressure of over 50lbs to the door
- Provided with Electrolynx® connectors for ease of installation

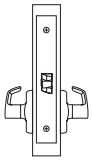
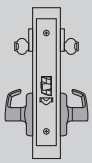
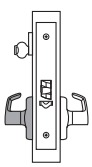
Certifications

- ANSI/BHMA A156.13 Grade 1
- ANSI/BHMA A156.25
- UL/cUL Fire Rated for 3 Hour Doors
- UL294/UCL60839-11-1 Listed
- Windstorm (refer to local codes)

Electrical Specifications

- Voltage 24VDC (+10% / -15%)
- Operating current 700mA
- Hold Current 50mA

Functions

Outside	Inside	Function	Type	Function Description
		ML2010 x MELR	Passage	• Power off - latchbolt extended, both levers unlocked. • Power on - latchbolt automatically retracted. • Rotating either lever retracts latchbolt. • Request to Exit available - specify option M92*
A01	 A01	ML2032 x MELR	Institution or Utility	• Power off - latchbolt extended, both levers rigid/locked. • Power on - latchbolt automatically retracted, both levers rigid. • Key in cylinder either side retracts latchbolt. • Auxiliary latch deadlocks latchbolt. Note: This function does not allow free egress and can pose a life safety hazard in event of an emergency. Installation should be in accordance with approved codes only.
A01		ML2057 x MELR	Storeroom	• Power off - latchbolt extended, outside lever rigid/locked. • Power on - latchbolt automatically retracted, outside lever rigid. • Key in cylinder outside retracts latchbolt. • Rotating inside lever retracts latchbolt. • Auxiliary latch deadlocks latchbolt. • Request to Exit available - specify option M92

*Signal sent when either lever operated; there is no differentiation between outside and inside lever.

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Features

ML20900 & ML20600NAC Electrified Locks

Features

Handing
Handed; quick reversible. The lockset can be re-handed without disassembling the lockcase.

Door Thickness
1-3/4" (44mm) standard. Optional door thicknesses available; see Quick Codes, page 82.

Backset
2-3/4" (70mm).

Lockcase
Heavy-gauge steel, 5-7/8" (149mm) x 4" (102mm) x 15/16" (24mm).

Front
Heavy gauge steel, 8" (203mm) x 1-1/4" (32mm) x 3/32" (2mm).
Accommodates flat doors and doors beveled 1/8" (3mm) in 2" (51mm).

Armored Front
Wrought brass, bronze or stainless steel attached by machine screws to lockcase front.

Latchbolt
2-piece mechanical anti-friction insert, 5/8" (16mm) x l" (25mm) x 3/4" (19mm) throw.

Auxiliary Latchbolt
9/16" (14mm) effective throw and 3/8" (10mm) effective auxiliary latch deadlocking.

Hub
Standard knob/lever hub is steel, 5/16" (8mm)

Spacing
C. to c. knob/lever to cylinder: 3-5/8" (92mm)
C. to c. knob/lever to thumbturn: 2-7/16" (62mm).

Strike
Wrought brass, bronze or stainless steel ANSI straight lip standard, 4-7/8" (124mm) x 1-1/4" (32mm) x 1-1/8'' (29mm) lip to center. Optional strikes, lip lengths and ANSI wrought strike box available; see Quick Codes, page 82.

Trim
Available with all ML2000 Series trim designs including the Vineyard™ Collection and the Muséo® Collection. See pages 22-64.

Cylinder
Brass, 6-pin, L4 keyway, 0-bitted standard. Optional cylinders available; see Quick Codes, page 74.

Keys
Two nickel silver standard.

Warranty
Ten-year limited warranty on ML2000 mortise lockset. Two-year limited warranty on electronic components.

Electrical Specifications (Fail Safe/Fail Secure)
- Current draw: 15mA @ 12V or 24V Continuous
- Peak current draw: 500mA @ 12V or 24V (Max 2 locks per 1A Power Supply)
- Monitor switch rating: 500mA Max to 24VDC

Note: Operating voltage not to exceed +/- 10%.
See Quick Codes, page 84.

Environmental Specifications
Operating Temperature
-13°F (-25°C) to 151°F (66°C)
Operating Humidity
5% to 95% relative humidity non-condensing

Monitor Options - ML2000 and ML20900 ECL Only

M91 - Latchbolt Monitor
Latchbolt monitoring is a SPDT switch which monitors the full extension of the main latch. Note: See page 84 for available functions.

M92 - Request to Exit Monitor
Request to Exit monitoring is a SPDT switch which monitors the activation of the trim. (Both levers activate switch) Note: See page 84 for available functions.

M105 - Security Monitor
Security Monitor is two switches in series that monitors lock status (locked or unlocked) and Auxiliary Latch position. Note: Monitoring options may only be ordered together as follows: M91xM92, M92xM105. Recommended for fail safe applications that require monitoring of the secure side when lock loses power. See page 84 for available functions.

Monitor Options – ML20600 NAC only

Internal End-of-Line Monitoring
Monitors the line from the access control panel to the lock, eliminating the risk of undetected tampering or damage.

PHR – Deadbolt Privacy Function
Engaging deadbolt disables remote access control unlocking (keypad or card reader) or scheduled unlock.

Certification/Compliance*

ANSI/BHMA
BHMA CERTIFIED
Certified A156.13 Series 1000, operational and security Grade 1. Meets A117.1 Accessibility Code.

UL/cUL
All locks listed for A label and lesser class doors, 4' x 10' single or 8' x 10' pair. Letter F and UL symbol on armored front indicate listing.

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Corbin Russwin, Inc. makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire- rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

California State Reference Code
(Formerly Title 19, California State Fire Marshal Standard)
All levers with returns comply; levers return to within 1/2" of door face.

*Any undated reference to a code or standard appearing in the this catalog shall be interpreted as referring to the latest edition of that code or standard.

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Corbin Russwin
ASSA ABLOY

Overview

ML20900 Electrified Locks

ML20900 Electrified Mortise Locks

Simplicity

Combine simplicity and access control with the Corbin Russwin ML20900 electrically controlled mortise lock. Utilizing the proven ML2000 Series mortise lockset with the patented quick reversible latchbolt, the ML20900 provides remote locking and unlocking. The electrified lock can be installed in a standard mortise prep with slight modification by door manufacturer. The ML20900 is ideal for use where increased security is necessary at all times, such as tenant space, pharmacies, computer rooms, and high security areas.

Security

In applications where increased security is required, look no further than the ML2000VR Vandal Resistant Trim. This cast stainless steel trim features tapered edges, double through bolts, torx-pin tamper resistant screws and the lever remains attached to the escutcheon when the spindle is broken.

Aesthetics

Access control doesn't mean a loss of visual appeal. The Vineyard™ Collection and the Muséo® Collection feature beautifully designed levers, perfect for high-profile applications where pleasing aesthetics is a must.

Additional Features

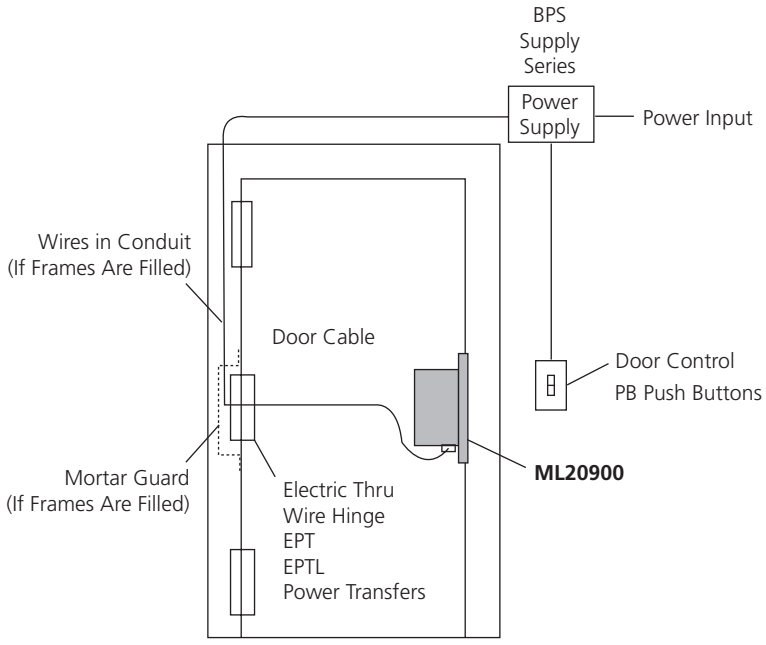
- Mechanical key override
- Patented Quick Reversible latchbolt (Patent pending and/or patent www.assaabloydss.com/patents.)

Featuring EcoFlex®:

- Reduces energy consumption up to 92%, as certified by GreenCircle
  - Lower operating costs
  - Assists with load reduction in optimizing energy performance credit in LEED
  - Reduces number of power supplies required
- Field configurable to fail-safe or fail-secure
- Operates from 12-24VDC, offering greater flexibility in system design
- Innovative actuator design provides superior reliability
  - Higher performance and reduced maintenance
  - Ability to have longer cable runs without negatively impacting lock function
  - Reduces risk of voltage drops and eliminates inductive kickback
  - Lower total cost of ownership

Note: EcoFlex® is not available with master ring cylinders. Solenoid provided.

Typical Application



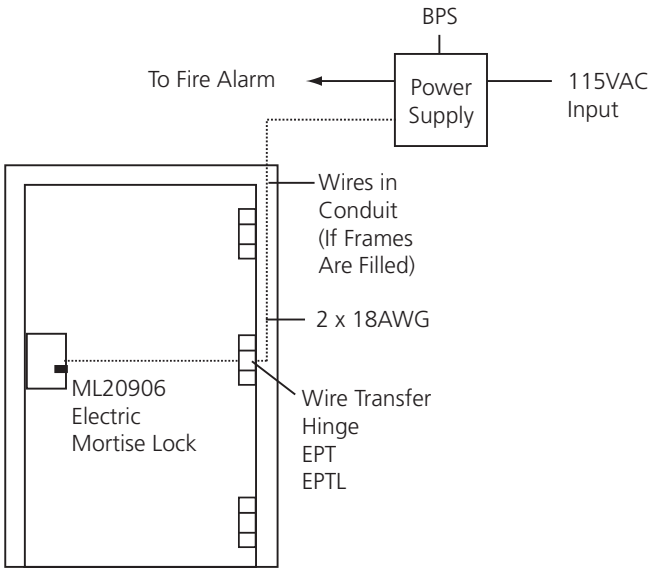
Experience a safer and more open world

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Typical System Components (For Reference Only)

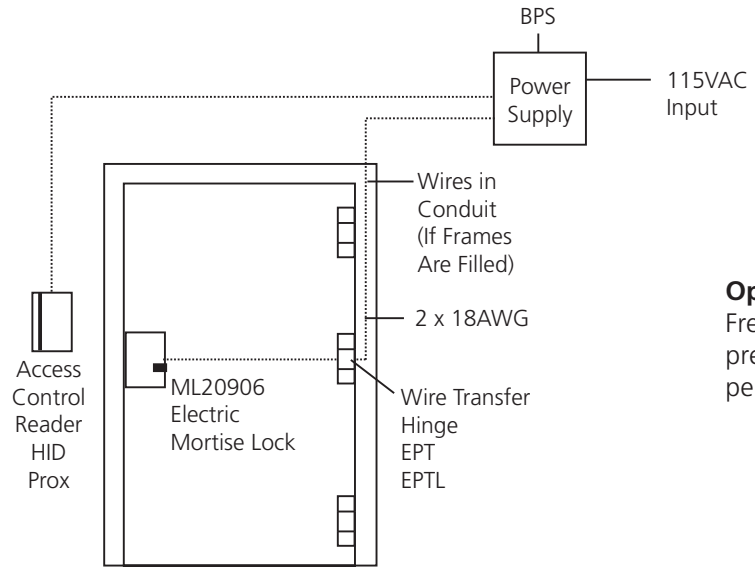
ML20900 Electrified Locks

Tower Stairwell



Operation:
Free egress at all times. Door is locked at all times preventing entry from the stairwell to a floor. Fire alarm activation will allow re-entry from the stairwell to the floor. Power failure will allow re-entry from the stairwell to the floor.

Access Control on Employee Entrance



Operation:
Free egress at all times. Door is locked at all times preventing unauthorized entry. Authorized entry is permitted by presenting a valid user card.

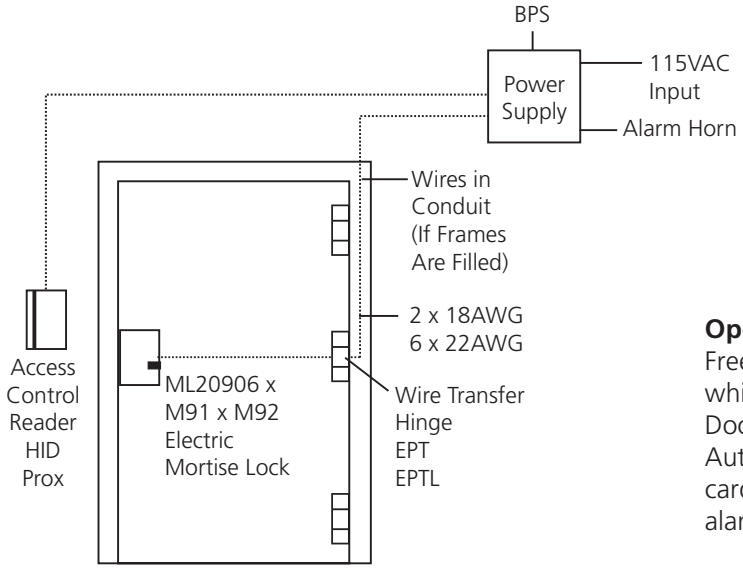
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Typical System Components (For Reference Only)

ML20900 Electrified Locks

Controlled Entry With Alarm

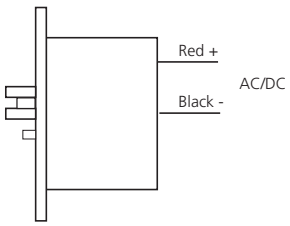


Operation:
Free egress at all times. User exits through the door which triggers the M92 switch which shunts the alarm. Door is locked at all times preventing unauthorized entry. Authorized entry is permitted by presenting a valid user card. Forced entry will trigger M91 switch and activate alarm. Alarm is deactivated by a valid user card.

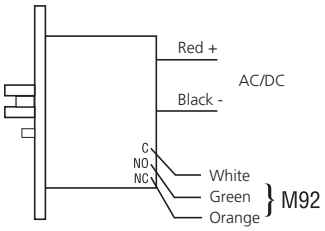
Consult factory for electrical system layouts, riser and wiring diagrams.

Lock Schematics

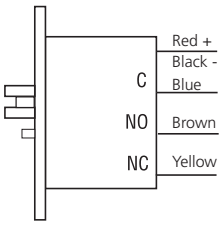
Power Leads



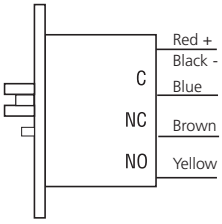
Power Leads x M92 (Request to Exit)



Power Leads x M91 (Latchbolt Monitor)



Power Leads x M105 (Security Monitor)



ElectroLynx®, a system of universal Molex® plug-in connectors and standardized color-coded wiring, makes installing electrified doorway components a snap!

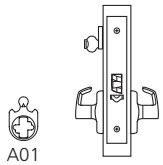
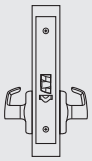
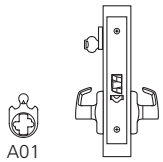
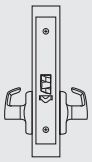
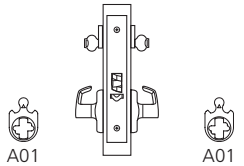
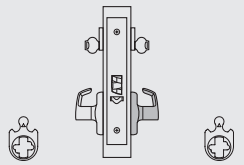


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Fail Safe

The following functions are unlocked when power is off and locked when the power is on.

Outside	Inside	Series/Function	Description
 A01		ML20906 x SAF	• Latchbolt by grip either side, unless outside grip is locked by energizing lock. • Latchbolt by key outside when lock is energized. • Inside grip always free. • Auxiliary latch deadlocks latchbolt.
		ML20907 x SAF	• Latchbolt by grip either side, unless outside grip is locked by energizing lock. • Inside grip always free. • Auxiliary latch deadlocks latchbolt.
 A01		ML20914 x SAF	• Latchbolt by grip either side, unless both grips are locked by energizing lock. • Latchbolt by key outside when lock is energized. • Auxiliary latch deadlocks latchbolt.
		ML20915 x SAF	• Latchbolt by grip either side, unless both grips are locked by energizing lock. • Auxiliary latch deadlocks latchbolt.
 A01	A01	ML20932 x SAF	• Latchbolt by grip either side, unless both grips are locked by energizing lock. • Latchbolt by key inside or outside when lock is energized. • Auxiliary latch deadlocks latchbolt.
 A01	A01	ML20987 x SAF	• Latchbolt by grip outside, unless outside grip is locked by energizing lock. • Latchbolt by key both sides. • Inside grip always rigid. • Auxiliary latch deadlocks latchbolt. Notes: - This function does not allow free egress and can pose a life safety hazard in the event of an emergency. Installation should be in accordance with approved codes only. - Not available with L, R, or V escutcheon trim.

Indicates rigid grip.

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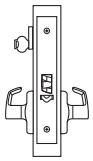
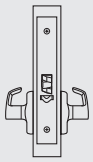
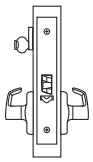
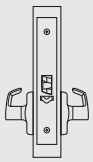
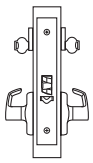
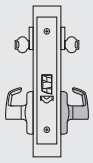
Corbin Russwin
ASSA ABLOY

Functions

ML20900 Electrified Locks

Fail Secure

The following functions are locked when power is off and unlocked when the power is on.

Outside	Inside	Series/Function	Description
A01 		ML20906 x SEC	• Latchbolt by grip either side only when lock is energized. • Outside grip locked when lock is not energized. • Latchbolt by key outside when lock is not energized. • Inside grip always free. • Auxiliary latch deadlocks latchbolt.
		ML20907 x SEC	• Latchbolt by grip either side only when lock is energized. • Outside grip locked when lock is not energized. • Inside grip always free. • Auxiliary latch deadlocks latchbolt.
A01 		ML20914 x SEC	• Latchbolt by grip either side only when lock is energized. • Both grips locked when lock is not energized. • Latchbolt by key outside when lock is not energized. • Auxiliary latch deadlocks latchbolt.
		ML20915 x SEC	• Latchbolt by grip either side only when lock is energized. • Both grips locked when lock is not energized. • Auxiliary latch deadlocks latchbolt.
A01 	A01	ML20932 x SEC	• Latchbolt by grip either side only when lock is energized. • Both grips locked when lock is not energized. • Latchbolt by key inside or outside when lock is not energized. • Auxiliary latch deadlocks latchbolt
A01 	A01	ML20987 x SEC	• Latchbolt by grip outside when lock is energized. • Outside grip locked when lock is not energized. • Latchbolt by key both sides. • Inside grip always rigid. • Auxiliary latch deadlocks latchbolt. Notes: - This function does not allow free egress and can pose a life safety hazard in the event of an emergency. Installation should be in accordance with approved codes only. - Not available with L, R, or V escutcheon trim.

Indicates rigid grip.

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Overview

ML20600 NAC Electrified Locks

ML20600 NAC Electrified Mortise Lock with High Security Monitoring

The high security monitoring options of our industry-leading Integrated Wiegand locks are now available in a mortise lock with ElectroLynx® connectors that can be used as a stand-alone electrified lock or in conjunction with a wall reader. Every NAC lock is shipped with door position and request to exit monitoring installed. NAC locks ordered with deadbolt are supplied with deadbolt monitoring. (PHR options will replace deadbolt monitoring with deadbolt privacy)

High Security Monitoring Options

- **Internal End-of-Line Monitoring**
  Integrated directly into the mortise lock, internal end-of-line resistors monitor the line from the access control panel to the lock. Typically, resistors are installed at the panel or above the door, creating vulnerability between the resistors and the locks. Incorporating resistors within the lock eliminates any risk of undetected tampering or damage, while also reducing installation costs, simplifying specifications, and offering the assurance of a factory installed and tested product.

  Select a compatible resistor configuration and add the appropriate quick code to the beginning of your order string:
  – **R01**: Mercury and Lenel compatible 1KΩ/2KΩ resistance supervision
  – **R03**: Software House compatible 1KΩ/2KΩ resistance supervision
  – **R04**: AMAG compatible 4-state supervision

- **Deadbolt Privacy Function (PHR)**
  – Engaging the deadbolt disables remote access control unlocking (keypad or card reader) or scheduled unlock.
  – Ideal for personal privacy areas, such as nursing rooms, on-call doctors' rooms, restrooms, and shower areas
  – To order, add the PHR to the options of your order string available with SEC deadbolt functions only (ML20608 x SEC or ML20609 x SEC)

See how to order examples page 79.

Featuring EcoFlex®:
- Reduces energy consumption up to 92% as certified by GreenCircle
  – Lower operating costs
  – Assists with load reduction in optimizing energy performance credit in LEED
  – Reduces number of power supplies required
- Field configurable to fail-safe or fail-secure
- Operates from 12-24VDC, offering greater flexibility in system design
- Innovative actuator design provides superior reliability
  – Higher performance and reduced maintenance
  – Ability to have longer cable runs without negatively impacting lock function
  – Reduces risk of voltage drops and eliminates inductive kickback
  – Lower total cost of ownership

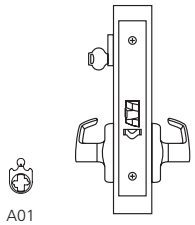
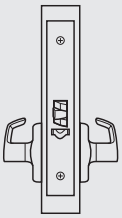
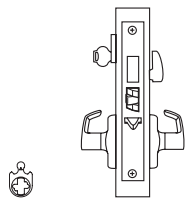
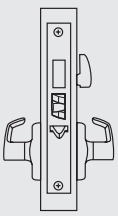
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Corbin Russwin
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Functions

ML20600 NAC Electrified Locks

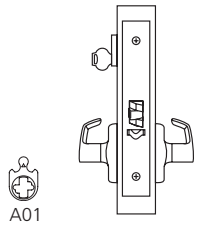
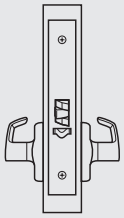
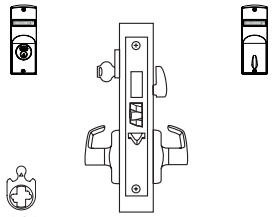
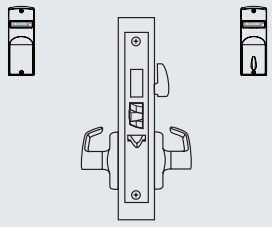
Fail Safe

Outside Inside	Series/Function	Type	Function Description
 A01	ML20606 x NAC x SAF Fail Safe With Key Override No Deadbolt	Entry	• Fail Safe - Power off unlocks outside trim. • Deadlocking latch. • Latch retracted by inside lever at all times. • Outside lever rigid except when lock is not energized. • Key outside retracts latch. • Request to exit and secure door position monitor are standard.
	ML20607 x NAC x SAF Fail Safe No Key Override No Deadbolt	Entry	• Fail Safe - Power off unlocks outside trim. • Deadlocking latch. • Latch retracted by inside lever at all times. • Outside lever rigid except when lock is not energized. • Request to exit and secure door position monitor are standard.
 A01	ML20608 x NAC x SAF Fail Safe With Key Override With Deadbolt	Entry With Deadbolt	• Fail Safe - Power off unlocks outside trim. • Deadlocking latch. • Latch and deadbolt retracted by inside lever and deadbolt at all times. • Outside lever rigid except when lock is not energized. • Key outside projects or retracts deadbolt and retracts latch. • Turnpiece inside extends and retracts deadbolt. • Request to exit and secure door position monitor are standard.
	ML20609 x NAC x SAF Fail Safe No Key Override With Deadbolt	Entry With Deadbolt	• Fail Safe - Power off unlocks outside trim. • Deadlocking latch. • Latch and deadbolt retracted by inside lever at all times. • Outside lever rigid except when lock is not energized. • Turnpiece inside extends and retracts deadbolt. • Request to exit and secure door position monitor are standard.

Cylinder cam required.

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Fail Secure

Outside Inside	Series/Function	Type	Function Description
 A01	ML20606 x NAC x SEC Fail Secure With Key Override No Deadbolt	Entry	• Fail Secure - Power off, trim outside is locked. • Deadlocking latch. • Latch retracted by inside lever at all times. • Outside lever rigid except when lock is energized. • Key outside retracts latch. • Request to exit and secure door position monitor are standard.
	ML20607 x NAC x SEC Fail Secure No Key Override No Deadbolt	Entry	• Fail Secure - Power off, trim outside is locked. • Deadlocking latch. • Latch retracted by inside lever at all times. • Outside lever rigid except when lock is energized. • Request to exit and secure door position monitor are standard.
 A01	ML20608 x NAC x SEC Fail Secure With Key Override With Deadbolt	Entry With Deadbolt	• Fail Secure - Power off, trim outside is locked. • Deadlocking latch. • Latch and deadbolt retracted by inside lever and deadbolt at all times. • Outside lever rigid except when lock is energized. • Key outside projects or retracts deadbolt and retracts latch. • Turnpiece inside extends and retracts deadbolt. • Request to exit and secure door position monitor are standard. • Indicator shows deadbolt position only. Note: Indicator only available when used with PHR option.
	ML20609 x NAC x SEC Fail Secure No Key Override With Deadbolt	Entry With Deadbolt	• Fail Secure - Power off, trim outside is locked. • Deadlocking latch. • Latch and deadbolt retracted by inside lever at all times. • Outside lever rigid except when lock is energized. • Turnpiece inside extends and retracts deadbolt. • Request to exit and secure door position monitor are standard. • Indicator shows deadbolt position only. Note: Indicator only available when used with PHR option.

 Indicator options available for both sectional and escutcheon trim.

 Cylinder cam required.

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Trim Designs
ML2000 Series

Lustra

Complies with codes requiring lever to return to within 1/2" (13mm) of door face.
Brass, bronze or stainless steel.

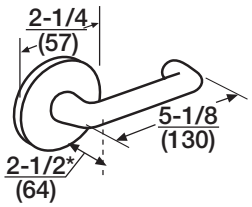


LWA
Lever: Wrought
Rose: Wrought

LWB
Lever: Wrought
Rose: Cast

LSA
Lever: Cast
Rose: Wrought

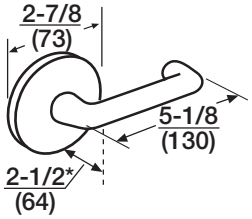
LSB
Lever: Cast
Rose: Cast





LWF
Lever: Wrought
Rose: Cast

LSF
Lever: Cast
Rose: Cast



*Dimension from face of door, not surface of rose or escutcheon.

Dimensions:
inches
millimeters

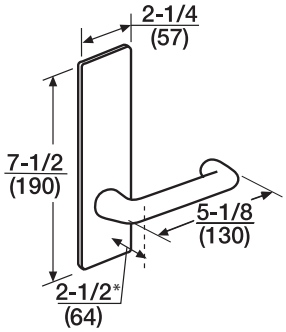
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Trim Designs
ML2000 Series



LWM
Lever: Wrought
Escutcheon: Wrought
Optional: Plug only to show; master ring

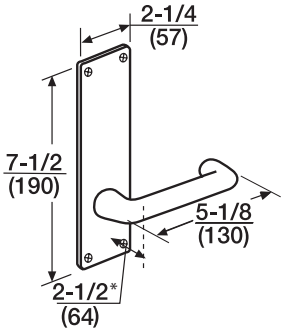
LSM
Lever: Cast
Escutcheon: Wrought
Optional: Plug only to show; master ring





LWN
Lever: Wrought
Escutcheon: Wrought

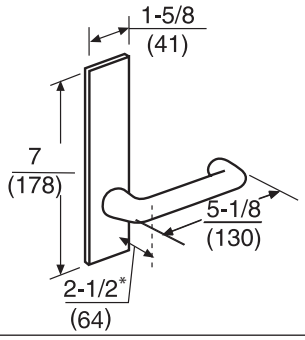
LSN
Lever: Cast
Escutcheon: Wrought





LWP
Lever: Wrought
Escutcheon: Wrought

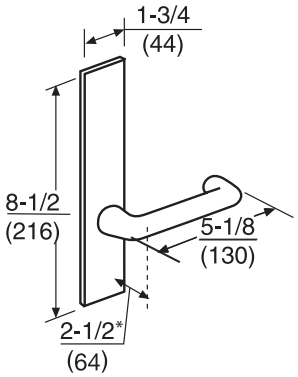
LSP
Lever: Cast
Escutcheon: Wrought
Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks





LWR
Lever: Wrought
Escutcheon: Solid stainless steel; forged brass
Optional: Plug only to show
Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)

LSR
Lever: Cast
Escutcheon: Solid stainless steel, forged brass
Optional: Plug only to show
Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)
Note: R escutcheon is not available for functions ML2087 or ML20987



*Dimension from face of door, not surface of rose or escutcheon.

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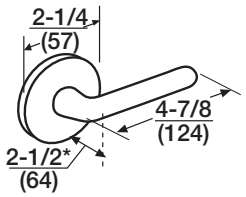
Regis

Brass, bronze or stainless steel



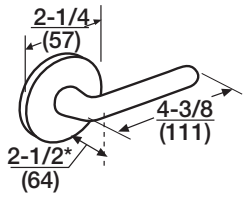
RWA
Lever: Wrought
Rose: Wrought

RWB
Lever: Wrought
Rose: Cast



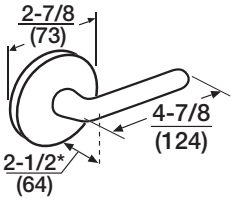
RSA
Lever: Cast
Rose: Wrought

RSB
Lever: Cast
Rose: Cast

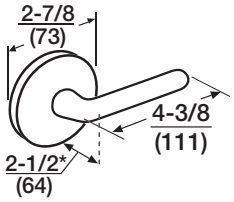




RWF
Lever: Wrought
Rose: Cast



RSF
Lever: Cast
Rose: Cast



*Dimension from face of door, not surface of rose or escutcheon.

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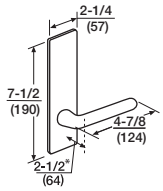
Corbin Russwin
ASSA ABLOY

Trim Designs

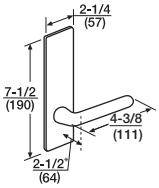
ML2000 Series



RWM
Lever: Wrought
Escutcheon: Wrought
Optional: Plug only to show; master ring

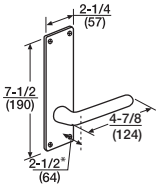


RSM
Lever: Cast
Escutcheon: Wrought
Optional: Plug only to show; master ring

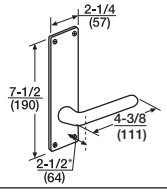




RWN
Lever: Wrought
Escutcheon: Wrought

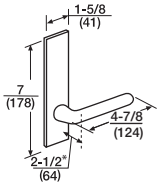


RSN
Lever: Cast
Escutcheon: Wrought

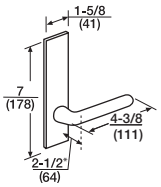




RWP
Lever: Wrought
Escutcheon: Wrought

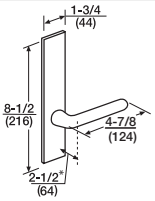


RSP
Lever: Cast
Escutcheon: Wrought
Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks

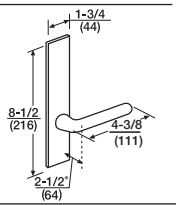




RWR
Lever: Wrought
Escutcheon: Solid stainless steel; forged brass
Optional: Plug only to show
Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)



RSR
Lever: Cast
Escutcheon: Solid stainless steel; forged brass
Optional: Plug only to show
Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)
Note: R escutcheon is not available for functions ML2087 or ML20987



*Dimension from face of door, not surface of rose or escutcheon.

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Trim Designs

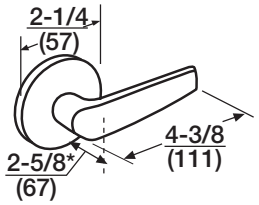
ML2000 Series

Citation

- Brass, bronze or stainless steel
- Laser engraving option (see Custom Laser Engraving brochure)



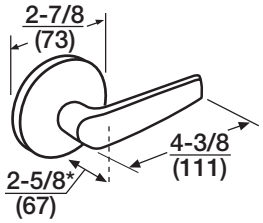
CSA
Lever: Cast
Rose: Wrought



CSB
Lever: Cast
Rose: Cast



CSF
Lever: Cast
Rose: Cast



*Dimension from face of door, not surface of rose or escutcheon.

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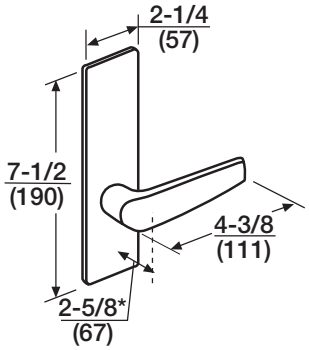
Trim Designs

ML2000 Series



CSM

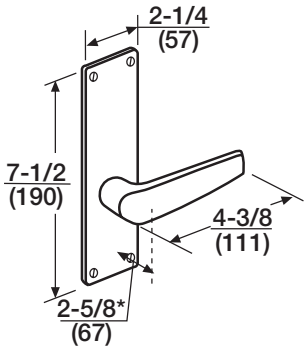
Lever: Cast
Escutcheon: Wrought
Optional:
- Plug only to show; master ring
- Laser engraving on lever or escutcheon





CSN

Lever: Cast
Escutcheon: Wrought
Optional: Laser engraving on lever

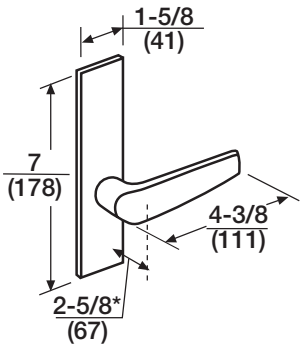




CSP

Lever: Cast
Escutcheon: Wrought
Optional: Laser engraving on lever

Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks



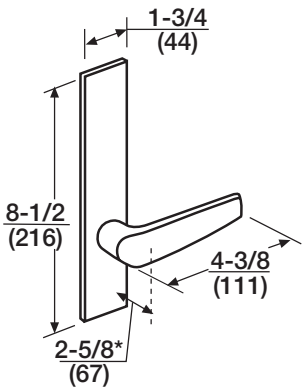


CSR

Lever: Cast
Escutcheon: Solid stainless steel; forged brass
Optional:
- Plug only to show
- Laser engraving on lever

Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)

Note: R escutcheon is not available for functions ML2087 or ML20987



*Dimension from face of door, not surface of rose or escutcheon.

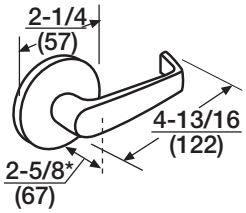
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Newport

- Complies with codes requiring lever to return to within 1/2" (13mm) of door face.
- Brass, bronze or stainless steel
- Laser engraving option (see Custom Laser Engraving brochure)



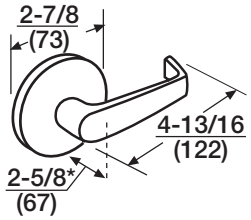
NSA
Lever: Cast
Rose: Wrought



NSB
Lever: Cast
Rose: Cast



NSF
Lever: Cast
Rose: Cast



*Dimension from face of door, not surface of rose or escutcheon.

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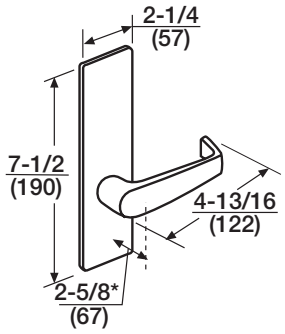
Trim Designs

ML2000 Series



NSM

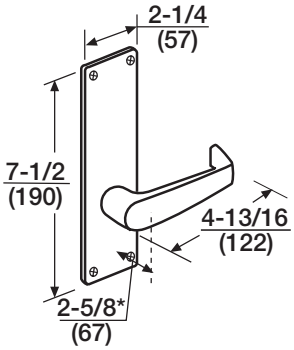
Lever: Cast
Escutcheon: Wrought
Optional:
- Plug only to show; master ring
- Laser engraving on lever or escutcheon





NSN

Lever: Cast
Escutcheon: Wrought
Optional: Laser engraving on lever

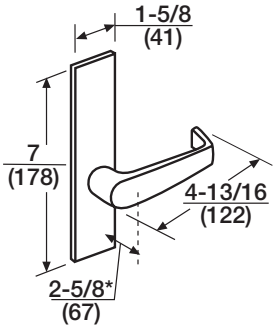




NSP

Lever: Cast
Escutcheon: Wrought
Optional: Laser engraving on lever

Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks



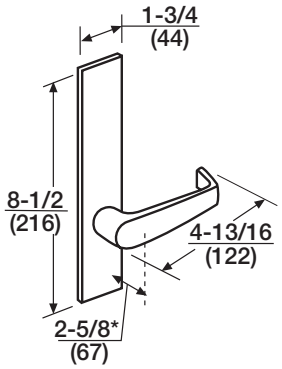


NSR

Lever: Cast
Escutcheon: Solid stainless steel; forged brass
Optional:
- Plug only to show
- Laser engraving on lever

Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)

Note: R escutcheon is not available for functions ML2087 or ML20987



*Dimension from face of door, not surface of rose or escutcheon.

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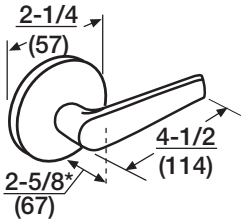
Armstrong

- Brass, bronze or stainless steel
- Laser engraving option (see Custom Laser Engraving brochure)



ASA

Lever: Cast
Rose: Wrought



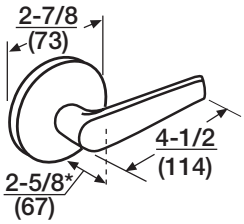
ASB

Lever: Cast
Rose: Cast



ASF

Lever: Cast
Rose: Cast



*Dimension from face of door, not surface of rose or escutcheon.

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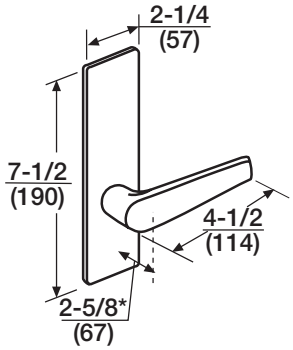
Trim Designs

ML2000 Series



ASM

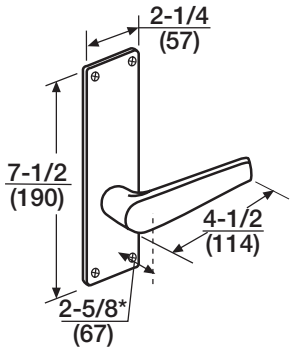
Lever: Cast
Escutcheon: Wrought
Optional:
- Plug only to show; master ring
- Laser engraving on lever or escutcheon





ASN

Lever: Cast
Escutcheon: Wrought
Optional: Laser engraving on lever

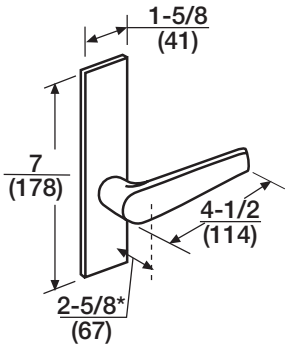




ASP

Lever: Cast
Escutcheon: Wrought
Optional: Laser engraving on lever

Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks



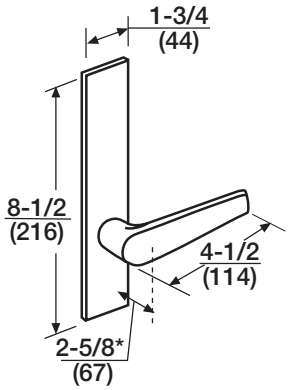


ASR

Lever: Cast
Escutcheon: Solid stainless steel; forged brass
Optional:
- Plug only to show
- Laser engraving on lever

Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)

Note: R escutcheon is not available for functions ML2087 or ML20987



*Dimension from face of door, not surface of rose or escutcheon.

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Trim Designs

ML2000 Series

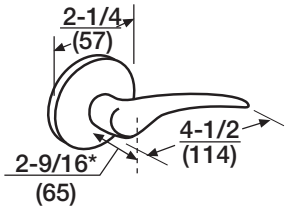
Dirke

Brass, bronze or stainless steel
- Not reversible
- Handed levers



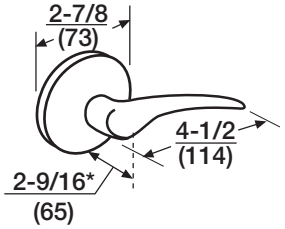
DSA
Lever: Cast
Rose: Wrought
Specify hand

DSB
Lever: Cast
Rose: Cast
Specify hand





DSF
Lever: Cast
Rose: Cast
Specify hand



*Dimension from face of door, not surface of rose or escutcheon.

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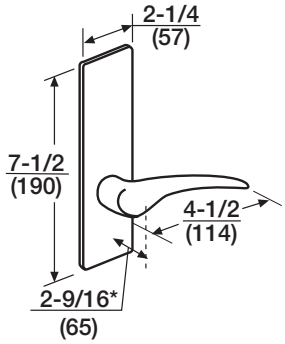
Trim Designs

ML2000 Series



DSM

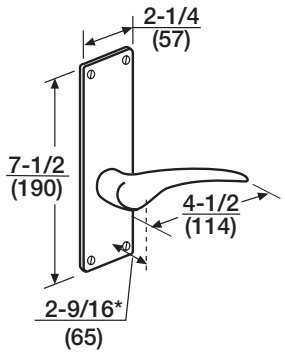
Lever: Cast
Escutcheon: Wrought
Optional: Plug only to show; master ring
Specify hand





DSN

Lever: Cast
Escutcheon: Wrought
Specify hand

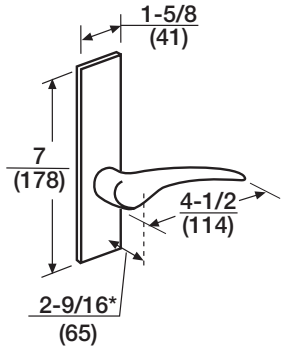




DSP

Lever: Cast
Escutcheon: Wrought
Specify hand

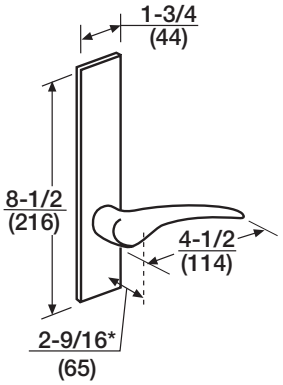
Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks





DSR

Lever: Cast
Escutcheon: Solid stainless steel; forged brass
Optional: Plug only to show
Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)
Specify hand
Note: R escutcheon is not available for functions ML2087 or ML20987



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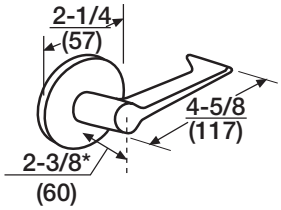
Essex

Complies with codes requiring lever to return to within 1/2" (13mm) of door face.
Brass, bronze or stainless steel



ESA

Lever: Cast
Rose: Wrought



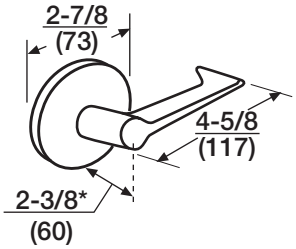
ESB

Lever: Cast
Rose: Cast



ESF

Lever: Cast
Rose: Cast



*Dimension from face of door, not surface of rose or escutcheon.

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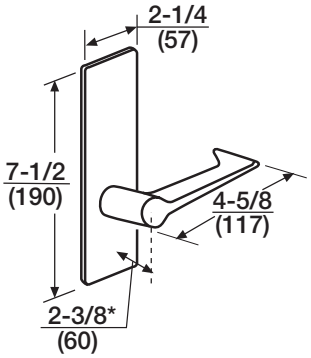
Trim Designs

ML2000 Series



ESM

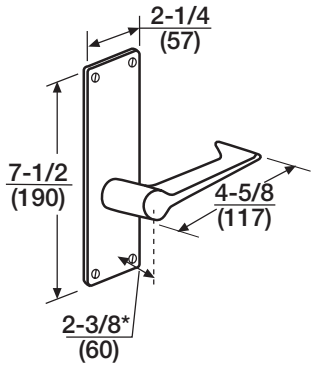
Lever: Cast
Escutcheon: Wrought
Optional: Plug only to show; master ring





ESN

Lever: Cast
Escutcheon: Wrought

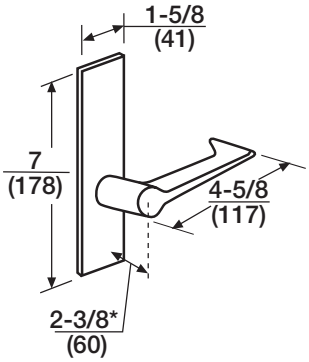




ESP

Lever: Cast
Escutcheon: Wrought

Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks

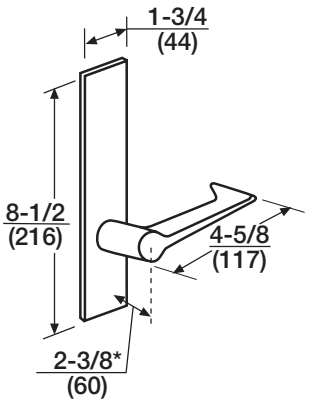




ESR

Lever: Cast
Escutcheon: Solid stainless steel; forged brass
Optional: Plug only to show
Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)

Note: R escutcheon is not available for functions ML2087 or ML20987



*Dimension from face of door, not surface of rose or escutcheon.

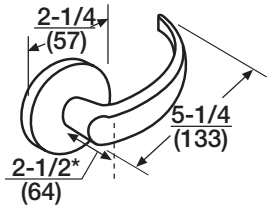
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Princeton

- Complies with codes requiring lever to return to within 1/2" (13mm) of door face.
- Brass, bronze or stainless steel
- Laser engraving option (see Custom Laser Engraving brochure)



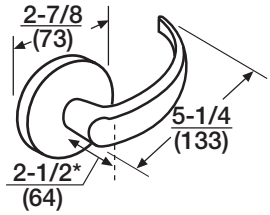
PSA
Lever: Cast
Rose: Wrought



PSB
Lever: Cast
Rose: Cast



PSF
Lever: Cast
Rose: Cast



*Dimension from face of door, not surface of rose or escutcheon.

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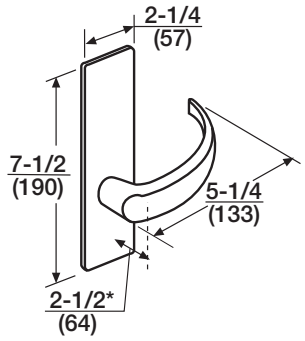
Trim Designs

ML2000 Series



PSM

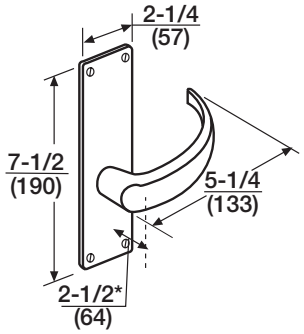
Lever: Cast
Escutcheon: Wrought
Optional:
- Plug only to show; master ring
- Laser engraving on lever or escutcheon





PSN

Lever: Cast
Escutcheon: Wrought
Optional: Laser engraving on lever

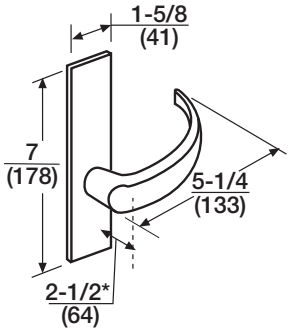




PSP

Lever: Cast
Escutcheon: Wrought
Optional: Laser engraving on lever

Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks



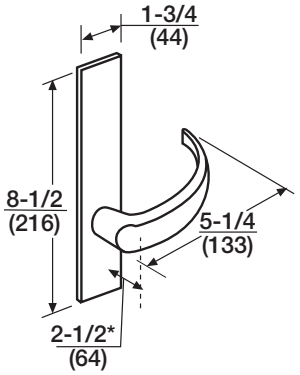


PSR

Lever: Cast
Escutcheon: Solid stainless steel; forged brass
Optional:
- Plug only to show
- Laser engraving on lever

Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)

Note: R escutcheon is not available for functions ML2087 or ML20987



*Dimension from face of door, not surface of rose or escutcheon.

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Global

Zinc

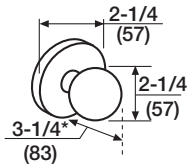


GZA

Knob: Solid Cast
Rose: Wrought

GZB

Knob: Solid Cast
Rose: Cast



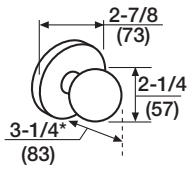


GZF

Knob: Solid Cast
Rose: Cast

GZH

Knob: Solid Cast
Rose: Wrought



*Dimension from face of door, not surface of rose or escutcheon.

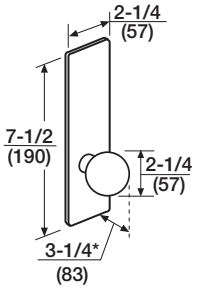
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Trim Designs

ML2000 Series

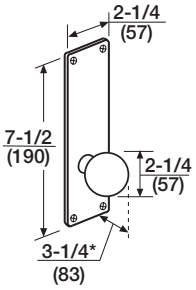


GZM[1]
Knob: Solid Cast
Escutcheon: Wrought





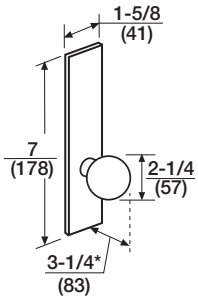
GZN
Knob: Solid Cast
Escutcheon: Wrought





GZP
Knob: Solid Cast
Escutcheon: Wrought

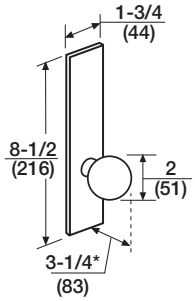
Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks





GZR[1, 2]
Knob: Solid Cast
Escutcheon: Solid stainless steel; forged brass

Note: R escutcheon is not available for functions ML2087 or ML20987



1. Optional: Plug only to show; master ring
2. Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)

*Dimension from face of door, not surface of rose or escutcheon.

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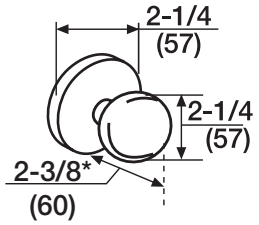
Yankee

Zinc



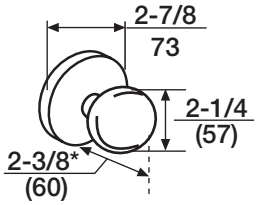
YZA
Knob: Solid Cast
Rose: Wrought

YZB
Knob: Solid Cast
Rose: Cast



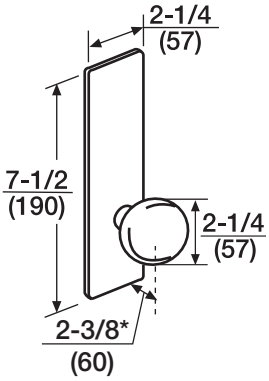
YZF
Knob: Solid Cast
Rose: Cast

YZH
Knob: Solid Cast
Rose: Wrought





YZM
Knob: Solid Cast
Escutcheon: Wrought
Optional: Plug only to show; master ring



*Dimension from face of door, not surface of rose or escutcheon.

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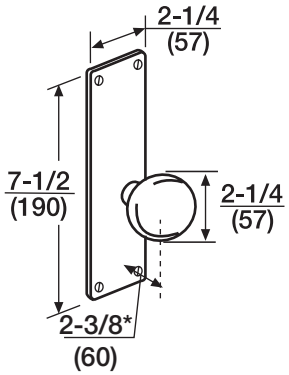
Trim Designs

ML2000 Series



YZN

Knob: Solid Cast
Rose: Wrought

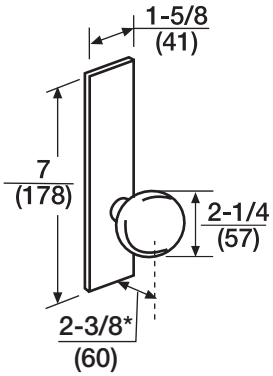




YZP

Knob: Solid Cast
Escutcheon: Wrought

Note: P escutcheon is not compatible with ML20900 or ML20600 NAC mortise locks

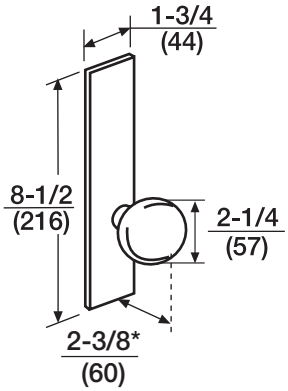




YZR

Knob: Solid Cast
Escutcheon: Solid stainless steel or forged brass
Optional: Plug only to show
Door thickness: 1-3/8" (35mm), 1-3/4" (44mm), 2-1/4" (57mm)

Note: R escutcheon is not available for functions ML2087 or ML20987



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*Dimension from face of door, not surface of rose or escutcheon.

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Corbin Russwin
ASSA ABLOY

Muséo® Trim Designs

ML2000 Series

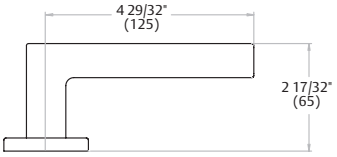
Georgia

Timeless elegance in forms inspired by the natural world.

Laser Engraving offered on 102, 103, 124 and 125. See Custom Laser Engraving brochure for details.

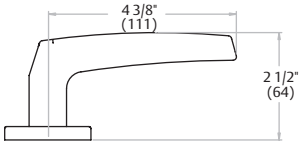


102
Lever: Cast
Non-Handed lever



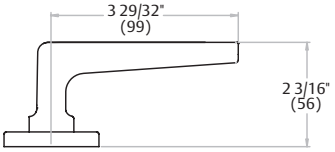


103
Lever: Cast
Non-Handed lever



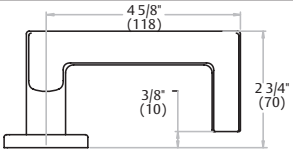


104[2,4]
Lever: Cast
Non-Handed lever



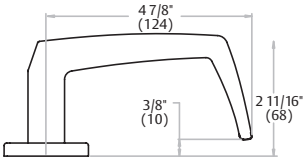


124[1]
Lever: Cast
Non-Handed lever





125[1]
Lever: Cast
Non-Handed lever



1. Complies with codes requiring lever to return to within 1/2" (13mm) of door face.
2. Not available with Inspire™ roseless trim.
3. Contact factory for current lead times.
4. Not available in 629 or 630 finish

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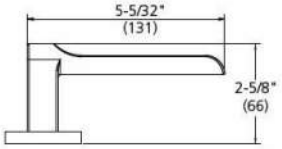
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Laszlo[2]

Fine art meets function through crafted lines and flowing curves

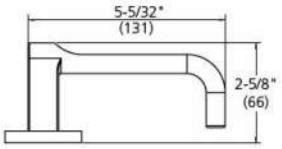


147
Lever: Cast
Non-Handed lever



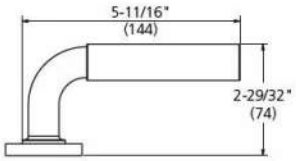


148[1]
Lever: Cast
Handed - Specify hand
Non-Reversible



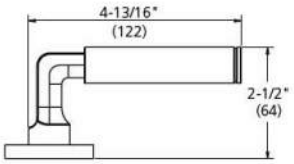


149
Lever: Cast
Non-Handed lever





150
Lever: Cast
Non-Handed lever



1. Complies with codes requiring lever to return to within 1/2" (13mm) of door face.
2. Not available with Inspire™ roseless trim.

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Muséo® Trim Designs

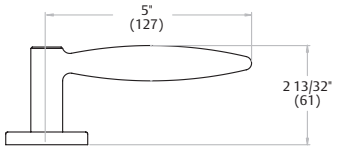
ML2000 Series

Jackson

Intuitive shapes, moving with the energetic rhythm of modern life.

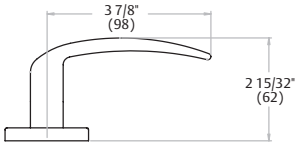


105[3,4]
Lever: Cast
Non-handed lever



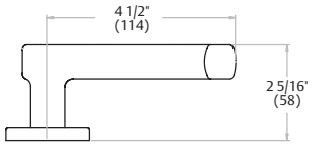


117[4]
Lever: Cast
Non-Handed lever



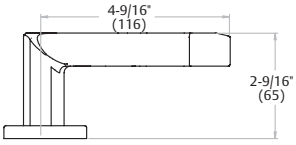


119[4]
Lever: Cast
Handed - Specify hand
Non-Reversible



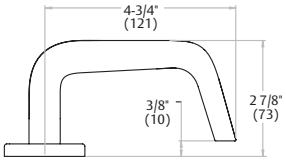


121[2,4]
Lever: Cast
Handed - Specify hand
Non-Reversible



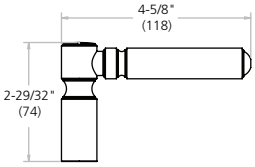


126[1,4]
Lever: Cast
Handed - Specify hand
Non-Reversible





152
Lever: Cast
Non-Handed Lever



1. Complies with codes requiring lever to return to within 1/2" (13mm) of door face.
2. Not available with Inspire™ roseless trim.
3. Contact factory for current lead times.
4. Not available in 629 or 630 finish

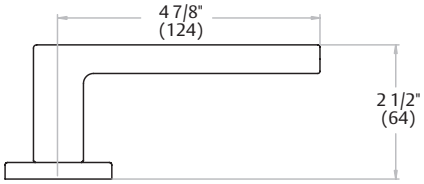
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Salvador

Dreamlike beauty manifested in solid, familiar forms.

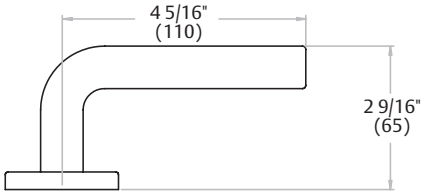


106
Lever: Cast
Non-handed lever



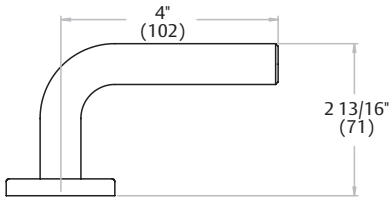


107
Lever: Cast
Non-handed lever



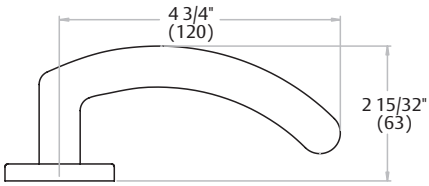


108
Lever: Cast
Non-handed lever





109[1]
Lever: Cast
Non-Handed lever



1. Complies with codes requiring lever to return to within 1/2" (13mm) of the door face

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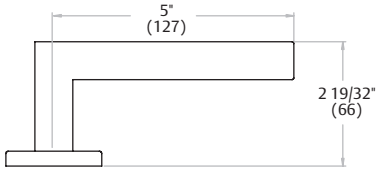
ML2000 Series

Salvador

Dreamlike beauty manifested in solid, familiar forms.

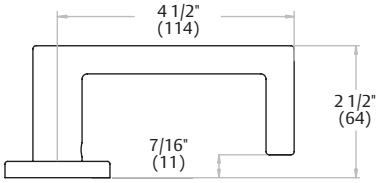


110
Lever: Cast
Non-handed lever



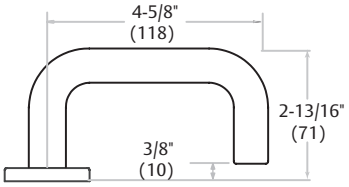


123[1]
Lever: Cast
Non-handed lever





128[1]
Lever: Cast
Non-handed lever



1. Complies with codes requiring lever to return to within 1/2" (13mm) of door face.

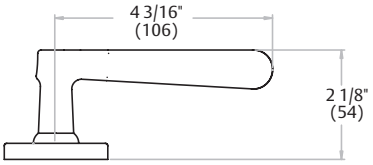
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Marc

Fluid lyricism expressed through whimsical lines and dynamic contours.

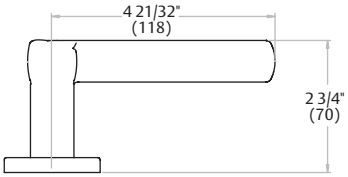


111[1,2]
Lever: Cast
Handed - Specify hand
Non-Reversible



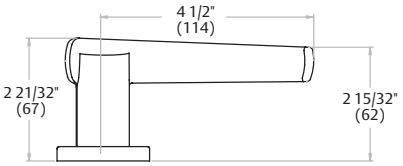


112[2]
Lever: Cast
Handed - Specify hand
Non-Reversible





114[2]
Lever: Cast
Handed - Specify hand
Non-Reversible



1. Not available with Inspire™ roseless trim.
2. Not available in 629 or 630 finish

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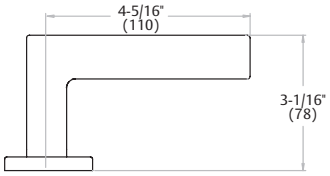
ML2000 Series

Marc

Fluid lyricism expressed through whimsical lines and dynamic contours.

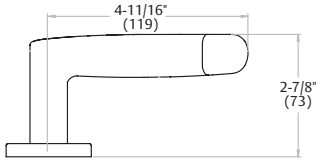


115[2]
Lever: Cast
Handed - Specify hand
Non-Reversible



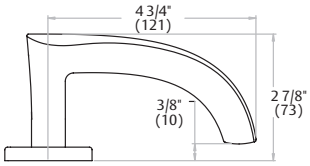


116[2]
Lever: Cast
Handed - Specify hand
Non-Reversible



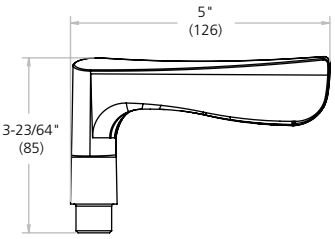


131[1,2]
Lever: Cast
Handed - Specify hand
Non-Reversible





151
Lever: Cast
Handed - Specify hand
Non-Reversible



1. Complies with codes requiring lever to return to within 1/2" (13mm) of door face.
2. Not available in 629 or 630 finish

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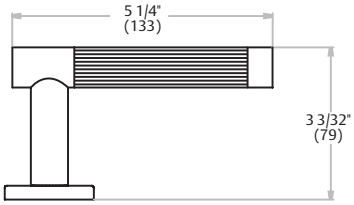
Piet*

Striking levers with sleek, clean lines.

*** Refer to page 80 for how to order the Muséo® Piet Lever Collection. Not available with Inspire™ roseless trim.**

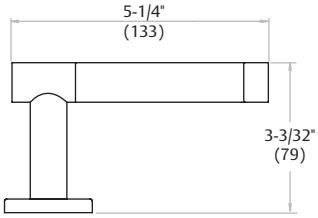


21G
Grooved Insert
Lever: Cast
Non-Handed Lever



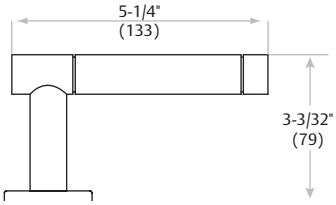


21L
Leather Insert
Lever: Cast
Non-Handed Lever



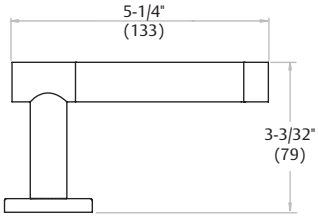


21M
Polished with Satin Insert
Lever: Cast
Non-Handed Lever





21S
Santoprene™ Insert
Lever: Cast
Non-Handed Lever



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Muséo® Trim Designs

ML2000 Series

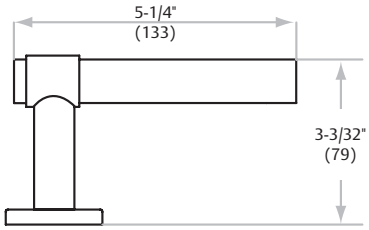
Piet*

Striking levers with sleek, clean lines.

*** Refer to page 80 for how to order the Muséo® Piet Lever Collection. Not available with Inspire™ roseless trim.**

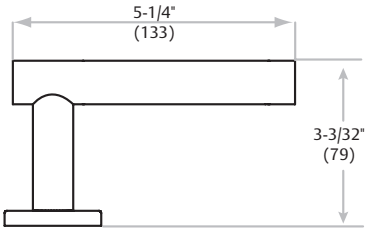


23M
With Raised Band
Lever: Cast
Non-Handed Lever



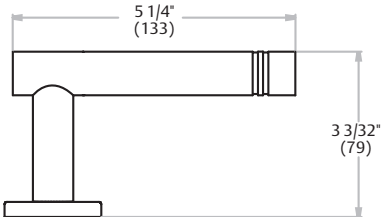


25M
Plain
Lever: Cast
Non-Handed Lever





27M
Plain with Two Grooves
Lever: Cast
Non-Handed Lever



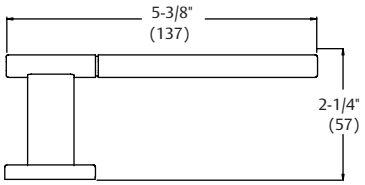
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Josef[2/3]

Tribute to the square with beautifully simple, but dramatic forms.

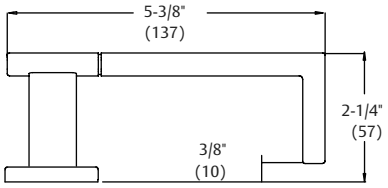


133
Lever: Cast
Non-Handed lever





134[1]
Lever: Cast
Non-Handed lever



1. **Complies with codes requiring lever to return to within 1/2" (13mm) of door face.**
2. **Not available with Inspire™ roseless trim.**
3. **135-138 contain white or black polycarbonate insert**

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Corbin Russwin
ASSA ABLOY

Muséo® Trim Designs

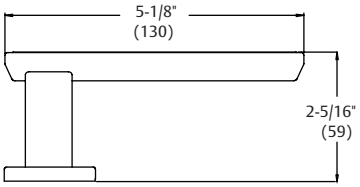
ML2000 Series

Josef[2/3]

Tribute to the square with beautifully simple, but dramatic forms.

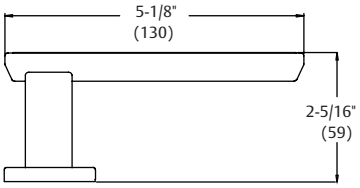


135
Lever: Cast
Non-Handed lever



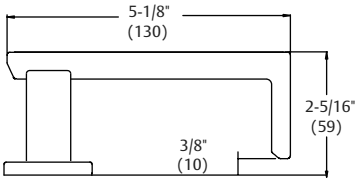


136
Lever: Cast
Non-Handed lever



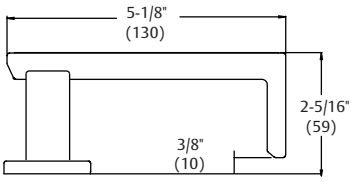


137[1]
Lever: Cast
Non-Handed lever





138[1]
Lever: Cast
Non-Handed lever



1. **Complies with codes requiring lever to return to within 1/2" (13mm) of door face.**
2. **Not available with Inspire™ roseless trim.**
3. **135-138 contain white or black polycarbonate insert**

Experience a safer and more open world

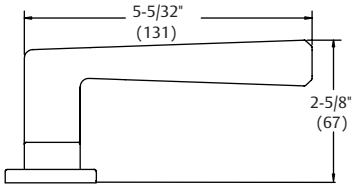
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Georges[1]

Structural pieces that evoke an emotional response with sophisticated design.

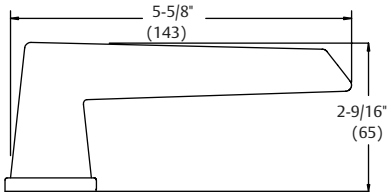


139
Lever: Cast
Non-Handed lever





140
Lever: Cast
Handed lever



1. **Not available with Inspire™ roseless trim.**

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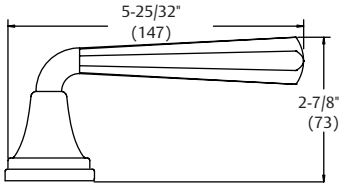
ML2000 Series

Georges[1]

Structural pieces that evoke an emotional response with sophisticated design.



143
Lever: Cast
Non-Handed lever



1. **Not available with Inspire™ roseless trim.**

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Merlot

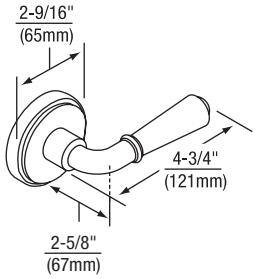
Like its namesake, the Merlot blends with — and enhances — any decor.

Vineyard™ collection



MSG

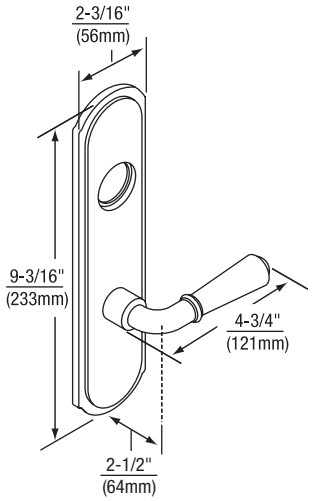
Lever: Cast
Rose: Cast





MSL

Lever: Cast
Escutcheon: Cast
Note: L escutcheon is not available for functions ML2087 or ML20987



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Vineyard™ Collection Trim Designs

ML2000 Series

Zinfandel

Vigorous and complex in design, the Zinfandel adds finesse to any opening.

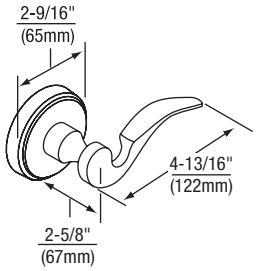
- Handed Levers

Vineyard™ collection



ZSG

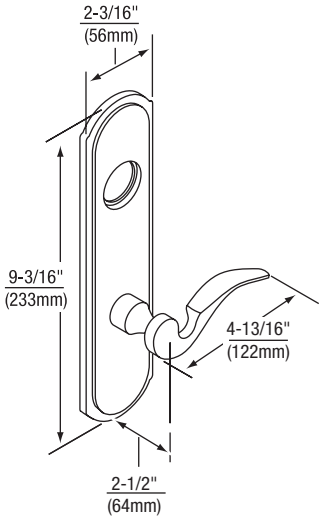
Lever: Cast
Rose: Cast
Specify hand.





ZSL

Lever: Cast
Escutcheon: Cast
Specify hand.
Note: L escutcheon is not available for functions ML2087 or ML20987



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Frascati

Fresh yet classic, the Frascati exudes the casual, timeless elegance of the Roman hills.

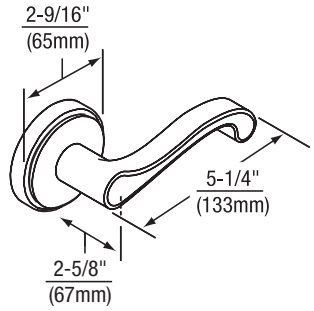
- Non-Reversible
- Handed Levers

Vineyard™ collection



FSG

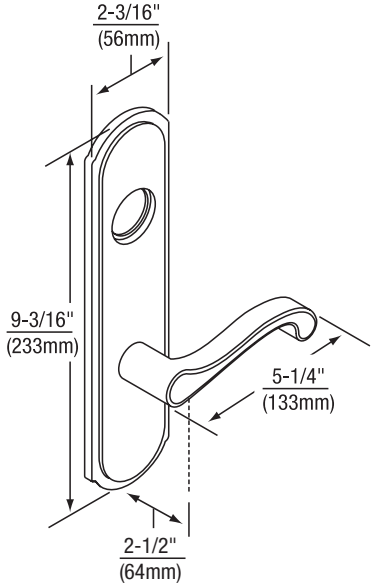
Lever: Cast
Rose: Cast





FSL

Lever: Cast
Escutcheon: Cast
Note: L escutcheon is not available for functions ML2087 or ML20987



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ASSA ABLOY

Muséo® Trim

ML2000 Series

Muséo Collection Roses[1] and Escutcheons



V Rose
Wrought



U Rose
Wrought



T Rose
Wrought



Y Rose
Wrought



W Rose
Wrought



X Rose
Wrought



E2 Rose[2]
Wrought



E3 Rose[2]
Wrought



E4 Rose[2]
Wrought



L Escutcheon
Cast Brass



R Escutcheon
Solid Stainless Steel
or Forged Brass

Thumbturns[3]



MT1

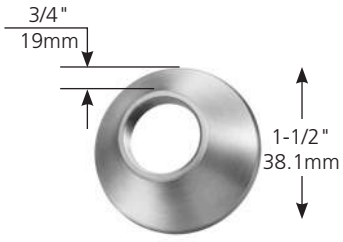


MT2

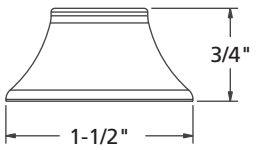


MT3

Inspire™ Roseless Trim



Brass or Stainless Steel



Notes:

1. Roses and Inspire trim are only available with *Muséo* levers.
2. Square cylinder collar and thumbturn backplate automatically supplied with E2, E3 and E4 roses.
3. Thumbturn back plate will match shape of rose chosen (i.e. round or square).
4 MT1, MT2 and MT3 are not available with M19VN indicator.
5. L & R escutcheons not available with functions ML2087 or ML20987

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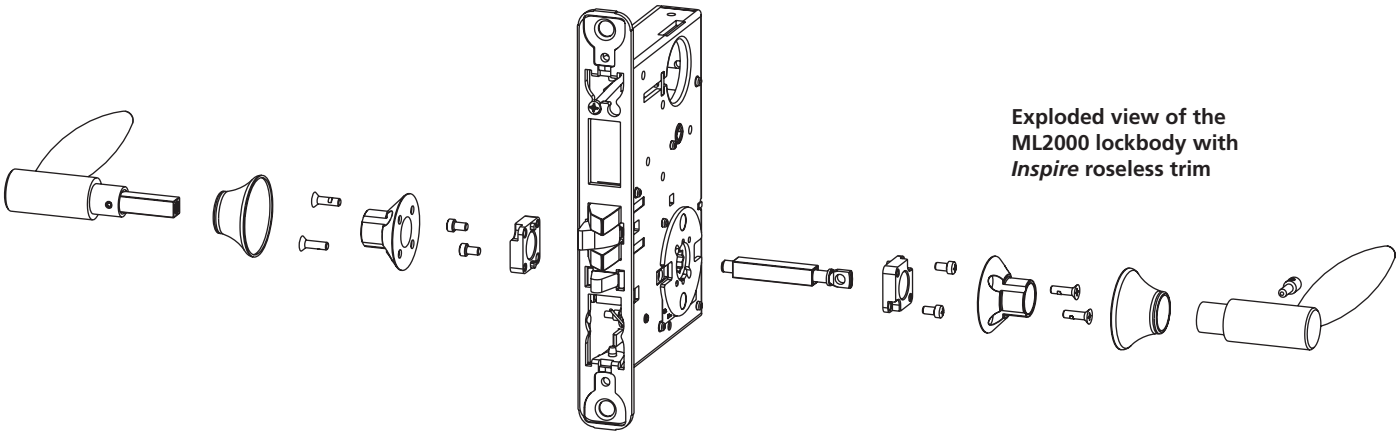


Inspire™ Roseless Trim

Inspire roseless trim blends the lever and the door creating an artful apprach to every opening. Offered with most Muséo® decorative levers, this exquisite trim will inspire the creation of beautiful openings.

Features:

- Certified to and exceeds ANSI/BHMA A156.13, Series 1000, Operational Grade 1 and Security Grade 1
- Attachment method similar to standard trim
- Available with all mortise lock functions
- Compatible with most Muséo Line levers (except 104, 111, 121, Josef, Georges, Piet and Laszlo levers)
- Selected levers return within 1/2" of the door face
- All standard cylinder options are available
- Available for 1-3/4", 2" and 2-1/4" thick doors only (contact factory for other door thicknesses)



Exploded view of the ML2000 lockbody with *Inspire* roseless trim

How to Order
Inspire Roseless Trim

Quantity	Series/Function	Trim*	Finish	Hand
50	ML2055	102J	626	RHR

***Specify J for the rose when ordering *Inspire* roseless trim.**

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Behavioral Health Trim

ML2000 Series



BHSS*

Part of the Behavioral Health Series® of products, the ML2000 Series mortise lock with BHSS trim provides an innovative solution for behavioral health environments. The unique integrated lever and escutcheon combines aesthetics with safety. Ease of operation, along with the strength and versatility of the ML2000 Series mortise lock allows its use in many applications.

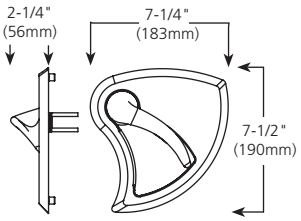
Refer to the Healthcare Hardware Catalog (45205) for more information.





BHSS

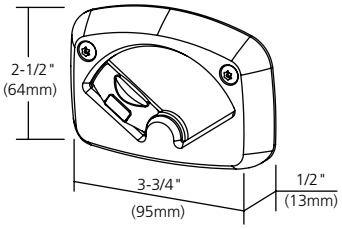
Stainless Steel
Finishes: 630, 630C



Thumbturn

Stainless Steel
Door thickness: 1-3/4" (44mm)
through 2-1/4" (57mm)

(Not available with Indicator)



How to Order

BHSS

Quantity	Series/Function	Trim	Finish	Hand
100	ML2010	BHSS	630	RHR

**Although these products are better designed for behavioral health applications than traditional trim, they do not eliminate the risk that an object can be affixed to, or around them. Refer to Patient Safety Standards Guidelines for the latest approved products.*

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Behavioral Health Lever Trim

ML2000 Series



BLSS*

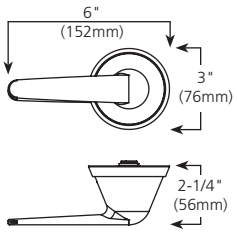
The BLSS trim is part of the Behavioral Health Series® of products. With an array of functions, this trim can be used on virtually any opening in healthcare applications. Sloping surfaces and overlapping rose and lever address safety concerns common in behavioral health. Optimal for tough environments, the ML2000 Series mortise lock provides impressive strength and reliability.

Refer to the Healthcare Hardware Catalog (45205) for more information.



BLSS

Stainless Steel
Finishes: 630, 630C

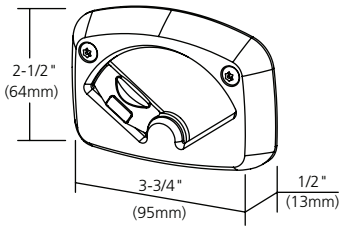




Thumbturn

Stainless Steel
Door thickness: 1-3/4" (44mm) through 2-1/4" (57mm)

(Not available with Indicator)



How to Order

BLSS

Quantity	Series/Function	Trim	Finish	Hand
100	ML2010	BLSS	630	RHR

**Although these products are a better design for behavioral health applications than traditional trim, they do not eliminate the risk that an object can be affixed to, or around them. Refer to Patient Safety Standards Guidelines for the latest approved products.*

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ASSA ABLOY

Push/Pull Trim

ML2000 Series



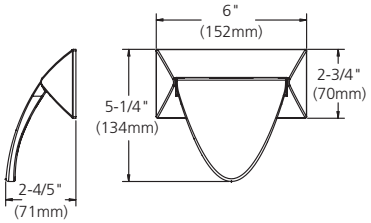
HPSK

The ML2000 Series mortise lock with push/pull paddle trim provides an aesthetically pleasing alternative to products with standard push/pull trim. Its heavy-duty design and ANSI/BHMA Grade1 strength help it to withstand abuse from rigorous environments. Multiple mounting orientations, hands free operation and a sleek, aesthetic form, make the ML2000 Series mortise lock ideal for use in healthcare facilities and educational facilities.

Refer to the Healthcare Healthcare Catalog (45205) for more information.



HPSK
Covers: Cast stainless steel
Paddles: Cast stainless steel
Specify hand.
Finishes: 630, 630C
"PUSH & PULL" Identification available,
Quick Code M38.

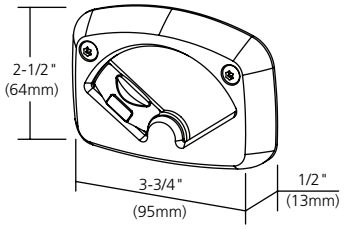




Thumbturn

Stainless steel
Door thickness: 1-3/4" (44mm)

(Not available with Indicator)





Laser Engraving

Stainless steel
Offered on all 3 paddle orientations
2-1/2" w x 2-1/2" h max laser engraving area
(See Custom Laser Engraving brochure for more details)

How to Order

HPSK Push/Pull*

Quantity	Series/Function	Trim	Finish	Hand
100	ML2010	HPSK	630	RHR

**Available on 1-3/4" door thickness only*

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Anti-Harm Trim

ML2000 Series



Anti-Harm Knob HSS*

The anti-harm knob is designed for safety and security by eliminating catch points with a tapered knob recessed into the rose, a tapered thumbturn (for mortise lock thumbturn functions) with Torx® pin security screws, tapered cylinder collars and concealed mounting screws. Available as sectional trim, the anti-harm knob features recessed finger holes for a better grip and the reliability of the ML2000 Series ANSI/BHMA grade 1 mortise lock. Ideal for psychiatric or detention facilities.

Refer to the Healthcare Hardware Catalog (45205) for more information.

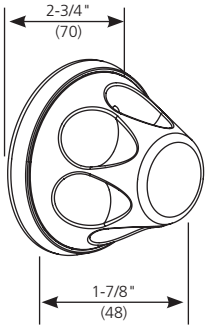


Anti-Harm Knob HSS

Brass

Knob: Brass
Door thickness: 1-3/4" (44mm) through 4" (102mm) in 1/4" increments.
Finishes: 630, 630C

Notes: On lever trim x HSS Knob, the outside lever will be retained with a set screw.
HSS Knob is only available with the rose shown. No optional roses or escutcheons.
Knob and rose are nickel plated to match stainless steel.

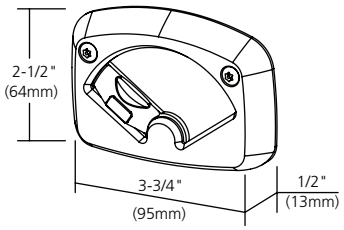




Thumbturn

Standard for all ML2000 x HSS thumbturn functions

(Not available with Indicator)



How to Order

Anti-Harm Knob (HSS) Trim – HSS Knob x HSS Knob

Quantity	Series/Function	Trim	Finish	Hand
6	ML2032	HSS	630^	RH

Anti-Harm Knob (HSS) Trim – Lever Trim x HSS Knob

Quantity	Series/Function	Trim		Finish	Hand
		Outside	Inside		
6	ML2055	NSA	HSS	630C^	RH

**Although these products are a better design for behavioral health applications than traditional trim, they do not eliminate the risk that an object can be affixed to, or around them. Refer to Patient Safety Standards Guidelines for the latest approved products.*
^619 finish provided to match 630 finish

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Vandal Resistant Trim

ML2000 Series

ML2000VR Series Vandal-Resistant Mortise Trim

Applications

Designed for high-traffic commercial, industrial, institutional and government buildings that require a greater degree of security and vandal resistance not found on other mortise trims. Applications may include:

- Schools and universities
- Computer rooms
- Hospital pharmacies
- Banks
- Storage facilities
- Government installations
- Prisons and detention facilities
- Evidence rooms
- Weapons storage
- Compatible with all ML2000, ML20900 and ML20600 x NAC functions except the following: ML2050, ML2070, ML2080, ML2087, ML20987

Advantages

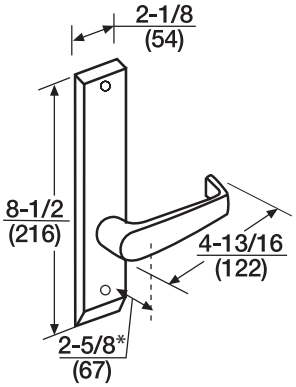
- Flush-mounted conventional fixed core cylinder
- Cast escutcheons and levers; double through-bolted
- Torx® pin tamper resistant security screws
- Armored front to protect against tampering
- Free-floating spindle self-adjusts for door thicknesses from 1-3/4" to 2-1/4"
- Levers remain attached if spindle is broken



Newport

NSV

Lever: Cast stainless steel
Escutcheon: Cast stainless steel
Door thickness: 1-3/4" (44mm) standard, 2" (51mm) specify D200, 2-1/4" (57mm) specify D214

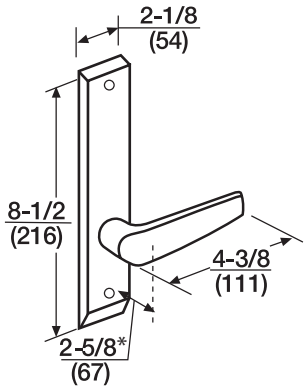




Citation

CSV

Lever: Cast stainless steel
Escutcheon: Cast stainless steel
Door thickness: 1-3/4" (44mm) standard, 2" (51mm) specify D200, 2-1/4" (57mm) specify D214



Note: only available in 630 (US32D) finish.

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45300 05/24

Indicators

ML2000 Series

ML2000 Series indicators can be used in a variety of applications and are most commonly used to identify occupancy or display the locked/unlocked status of a room.

- Restrooms
- Quiet rooms
- Nursing mother's rooms
- Classroom doors



Shown with optional directional arrow engraving

Features

- Inside, outside or both sides of the door
- Sectional or escutcheon trim
- Available with 29 different functions – including thumbturn functions
- Viewing window 25% larger than competition
- Patented curved design for viewing at multiple angles
- Window located prominently above the cylinder
- Highly reflective viewing window for increased safety
- Optional directional engraving available – must specify handing
- Retrofitable for existing applications

NOTE: Optional directional arrow engraving available – must specify handing. See page 69.

Functions

Indicators are available with the following ML2000 and ML20600 Series functions.

ML2002, ML2003, ML2004, ML2011, ML2012, ML2013, ML2017, ML2020, ML2022, ML2024, ML2029, ML2030, ML2040, ML2048, ML2049, ML2059, ML2060, ML2062, ML2065, ML2067, ML2068, ML2069, ML2072, ML2073, ML2075, ML2082, ML2092, ML20608 x NAC x SEC x PHR, ML20609 x NAC x SEC x PHR

See pages 4-9 & 21 for details.

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Indicators

ML2000 Series

Sectional Trim

- Surface mounted
- Torx security screws provided
- Compatible with all sectional trim rose designs except E4
- Provided with standard thumbturn design. Available with ergonomic and all decorative thumbturns as shown on pages 71-72.
- Available with optional directional arrow engraving (see page 69)
- Not compatible with master ring cylinders
- Not compatible with BHSS, BLSS, or HSS trims

Specify option code when ordered with lock. See page 68 for indicator option codes.



Shown with optional directional arrow engraving

Retrofit/Upgrade Kits

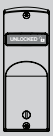
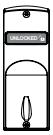
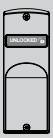
Retrofit/upgrade kits are available for existing applications only. Each kit includes one indicator plate with mechanism, screw pack, plastic template and instructions.

To order retrofit/upgrade kits only, specify by model number below based upon function and mounting location. Door thickness and indicator option code must also be specified with kit.

Kits are handed and easily field reversible. All units are shipped from the factory with a default handing. Handing must be field verified and adjusted as needed per product installation instructions.

Retrofit/upgrade kits with directional engraving must include lock handing and lock function details.

See page 69 for how to order examples. Note: Indicators for both sides of door require two kits.

Illustration	Model #	Used with Functions	Available Option Codes	Indicator Location*
	ML190	ML2002, ML2003, ML2004, ML2011, ML2012, ML2013, ML2017, ML2022, ML2024, ML2029, ML2048, ML2049, ML2059, ML2062, ML2065, ML2067, ML2068, ML2069, ML2072, ML2073, ML2075, ML2082, ML2092, ML20608 x NAC x PHR	Outside Trim: V10, V10F, V20, V20F, V30, V40, V50, V60 Inside Trim: V01, V01F, V03, V04, V06	Inside and/or Outside per Function
	ML193	ML2020, ML2030, ML2060	V10, V10F, V20, V20F, V30, V40, V50, V60	Outside
	ML194	ML2004, ML2013, ML2017, ML2020, ML2024, ML2029, ML2030, ML2040, ML2048, ML2049, ML2060, ML2065, ML2067, ML2068, ML2069, ML2075, ML20608 x NAC x PHR, ML20609 x NAC x PHR	V01, V01F, V03, V04, V06	Inside
	ML197	ML2003, ML2011, ML2040, ML2059, ML2073, ML20609 x NAC x PHR	Outside Trim: V10, V10F, V20, V20F, V30, V40, V50, V60 Inside Trim: V01, V01F, V03, V04, V06	Inside or Outside per Function

*When indicators are required on both sides of the door, 2 upgrade kits must be ordered, one kit for each side.

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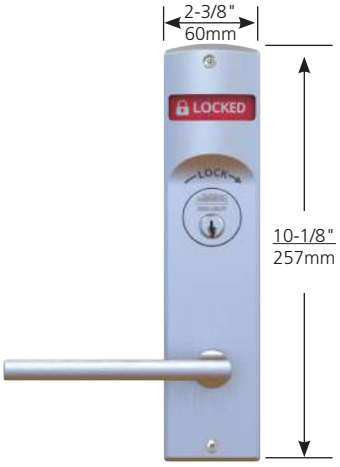
Indicators

ML2000 Series

Escutcheon Trim

- Unique escutcheon (VN) for both inside and outside of door for indicator functions
- Non-indicator functions provide with standard escutcheons as ordered, i.e. M, N, P, R, L
- Through-bolted
- Torx security screws optional
- Provided with standard thumbturn design. Available with ergonomic and all decorative thumbturns as shown on pages 71-72.
- Available with optional directional arrow engraving (see page 69)
- Not compatible with select lever designs: 121, 133, 134, 135, 136, 137, 138, 139, 140, 143
- Not compatible with master ring cylinders
- Not available with ML2011, ML2012 and ML2013

Specify option code when ordered with lock. See page 66 for indicator option codes.



Shown with optional directional arrow engraving

Trim Kits

Complete trim kits are available to retrofit/upgrade existing applications.

Trim kit includes levers and escutcheons with mechanism for both sides of door, screw pack, door marker and instructions.

To order trim kit only, specify by adding option code M31 and the indicator option code (see pg. 68 for codes) to the complete order string. See page 69 for how to order examples.

Option Code	Functions
M31	All functions*

*Escutcheon indicator trim kits available for all functions as listed on page 65 except ML2011, ML2012 and ML2013

Note: Escutcheon applications require both sides of the door to have the unique VN escutcheon. Kits will be provided as a set.

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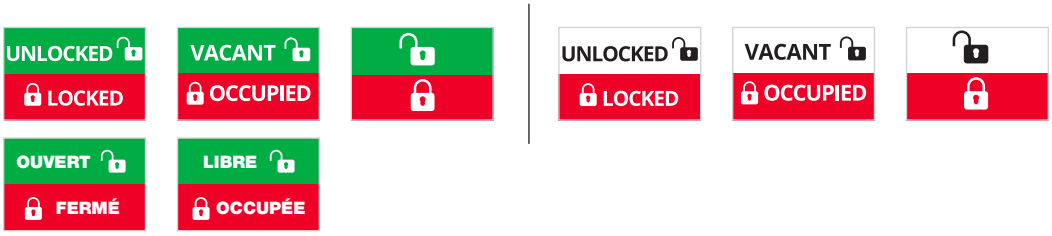
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Indicators

ML2000 Series

Indicator Option Codes

ML2000 Series indicator option codes are designed to convey wording, color and side of door desired in one simple code. To order, specify option code for complete locksets and/or retrofit/upgrade trim kits.



Single Indicator			
Option Code	**Outside Wording**	**Inside Wording**	**Color**
V10	Unlocked/Locked	No Indicator	Green/Red
V10F	Ouvert/Fermé	No Indicator	Green/Red
V20	Vacant/Occupied	No Indicator	Green/Red
V20F	Libre/Occupée	No Indicator	Green/Red
V30	Icons Only	No Indicator	Green/Red
V40	Unlocked/Locked	No Indicator	White/Red
V50	Vacant/Occupied	No Indicator	White/Red
V60	Icons Only	No Indicator	White/Red
V01	No Indicator	Unlocked/Locked	Green/Red
V01F	No Indicator	Ouvert/Fermé	Green/Red
V03	No Indicator	Icons Only	Green/Red
V04	No Indicator	Unlocked/Locked	White/Red
V06	No Indicator	Icons Only	White/Red
Double Indicator			
Option Code	**Outside Wording**	**Inside Wording**	**Color**
V11	Unlocked/Locked	Unlocked/Locked	Green/Red
V11F	Ouvert/Fermé	Ouvert/Fermé	Green/Red
V21	Vacant/Occupied	Unlocked/Locked	Green/Red
V21F	Libre/Occupée	Ouvert/Fermé	Green/Red
V33	Icons Only	Icons Only	Green/Red
V44	Unlocked/Locked	Unlocked/Locked	White/Red
V54	Vacant/Occupied	Unlocked/Locked	White/Red
V66	Icons Only	Icons Only	White/Red
Engraving			
Option Code	**Outside**	**Inside**	**Wording**
EMA	Engraving	No Engraving	"Lock" with arrow
EMB	No Engraving	Engraving	"Lock" with arrow
EMC	Engraving	Engraving	"Lock" with arrow

Experience a safer and more open world

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Indicators

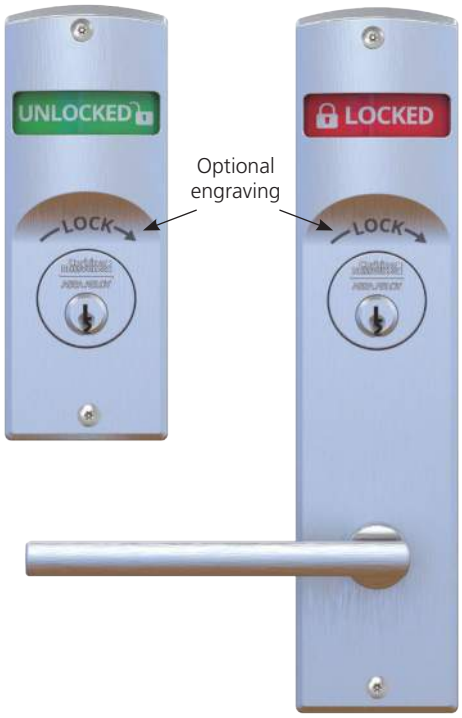
ML2000 Series

Engraving Options

- Laser engraving with "LOCK" and directional arrow
- Only available in the following finishes: 605, 606, 618, 619, 625, 626, 626C, 629, 630, 630C
- Available with MicroShield®
- Door handing must be specified

Option Code	Description
EMA	Engraving located on outside of door
EMB	Engraving located on inside of door
EMC	Engraving located on inside and outside of door

Note: Engraving is available as an option for all functions when ordered with an indicator. Option codes must be specified with complete lock and/or retrofit (upgrade)/trim kits. EMC is not available with sectional trim upgrade kits.



How to Order Examples

Complete with Lock

Sectional Trim

Function	Lever	Rose	Hand	Finish	Options
ML2002	NS	A	RH	626	V01

Classroom Intruder function x sectional trim x single indicator inside – Unlocked/Locked – Green/Red

Escutcheon Trim

Function	Lever	Escutcheon	Hand	Finish	Options
ML2060	NS	VN	RH	626	V21 x EMB

Privacy function x escutcheon trim x double indicator - Vacant/Occupied - Green/Red (Outside)
Unlocked/Locked - Green/Red (Inside) x inside engraving with "Lock" and directional arrow

Retrofit (Upgrade)/Trim Kit Only

Sectional Trim*

Model #	Door Thickness	Finish	Options
ML190	1-3/4"	626	V01

Keyed function indicator for sectional trim x single indicator inside – Unlocked/Locked – Green/Red
* When indicators are required on both sides of the door, 2 upgrade kits must be ordered, one kit for each side.
All units are shipped from the factory with a default handing. Handing must be field verified and adjusted as needed per product installation instructions.

Escutcheon Trim

Function	Lever	Escutcheon	Hand	Finish	Options
ML2030**	NS	VN	RH	626	V21 x EMB x M31

Privacy function x escutcheon trim x double indicator - Vacant/Occupied - Green/Red (Outside)
Unlocked/Locked - Green/Red (Inside) x inside engraving with "Lock" and directional arrow x full working trim only
**The function of the existing lock is required so the proper escutcheons can be provided.

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Indicators

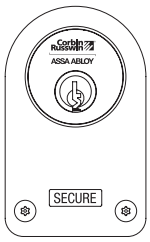
ML2000 Series

Sectional Trim Only Indicators

The following indicators are available with sectional trim only and have different features and options than the indicators found on pages 65-69. To order the following sectional indicators with locksets, specify option codes M19S, M19V or M19N for single indicator and M19SN or M19VN for double indicators. See page 83 for option codes. Kits are available by specifying by part number as listed below. Sectional trim only indicators are available in functions as listed on pages 4-9 and 21.

Features:

- Design eliminates unauthorized entry via indicator tampering
- Non keyed indicators available with emergency slot turn override
- For use outside, inside or both sides of door
- Choose outside indicator text: Vacant/Occupied or Secure/Unsecure
- Torx pin security fasteners (standard with cylinder indicators)

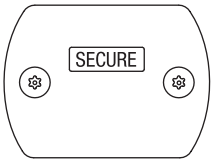


Keyed Functions

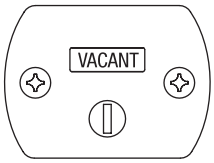
- Can be used on either side of door for double cylinder functions
- Compatible with select sectional trim rose designs: A, B, E3, H, J, W, X, Y
- Not available with Master Ring cylinders

Secure (M19S)	
Door	Packet
1-3/8" (35mm)	720F21 x Finish
1-3/4" (44mm) - 2" (51mm)	720F22 x Finish
2-1/4" (57mm)	720F24 x Finish
Over 2-1/4" (57mm)	720F25 x Finish

Vacant (M19V)	
Door	Packet
1-3/8" (35mm)	741F21 x Finish
1-3/4" (44mm) - 2" (51mm)	741F22 x Finish
2-1/4" (57mm)	741F23 x Finish
Over 2-1/4" (57mm)	741F24 x Finish



Inside Indicator



Outside Indicator

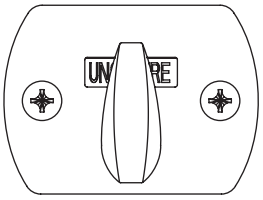
Non Keyed Functions

- Inside Indicator always reads Secure/Unsecure
- Outside Indicator features slot-turn emergency override
- Compatible with all sectional trim rose designs: A, B, E2, E3, E4, F, G, H, J, T, U, V, W, X, Y

Secure (M19S)	
Door	Packet
1-3/8" (35mm)	721F16 x Finish
1-3/4" (44mm) - 2" (51mm)	721F17 x Finish
2-1/4" (57mm)	721F18 x Finish
Over 2-1/4" (57mm)	721F19 x Finish

Vacant (M19V)	
Door	Packet
1-3/8" (35mm)	720F61 x Finish
1-3/4" (44mm) - 2" (51mm)	720F62 x Finish
2-1/4" (57mm)	720F64 x Finish
Over 2-1/4" (57mm)	720F65 x Finish

NOTE: M19S/M19SN not available with ML2020, ML2030, and ML2060



Thumbturn Functions

- Located on the inside of the door and reads Secure/Unsecure
- Compatible with all sectional trim rose designs: A, B, E2, E3, E4, F, G, H, J, T, U, V, W, X, Y

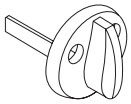
Secure (M19N)	
Door	Packet
1-3/8" (35mm)	723F69 x Finish
1-3/4" (44mm) - 2" (51mm)	723F26 x Finish
2-1/4" (57mm)	791F59 x Finish
Over 2-1/4" (57mm)	791F60 x Finish

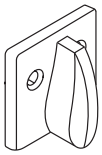
Note: not available with BHSS or BLSS Trim

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Thumbturns

ML2000 Series





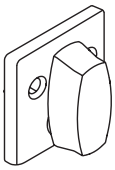
Standard Thumbturn

Cast brass or bronze. Standard on functions utilizing thumbturn. Sectional Trim.
Turn Size: 1-1/4" (32mm)
Spindle Size: 3/16" (5mm)
Plate Size: 1-3/8" (35mm)
Surface screw mounted To order separately, see table.

- Available with Standard, Muséo and Vineyard levers
- Rose design will designate shape of thumbturn backplate
  - E2, E3 and E4 roses - square backplate

Door	Packet	
	Round	Square
1-3/8" (35mm)	519F09 x FIN	814F10 x FIN
1-3/4" (44mm)	519F10 x FIN	814F11 x FIN
2-1/4" (57mm)	519F11 x FIN	814F12 x FIN
Up to 4" (102mm)	581F96 x FIN	814F13 x FIN



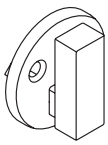


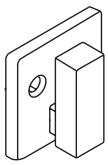
Decorative Thumbturn MT1*

Cast bronze or stainless steel. Used on functions utilizing a thumbturn. Sectional trim only.
To order with lock and trim, specify Quick Code MT1.
To order separately, see table.
Turn Size: 1-3/10" (33mm)
Plate Size: 1-1/2" (38.1mm)

- Available with Standard, Muséo and Vineyard levers
- Rose design will designate shape of thumbturn backplate
  - Round roses - round backplate
  - E2, E3 and E4 roses - square backplate

Door	Packet	
	Round	Square
1-3/8" (35mm)	723F70M x FIN	723F71M x FIN
1-3/4" (44mm)	723F76M x FIN	723F77M x FIN
2-1/4" (57mm)	723F88M x FIN	723F89M x FIN
Up to 4" (102mm)	723F82M x FIN	723F83M x FIN





Decorative Square Thumbturn MT2*

Cast bronze or stainless steel. Used on functions utilizing a thumbturn. Sectional trim only.
To order with lock and trim, specify Quick Code MT2.
To order separately, see table.
Turn Size: 1-3/10" (33mm)
Plate Size: 1-1/2" (38.1mm)

- Available with Standard, Muséo and Vineyard levers
- Rose design will designate shape of thumbturn backplate
  - Round roses - round backplate
  - E2, E3 and E4 roses - square backplate

Door	Packet	
	Round	Square
1-3/8" (35mm)	723F72M x FIN	723F73M x FIN
1-3/4" (44mm)	723F78M x FIN	723F79M x FIN
2-1/4" (57mm)	723F90M x FIN	723F91M x FIN
Up to 4" (102mm)	723F84M x FIN	723F85M x FIN

*Not available with M19VN indicator.

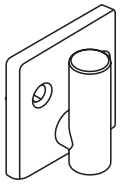
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Thumbturns

ML2000 Series



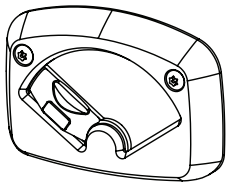


Decorative Cylinder Thumbturn MT3*

Cast bronze or stainless steel. Used on functions utilizing a thumbturn. Sectional trim only.
To order with lock and trim, specify Quick Code MT3.
To order separately, see table.
Turn Size: 1-3/10" (33mm)
Plate Size: 1-1/2" (38.1mm)

- Available with Standard, Muséo and Vineyard levers
- Rose design will designate shape of thumbturn backplate
  - Round roses - round backplate
  - E2, E3 and E4 roses - square backplate

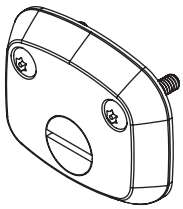
Door	Packet	
	Round	Square
1-3/8" (35mm)	723F74M x FIN	723F75M x FIN
1-3/4" (44mm)	723F80M x FIN	723F81M x FIN
2-1/4" (57mm)	723F92M x FIN	723F93M x FIN
Up to 4" (102mm)	723F86M x FIN	723F87M x FIN



Thumbturn for BHSS, BLSS, HSS, HPSK

Stainless steel. Used on functions utilizing a thumbturn. Sectional trim only. To order, see table.
Plate Size: 3-3/4" (95mm) x 2-1/2" (64mm)

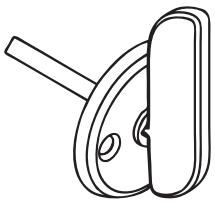
Door Thickness	Packet
1-3/4" (44mm)	851F627
2" (51mm)	851F637
2-1/4" (57mm)	851F647



Emergency Turn for BHSS, BLSS, HSS, HPSK

Stainless steel. Used on functions utilizing a thumbturn. Sectional trim only. To order, see table.
Plate Size: 3-3/4" (95mm) x 2-1/2" (64mm)

Door Thickness	Packet
1-3/4" (44mm)	851F677
2" (51mm)	851F687
2-1/4" (57mm)	851F697



Ergonomic Thumbturn

Cast brass or bronze. Large profile and offset center makes it easier to grasp and rotate. Available on both sectional and escutcheon trim. To order with lock and trim, specify Quick Code M34. To order separately, see table.

Note: Not available with the M19N, M19SN, or M19VN indicators. Not available with HPSK trim.

Door	Packet
Escutcheon Trim up to 4" (102mm)	711F002
Sectional Trim	
1-3/8" (35mm) - 1-5/8" (41mm)	707F57 x FIN
1-3/4" (44mm) - 2" (51mm)	707F58 x FIN
2" (51mm - 2-1/4" (57mm)	707F59 x FIN
2-3/8" (60mm) - 3" (76mm)	707F60 x FIN
3" (76mm) - 4" (102mm)	706F70 x FIN

*Not available with M19VN occpuany indicator.

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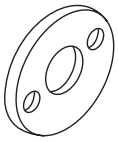
Options and Accessories

ML2000 Series



Blank Plate

For use on doors where standard thumbturn is no longer used. To order, specify 696F39 x Finish.



Key Plate

Cast brass or bronze. Standard for privacy function with emergency release only. Sectional Trim.
Plate Size: 1-3/8"(35mm) diameter. To order separately, specify Packet 438F90 x Finish.



Tapered Cylinder Collar

Furnished only for CSV or NSV trims with 1-1/4" cylinders, double cylinder functions or with 1-1/2" cylinders, single cylinder functions.*

*1-3/4" thick doors. Only used with VR trims.

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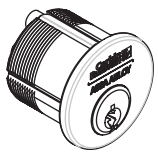
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Options and Accessories

ML2000 Series

Cylinders

2 nickel silver keys
Finishes: See Key Systems catalog





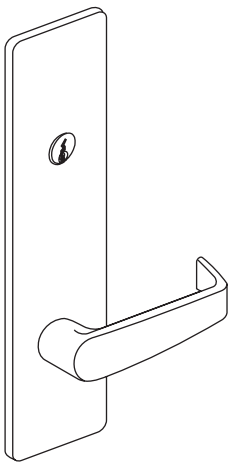
Mortise Cylinder Type	Quick Code	Hotel Function	42 (inside) 52, 53, 55, 56, 58, 69 Functions	All Other Keyed and 42 (outside) Functions
Access 3® Patented	AP	CR1501-114-A01	CR1500-114-A02	CR1500-114-A01
Access 3® Security	AS	CR1601-114-A01	CR1600-114-A02	CR1600-114-A01
Access 3® High Security	AHS	CR1701-114-A01	CR1700-114-A02	CR1700-114-A01
Access 3® Patented LFIC	ACP	N/A	CR1580-114-A02	CR1580-114-A01
Access 3® Security LFIC	ACS	N/A	CR1680-114-A02	CR1680-114-A01
Access 3® High Security LFIC	ACHS	N/A	CR1788-114-A02	CR1788-114-A01
Pyramid HS	PHS	N/A	CR1020-114-A02	CR1020-114-A01
Pyramid HS LFIC	PCHS	N/A	CR1030-114-A02	CR1030-114-A01
Pyramid Security	PS	N/A	CR1027-114-A02	CR1027-114-A01
Pyramid Security LFIC	PCS	N/A	CR1037-114-A02	CR1037-114-A01
Conventional 6-pin	N/A	CR1001-114-A01	CR1000-118-A02	CR1000-118-A01
Conventional 7-pin	7P	N/A	CR1000-114-A02-7	CR1000-114-A01-7
6-pin LFIC	C6	CR1081-138-A01	CR1080-114-A02	CR1080-114-A01
7-pin LFIC	C7	N/A	CR1080-112-A02-7	CR1080-112-A01-7
6-pin SFIC	C6S	N/A	CR1050-114-A02	CR1050-114-A01
7-pin SFIC	C7S	N/A	CR1050-114-A02-7	CR1050-114-A01-7
Security	HS	CR1011-114-A01	CR1010-118-A02	CR1010-118-A01
Security LFIC	CHS	CR1091-138-A01	CR1090-114-A02	CR1090-114-A01
Flex head 6-pin	FX6	CR1101-118-A01	CR1100-100-A02	CR1100-100-A01
Flex head 7-pin	FX7	N/A	CR1100-118-A02-7	CR1100-118-A01-7
Master ring**	MR	N/A	CR1060-118-A62	CR1060-118-A61
Master ring flex head**	FXM	N/A	CR1160-100-A62	CR1160-100-A61
Plug only to show-6-pin	P06	CR1201-114-A01	CR1200-118-A02	CR1200-118-A01
Plug only to show 7-pin	P07	N/A	CR1200-114-A02-7	CR1200-114-A01-7

To order optional cylinder with lockset, see Quick Codes, page 81.
To order cylinder separately, specify Part No. x Keyway x Finish (e.g., CR1000-118-A01 x L4 x 626). Refer to ML2000 Series parts manual for collar requirements.

**Not available for the following functions: ML2017, ML2029, ML2032, ML2068, ML20900, ML20600 x NAC. Available for "M" escutcheon and sectional trim only.
Note: Master ring cylinder meets ANSI/BHMA operational Grade 1.

Plug only to show (concealed shell)

Only the cylinder plug face is visible when lock trim is in place. Available with "M", "R", and "L" escutcheons. See individual trim designs for availability.



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Options and Accessories

ML2000 Series

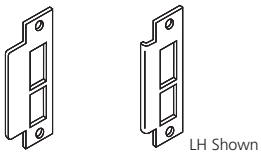
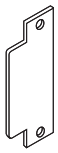
Strikes

ANSI Straight Lip (standard)

Brass or stainless steel
Non-handed
4-7/8" (124mm) x 1-1/4" (32mm) x 1-1/8" (29mm) lip to center (standard)
Optional lip lengths: See chart on p.80

ANSI Curved Lip

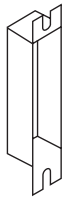
Brass or stainless steel
Handed
4-7/8" (124mm) x 1-1/4" (32mm) x 1-1/4" (32mm) lip to center (standard)
Optional lip lengths: See chart on p.80

	Part No.	Description
Note: Only Available with ML2000	236L72	Straight Lip
 LH Shown All Functions	340L60	Curved Lip for RH/LHR
	340L61	Curved Lip for LH/RHR
 Blank Filler Plate	236L70	Straight Lip

To order strike with lockset, see How to Order, page 79.
To order strike separately, specify Part No. x Lip Length x Finish (e.g., 340L60 x 1-1/2" x 626).

ANSI Wrought Strike Box

To order with lockset, see Quick Codes, page 82.
To order separately, specify 120F76.

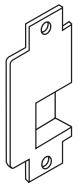


Open Back

Size: 5-1/4" (133mm) x 1/4" (32mm).

Hand	Door Thickness	Part
RHR	1-3/4" (44mm)	411L62 016
	2" (51mm)	411L62 018
	2-1/4" (57mm)	411L62 020
LHR	1-3/4" (44mm)	411L63 016
	2" (51mm)	411L63 018
	2-1/4" (57mm)	411L63 020

To order with lockset, see Quick Codes, page 82. To order separately, specify Part No. x Door Thickness x Finish (e.g., 411L62 x 2" x 626).

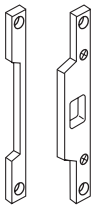


Rabbeted Front and Strike

Stainless Steel
For 1/2" (13mm) rabbet
No optional lip lengths
Non-handed

	Part No.
All Functions	318F66

To order with lockset, see Quick Codes, page 82. To order separately, specify Part No. x Finish (e.g., 318F66 x 626).



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Options and Accessories

ML2000 Series

BPS Power Supply

Operation

Power supplies are designed to provide reliable filtered and regulated power for long life to a variety of electrified hardware components. All modular power supplies are designed to meet UL 1481 Standards. Recommended for the ML20900, delayed egress exit devices and electric trim.

Features

- Fire panel emergency release input
- PC Board mounted system LED indicator
- Regulated and filtered with input and output protection
- Battery charging is provided from a separate output terminal

Electrical Specifications

- Inputs: 115VAC @600mA
- Outputs: 12/24 VDC @ 1 Amp, 1.5 Amp or 4 Amp, Filtered and regulated output

Certifications

- cULus Listed Access Control System Accessories
- cULus Listed Special Locking Arrangements

Applications

- D – Delayed Egress
- M97 – Electric Dogging
- SAF – Fail Safe mortise device trim control
- SEC – Fail Secure mortise device trim control
- ML20900



Note: Batteries are not included with the BPS power supply

Model	Enclosure	Input	Output
BPS-24-1	12" (304mm) x 9" (229mm) x 4" (102mm)	115VAC, 50/60 Hz.	1 Amp @ 24 VDC
BPS-24-2	14" (356mm) x 14" (356mm) x 4" (102mm)	115VAC, 50/60 Hz.	2 Amp @ 24 VDC
BPS-24-4	15" (381mm) x 18" (457mm) x 6" (152mm)	115VAC, 50/60 Hz.	4 Amp @ 24VDC
BPS-12-1	12" (304mm) x 9" (229mm) x 4" (102mm)	115VAC, 50/60 Hz.	1 Amp @ 12 VDC
BPS-12-3	14" (356mm) x 14" (356mm) x 4" (102mm)	115VAC, 50/60 Hz.	3 Amp @ 12 VDC

Requirements for Electrical and Data Transfer

To answer the demand for "smart" electronic access control and locking solutions that require fast, easy, and cost-effective installation, ASSA ABLOY Group brands use the ElectroLynx® standardized plug-in connectors and color-coded wiring system.

With *ElectroLynx*, doorway components come pre-wired for easy hookup to the power source. The key to the system is the transfer device hinge that carries power from the frame to the locking hardware.

Features of ElectroLynx:

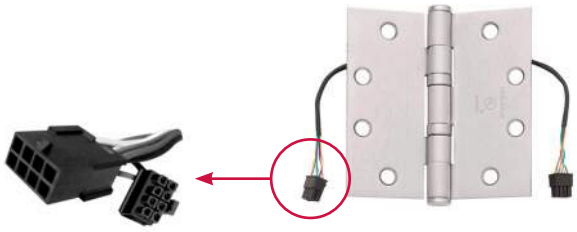
- Makes it easy to bring power to the locking hardware
- Wires have connectors that snap together, like plugging a telephone into a jack

To connect a ML20900 electrified mortise lock to the electronic access control system, the following items are required:

- ML20900 electrified mortise lock
- ASSA ABLOY Door Group pre-wired door, or *ElectroLynx* retrofit cable (order from McKinney)
- Electronic transfer device (*ElectroLynx* electronic transfer hinge or Electrical Power Transfer with standard hinge, from McKinney)
- *ElectroLynx* cable from the hinge to above the ceiling (order from McKinney)

Information regarding cable selection, hinge requirements and order strings can be found in the McKinney Transfer Device Solutions catalog. Consult 800-810-WIRE (9473) with questions on application specifications and requirements.

The McKinney QC8 ElectroLynx Hinge is recommended for all ML20900 functions and electrified options.

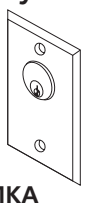


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Exit Controls and Switches

Key Switches



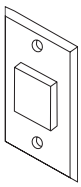
MKA

MKA - (1) SPDT Maintained
MK - (1) SPDT Momentary
MKN - (1) SPDT Momentary NS
MK2 - (1) DPDT Momentary
MKPZ x MKS - (1) SPDT Momentary with audio Double Gang x Additional Switch
Note: All key switches come standard with 12/24 VDC bi-color LED.

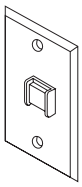
Specifications

- Keyswitch for operation using a standard 1-1/8" mortise cylinder (A02 cam) (cylinder not included).
- Contact Rating 5 Amps @ 12-24VDC
- SPDT 3-position.

Push Buttons



PB2



PB3

PB2 - (1) SPDT Momentary
PB2 - (1) DPST Remote Momentary
PB3 - (1) DPST Momentary
PB3A - (1) DPST Maintained (Alt. Action)
PB3EA - (1) DPST Alternate

Specifications

- 3 Amps @ 12-24 VDC

Indicator

ZLP - (1) Red and Green LED on narrow gang plate.

Audible/Visual Annunciators



PZ1

PZ1 - Sonalert 90db @ 2ft. 12-24VDC. Mounted on one gang stainless steel plate.

Digital Entry

DK-11 - Digital Keypad - 4 User
DK-26SS - Digital Keypad NS - 59 User - SS Finish
DK-26BK - Digital Keypad NS - 59 User - Black Finish

Power Transfers

TSB B-C - Door Cord

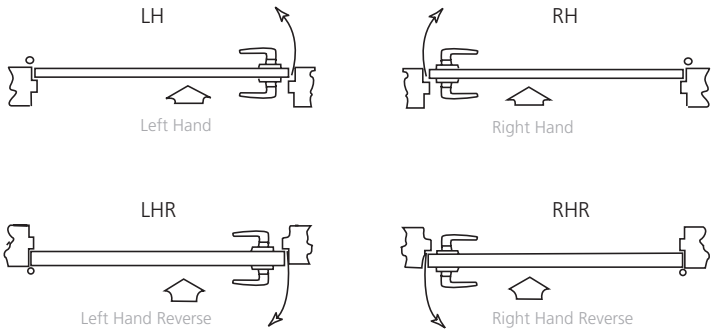
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How to Order

ML2000 Series

Ordering Examples - ML2000 Series



Note: Arrow indicates secure side of door.

Where to find ordering information and Quick Codes

Mechanical Functions	5-9
Electrified Functions	13
Trim Designs	14-54
Cylinder and Keying	69
Finish	69
Strikes	70
Miscellaneous Options	70
Door Thickness	70
Handing	71

Stock Order

Quantity	Series/Function	Trim	Finish	Hand
100	ML2055	LWA	626	RHR

Split Trim / Finish Order

Quantity	Series/ Function	Trim		Finish		Hand
		Outside	Inside	Outside	Inside	
12	ML2055	LWA	GZH	626	625	RHR
12	ML2055	ZSL	—	626	625	RHR
24	ML2051	MSG	—	605	625	LH
12	ML2055	102U	—	626	606	RHR
24	ML2051	122R	110R	605	625	LH

Contract / Detailed Order

Quantity	Keyset	Series/ Function	Trim	Finish	Hand	Door Thickness	Optional Strike	Misc. Options	Optional Cylinder	Keying
24	AA1	ML2055	LWA	626	RHR	D214	SA200	M17-M26	C7	VKC3
6	AA1	ML2055	NSV	630	RH	D214	SS114	M17	PCHS	VKC1

Working Trim Only

Quantity	Function Only	Trim	Finish	Hand	Door Thickness	Misc. Options
6	ML2055	LWA	626	RHR	D214	M31
1	ML2055	NSV	630	RH	D214	M31

(Includes grip and spindle, rose or escutcheon, thumbturn lever, emergency key plate, adapters and screws)

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How To Order

ML2000 Series

Lock Only (Includes lock case, armored front, strike and screw pack)

Quantity	Series/ Function	Trim*	Finish	Hand	Door Thickness	Optional Strike	Misc. Options
6	ML2055	LL	626	RHR	D138	SS078	M17

*TRIM KEY

KK	Knob x Knob
LL	Lever x Lever
LK	Lever x Knob
KL	Knob x Lever
HL	Lever Inside Only
HK	Knob Inside Only
LLBHSS	BHSS

Ordering Examples - ML20900

Lock Only (Includes lock case, armored front, strike and screw pack)

Quantity	Series/ Function	Trim*	Finish	Hand	Fail Safe/ Fail Secure	Misc. Options
6	ML20914	LL	626	RHR	SAF	M105

*TRIM KEY

KK	Knob x Knob
LL	Lever x Lever
LK	Lever x Knob
KL	Knob x Lever
HL	Lever Inside Only
HK	Knob Inside Only
LLBHSS	BHSS

Contract / Detailed Order

Quantity	Keyset	Series/ Function	Trim	Finish	Hand	Fail Safe/ Fail Secure	Misc.Options	Optional Cylinder	Keying
24	AA1	ML20914	LWA	626	RHR	SEC	M20	7P	VKC3

Ordering Examples - ML20600 NAC

Stock Order

Quantity	Series/Function	Technology Code	Trim	Finish	Hand	Fail-Safe/ Fail-Secure	High Security Monitoring Options
24	ML20608	NAC	111X	626	RHR	SEC	PHRR01

- ML2000 Mortise Lock x NAC x No Cylinder x Deadbolt x Fail-Secure
- Muséo® lever 111 with X rose
- Satin chrome finish
- Right hand reverse
- Deadbolt privacy function, Mercury and Lenel compatible 1KΩ/2KΩ resistance supervision

Stock Order

Quantity	Series/Function	Technology Code	Trim	Finish	Hand	Fail-Safe/ Fail-Secure	High Security Monitoring Options
24	ML20607	NAC	111X	626	RHR	SEC	R03

- ML2000 Mortise Lock x NAC x No Cylinder x No Deadbolt x Fail-Secure
- Muséo® lever 111 with X rose
- Satin chrome finish
- Right hand reverse
- Software House compatible 1KΩ/2KΩ resistance supervision

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How to Order the Muséo® Piet Levers

ML2000 Series



Grooved Insert 21G



Leather Insert 21L



Polished with Satin Insert 21M



Santoprene™ Insert 21S



With Raised Band 23M



Plain 25M



Plain with Two Grooves 27M

Piet Finish Codes

ANSI/BHMA & Corbin Russwin Finish Code	Piet Code*	Description
630	30	Satin Stainless Steel
629	29	Bright Stainless Steel
N/A	BK	Black (Santoprene™ or leather insert)
N/A	BN	Brown (leather insert)
N/A	00	No Insert
613E	3E	Dark Satin Bronze Equivalent
BSP	BS	Black Suede
WSP	WS	White Suede

*Code used to specify Piet Collection finishes only. Use available finishes list to specify desired finish when ordering.

Piet Lever Descriptions & Available Finishes

Lever Designation	Lever Description	Available Finishes (as ordered)
21G	Grooved Insert	303030, 292929, 293029, 302930, 3E003E, BS00BS, WS00WS
21L	Leather Insert	30BK30, 30BN30, 29BK29, 29BN29, 3EBK3E, BSBKBS, WSBKWS, 3EBN3E, BSBNBS, WSBNWS
21M	Metallic Insert	293029**
21S	Santoprene Insert	30BK30, 29BK29, 3E003E, BS00BS, WS00WS
23M	Raised Band	290030**, 290029, 300030, 300029***, 3E003E, BS00BS, WS00WS
25M	Plain	290029, 300030, 3E003E, BS00BS, WS00WS
27M	Two Grooves	290029, 300030, 3E003E, BS00BS, WS00WS

**Two-tone finish - grip of lever is 630, balance of lever is 629. Rose/escutcheon and lock finish will be 629.
***Two-tone finish - grip of lever is 629, balance of lever is 630. Rose/escutcheon and lock finish will be 630.

Ordering Examples

Rose Options: E2, E3, E4, T, U, V, W, X, Y
Escutcheon Options: L, R

Quantity	Series/ Function	Trim	Lever Finish	Lock Finish	Hand	Thumbturn Options
2	ML2054	21LU	29BK29	629	RH	MT3
1	ML2054	23ML	290030	629	RH	MT3

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Quick Codes

ML2000 Series

Cylinder and Keying

Description	Specify
Conventional 6-pin	(standard)
Conventional 7-pin	7P
Less Cylinder(s)	LC
LFIC	
LFIC 6-pin	C6
LFIC 6-pin Less Core	CL6
LFIC 6-Pin Disposable Core	CT6D
LFIC 6-pin with Temporary Construction Core (Red)	CT6R
LFIC 6-pin with Temporary Construction Core (Blue)	CT6B
LFIC 6-pin with Temporary Construction Core (Green)	CT6G
LFIC 7-pin	C7
LFIC 7-pin Less Core	CL7
LFIC 7-Pin Disposable Core	CT7D
LFIC 7-pin with Temporary Construction Core (Red)	CT7R
LFIC 7-pin with Temporary Construction Core (Blue)	CT7B
LFIC 7-pin with Temporary Construction Core (Green)	CT7G
SFIC	
SFIC 6-pin	C6S
SFIC 6-pin Less Core[1]	CLS6
SFIC 6-Pin Disposable Core[1]	CT6SD
SFIC 6-pin with Temporary Construction Core (Blue)	CT6SB
SFIC 7-pin	C7S
SFIC 7-pin Less Core[1]	CLS7
SFIC 7-Pin Disposable Core[1]	CT7SD
SFIC 7-pin with Temporary Construction Core (Blue)	CT7SB
Security	
Security	HS
Security LFIC	CHS
Access 3®	
Access 3® Patented Fixed Core	AP
Access 3® Security Fixed Core	AS
Access 3® High Security Fixed Core	AHS
Access 3® Patented LFIC	ACP
Access 3® Security LFIC	ACS
Access 3® High Security LFIC	ACHS
Pyramid	
Pyramid Security Fixed Core	PS
Pyramid High Security Fixed Core	PHS
Pyramid Security LFIC	PCS
Pyramid High Security LFIC	PCHS
Pyramid LFIC Less Core	CLP
Pyramid with Temporary Construction Core	CTP
Pyramid Disposable Core	CTPD
UL Housing	
LFIC 6-pin Less Core[3]	CL6AH
LFIC 6-Pin Disposable Core[3]	CTAHD
LFIC 6-pin with Temporary Construction Core (Red/Blue/Green)[3]	CT6AH (R/B/G)

Cylinder and Keying (cont.)

Description	Specify
Other	
Master Ring[2,4]	MR
Flex Head Cylinder, 6-pin (sectional trim)[3]	FX6
Flex Head Cylinder, 7-pin (sectional trim)[3]	FX7
Flex Head Cylinder, Master Ring (sectional trim)[2,3]	FXM
Plug Only to Show, Less Cylinder	PO-LC
Plug Only to Show, 6-pin (concealed shell; M and R escutcheons only, single cylinder only)[3]	PO6
Plug Only to Show, 7-pin (concealed shell; M and R escutcheons only, single cylinder only)[3]	PO7
Keying and Keys	
0-bitted with 2 blank keys	0Bit (standard)
Keyed Random	KR
Construction Master Keyed (not available for Pyramid)	CMK
Uncombinated	UC
2 keys per lock	(standard)
More than 2 keys	KY# (e.g., KY6)
Visual key control (VKC)	
No bitting or keyset stamping on keys or cylinder	VKC0
Keys only	VKC1
Cylinders and keys (not for AS, AHS, ACS, ACHS, HS, CHS, PHS or PCHS)	VKC2
Cylinders only (not for AS, AHS, HS, ACS, ACHS, CHS, PHS or PCHS)	VKC3
Concealed key control (CKC)	
CKC cylinders with VKC keys	CKC2
CKC cylinders only (not for AS, AHS, HS, ACS, ACHS, CHS, PHS or PCHS)	CKC3

1. Not available with ML2029.
2. Not available for ML2017, ML2029, ML2000VR, ML20600 or ML20900.
3. Not available with ML2000VR
4. Not avalable UC (uncombinated)

Finishes

ANSI/BHMA 605 (US3)	Bright Brass
ANSI/BHMA 606 (US4)	Satin Brass
ANSI/BHMA 611 (US9)	Bright Bronze
ANSI/BHMA 612 (US10)	Satin Bronze
ANSI/BHMA 613 (US10B)	Oxidized Bronze, oil rubbed
613E (US10BE)	Dark Oxidized Satin Bronze - Equivalent
613L	Dark Oxidized Satin Bronze, Clear Coated
ANSI/BHMA 618 (US14)	Bright Nickel Plated
ANSI/BHMA 619 (US15)	Satin Nickel Plated
ANSI/BHMA 625 (US26)	Bright Chromium Plated
ANSI/BHMA 626 (US26D)	Satin Chromium Plated
626C	Satin Chromium Plated with MicroShield®
ANSI/BHMA 629 (US32)	Bright Stainless Steel
ANSI/BHMA 630 (US32D)	Satin Stainless Steel (VR)
630C	Satin Stainless Steel with MicroShield®
722	Black Oxidized Bronze, oil rubbed
BSP	Black Suede Powder Coat
WSP	White Suede Powder Coat

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Quick Codes

ML2000 Series

Miscellaneous Options

Description	Specify
Spanner head screws	M02
Torx® head screws (not available for "N" escutcheon trims (Standard for ML2000VR. Optional for other trims)	M04
Blank Escutcheon Inside (only available for ML2000VR, not available for ML2000)	M07
ANSI wrought strike box	M17
*Knurling outside and inside	M20[3]
*Knurling outside only	M21[3]
*Knurling inside only	M22[3]
*Abrasive coat outside and inside	M23
*Abrasive coat inside only	M24
*Abrasive coat outside only	M25
Non-ferrous lockcase (ML2000 only)	M26
Lead-wrapped case	M29
Half trim (for ML2010, ML2020, ML2022, ML2024, ML2029, ML2030, ML2032, ML2052, ML2053, ML2055, ML2056, ML2057, ML2058, ML2059, ML2062, ML2065) (Supplied with inside trim only. Includes cylinder)[1,2]	M30
Working trim only	M31
Tapered Cylinder Collar (HPSK only)[1]	M111
Motorized Electric Latch Retraction (for ML2010, ML2032, ML2057)	MELR
Latch hold back (for ML2042, ML2052, ML2053, ML2054, ML2055, ML2051, ML2057 only)[1]	LHB**
Laser Engraving	LASER

*Not available with Vineyard™ or Muséo® levers
** Must use A02 cam when LHB is specified
1. Not available with R-Escutcheons or ML2000VR
2. Available for 1-38" (35mm), 1-3/4" (44mm), 2" (51mm) or 2-1/4" (57mm) thick doors.
3. All levers provided in a powder coat finish will be supplied with an abrasive coating

Door Thickness+

Door Thickness	Sectional Trim - Specify	Escutcheon* Trim - Specify
1-3/8"(35mm)**	D138	D138
1-3/4"(44mm)	(standard)	(standard)
1-7/8"(48mm)	D178	D178
2" (51mm)	D200	D200
2-1/8" (54mm)	D218	D218
2-1/4" (57mm)	D214	D214
2-3/8" (60mm)	D238	D238
2-1/2" (64mm)	D212	D212
2-5/8" (67mm)	D258	D258
2-3/4" (70mm)	D234	D234
2-7/8" (73mm)	D278	D278
3" (76mm)	D300	D300
3-1/8" (79mm)	D318	D318
3-1/4" (83mm)	D314	D314
3-3/8" (86mm)	D338	D338
3-1/2" (89mm)	D312	D312
3-5/8" (92mm)	D358	D358
3-3/4" (95mm)	D334	D334
3-7/8" (98mm)	D378	D378
4" (102mm)	D400	D400

+ HPSK is only available for 1-3/4" door thickness
* For 2-3/8" (60mm) to 4" (102mm) door thickness: throughbolts and thumbturn lever spindle for 4" door will be provided; may be field cut. "R" & "L" escutcheons only available 1-3/8" (35mm), 1-3/4" (44mm), and 2-1/4"(57mm).
** 1-1/16" (27mm) front standard for 1-3/8" (35mm) door

Strikes

Available for ML2000VR

ANSI Lip to Center	ANSI Straight Lip Specify	Curved Lip Specify
7/8" (22mm)	SS078	N/A
1-1/8" (29mm)	(standard)	SA118
1-1/4" (32mm)	SS114	SA114
1-3/8" (35mm)	SS138	SA138
1-1/2" (38mm)	SS112	SA112
1-3/4" (44mm)	SS134	SA134
2" (51mm)	SS200	SA200
2-1/4" (57mm)	SS214	SA214
2-1/2" (64mm)	SS212	SA212
2-3/4" (70mm)	SS234	SA234
3" (76mm)	SS300	SA300

Open Back Strike	Door Thickness	Specify
	1-3/4" (44mm)	SB134
	2" (51mm)	SB200
	2-1/4" (57mm)	SB214
Rabbeted front and strike	–	Specify SR118

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Quick Codes

ML2000 Series

Indicator Options

Description	Specify
Single Indicator Outside - Unlocked/Locked - Green/Red	V10
Single Indicator Outside - Vacant/Occupied - Green/Red	V20
Single Indicator Outside - Icons Only - Green/Red	V30
Single Indicator Outside - Unlocked/Locked - White/Red	V40
Single Indicator Outside - Vacant/Occupied - White/Red	V50
Single Indicator Outside - Icons Only - White/Red	V60
Single Indicator Inside - Unlocked/Locked - Green/Red	V01
Single Indicator Inside - Icons Only - Green/Red	V03
Single Indicator Inside - Unlocked/Locked - White/Red	V04
Single Indicator Inside - Icons Only - White//Red	V06
Double Indicator - Unlocked/Locked - Green/Red (Outside) Unlocked/Locked - Green/Red (Inside)	V11
Double Indicator - Vacant/Occupied - Green/Red (Outside) Unlocked/Locked - Green/Red (Inside)	V21
Double Indicator - Icons Only - Green/Red (Outside) Icons Only - Green/Red (Inside)	V33
Double Indicator - Unlocked/Locked - White/Red (Outside) Unlocked/Locked - White/Red (Inside)	V44
Double Indicator - Vacant/Occupied - White/Red (Outside) Unlocked/Locked - White/Red (Inside)	V54
Double Indicator - Icons Only - White/Red (Outside) Icons Only - White/Red (Inside)	V66
Single Indicator Outside - Secure/Unsecure - Green/Red (Sectional trim only)	M19S
Single Indicator Outside - Vacant/Occupied - Green/Red (Sectional trim only)	M19V
Single Indicator Inside - Secure/Unsecure - Green/Red (Sectional trim only)	M19N
"Double Indicator - Secure/Unsecure - Green/Red (Outside) Secure/Unsecure - Green/Red (Inside) (Sectional trim only)"	M19SN
"Double Indicator - Vacant/Occupied - Green/Red (Outside) Secure/Unsecure - Green/Red (Inside) (Sectional trim only)"	M19VN
Outside Engraving with "Lock" and Directional Arrow	EMA
Inside Engraving with "Lock" and Directional Arrow	EMB
Engraving Both Sides with "Lock" and Directional Arrow	EMC

Note: Contact Customer Service for other available or custom configurations

Indicator Options - French

Description	Specify
Single Indicator Outside - Ouvert/Fermé - Green/Red	V10F
Single Indicator Outside - Libre/Occupée - Green/Red	V20F
Single Indicator Inside - Ouvert/Fermé - Green/Red	V01F
Double Indicator - Ouvert/Fermé - Green/Red (outside) Ouvert/Fermé - Green/Red (inside)	V11F
Double Indicator - Ouvert/Fermé - Green/Red (outside) Libre/Occupée - Green/Red (inside)	V21F

For V Series indicators only.

Handing

Hand	Specify
Right Hand	RH
Left Hand	LH
Right Hand Reverse	RHR
Left Hand Reverse	LHR

Electric Monitor Options (ML2000/ML20900 Series Only)

Description	Specify
Latchbolt Monitor	M91
Request to Exit	M92
Security Monitor	M105

These options may be ordered together only as follows: M91xM92, M92xM105.

Panel Applications
(Material added to the door face, increasing the overall door thickness)

Description	Specify
Centerline of lockcase to edge of panel not to exceed 2"	PNL

- Panel Application option code can only be used with 1 3/4" thick door with lock centered in door.
- You must specify the thickness of the panel and which side of the door the panel will be applied.
- All other applications require Special Product Application request.

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Quick Codes

ML2000 Series

Functions Available with Monitor Options

Function	M91	M92	M105	M91 + M92	M92 + M105
ML2010, ML2080, ML2090		X			
ML2020, ML2022, ML2024, ML2030, ML2062, ML2065	X	X		X	
ML2029*, ML2032*, ML2049*, ML2057*, ML2059*, ML2092*	X	X	X	X	X
ML2002, ML2003, ML2004, ML2042, ML2052, ML2053, ML2054, ML2055, ML2056, ML2058, ML2087		X	X		X
ML2048, ML2051, ML2067, ML2082	X				
ML20906, ML20907, ML20914, ML20915, ML20932, ML20987	X	X	X	X	X

*M105 becomes DPS

Notes:
- ML2051 & ML2057 with LHB is not available with monitor options.
- Functions with monitor options are not available with M30 option (half trim).

Fail Safe/Fail Secure

Description	Specify
Fail safe	SAF
Fail secure	SEC

Thumbturns

Description	Specify
Ergonomic	M34
Decorative	MT1
Decorative Square	MT2
Decorative Cylinder	MT3

See page 71-72 for images of decorative thumbturns

Electric Accessories

Description	Specify
Power supply 1.0 Amp @ 12 VDC output	BPS-12-1
Power supply 3.0 Amp @ 12 VDC output	BPS-12-3
Power supply 1.0 Amp @ 24 VDC output	BPS-24-1
Power supply 2.0 Amp @ 24 VDC output	BPS-24-2
Power supply 4.0 Amp @ 24 VDC output	BPS-24-4

ML20600NAC - End-of-Line Resistors and Deadbolt Privacy Quick Code

Description	Specify
No End-of-Line Resistors	Blank
Mercury / Lenel 1KΩ/2KΩ	R01
Software House 1KΩ/2KΩ	R03
AMAG 4-State Supervision	R04
Deadbolt Privacy	PHR
Deadbolt Privacy and Mercury / Lenel 1KΩ/2KΩ	PHRR01
Deadbolt Privacy and Software House 1KΩ/2KΩ	PHRR03
Deadbolt Privacy and AMAG 4-State	PHRR04

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45300 05/24

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How To Specify

ML2000 Series

ML2000 Series Suggested Specification

All locksets shall be ML2000 Series Mortise Locksets as manufactured by Corbin Russwin Architectural Hardware.

Locks shall have all functions available in one size case, manufactured from heavy gauge steel, minimum thickness 3/32" (2mm). The handing of all locks shall be reversible without the disassembly of the lockcase. Cases are to be closed on all sides to protect internal parts. Locks are to have adjustable, beveled and armored fronts, standard 2-3/4" (70mm) backset, a full 3/4" (19mm) throw two-piece mechanical anti-friction latchbolt, and a one-piece stainless steel 1" (25mm) throw deadbolt, and shall be available for a minimum door thickness of 1-3/8" (35mm). Internal parts shall be heavy gauge steel, zinc dichromate plated for corrosion resistance.

All locksets with latchbolts, regardless of trim, shall be listed by Underwriters Laboratories for A label and lesser class doors, 4' x 10' single or 8' x 10' pair.

Locksets to be used on specified exterior doors or doors subject to special atmospheric conditions (roofs, pool areas, chemical laboratories, sewage disposal plants, etc.) shall have non-ferrous lock cases and critical internal components.

Cylinder options shall include master ring, flexible head, concealed shell, interchangeable core, security, Pyramid and Access 3 types.

Lock trim (knob, lever, sectional or escutcheon) shall be throughbolted through the lockcase to ensure correct alignment and proper operation.

Provide status indicators with highly reflective color and wording for "locked/unlocked" or "vacant/occupied" with customer wording options if required. Indicator to be located above the cylinder with the inside thumbturn not blocking the visibility of the indicator status. Indicator window size to be a minimum of 2.1" x 0.6" with a curved design allowing a 180 degree viewing angle with protective covering to prevent tampering.

Certification:
UBC - 7 - 2 and UL10C - Positive Pressure
ANSI/BHMA A156.13 Series 1000, Grade 1
ANSI/BHMA A117.1, Accessibility Code (formerly Title 19, California State Fire Marshal Standard) (lever handle trim).

All locks, trim, and cylinders shall be from one manufacturer.

All locksets shall carry a ten-year limited warranty.

ML2000 Series
Mortise Locks with BHSS and BLSS Trim

A. Ligature Resistant, Mortise: ANSI/BHMA A156.13, Series 1000, Operational and Security Grade 1 mortise type manufactured to accepted OMH requirements with ligature-resistant lever and escutcheon trim. Locksets to be manufactured with a corrosion resistant, formed steel case. Levers and escutcheons are manufactured from stainless steel material. Provide optional lead-lining (lock body), Torx® fasteners, and Antimicrobial coating as specified in Hardware Sets.

B. Ligature Resistant, Mortise: ANSI/BHMA A156.13, Series 1000, Operational and Security Grade 1 mortise type manufactured to [accepted] [Use with caution] OMH requirements with ligature-resistant lever and rose trim. Locksets to be manufactured with a corrosion resistant, formed steel case. Levers and roses are manufactured from stainless steel material. Provide optional lead-lining (lock body), Torx® fasteners, and Antimicrobial coating as specified in Hardware Sets.

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How To Specify

ML2000 Series

ML2000 Series Mortise Locksets with Vandal Resistant Trim Suggested Specification

All locksets shall be ML2000VR Series Mortise Locksets with Vandal Resistant Trim as manufactured by Corbin Russwin Architectural Hardware.

Locks shall have all functions available in one size case, manufactured from heavy gauge steel, minimum thickness 3/32" (2mm). The handing of all locks shall be reversible without the disassembly of the lockcase. Cases are to be closed on all sides to protect internal parts. Locks are to have adjustable, beveled and armored fronts, standard 2-3/4" (70mm) backset, a full 3/4" (19mm) throw two-piece mechanical anti-friction latchbolt, and a one-piece stainless steel 1" (25mm) throw deadbolt, and shall be available for a minimum door thickness of 1-3/4" (44mm). Internal parts shall be heavy gauge steel, zinc dichromate plated for corrosion resistance.

High security escutcheon trim shall be cast (stainless) steel with tapered design top and bottom to resist forced entry, excessive abuse and vandalism. Size to be 8-1/2" (216mm) high x 2-1/8" (54mm) wide x 5/16" (8mm) thick with double throughbolts and 2 post lugs to receive torx® pin tamper-resistant security screws through both escutcheons. Alignment posts shall be located over and under the spindle for rigidity and security and shall project through the lock case to ensure proper alignment. Escutcheons to accept cast levers (Newport or Citation) which accept free-floating spindles with a torque resistance of 700 inch lbs. Size of spindle to be 5/16" (8mm) and extend from both sides of the escutcheon. Levers will remain attached if spindle is broken. Lobular torx® pin drive self-tapping screws and lobular throughbolts furnished standard for vandal resistance.

Locksets that are to be used on specified exterior doors or doors subject to special atmospheric conditions (roofs, pool areas, chemical laboratories, sewage disposal plants, etc.) shall have non-ferrous lock cases and critical internal components.

Locksets to be furnished standard with conventional 6-pin fixed core cylinders. Optional cylinders shall include IC, Access 3, security and Pyramid. Furnish a tapered vandal-resistant cylinder collar where necessary.

Certification:
UBC - 7 - 2 and UL10C - Positive Pressure
ANSI/BHMA A156.13 Series 1000, Grade 1
ANSI/BHMA A117.1, Accessibility Code (formerly Title 19, California State Fire Marshal Standard) (lever handle trim).

All locks, trim, and cylinders shall be from one manufacturer.

All locksets shall carry a ten-year limited warranty.

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ML20900 EcoFlex® Electrified Suggested Specification

A. CORBIN RUSSWIN ML20900
Electrified Mortise Locks

1. General: ANSI/BHMA certified extra heavy duty, lever type mortise lock conforming to ANSI/BHMA A156.13 Series 1000, Grade 1 requirements and ANSI A117.1 accessibility guidelines. All functions manufactured in a single sized case formed from a minimum 12 gauge steel. Lockset is field-adjustable for handing without opening the lock body with a beveled armored front that is 0.125" minimum thickness and utilizes a one piece 3/4" anti-friction stainless steel latchbolt. To insure proper alignment, all trim, shall be thru-bolted and fully interchangeable between rose and escutcheon designs. Lock is UL/cUL listed and labeled for use on up to 3 hour fire rated openings.
   a. Backsets: 2-3/4".
   b. Deadbolt: Optional 1" throw made of stainless steel and 2 hardened steel roller inserts.
   c. Strikes: Provide wrought boxes and strikes with proper lip length to protect trim but not to project more than 1/8" beyond trim, frame or inactive leaf. Where required, provide open back strike and protected to allow practical and secure operation.
2. Provide access control mortise lock series, type and functions where specified in hardware groups, with provisions below:
   a. Emergency override access capability with key cylinder retraction of lock latch bolt without necessary electronic activation.
   b. Inside lever retracts latch and deadbolt simultaneously for free egress.
   c. Refer to "KEYING" specification section for keying system requirements.
   d. Lever and finish to match corresponding mechanical locking hardware.
3. Locking and unlocking of the lever handle by electronic operation contained completely within the body of the mortise lock.
   a. Field configurable Fail Safe /Fail Secure by means of an external DIP switch setting.
   b. Operationally voltage-insensitive 12 to 24 VDC.
   c. Energy Performance: Maximum standby current required for functional operation not to exceed 50 mA at 24 VDC limiting potential inductive kickback or the need for external diodes.
   d. Functional locking operation not affected by cable runs greater than 500 feet using a minimum 22 AWG wire.
4. Monitoring: Optional real time monitoring of latchbolt, deadbolt, door open/closed status and valid egress where specified. Valid egress signaled by activation of the Request-to-Exit (RX) micro switch integral to the inside lever of the lockset on the unsecure side of the door capable of shunting external alarms. Door open/closed status provided by monitoring the deadlatch and latchbolt in series with optional integrated magnetic door position switch. In fail safe operation both levers activate Request-to-Exit (RX) micro switch when the lock loses power.
5. Perform centralized control of the integrated locking functions by means of a single cable run to the access control panel independent of any proprietary power supplies, interface boards or controllers.
   a. End of line termination points by means of factory pre-wired Molex® connectors and harnesses.
   b. Source power electrical hard wiring and connections by others.

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How to Reverse Handing

ML2000 Series

ML2000 Series Mortise Locks are easily field reversible for installation on doors of any hand. Re-handing can be done quickly and easily without opening the lock case. The following instructions apply to latchbolt assembies that contain a Locking Pin as shown in Figure 4 below. For those assembies that do not contain a Locking Pin, refer to the ML2000 parts manual (45556) for instructions.

1. Move the Red locking screw to side of lock-body being locked (Figure 1)
2. Push in latch partially then depress catch plate with screwdriver (Figure 1)

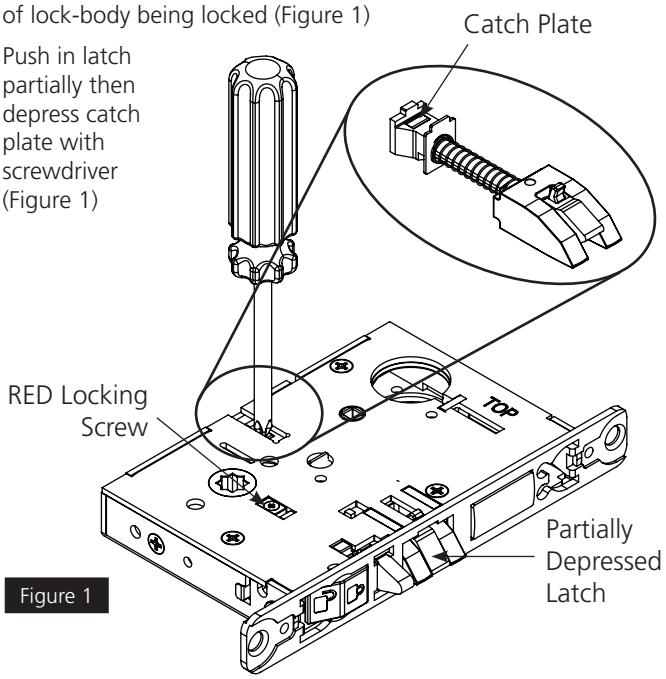


Figure 1

3. Pull latch out of lock-body and rotate 180 degrees (Figure 2)

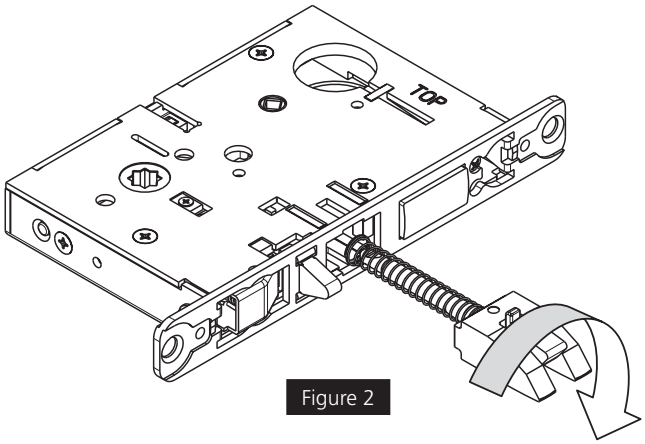


Figure 2

4. Push in latch until tail-piece hits back of case (Figure 3)

Note: Make sure catch plate is even with top surface and locking pin is not projected (Figure 4). If not, depress catch plate with screwdriver and repeat step 4.

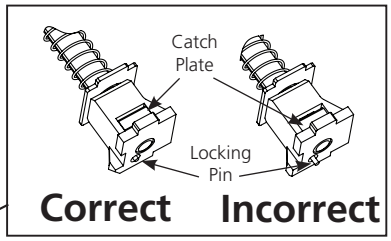


Figure 4

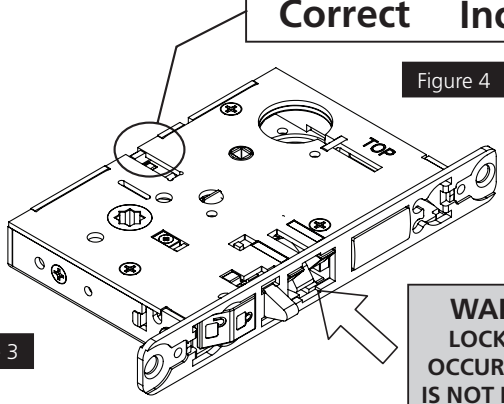


Figure 3

WARNING:
LOCK-IN CAN OCCUR IF LATCH IS NOT PROPERLY INSTALLED

5. Rotate lock front to match bevel of door as shown (Figure 5)

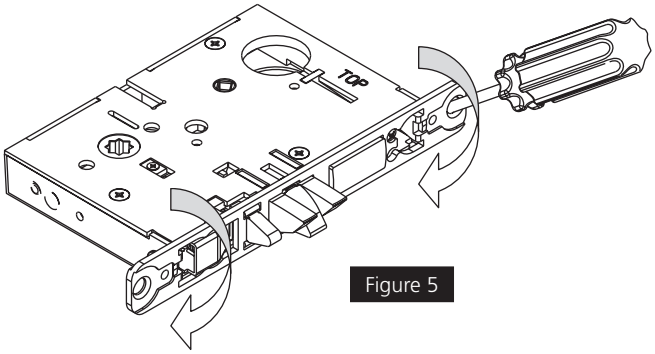


Figure 5

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Notes

ML2000 Series

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ASSA ABLOY Opening Solutions leads the development within door openings and products for access solutions in homes, businesses and institutions. Our offering includes doors, frames, door and window hardware, mechanical and smart locks, access control and service.

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For additional information, contact your ASSA ABLOY Door Security Solutions sales consultant or visit **www.corbinrusswin.com.**

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agion

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45300-05/24

CUT SHEET

McKinney TA2314
Five Knuckle Standard Weight Hinge

McKinney
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SPECIFICATIONS:

MATERIAL:
Stainless, Brass

DESCRIPTION:
Five Knuckle Standard Weight Hinge

FASTENERS:
- (8) 1/2" x 12-24 Machine Screws
- (8) 1 1/4" x #12 Wood Screws

OPTIONS:
- NRP–Non-Removable Pin
- TB–Ball Bearing
- TCA–Concealed Bearing
- RC–Round Corner - 1/4" radius furnished unless specified
- HT–Hospital Tip
- BT–Ball Tip
- FT–Flat Decorative Tip
- GT–Grooved Tip
- LT–Lined Tip
- RT–Round Tip
- ST–Steeple Tip
- SSF–Safety Stud Feature
- QC–4, 8, or 12 wire available
- CC–4, 8, or 12 wire available
- CC-18–2, 4, 6, 8, or 10 wire available (2-18AWG wires and the remainder 28AWG wires)
- MM–Magnetic Monitoring

NOTES:
- When doors are beveled specify TA4314

SIZE:
5" x 5"

AVAILABLE FINISHES:
- US3/605
- US4/606
- US10B/613
- US26D/626
- US32D/630
- 10BE–Bronze Satin Powder Coat
- BSP–Black Suede Powder Coat
- WSP–White Suede Powder Coat

PACKAGED/WEIGHT:
- 3 ea Per Box
- 24 ea Per Case
- Case Weight–38 lbs

UL/ANSI:
NFPA 80 UL Openings
A5112 Grade 2
A2112

McKinney
Berlin Operations
225 Episcopal Road
Berlin, CT 06037
www.mckinneyhinge.com

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CATALOG

SURFACE CLOSERS

NORTON RIXSON

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2800ST
CAM ACTION DOOR CLOSER

NORTON RIXSON
ASSA ABLOY

INTRODUCTION

Easy Open - Secure Close

The 2800ST cam action door closer with Cam-Motion™ technology is designed to make doors easy to open while maintaining enough force to close doors securely. The 2800ST is one closer and track assembly that can support up to four installation positions and has a unique arm to simplify installation.



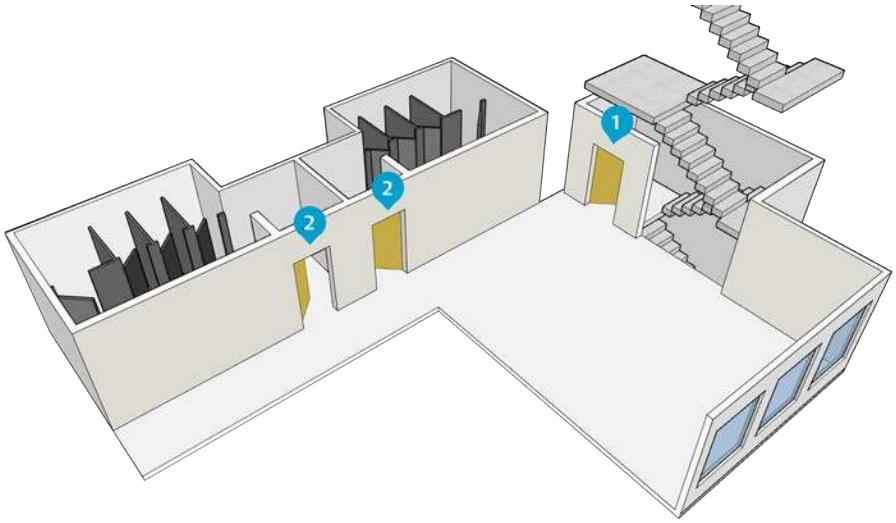
Ideal for applications where both security and accessibility are a priority.

FEATURES

- Cast aluminum body
- Adjustable spring size 1 through 6
- Door weight: 250 lbs.
- Non-handed
- Unique spline arm
- Push and pull side installation, door or frame mounted
- Hold open; specify H suffix
- Sex nuts (optional)
- Adjustable closing force
- Adjustable closing and latching speed
- Backcheck standard
- Door size*:
  - Suitable for exterior and interior doors
  - Recommended maximum interior door width 54" (137)
  - Standard opening range: Pull Side = 140°, Push Side = 110°
- 30-year limited warranty

BENEFITS

- One model - four mounting options
- Easy to open
- Reliable closing
- Forward facing valves
- High efficiency
- Flexible:
  - Spline arm offers multiple indexing options to accommodate standard and special applications
  - 1/2" vertical adjustment





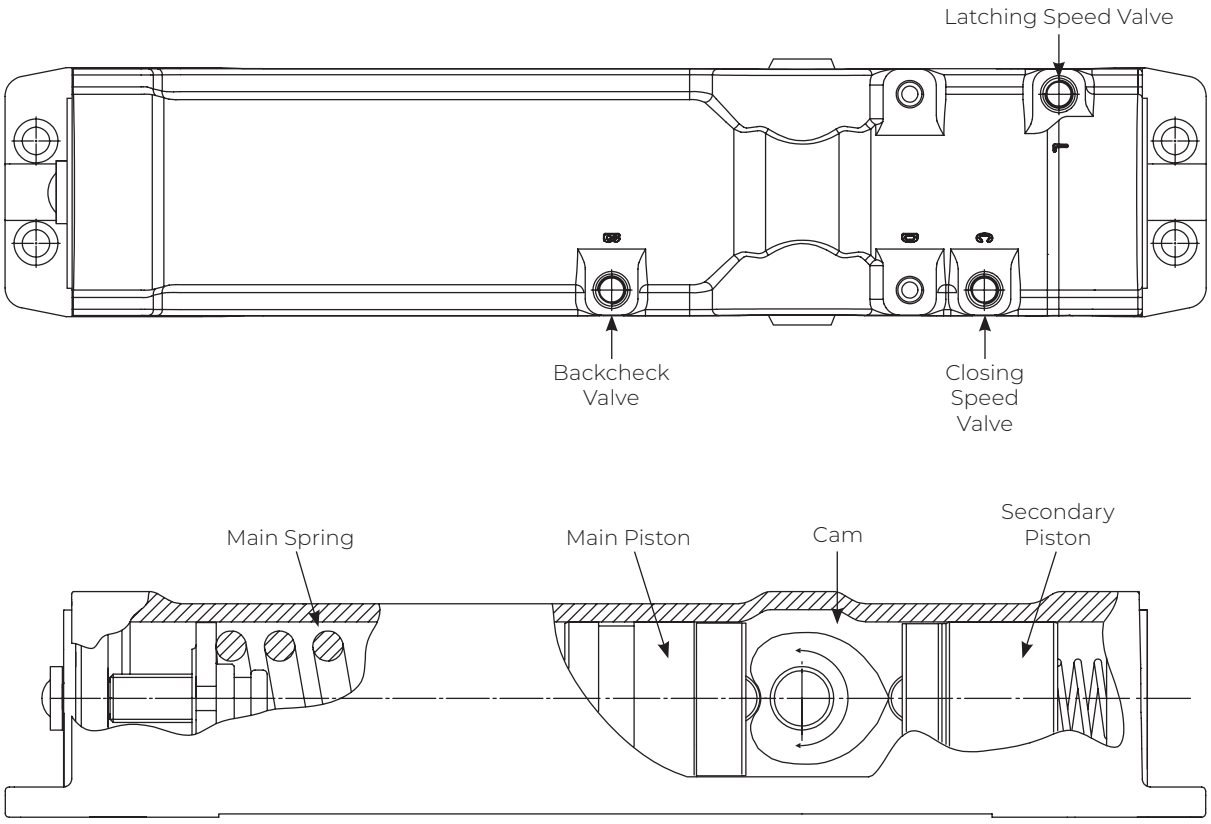
Security
The 2800ST provides reliable closing where safety is a priority, without sacrificing convenience.



Accessibility
Comfortable opening eases everyone's passage through frequently-used doors.

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2800ST
CAM ACTION DOOR CLOSER



CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1
- Americans with Disabilities Act (ADA) Compliant
- Trade Agreement Act (TAA)
- UL10C positive pressure up to 3 hours
- UL-cUL listed

CAUTION: Door Closers for Low Opening Force Applications:

Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

SPECIFICATIONS

Door Closers, Surface Mounted (Cam Action): ANSI/BHMA 156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, high efficiency door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be of the cam and roller design, one piece cast aluminum silicon alloy body with adjustable backcheck and independently controlled valves for closing sweep and latch speed. Door closer to have adjustable hold open position with an on/off selector. Non-hold open units to be U.L. Listed for self-closing door. Unit to be in compliance with the requirements of the Americans With Disabilities Act (ADA). ANSI standards A117.1. Units to meet C-UL US.

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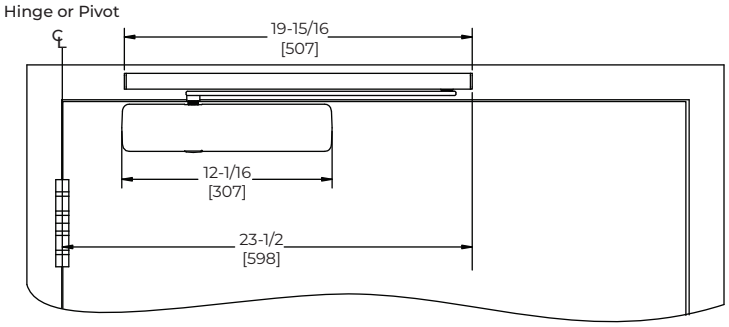
2800ST
CAM ACTION DOOR CLOSER

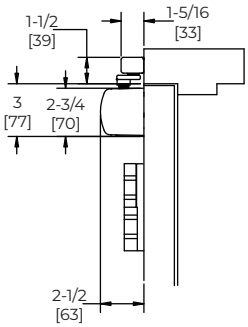
STANDARD APPLICATIONS

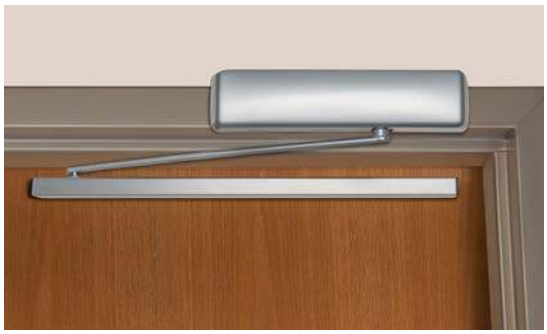


Pull Side, Door Mounted

- 140° swing (trim permitting)
- Hold open model, specify suffix "H"

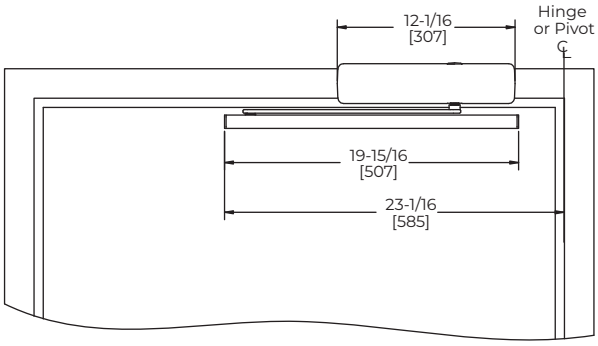


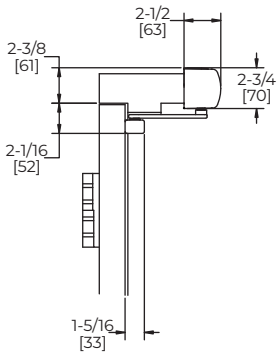




Push Side, Frame Mounted

- Maximum frame reveal is 4" (102mm)
- An auxiliary door stop is required
- 110° swing (trim permitting) without spring stop
- If hold open required, consult factory





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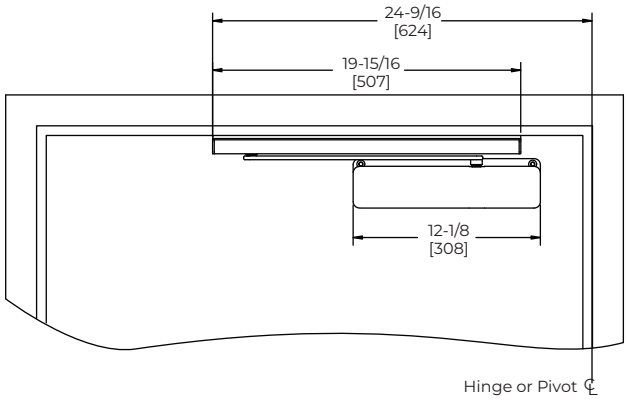
2800ST
CAM ACTION DOOR CLOSER

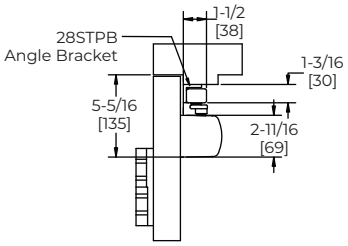
OPTIONAL APPLICATIONS



Push Side, Door Mounted

- Minimum frame reveal is 1-1/2" (13mm)
- 110° swing (trim permitting)
- 28STPB slide track angle bracket required (sold separately)
- Hold open model, specify suffix "H"

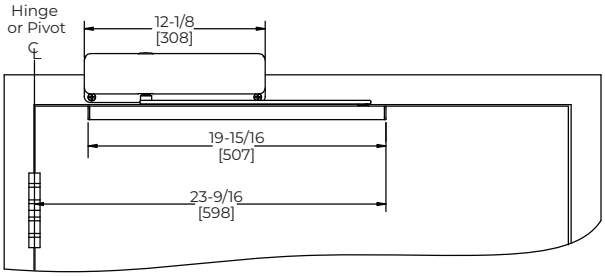


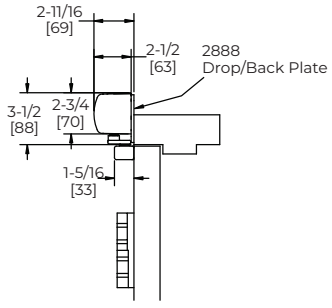




Pull Side, Frame Mounted

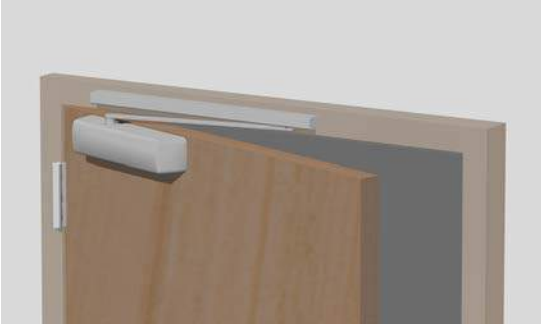
- 140° swing (trim permitting)
- 2888 back plate required if frame face is less than 3" (sold separately)
- Hold open model, specify suffix "H"





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FUNCTION



Inclusive Restroom Function

A standard 2800ST closer can be configured for an inclusive restroom application, commonly known as the telephone booth, with a minor adjustment during the installation process. See the installation instructions for specific details. When configured, the closer functions as follows:

- Closer normally holds door open at approximately ten (10) degrees; standard spline arm allows degree of hold open to be adjusted up or down
- Upon entering room, a user can push or pull the door closed
- When a user exits the room, the closer allows the door to open normally and returns the door to the preset position
- The standard cushion stop block and optional hold open assembly can be installed in the track to provide additional door control

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2800ST
CAM ACTION DOOR CLOSER

PARTS LIST

Part #	Description
2800LAP	Closer body only
28ST-1T	Track and arm assembly, non-hold open
28ST-3T	Track and arm assembly, hold open
2800P	Plastic cover
SP2800B	Closer screw pack
SP2800S	Spline screw pack
SP28T	Track screw pack
SN-134	Sex nut package: 1-3/4" door thickness
SN-214	Sex nut package: 2-1/4" door thickness

28STHO
Hold-Open Assembly



ACCESSORIES

2888 Drop/Back Plate: For use where the narrow top rail of the door prevents the closer from being mounted directly to the door surface. This drop plate must be used for closer mounted on a top rail between 1-7/8" and 3-3/8" (48 and 86mm) in height.



28STPB - Slide Track Angle Bracket



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HOW TO ORDER

2800ST
Closer

X

Suffix

No Suffix – Non-hold open
H – Hold open

X

689
Finish

FINISHES

Product will be sprayed with a combination of waterborne acrylic and polyester powder coat.

ANSI/BHMA (US)	Description
613E (US10BE)	Dark oxidized satin bronze - equiv.
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
691 (US10)	Light bronze, painted
693	Black, painted
694	Medium bronze, painted
696 (US4)	Gold , painted
BSP	Black suede powder coat
WSP	White suede powder coat

NOTE:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

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7500
INSTITUTIONAL DOOR CLOSER

INTRODUCTION

The 7500 Series is a robust, multi-sized surface closer designed to deliver superior performance and long-term reliability. Ideal for interior or exterior doors in facilities that demand reliability, such as government, healthcare and educational institutions.



FEATURES

- Tri-Style® packaging; tri-packed for regular, top jamb or parallel arm mounting
- Non-handed
- Rack-and-pinion design
- Cast aluminum body
- Adjustable spring sizes 1-6
- Door weight: 250 lbs.
- 2-1/8" (54mm) projection
- 1-1/2" (38mm) diameter piston
- 5/8" (16mm) diameter pinion journals
- Standard, separate and independent, latch, sweep and backcheck intensity valves
- Backcheck positioning
- Staked valves
- Retrofit plates
- NorGlide® fluid
- Molded plastic cover
- All standard arm applications allow doors to swing 180°, conditions permitting
- Self-drilling screws
- Full-size template
- Application specific mounting: Regular (S), Top Jamb (JS) or Parallel (P) mount
- Heavy-duty arms: Regular Rigid, Parallel Rigid, CloserPlus®, CloserPlus Spring™ and Unitrol®
- Slide Tracks: push or pull side mounting
- Exceeds 25 million cycles

OPTIONAL FEATURES

- Metal cover: specify M suffix
- Enhanced backcheck. Specify EBC suffix
- Delayed action with pressure relief valve
- Corrosion resistant model (non-hold open only): specify 7500SS
- Lead lined metal cover: specify MLL suffix
- Extra Power: specify 7706EP

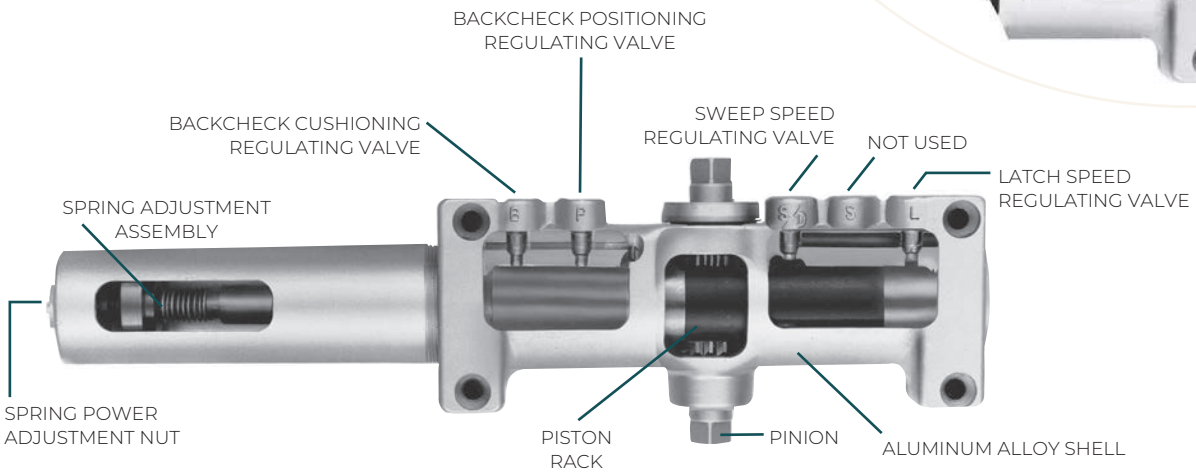
PATENTS

- assaabloydss.com/patents

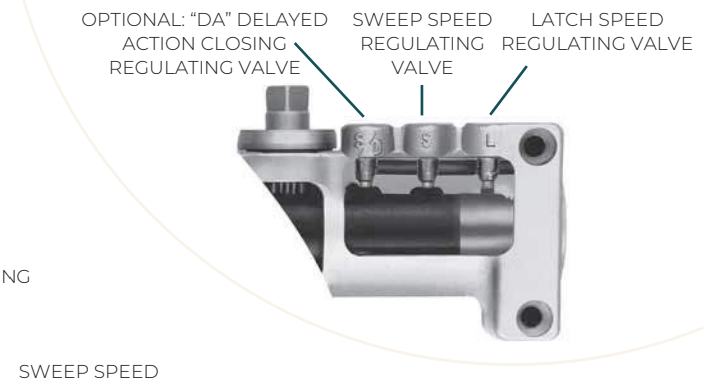
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OVERVIEW

Cutaway View



Optional Delayed Action Valving



CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1
- ANSI/BHMA A117.1
- Americans with Disabilities Act (ADA) Compliant
- Environmental Product Declaration (EPD)
- Health Product Declaration (HPD)
- GreenCircle Environmental facts
- UL10C positive pressure up to 3 hours
- UL-cUL listed
- Manufactured in an ISO9001, ISO14001 facility

CAUTION: Door Closers for Low Opening Force Applications:

Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

An Environmental Product Declaration (EPD) documents the cradle-to-grave life cycle of a product and how it affects the environment. An important aspect of EPD® is to provide the basis of a fair comparison of products and services by its environmental performance. EPDs can reflect the continuous environmental improvement of products and services over time and are able to communicate and add up relevant environmental information along a product's supply chain.

Windstorm

7500 door closers are UL certified for inswing and outswing single and pair (up to 8'0" x 8'0") door assemblies to ICC 500 for Storm Shelters. Additionally, the 7500 meets FEMA 361 guidelines. 7500 is part of a complete ASSA ABLOY tornado and hurricane shelter solutions utilizing Ceco StormPro 361, Curries StormPro 361, Fleming F5 doors and frames and McKinney SP hinges.

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EXPLANATION OF FEATURES

Aluminum Alloy Housing
Closer bodies are constructed of a special aluminum alloy, carefully selected to accommodate interactive steel components and operating conditions.

Rack & Pinion Operation
Provides a smooth constant control of the door through its full opening and closing cycle. 180° door swing can be achieved when door, frame, hardware and arm function do not interfere.

Non-handed
With few exceptions all series 7500 door closers are non-handed and can be installed on either right or left hand swing doors. Pinion shaft extends vertically through the closer body in both directions. Some options will require that the hand of the closer be specified.

Sweep Speed Control Valve
Allows adjustment of door speed from the door's full open position down to approximately 10° from the closed position.

Latch Speed Control Value
Allows adjustment of door speed from approximately 10° down to the door's fully closed position.

Tri-Style® Packing
7500 comes with screws, brackets and soffit plates to allow for regular, top jamb, and parallel arm installations.

Adjustable Backcheck Cushion Valve
Provides control of the door in the opening cycle, beginning at approximately 75° of door opening. It slows/cushions the door opening, when the door is forcibly opened beyond its pre-adjusted limits.

Adjustable Backcheck Position Valve
Allows the door opening position, where backcheck cushioning begins, to be adjusted to a greater door angle, up to a maximum of 20° farther (approximately 95°).

Standard Molded Cover
Molded of high-impact U.L. listed material and covers the entire closer body assembly. This cover is non-handed for all applications.

Warranty
These closers carry a limited 30-year warranty against defect, and life of the building on the aluminum housing.

Closer Fluid
NorGlide® closer fluid is a specially formulated multi-viscosity hydraulic fluid that contains lubricity and anti-oxidation agents that provide optimum performance and efficiency. This fluid complements the interaction of the door closer's aluminum housing with its steel and brass components, while maintaining stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as -40° F.

DOOR CLOSER POWER OPTIONS

Series 7500 Multi-Sized Door Closer
Adjustable through the entire power range of door closer sizes 1 through 6, as outlined in ANSI/BHMA standard A156.4.

The series 7500 also conforms to the minimum opening force requirements of the Americans with Disabilities Act (A.D.A.) and ANSI/BHMA standard A117.1 for interior doors.

Extra Power
For applications that require additional closing power to overcome stack pressure, high wind, unbalanced HVAC and other issues that can prevent the doors from closing, model 7706EP is available. See page 27.

Corrosion-Resistant Door Closer
The series 7500SS door closers with molded plastic cover are available for use where corrosive conditions exist. This series is provided with brass adjustment valves, a 440 grade stainless steel pinion shaft, an all-aluminum body and bronze closer arm bushings; all other components are of 302/303 grade stainless steel. Fasteners are 8-18 stainless steel. This product is available for standard regular arm, top jamb and parallel arm, non-hold open, applications only.

Optional Metal Cover
This steel cover is non-handed for regular and parallel arm applications, but is handed for top jamb applications.

Cover is available in sprayed or architectural plated finishes.

Security Cover
Supplied standard with all series 7570 door closers. This deep drawn steel cover is handed for all applications. The cover is fastened to the closer body at two points on top and to the door closer body stand-offs at two points on the bottom.



Optional ABS Cover
Consult factory for details.

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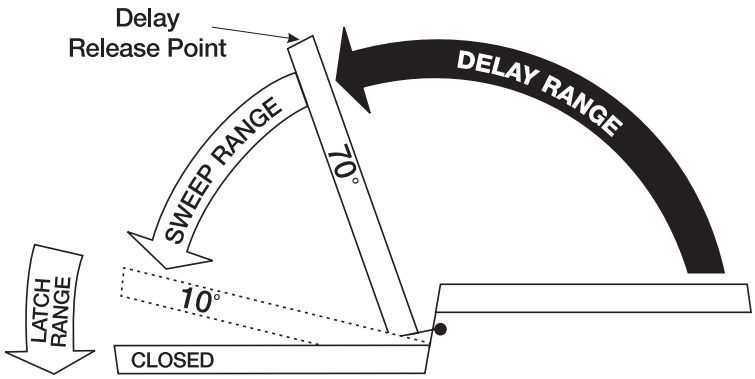
EXPLANATION OF FEATURES

Enhanced Backcheck

This feature provides adjustable backcheck intensity beginning at approximately 15° of the door opening cycle. It is intended for use in situations where the standard backcheck beginning at approximately 75° of door opening allows too much unrestricted door travel to obtain control of the door without the fear of peripheral damage to the door closer, door, frame, hinges or pivots; or adjacent walls or structures. This feature is most frequently used in schools and detention facilities. Specify suffix EBC.

Adjustable Delayed Action Closing

An optional hydraulic feature that adds a third speed range to the closing cycle. This feature becomes effective when the door is opened and released at any point beyond 70°. The amount of time delay depends upon the combination of the angle of door release and valve adjustment. The valve can be adjusted with a 1/8" (3mm) hex key from no delay time up to maximum delay times of:



Door Opened and Released at	Approximate Time of Delay Cycle
180°	4-5 minutes
120°	2-3 minutes
90°	25-30 seconds

Pressure Relief Safety Valve

The delayed action hydraulic system contains a pressure relief valve. Any time the door is forced toward the closed direction while it is in the closing cycle, the valve will open and permit the door to close. This prevents damage to door, frame and closer.

Suggested Applications

Delayed Action closing allows slow-moving traffic to clear the opening before the door closer's normal closing cycle begins. This feature can be helpful in health care facilities such as hospitals and nursing homes. It provides sufficient time for persons on crutches or in wheelchairs to pass through a door without concern of it closing. At the same time, it can accommodate the facility's staff with movement of food service carts, beds, and other wheeled traffic.

Use of delayed action closers on many doors throughout industrial and commercial buildings can also assist the flow of traffic. Locations where additional time to clear the opening is advantageous are doors between office and factory/warehouse facilities, doors to workshops or laboratories, to kitchen and food processing areas, etc.

OPTIONAL FEATURES – ARMS

Non-Hold Open

Self-closes door every time door is opened. Auxiliary stop (by others) required except when using the CloserPlus®, CloserPlus Spring™ or Unitrol® arms.

Hold Open

Achieved by means of ball and detent/roller. Ball and detent or roller hold open is effective in a range of 85° to 110°.

Hold open arm door closers are not permitted to be used on fire door assemblies.

Door Opening Degrees

Arm Function	Regular Top Jamb Parallel Arm	Parallel Rigid Arm	CloserPlus® Parallel Arm	CloserPlus Spring™ Parallel Arm	Unitrol® Parallel Arm	Unitrol® Top Jamb	Low Profile Regular, Parallel	Slide Track
Non-Hold Open	✓	✓	85° to 110°	85° to 110°	85° to 110°	85° to 110°	✓	85° to 110°/180°
Hold Open	90° to 180°	85° to 180°	85° to 110°	85° to 110°	85° to 180°	85° to 180°	✓	85° to 110°

✓=180° trim and template permitting

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SUGGESTED SPECIFICATIONS

7500 Series

Closers for interior and exterior doors shall be full rack-and-pinion type with cast aluminum alloy body. Closers shall be surface mounted and shall project no more that 2-3/16" (55mm) from the surface of the door. Closers shall be non-handed to permit installation on doors of either hand. Closer fluid shall contain lubricity and anti-oxidation agents. Closer fluid shall maintain stable viscosity to allow door closer to perform in temperatures ranging from extremely high to as low as -40°F. Closers shall have multi-size spring power adjustment to permit setting of spring from size 1 through size 6. Closers shall have two non-critical valves, hex key adjusted, to independently regulate sweep speed and latch speed.

Closers shall have backcheck cushioning controlled by a hex key adjusted valve. Closers shall have backcheck position controlled by a hex key adjusted valve.

[Closers shall have adjustable delayed-action closing controlled by a hex key adjustable valve.]

[Closers shall be highly corrosion resistant and shall have all external body components of aluminum, brass or stainless steel material and all fasteners of stainless steel.]

Regular arm and top jamb closers shall have a non-hold open shoe permitting 15% (+/ – 7-1/2%) power adjustment. **Closers shall be enclosed in a [molded resin cover] [plated or sprayed metal cover]. Closers to be Norton Rixson [7500] [7500M] [7500SS].

**For special arms insert the appropriate specification from column two on this page.

**Unitrol® Arm

Door closers shall have a fixed door stop feature effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop shall be cushioned by a shock-absorbing heavy-duty spring action effective at the [soffit plate] [arm shoe] pivot. [Closers shall be provided for parallel arm installation using rigid steel main arm and secondary arm lengths proportional to the door width.] [Closers shall be provided for top jamb installation using steel, rigid main arm and telescoping secondary arm adequate for the frame reveal of the openings.]

**CloserPlus® Arm

Door closers shall have a field reversible door stop. Hold open tension shall be adjustable effective at one point selected at installation, from 85° - 110° in five degree increments. Closers shall be provided for parallel arm installation using a forged rigid steel main arm and secondary arm.

**CloserPlus Spring™ Arm

Door closers shall have built-in door stop [and holder] effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop mechanism shall be reversible and have a buffer spring that engages prior to the dead stop feature, reducing shock loads to the door and frame assembly. Door stop mechanism shall be attached to soffit plate. [Hold open mechanism shall have engage/disengage selection actuated by thumbturn]. Closers shall be provided for parallel installation using a forged rigid steel main arm and secondary arm.

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APPLICATIONS



Non-hold open arm shown

Regular Arm

This is the only pull-side application where a double lever arm is used. It is the most power efficient application for a door closer. Sufficient frame, door and/or ceiling clearance must be considered.

Since the arm assembly projects directly out from the frame, this application may present an aesthetics issue or be prone to vandalism.



Parallel Arm

This application provides the most appealing design appearance for a surface-mounted door closer having a double lever arm. This also makes it beneficial in vandalism-prone areas. It is on the push side of the door and the arm assembly extends almost parallel to the door. In the closed position, there is very little or no hardware projecting beyond the frame face in most situations.

Due to the geometry of the arm it is approximately 25% less power-efficient than a regular arm application. The entire closer and arm assembly are mounted below the frame stop, requiring a top rail clearance on the door of between 6-5/8" (168mm), when using a low profile arm, to 7-1/4" (184mm), when using the hold open arm.



Non-hold open arm shown

Top Jamb

For efficiency reasons this application provides the best alternative to the regular arm application. There must be sufficient frame face and/or ceiling clearance for this application. It requires a top rail on the door of just 2-1/8" (54mm). This application provides the best door control for doors in exterior walls that swing out of a building.

The entire door closer and arm assembly project from the frame, similar to the regular arm application, where matters of appearance and malicious abuse can be of concern. Consideration must be given to depth of frame reveal.

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APPLICATIONS



Non-hold open arm shown

Parallel Rigid Arm

An enhanced variation of the standard parallel arm assembly that is intended for use in heavy traffic areas where auxiliary door stops are installed.

Hold open available - specify hand when ordering.



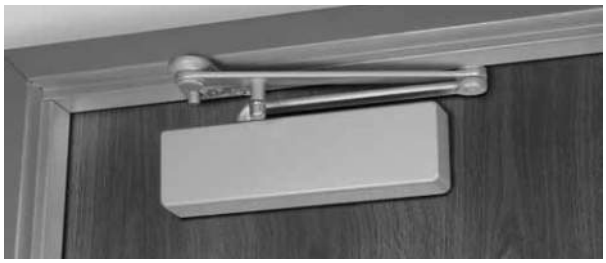
Non-hold open arm shown

CloserPlus® Arm

Similar to the Parallel Rigid arm, this arm incorporates a stop at the arm's soffit plate to dead stop the door at a predetermined degree of door swing between 85° and 110°, in 5° increments. Prior to dead stop the door closer's backcheck feature slows the door speed to reduce the impact of the stop action.

The CloserPlus arm is intended for use where an auxiliary door stop cannot be utilized and no more than moderate abuse is anticipated. Where more extreme conditions are expected, use of a Unitrol® arm is recommended.

Hold open strength is adjustable.

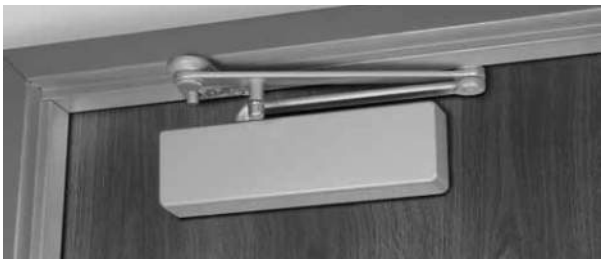


Non-hold open arm shown

CloserPlus Spring™

This arm has all of the characteristics of the CloserPlus arm with an additional steel buffer spring that provides greater protection at the end of the door opening cycle.

For extreme conditions, use of a Unitrol arm is recommended. Available with or without hold open.



CloserPlus Ramp™

The CLP-R uses a patent pending ramp and plunger design that easily slides into place reducing wear often seen on traditional hold open arms. Ideal for applications where the door will constantly be pulled out of hold open.

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APPLICATIONS



Regular Rigid Heavy-Duty Arm

This double lever arm features a non-adjustable secondary arm. Orbitally riveted joints prevent tampering or disassembly. Prefix “R” to model number. **Available non-hold open only.**



Non-hold open arm shown

Parallel Rigid Offset Arm

This heavy-duty parallel rigid arm provides additional vertical clearance. It is well suited for applications where weather-stripping or other hardware prevents the use of the standard Parallel Rigid (PR) soffit plate. The non-hold open and hold arms allow 1-1/4" clearance. When used in conjunction with a 6891 spacer block, the PRO arm provides 1-7/8" clearance to accommodate the use of a surface overhead stop/holder.



Unitrol® parallel arm



Unitrol® top jamb

Unitrol® Arm

Can be used for either parallel arm or top jamb applications. Unitrol arms combine the features of a double lever arm overhead door stop/holder with the backcheck feature of the door closer to reduce door stopping shock loads to a minimum. The Unitrol uses a compression spring buffer at the soffit plate/arm shoe that will absorb 30 lbs. of force, 5° prior to the door’s dead stop. Coupled with the door closer’s backcheck feature, this arm provides the most controlled stop available with a surface door closer.

For parallel arm applications there are three different length arm assemblies. Each length is designed for a specific range of door widths to provide precise door control. This further lessens the dead stop impact on the door’s hinges/pivots.

Only available in painted finishes.

NORTON RIXSON
ASSA ABLOY

7500
INSTITUTIONAL DOOR CLOSER

APPLICATIONS



Pull side



Low profile pull side



Push side



Low profile push side

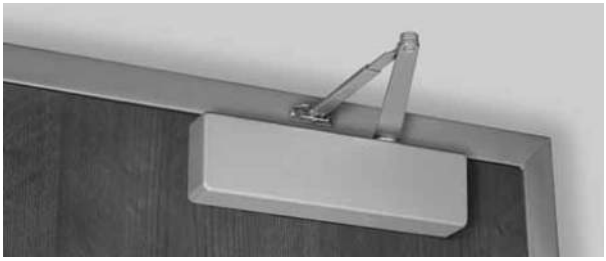
Slide Track

Whether pull or push side mounted, slide track applications provide the designer with the smoothest lines available in a surface mounted door closer. The single lever arm allows components to be located in a stack configuration to minimize projection and eliminate obtrusive arm angles. The arm geometry reduces door closer power efficiency by approximately 25% from that of a regular arm.

A variation of the standard slide track application is available for pocket doors, where it is desirable to have the door closer completely concealed when the door is in the 90° open position. See page 26 for details.

Standard Unit:

- Adjustable 85° to 110° (hold open and non-hold open). Track is supplied with a spring buffered stop. An auxiliary stop, by others, is recommended.
  - Specify if hold open unit is required.
  - 180° swing (non-hold open, pull side only) is also available. This track assembly requires that a door stop, by others, be supplied to stop the door.



Regular Arm - allows closer to be installed where there is as little as 1" (25mm) of frame face or ceiling clearance.



Parallel Arm - allows closer to be installed 1/2" (13mm) higher up on door than standard parallel arm application.

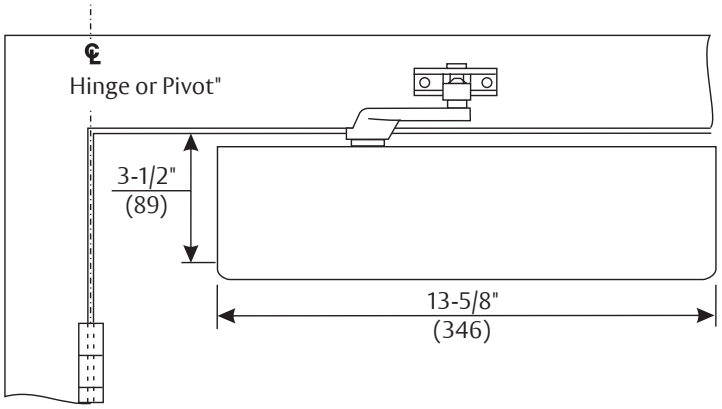
Low Profile Arm

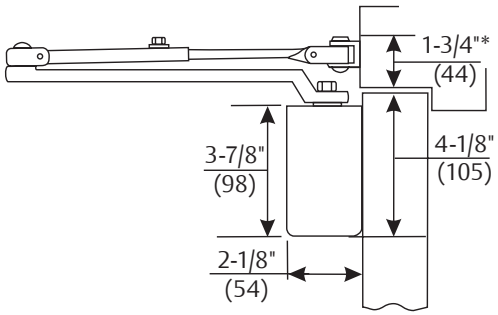
Supplied with 7580 series door closers for non-hold open installations only. Low profile arms have a reduced height elbow joint and a straight main arm. This enables the door closer to be installed in less vertical space.

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7500
INSTITUTIONAL DOOR CLOSER

REGULAR ARM





Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.
* This dimension will vary. Standard non-hold open arm illustrated.

Model Number	
Non-Hold Open	Hold Open
7500	7500H

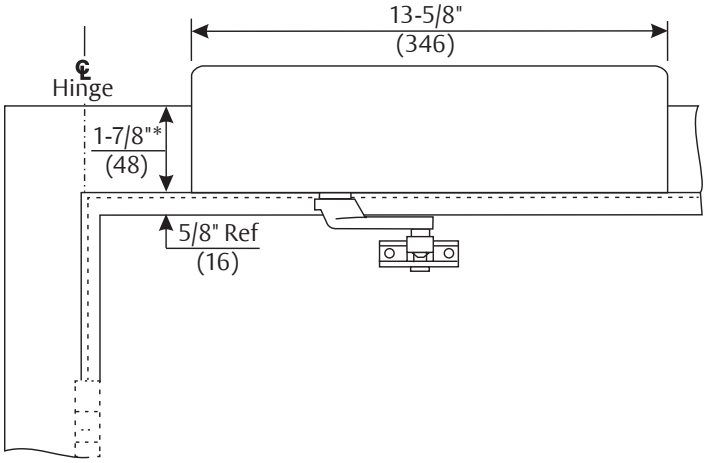
Notes:

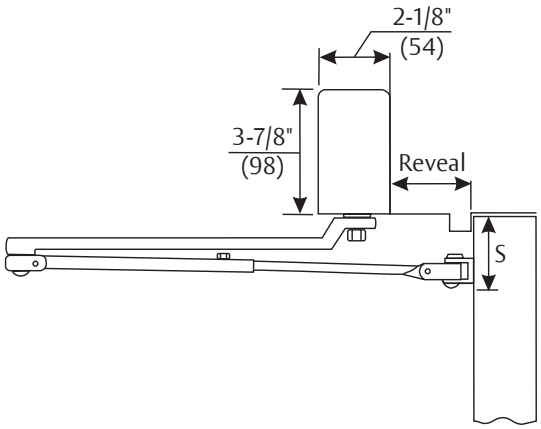
- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-54" (81-137cm)
  exterior 30"-48" (76-122cm)

NORTON RIXSON
ASSA ABLOY

7500
INSTITUTIONAL DOOR CLOSER

TOP JAMB ARM





Mounting holes for closer body are spaced 2-3/8" (86mm) vertically x 6-3/4" (171mm) horizontally.
* Minimum frame face with 7786 drop plate. 3-1/4" (83mm) required when drop plate is not used.

Maximum Door Width Inches (cm)	Reveal Range Inches	Maximum Door Opening
Multi-Sized	**Non-Hold Open Arm**	
(JS)7500/7500M	0" to 3" (0 to 76mm)	180˚
J7500	2-3/4" to 7" (70 to 178mm)	150˚
JL7500	2-3/4" to 7" (70 to 178mm)	180˚
J7580 x 7787	0" to 2-3/4" (0 to 70mm)	180˚
Multi-Sized	**Hold Open Arm**	
J7500/J7530MH	0" to 3" (0 to 76mm)	180˚
J7500H	2-3/4" to 6-3/4" (70 to 171mm)	150˚
JL7500H	2-3/4" to 6-3/4" (70 to 171mm)	180˚

Model Number	
Non-Hold Open	**Hold Open**
7500 J7500 JL7500	7500H J7500H JL7500H

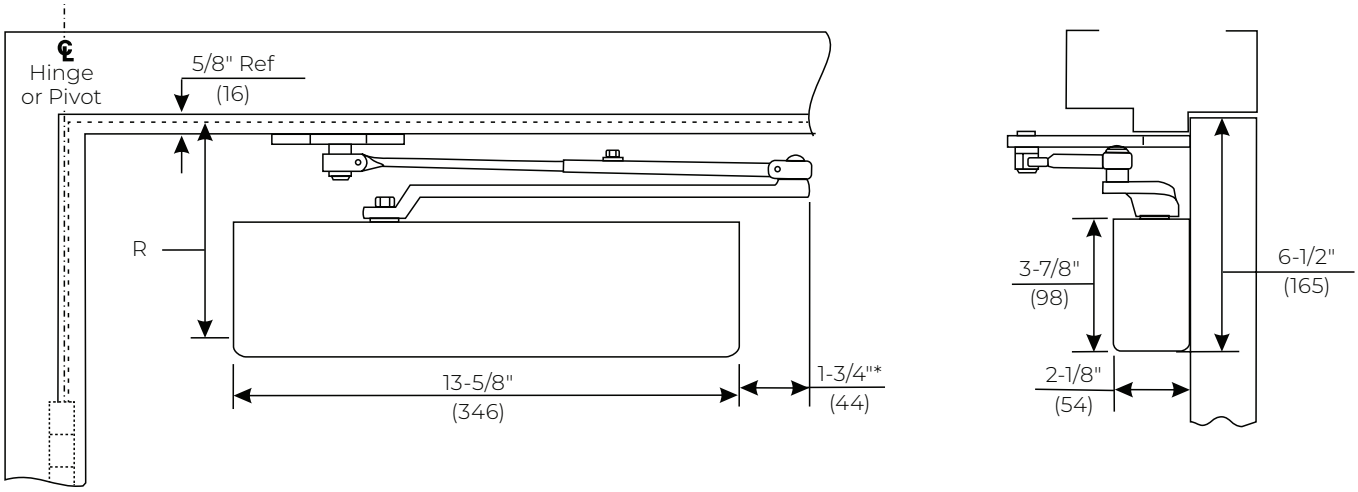
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-54" (81-137cm)
  exterior 30"-48" (76-122cm)

S Minimum Top Rail of Door					
Without Drop Plate or with 7786 Back Plate (mm)			**With 7787 Drop Plate (mm)**		
J7500/ J7530M J7500	J7500H/ J7530MH J7500H	J7580	J7500/ J7530M J7500	J7500H/ J7530MH J7500H	J7580
2" (51mm)	2-1/2" (64mm)	N/A	4-1/8" (105mm)	4-5/8" (117mm)	3-5/8" (92mm)

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PARALLEL ARM



Mounting holes for closer body are spaced 2-3/8" (86mm) vertically x 6-3/4" (171mm) horizontally.
* This dimension will vary. Standard non-hold open arm illustrated.

Model Number	
Non-Hold Open	Hold Open
7500	7500H

R (inches/mm) Minimum Top Rail of Door with 5/8" (16mm) Frame Stop				
Without Drop Plate			With 7788 Drop Plate	
P7500	P7500H	P7580	P7500H	P7580
5-7/8" (149)	6-1/4" (159)	5-3/8" (137)	2-3/4" (70)	1-7/8" (48)

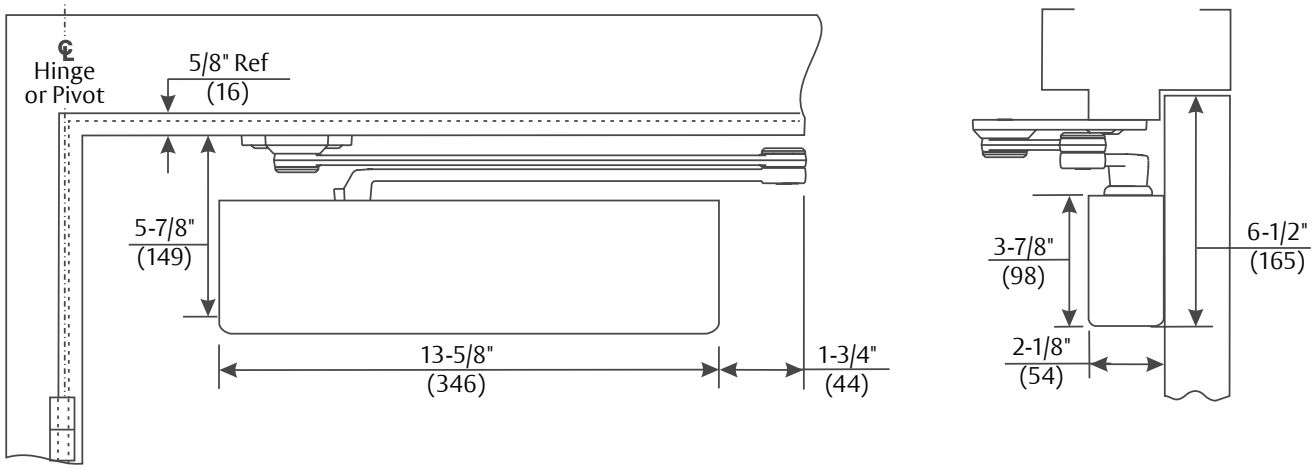
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 30"-54" (76-137cm)
  exterior 30"-48" (76-122cm)

NORTON RIXSON
ASSA ABLOY

7500
INSTITUTIONAL DOOR CLOSER

PARALLEL RIGID ARM



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

Model Number	
Non-Hold Open	Hold Open*
PR7500	PR7500H

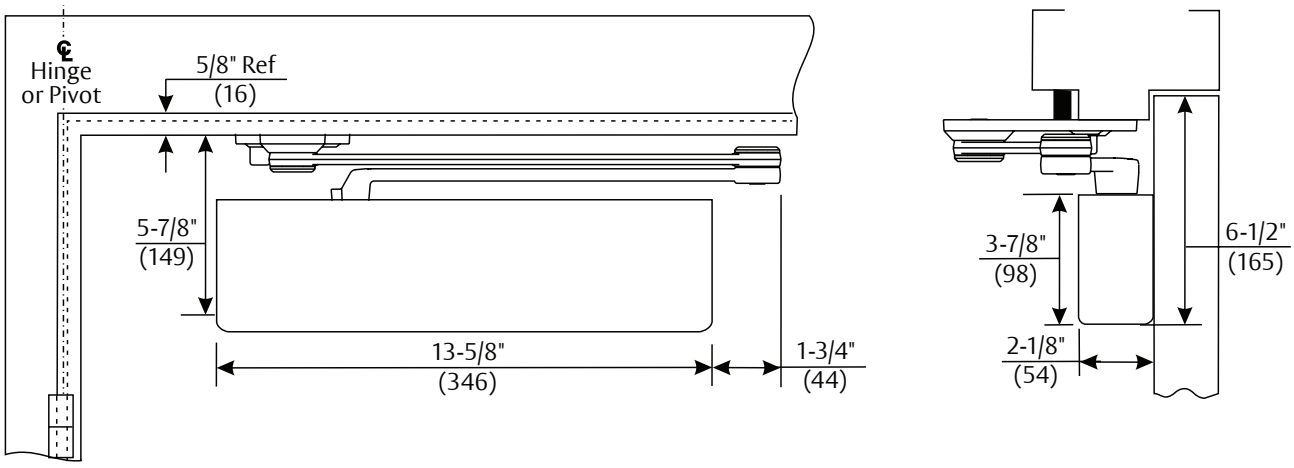
*Specify hand when ordering.

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 30"-48" (76-122cm)
  exterior 32"-48" (81-122cm)

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CLOSERPLUS® ARM



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

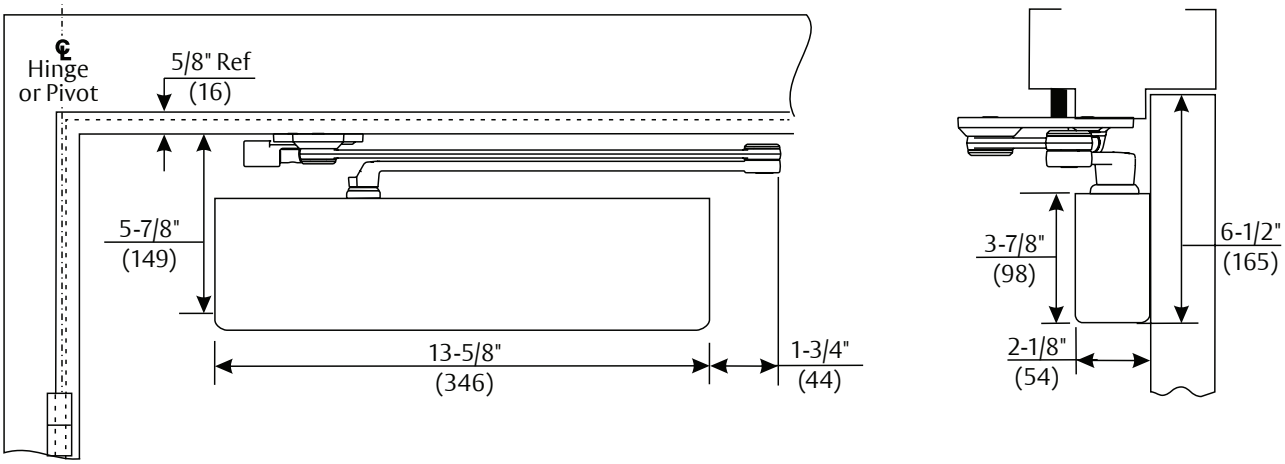
Model Number		
Non-Hold Open	Thumbturn Hold Open	Ramp Hold Open
CLP7500	CLP7500T	CLP7500R

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 30"-48" (76-122cm)
  exterior 32"-48" (81-122cm)

NORTON RIXSON
ASSA ABLOY

CLOSERPLUS SPRING™ ARM



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

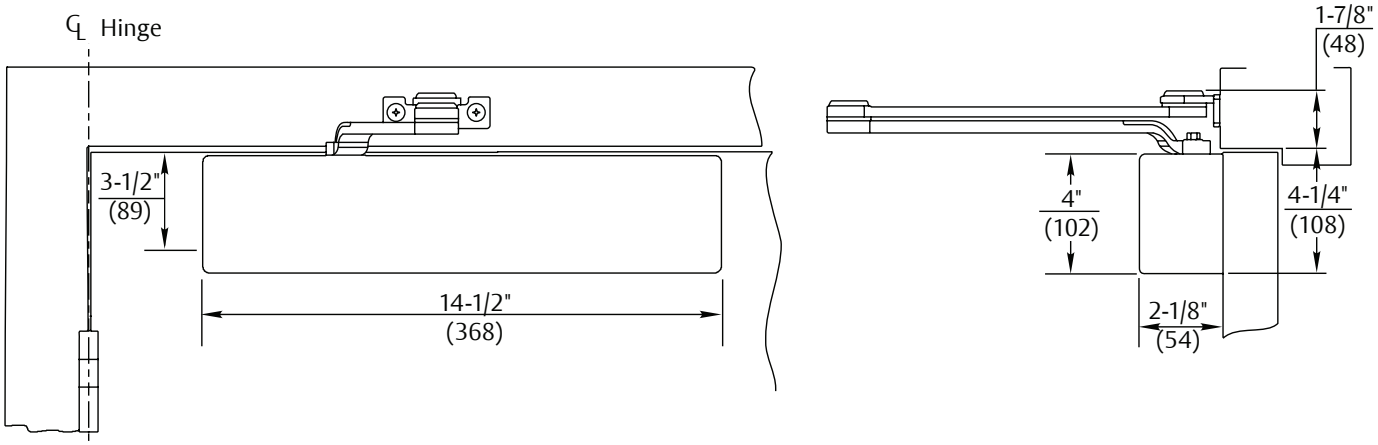
Model Number	
Non-Hold Open	Thumbturn Hold Open
CPS7500	CPS7500T

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 30"-48" (76-122cm)
  exterior 32"-48" (81-122cm)

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REGULAR RIGID HEAVY-DUTY ARM



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

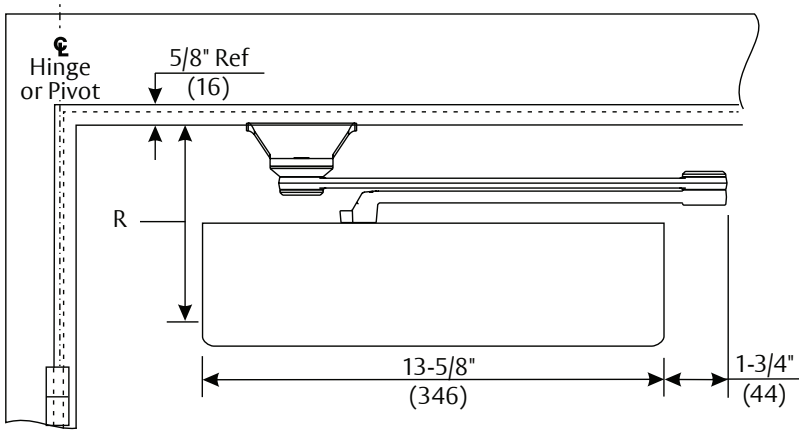
Model Number
Non-Hold Open Only
R7500

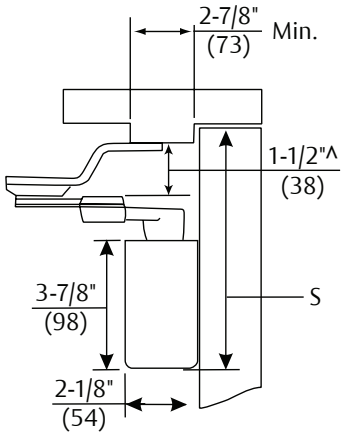
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 30"-54" (76-137cm)
  exterior 30"-52" (76-132cm)

NORTON RIXSON
ASSA ABLOY

PARALLEL RIGID OFFSET ARM





Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.
^ If clearance greater than 1-1/2" is needed, 6891 spacer block is required.

R (inches/mm) Minimum Top Rail of Door with 5/8" (16mm) Frame Stop		S Minimum Top Rail of Door	
Without 6891 Spacer	With 6891 Spacer	Without 6891 Spacer	With 6891 Spacer
7-1/8" (181)	7-5/8" (194)	7-5/8" (194)	8-1/8" (206)

Model Number	
Non-Hold Open	Hold Open*
PRO7500	PRO7500H

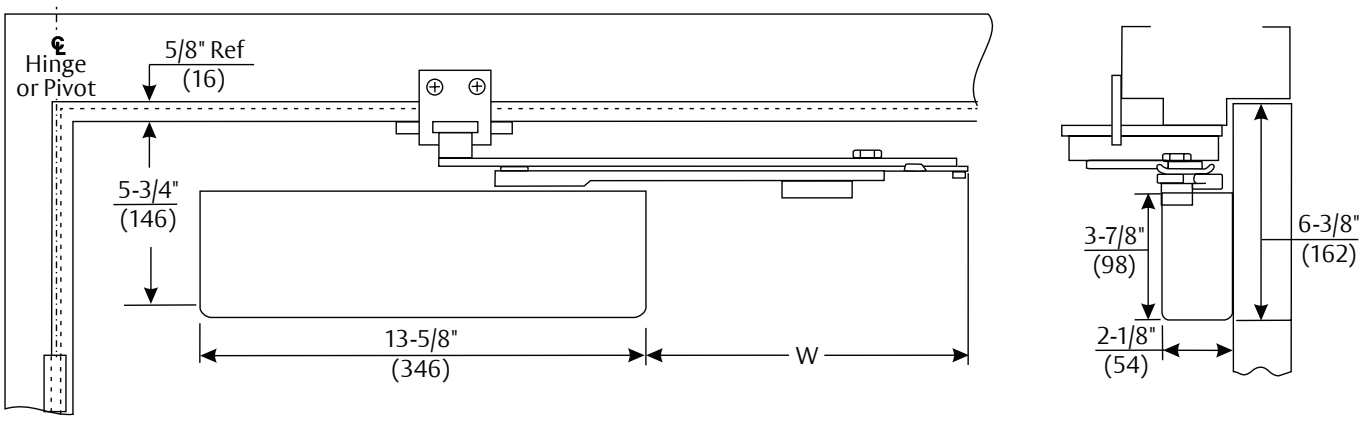
*Specify hand when ordering.

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 30"-48" (76-122cm)
  exterior 32"-48" (81-122cm)

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PARALLEL UNITROL® ARM



Mounting holes for closer body are spaced 2-3/8" (86mm) vertically x 6-3/4" (171mm) horizontally.
Door width must be specified when ordering.

Use 6190 bracket for reveals 1-7/8" - 4-5/8" (48 to 117mm). Reveals in excess of 4-5/8" (117mm) require use of a 6191 reinforcing kit. Reveals to 1/8" (3mm) require use of a 2019L angle bracket.

Door Width inches/cm	W Arm Extension Beyond Closer
28-32" (71-81)	8-5/8" (219)
33-41" (84-104)	10-1/8" (257)
42-48" (107-122)	11-1/2" (292)

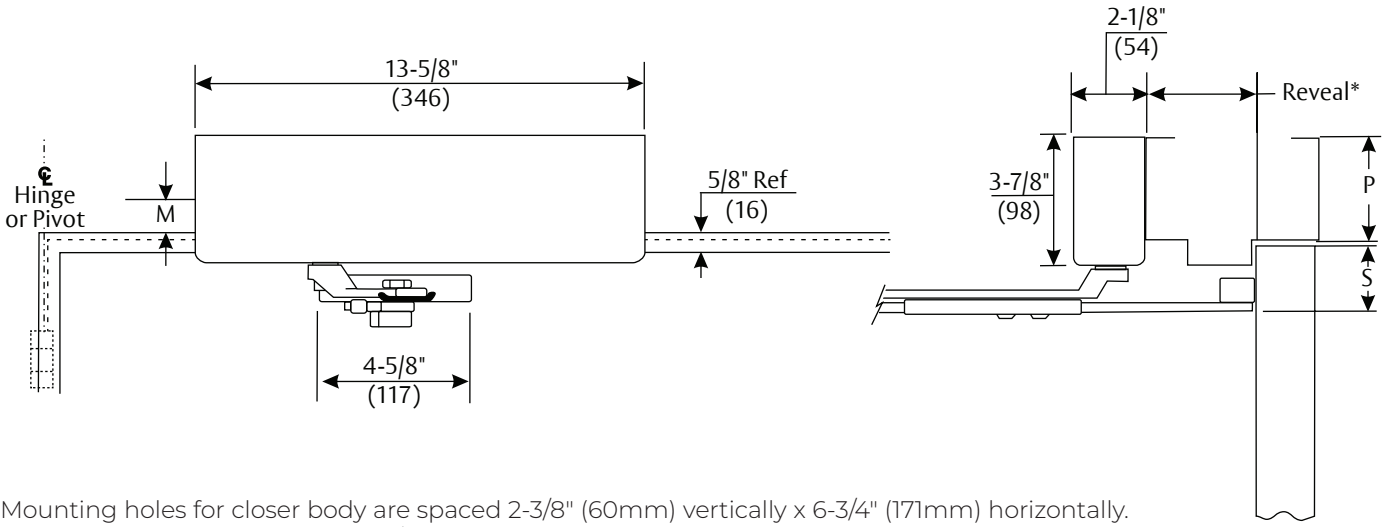
Model Number		
Non-Hold Open	Hold Open	x Specify Door Width
UNI7500	UNI7500H	

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 30"-48" (76-122cm)

NORTON RIXSON
ASSA ABLOY

TOP JAMB UNITROL® ARM



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.
* Reveals up to a maximum of 7-3/8" (187mm).
Reveal must be specified when ordering.

Backplates	M Minimum Frame Face	P Minimum Ceiling Clearance	S Minimum Top Rail Clearance
7786^	1-5/8" (41)	3-1/8" (79)	2-1/4" (57)
7787	1-7/8" (48)		3-1/2" (89)

^ supplied standard with closer

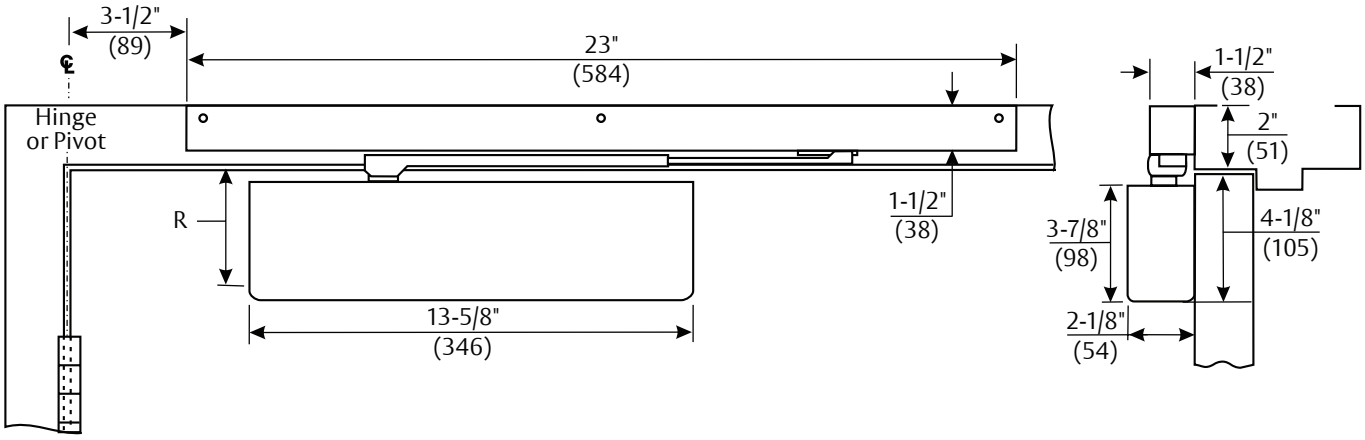
Model Number		
Non-Hold Open	Hold Open	x Specify Frame Reveal
UNIJ7500	UNIJ7500H	

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 34"-54" (86-137cm)

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PULL SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R (inches/mm) Minimum Top Rail of Door with Frame Stop	
Without Drop Plate	**With 7786 Drop Plate**
3-1/2" (89)	2-5/8" (67)

Model Number	
Non-Hold Open	**Hold Open**
7500ST	7500STH

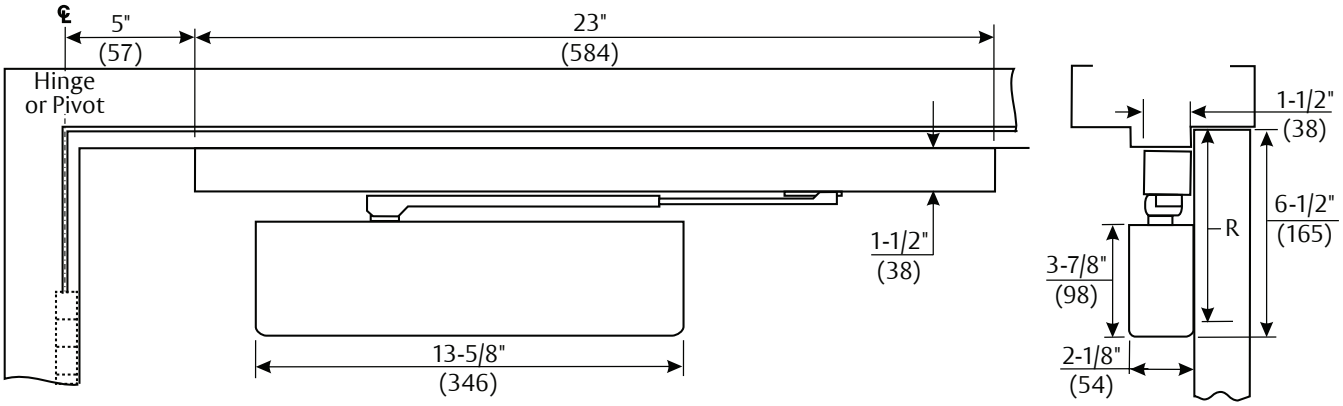
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm)
  exterior 32"-38" (81-97cm)

NORTON RIXSON
ASSA ABLOY

7500
INSTITUTIONAL DOOR CLOSER

PUSH SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R (inches/mm) Minimum Top Rail of Door with Frame Stop	
Without Drop Plate	**With 7786 Drop Plate**
6" (152)	2-5/8" (67)

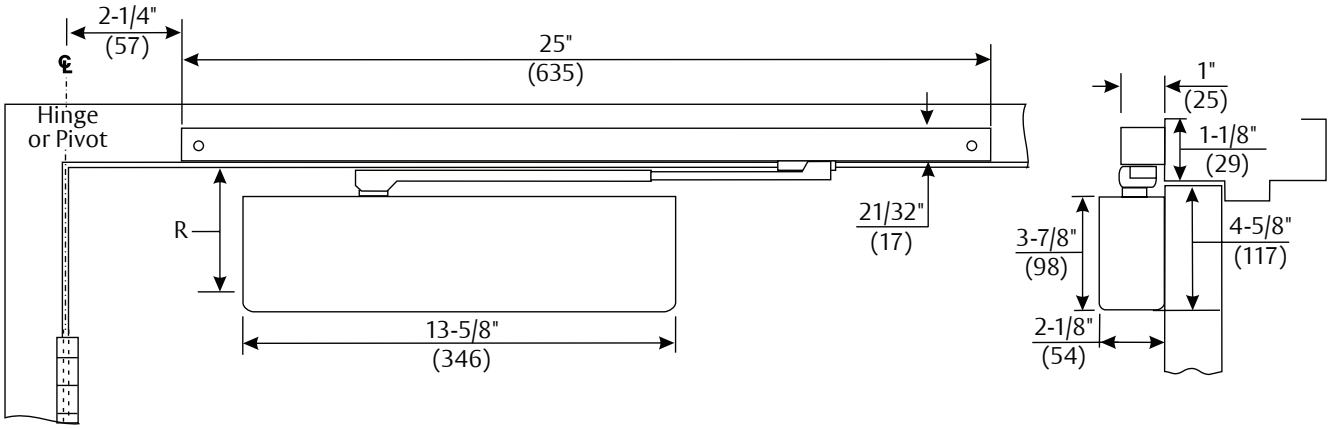
Model Number	
Non-Hold Open	**Hold Open**
PS7500ST	PS7500STH

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm)
  exterior 32"-38" (81-97cm)

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LOW PROFILE PULL SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R (inches/mm) Minimum Top Rail of Door with Frame Stop	
Without Drop Plate	With 7786 Drop Plate
3-1/2" (89)	2" (51)

Model Number	
Non-Hold Open	Hold Open
7540ST	7540STH

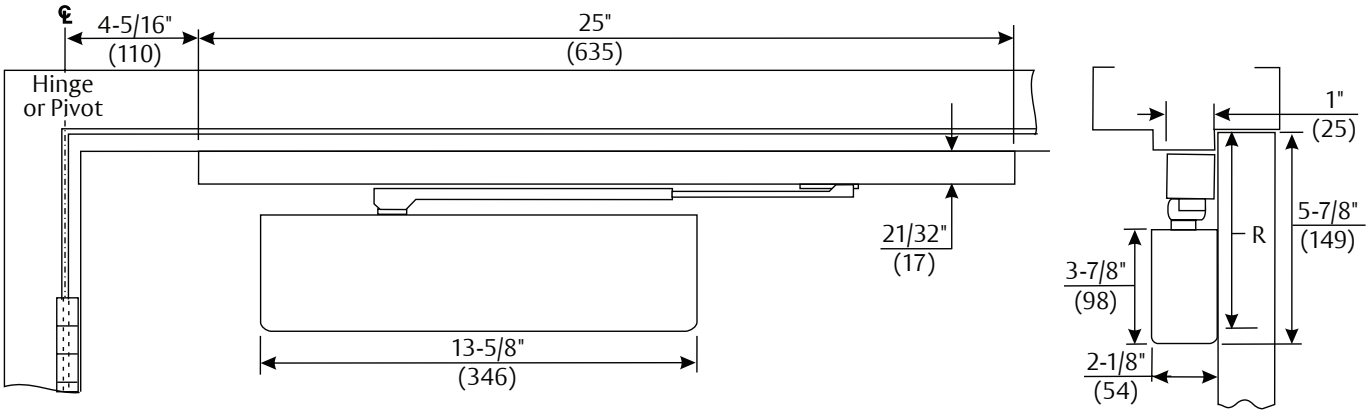
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm)

NORTON RIXSON
ASSA ABLOY

7500
INSTITUTIONAL DOOR CLOSER

LOW PROFILE PUSH SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R (inches/mm) Minimum Top Rail of Door with Frame Stop	
Without Drop Plate	**With 7786 Drop Plate**
5-1/4" (133)	3-5/8" (92)

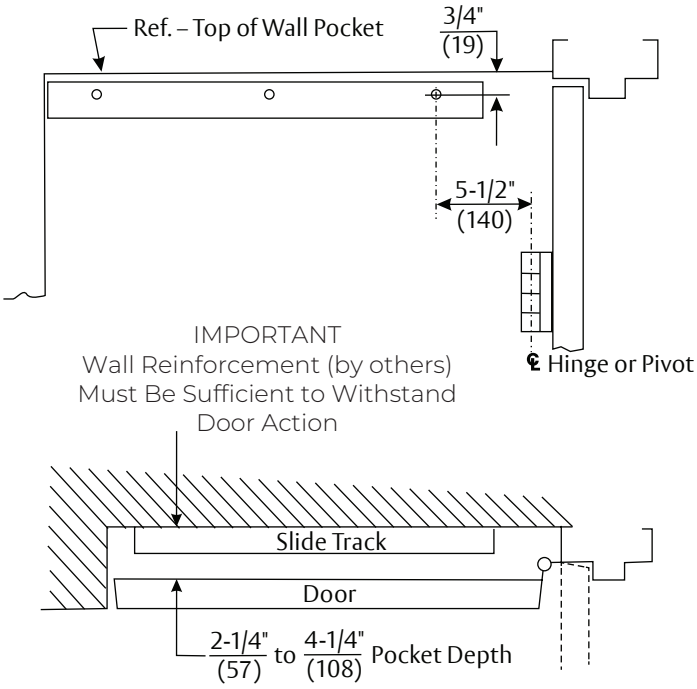
Model Number	
Non-Hold Open	**Hold Open**
PS7540ST	PS7540STH

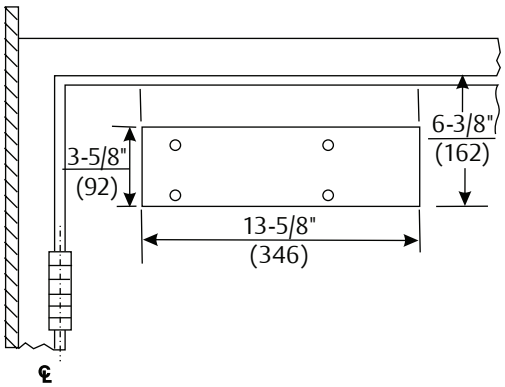
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm)

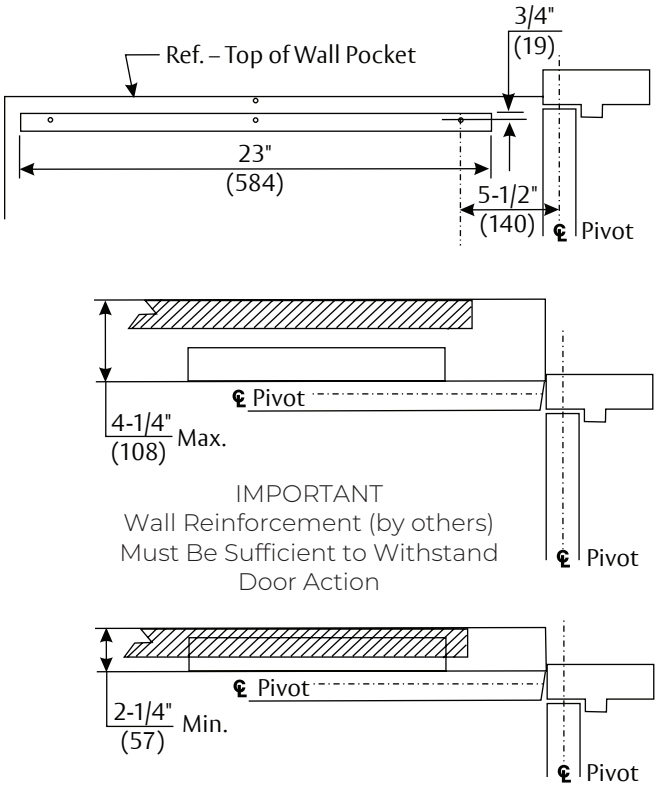
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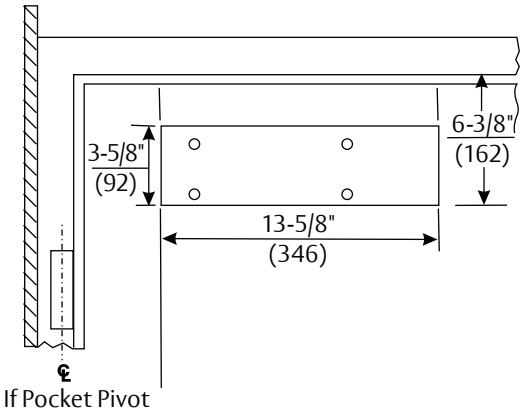
POCKET DOOR 7706EPSTP





7706EPSTP Closers
Slide Track for 90° Wall Pocket Installation
For Pocket Depths 2-1/4" to 4-1/4" (57mm to 108mm)





NORTON RIXSON
ASSA ABLOY

HIGH CLOSING FORCE 7706EP

The 7706EP is a heavy-duty closer that features additional spring power to overcome stack pressure, high wind, unbalanced HVAC and other issues that can prevent doors from closing. This closer offers as much as 22 lbs of closing force (not adjustable). Specify regular, top jamb or parallel arm when ordering; degree of swing determines the exact lbs. Non-ADA doors only.

Model Number	Approximate Closing Force
7500	3-14 lbs.
7706EP	13-22 lbs.

The 7706EP is an ideal problem solver for applications where consistent door closing and latching is a challenge, and security, safety and energy efficiency are high priorities.

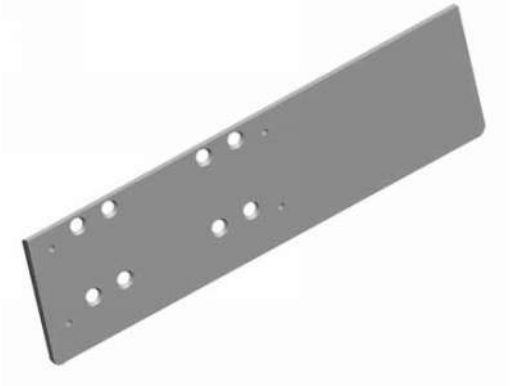
RETROFIT PLATE

The retrofit plates allow the 7500 door closers to replace the 4040 or 4010 closers without modifying the existing hole pattern in the door. The plates will work with regular and parallel arm applications.

Model Number	Replaces
RP75-4040	LCN-4040XP
RP75-4010	LCN-4010, 4011

Notes:

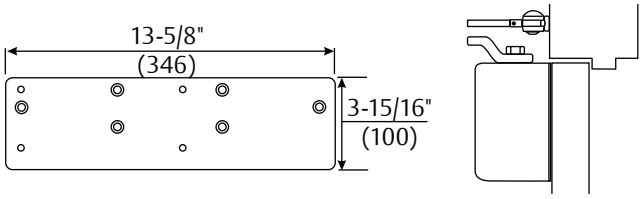
- The location of the arm shoe on the frame will change, therefore the frame must be patched.

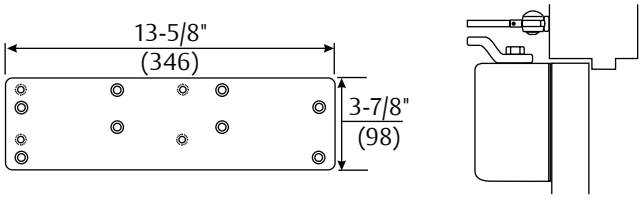


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REGULAR ARM

Closer Mounting Plate

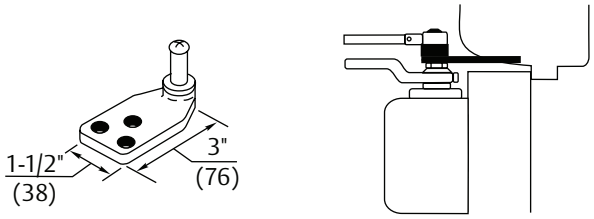


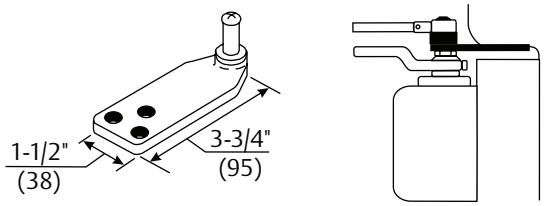


Narrow Top Rail - 7786 Drop Plate: For use where the narrow top rail of the door prevents the closer from being mounted directly to the door surface. This drop plate must be used for closer mounted on a top rail between 1-7/8" and 3-3/8" (48 and 86mm) in height.

Overhead Door Holder - 7786OH Drop Plate: For use when the presence of a surface or concealed overhead door holder prevents normal mounting of closer body due to interference between closer's mounting screws and door holder track. This drop plate's mounting screws are located on the door surface 2-3/8" down from the frame rabbet allowing room for placement of the surface mounted or overhead concealed door stop/holder.

Brackets for Non-Hold Open Arms

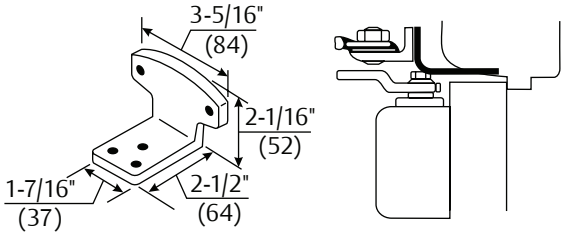




Molded/Bull Nose Trim - 2403B Bracket: For use where the door frame has molded or bull nose trim which will not accept a standard non-hold open shoe. The bracket is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a frame rabbet up to 2" (51mm) deep.

Molded/Bull Nose Trim - 2403-3/4 Bracket: This bracket is similar to - but longer than - the 2403B bracket. It is designed to accommodate frame rabbets from 2" to 2-7/8" (51 to 73mm) deep.

Brackets for Non-Hold Open Arms

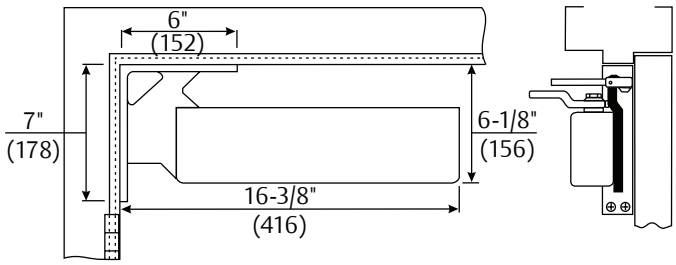


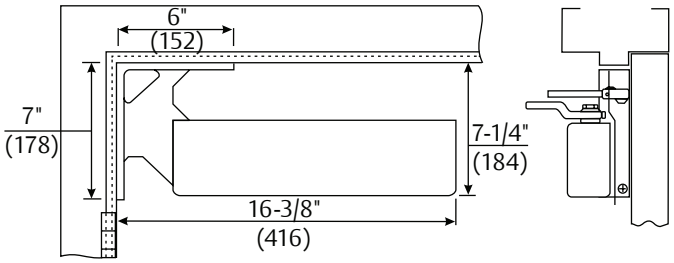
Molded/Bull Nose Trim - 80 Bracket: For use where the door frame has molded or bull nose trim which will not accept a standard hold open shoe. It is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a rabbet up to 2" (51mm) deep. This bracket is used in combination with the standard hold open mounting shoe.

NORTON RIXSON
ASSA ABLOY

REGULAR ARM

Corner Brackets for Closer Mounting



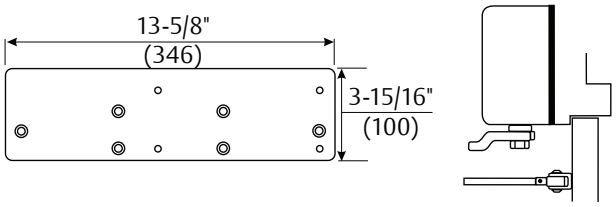


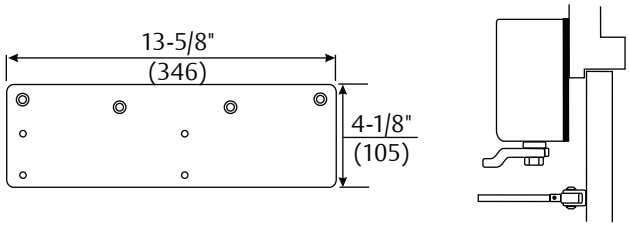
Mounting Opposite Hinge Side - 7798 Standard Drop Corner Bracket: For use where it is desired to mount a regular arm non-hold open closer.

Extra-Drop Mounting Opposite Hinge Side - 7797 Corner Bracket: For use where it is desired to mount a regular arm hold open closer, or where it is necessary for a regular arm non-hold open closer to clear a separate overhead door holder. This bracket drops the closer 1-1/8" (29mm) lower than the 7798 Corner Bracket.

TOP JAMB

Closer Mounting Plates





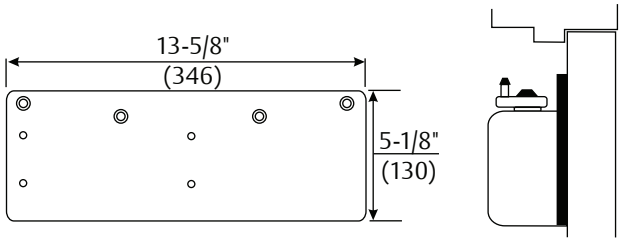
Narrow Frame - 7786 Back Plate: For use where a narrow frame face prevents the closer from being mounted directly to the frame. This back plate must be used for closer mounted on a frame between 1-7/8" and 3-1/8" (48 and 79mm) in height.

Low Ceiling Clearance - Overhead Door Holder - 7787 Drop Plate: For use where the ceiling clearance is between 1-7/8" and 3-7/8" (48 and 98mm) or where a surface or concealed overhead door holder prevents normal top jamb mounting. This plate drops the closer and allows the arm mounting screws to clear the bottom of the door holder. This places the centerline of the arm mounting screws at 3-1/8" (79mm) from the top of the door.

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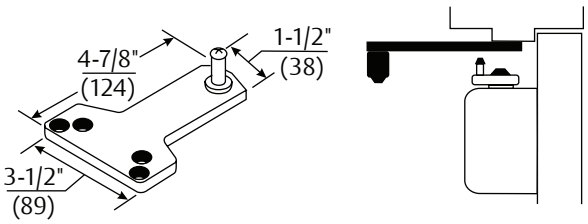
PARALLEL ARM

Closer Mounting Plate

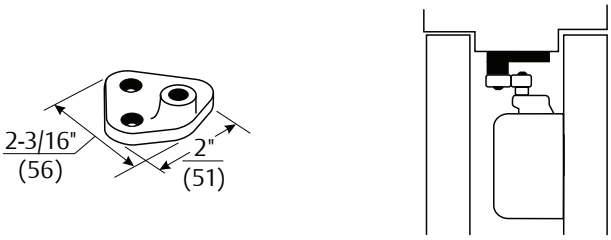


Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-1/2" (64mm) in height.

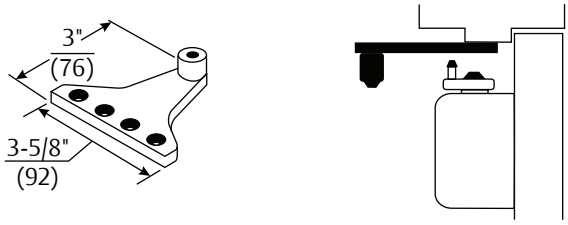
Brackets for Non-Hold Open Arms



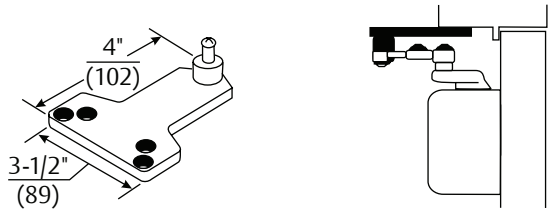
Standard Installation - 1618 Soffit Plate: Supplied standard with parallel arm closers. It can be mounted where the frame soffit is as narrow as 1" (25mm). Specify 1618A-SS for stainless steel soffit plate.



Mounting between Doors - 2018 Soffit Bracket: For use where insufficient space between companion doors does not permit use of other soffit plates. This bracket permits mounting of the closer between doors with as little as 3" (76mm) of header space. Permits closer arm to clear up to 5/8" (16mm) high stop.



Narrow Frame/Removable Stop - 2018B Soffit Plate: For use where a narrow frame or frame with removable stop does not permit use of the standard soffit plate. This soffit plate may be mounted on the frame soffit or the frame rabbet where the stop does not exceed 5/8" (16mm) in height. All of the screw holes are in a straight line, requiring as little as 1-1/4" (32mm) of frame reveal to mount bracket and maintain good closer arm geometry. Where the frame soffit is as wide as 2" (51mm), this soffit plate may be used to clear weather-stripping that is up to 1-3/8" (35mm) wide and 5/8" (16mm) in height.

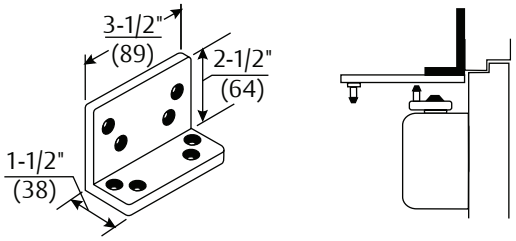


Blade/Applied Stop - 2018D Soffit Plate: For use where a blade or applied stop does not permit installation of the standard soffit plate. Mounts to either the frame soffit or rabbet. Since this soffit plate projects 7/8" (22mm) less than a standard soffit plate, it requires a minimum frame reveal of 1-1/2" (38mm). Permits closer to clear up to a 5/8" (16mm) stop.

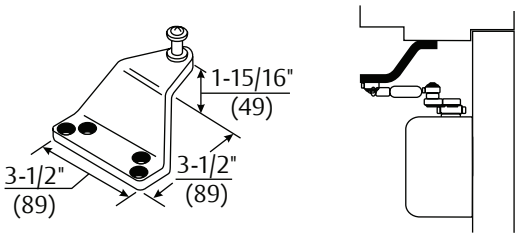
NORTON RIXSON
ASSA ABLOY

PARALLEL ARM

Brackets for Non-Hold Open Arms (continued)

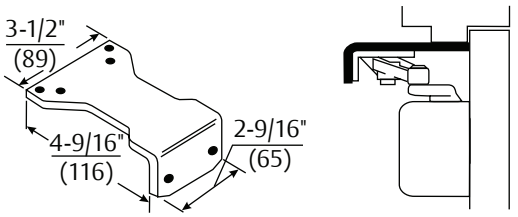


Flush Transom - 2022 Angle Bracket: For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1618 soffit plate, or may be used in combination with the 2018S soffit plate when it is necessary for the closer arm to clear a separate overhead door holder.

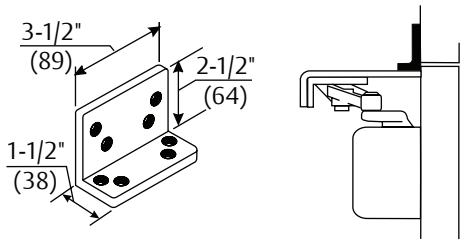


Extra-Clearance - 2018S Offset Soffit Plate: For use where the need for additional clearance prevents use of the standard soffit plate. This plate mounts to the frame soffit to provide up to 2" (51mm) of clearance when a separate overhead door holder is used. Standard mounting requires a 2-5/8" (67mm) wide frame soffit. It may also be used where unusually high frame stops or weather-stripping prevent the use of other soffit plates.

Brackets for Hold Open Arms



Parallel Hold Open - 1628H Adapter Plate: Supplied standard with all parallel arm hold open closers. It can also be used to convert regular arm or top jamb hold open arms to parallel arm installation. It can be mounted where the frame soffit is as narrow as 1" (25mm).

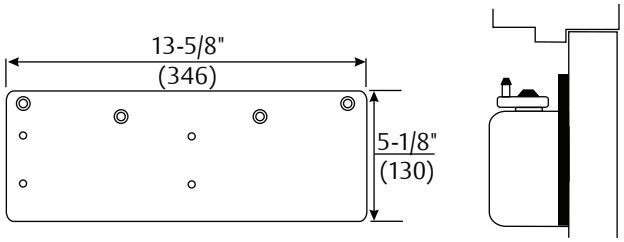


Flush Transom Hold Open - 2022 Angle Bracket: For use where rabbeted or flush transom conditions prevent installation of the standard 1628H hold open adapter plate. It is used in combination with the 1628H adapter plate.

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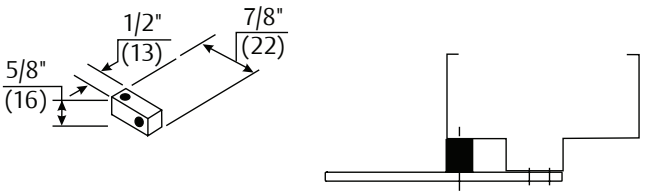
PARALLEL RIGID ARM

Closer Mounting Plate

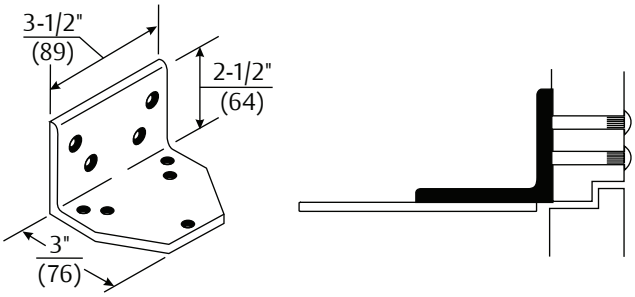


Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-1/2" (64mm) in height.

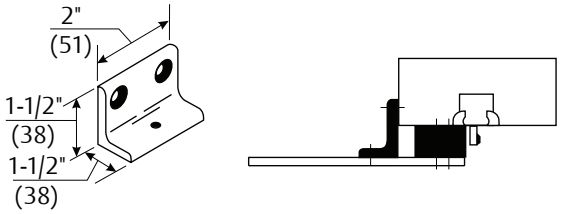
Brackets for Non-Hold Open Arms & Hold Open Arms



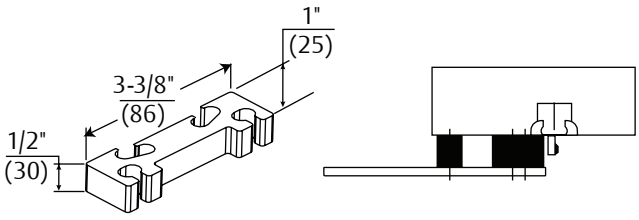
Standard - 2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all Parallel Rigid arm closers.



Flush Rabbeted Transom - 2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the standard soffit plate.



Narrow Frame - 6890 Support Bracket: For use where the frame is narrow, and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 Spacer B lock on blade stop frames to provide extra support and needed clearance of the blade stop. Used on frames where the frame stop does not exceed 5/8" (11mm) in height.



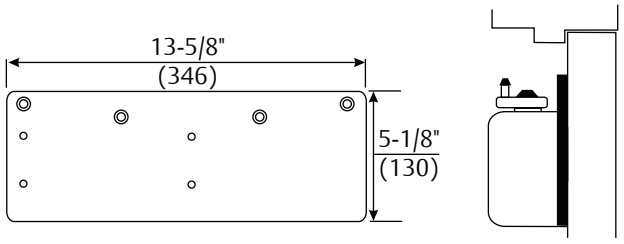
Clearance/Support Blade Stop - 6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard spacer block to provide clearance of the blade stop.

NORTON RIXSON
ASSA ABLOY

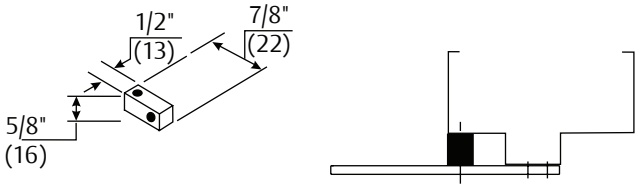
CLOSERPLUS® ARMS

Closer Mounting Plate

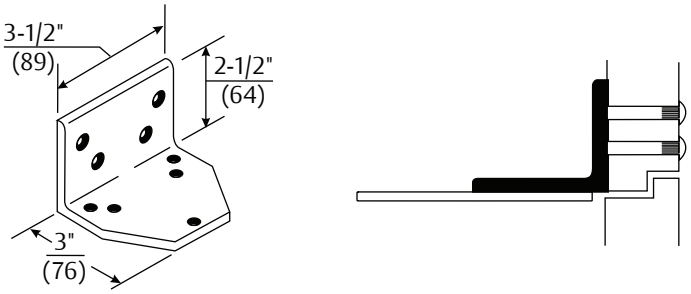
Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-1/2" (64mm) in height.



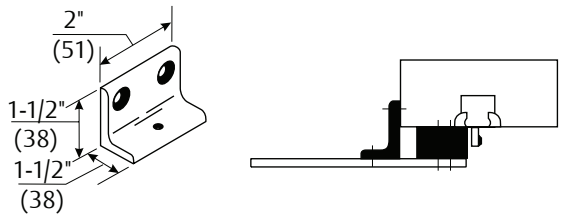
Brackets for Non-Hold Open Arms & Hold Open Arms



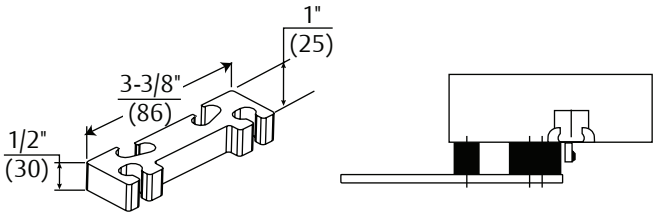
Standard - 2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all Parallel Rigid arm closers.



Flush Rabbeted Transom - 2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the standard soffit plate.



Narrow Frame - 6890 Support Bracket: For use where the frame is narrow, and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop. Used on frames where the frame stop does not exceed 5/8" (11mm) in height.

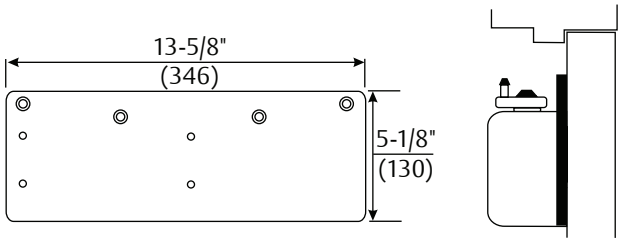


Clearance/Support Blade Stop - 6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard spacer block to provide clearance of the blade stop.

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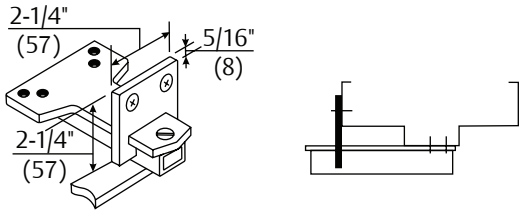
UNITROL® ARM

Closer Mounting Plate (for Parallel Arm)

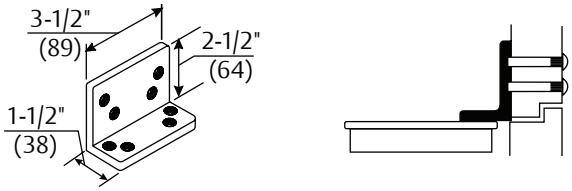


Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-3/8" (60mm) in height.

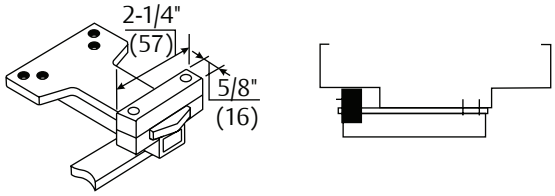
Soffit Plate Reinforcing Brackets (for Parallel Arm)

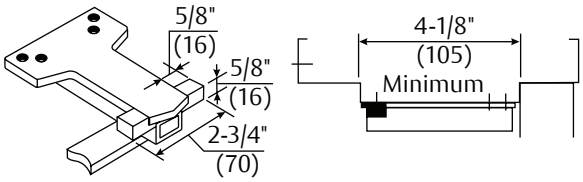


Additional Support - 6190 Reinforcing Bracket: Standard for use with all Unitrol parallel arms. Provides additional support to the soffit plate on installations with door frame reveals from 1-7/8" to 4-5/8" (48 to 117mm).



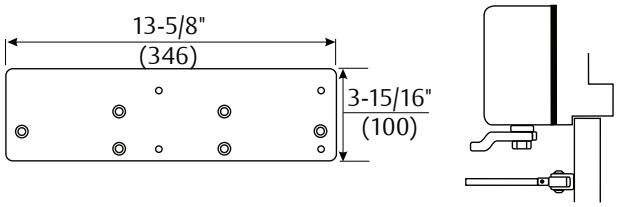
Flush Rabbeted Transom - 2022 Angle Bracket: Optional for use with all Unitrol parallel arms. For use where rabbeted or flush transom conditions prevent installation of the soffit plate assembly. This bracket fastens to the overhead transom to provide a mounting surface for the soffit plate assembly.



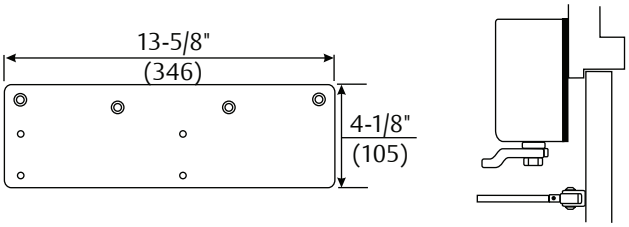


Wide Frame - 6191 Reinforcing Kit: Optional for use with all Unitrol parallel arms. Used to support the soffit plate on installations with wide frames. Clamps may be used with or without the spacer block, depending on frame conditions.

Closer Mounting Plate (for Top Jamb)



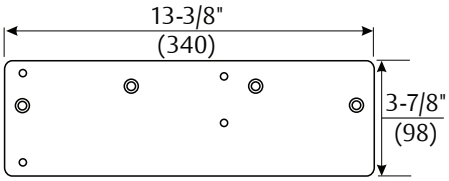
Standard Installation - 7786 Back Plate: Can be mounted where a frame face is as narrow as 1-5/8" (41mm) in height.

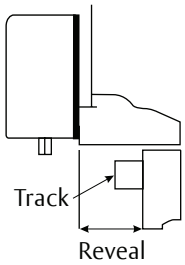


Minimum Ceiling Clearance - 7787 Drop Plate: For use where the ceiling clearance is as little as 1-7/8" (48mm).

NORTON RIXSON
ASSA ABLOY

SLIDE TRACK

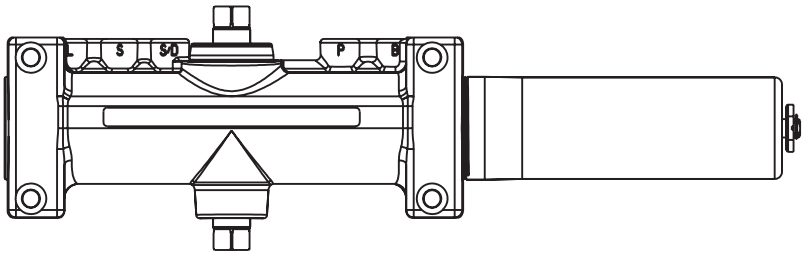




Slide Track - 7786JP Back Plate: Required for frames with standard 2" (51mm) profile face. Without plate, minimum 4" (102mm) face frame required.

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DOOR CLOSER BODY ASSEMBLIES



Model Number	Description
7500LAP	Multi-size closer body
7500SSLAP	Corrosion resistant closer body

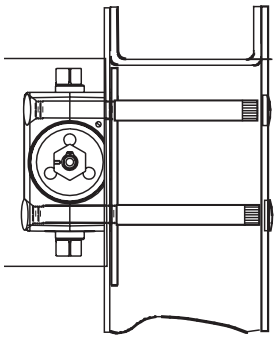
LAP = less all parts

Torx® Screw Pack	
Arm Type	**Model Number**
Regular, Top Jamb & Parallel	TX47
Parallel Rigid, CloserPlus® CloserPlus Spring™	PRTX47
Regular Rigid Heavy-Duty	RTX47
Unitrol®	UNITX47
Slide Track	STTX47

Closer Series	Cover Material	Model No.	Dimensions (Inches/mm)
7500	Plastic	7700P & 7700PG	13-3/4 (349) x 4" (102) x 2-1/8" (54)
	Metal	7700M	13-5/8" (346) x 3-7/8" (98) x 2-3/16" (56)

STEEL DOOR APPLICATION

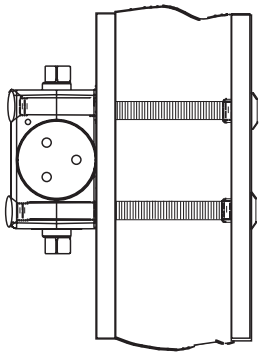
Sleeve nut: "SN" (4 per pack) or
Sleeve nut & screw: "SNB" (4 per pack)



Door Thickness	SN's	SNB's
1-3/4"	SN-134	SNB134-47
2"	NA	SNB200-47
2-1/4"	SN-214	SNB214-47
S.S. SNB'S 1-3/4" (stainless steel)	SN-134SS	SNB134SS-47

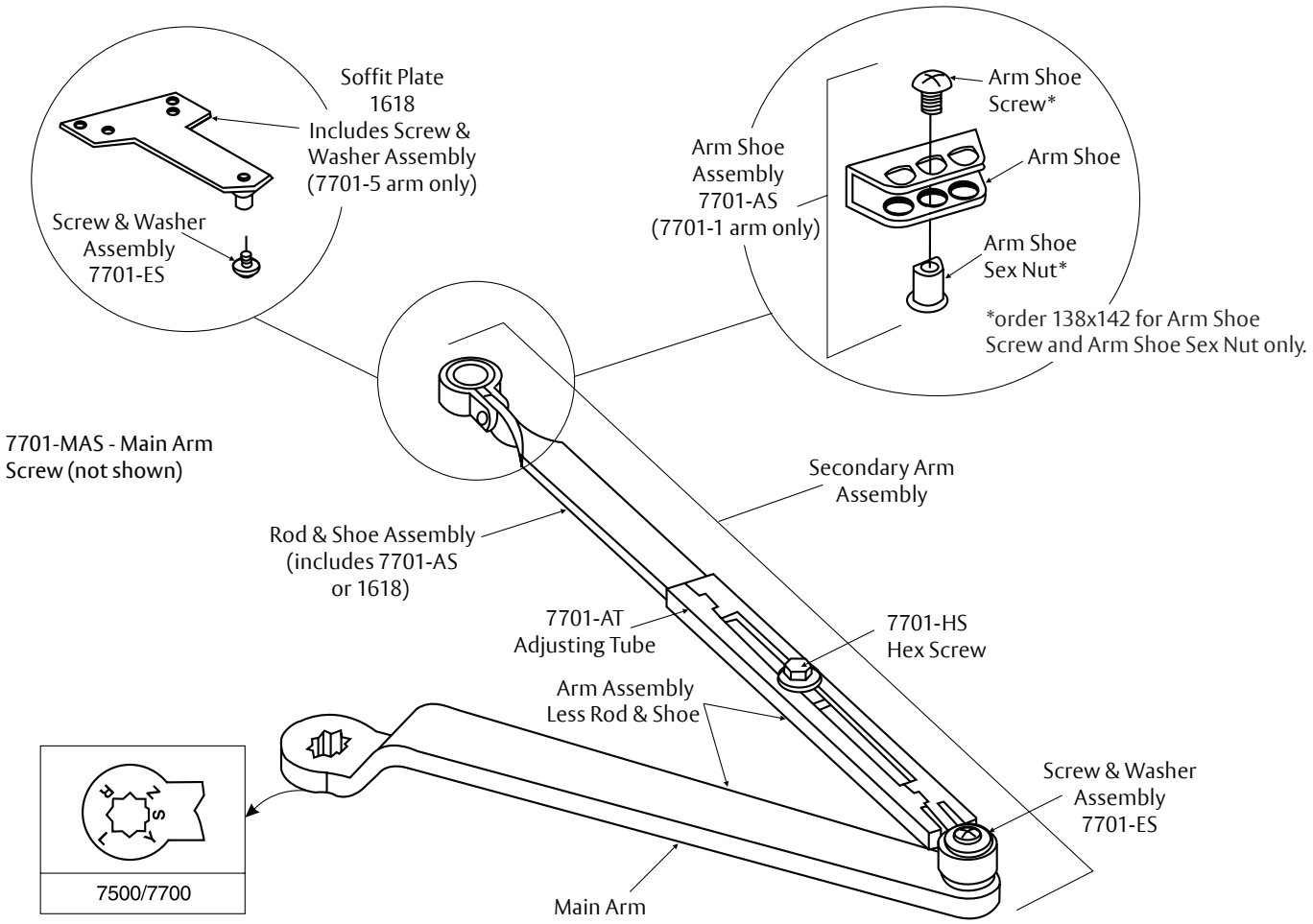
ALUMINUM AND WOOD DOOR APPLICATION (ALUMINUM DOOR SHOWN)

Through-bolt & grommet nut:
"TBGN" (4 per pack)



Door Thickness	SN's
1-3/8"	TBGN138-47
1-3/4"	TBGN134-47

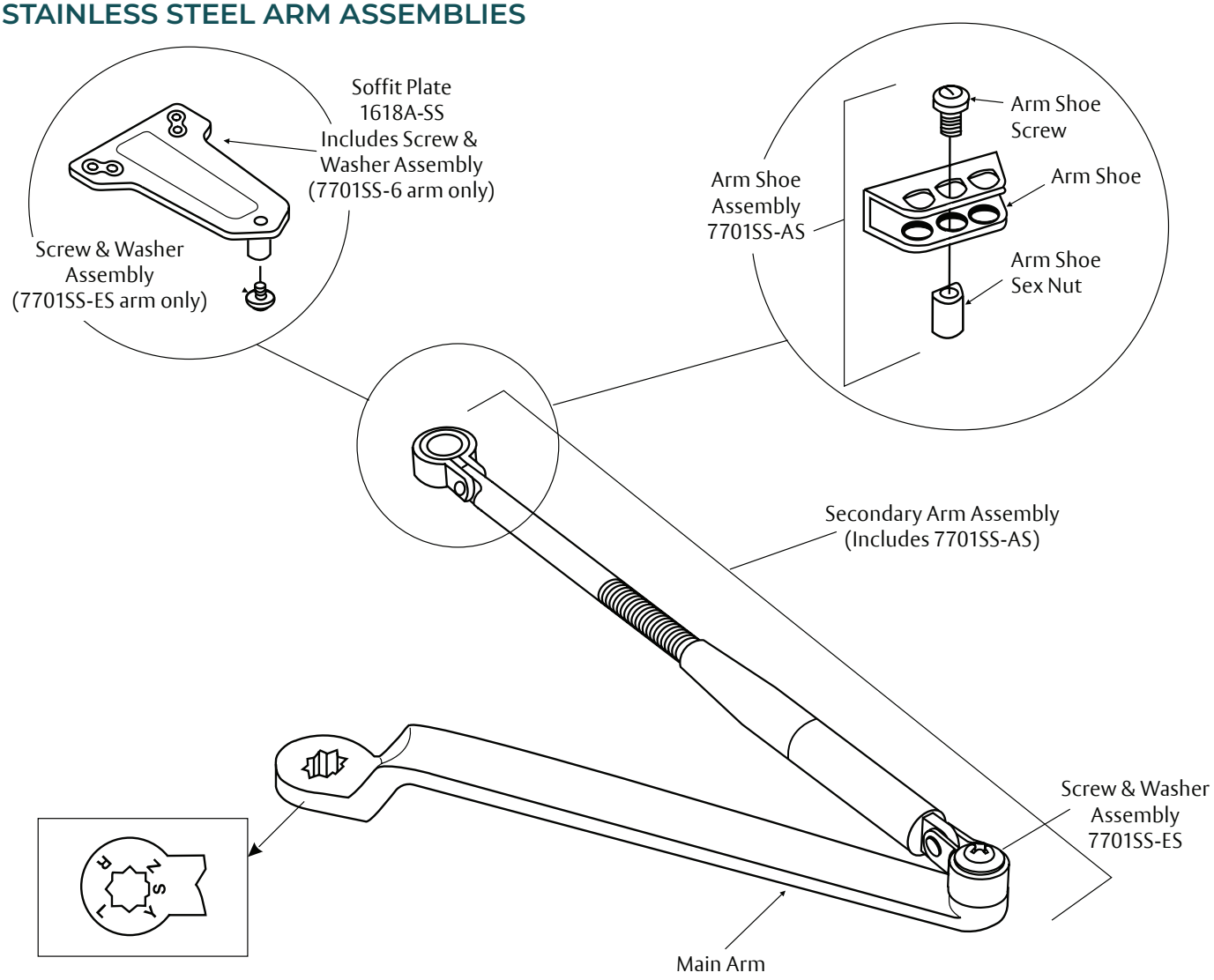
NON-HOLD OPEN ARM ASSEMBLIES



Note: Mounting hardware included with all parts orders.

Closer Series	Complete Arm Assembly	Main Arm Assembly[1] (length)(mm) (includes 7701-ES)	Secondary Arm Assembly (includes 7701-ES)	Arm Assembly Less Rod and Shoe	Rod & Shoe Assembly[2] (length)(mm)
R7570	7701-1	7701-1M (11)(279)	7701-111	7701-1W	7701-11 (8-7/8)(225)
J7500	7701-1A		7701-121		7701-11A (12-9/16)(319)
JL7500	7701-1B	7701-2M (13-1/2)(343)	7701-131	7701-2W	7701-11B (15-3/16)(386)
P7500	7701-5	7701-1M (11)(279)	7701-115	7701-1W	7701-15 (8-7/8)(225)
P7500[3]	7701-5A		7701-115A		7701-15A (12-9/16)(319)
7500	7701-25 (tri-packed includes 7701-1 plus 1618 plate)	1. C to C length shown in parentheses. 2. C of connecting link to end of rod shown in parentheses. 3. For 180° door swing when using a special template for doors hung on 6" to 8" (152 to 203mm) wide throw hinges.			

STAINLESS STEEL ARM ASSEMBLIES



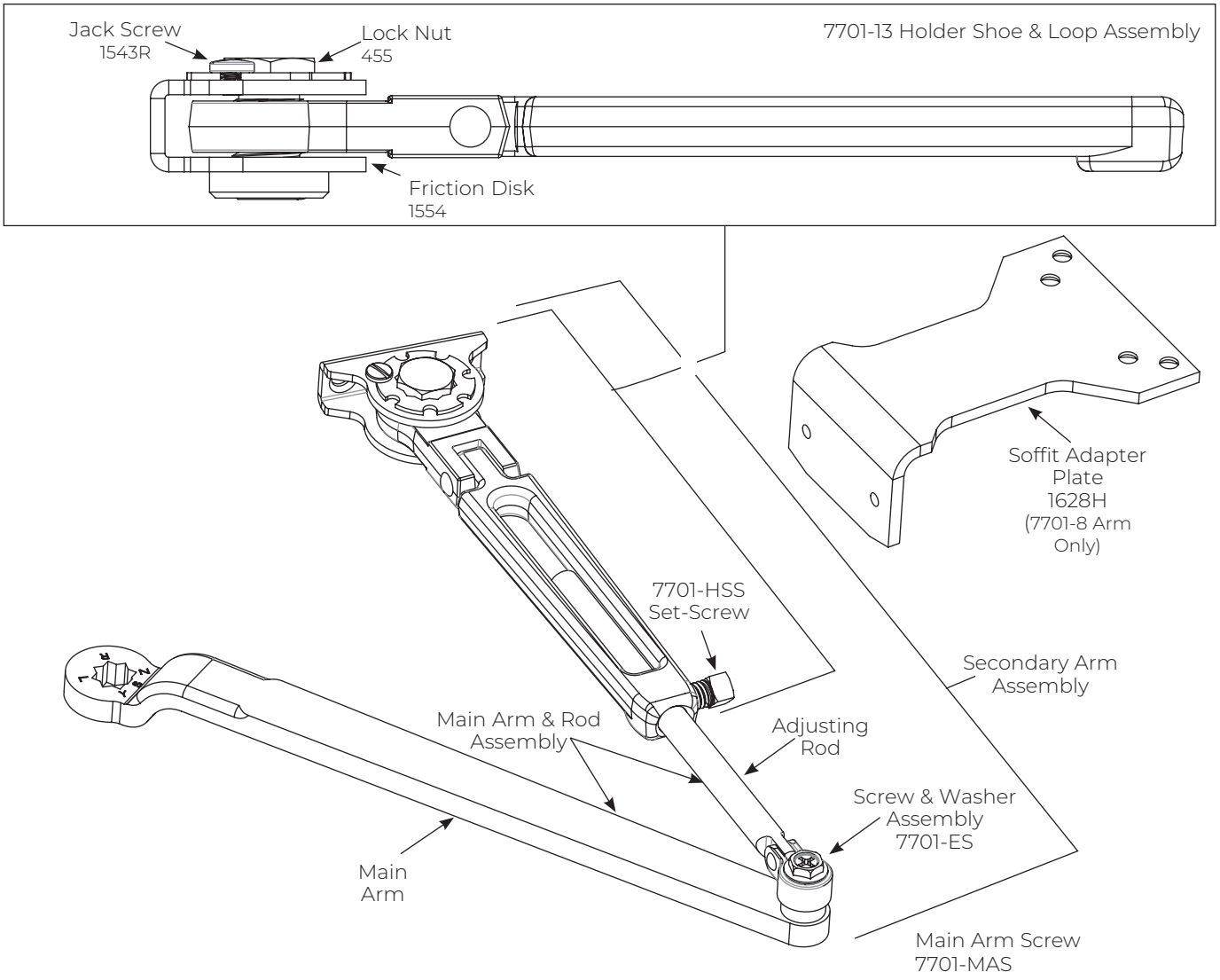
Note: Mounting hardware included with all parts orders.

Closer Series	Complete Arm Assembly	Main Arm Assembly[1] (length)(mm) (includes 7701SS-ES)	Secondary Arm Assembly (includes 7701SS-ES)
7500SS	7701SS-1	7701SS-1M (11)(279)	7701SS-111
J7500SS	7701SS-1A		7701SS-121
P7500SS	7701SS-6		7701SS-116

1. C to C length shown in parentheses

NORTON RIXSON
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HOLD OPEN ARM ASSEMBLIES



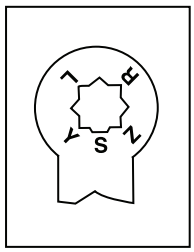
Note: Mounting hardware included with all parts orders.

Closer Series Assembly	Complete Arm Assembly	Main Arm[1] (length)(mm) (includes 7701-ES)	Secondary Arm Assembly (includes 7701-ES)	Main Arm & Rod Assembly	Holder Shoe & Loop Assembly	Adjusting Rod[2] (Length)(mm)
7500H	7701-3/7701-8[3]	7701-1M (11)(279)	7701-113/7700-118 (Reg.) / (Par.)	7701-3W	7701-13	7701-31 (7-3/8)(187)
JL7500	7701-3A		7701-123	7701-3WA		7701-31A (10-13/16)(275)
JL7500H	7701-3B	7701-2M (13 -1/2)(343)	7701-133	7701-3WB		7701-31B (12-7/8)(327)

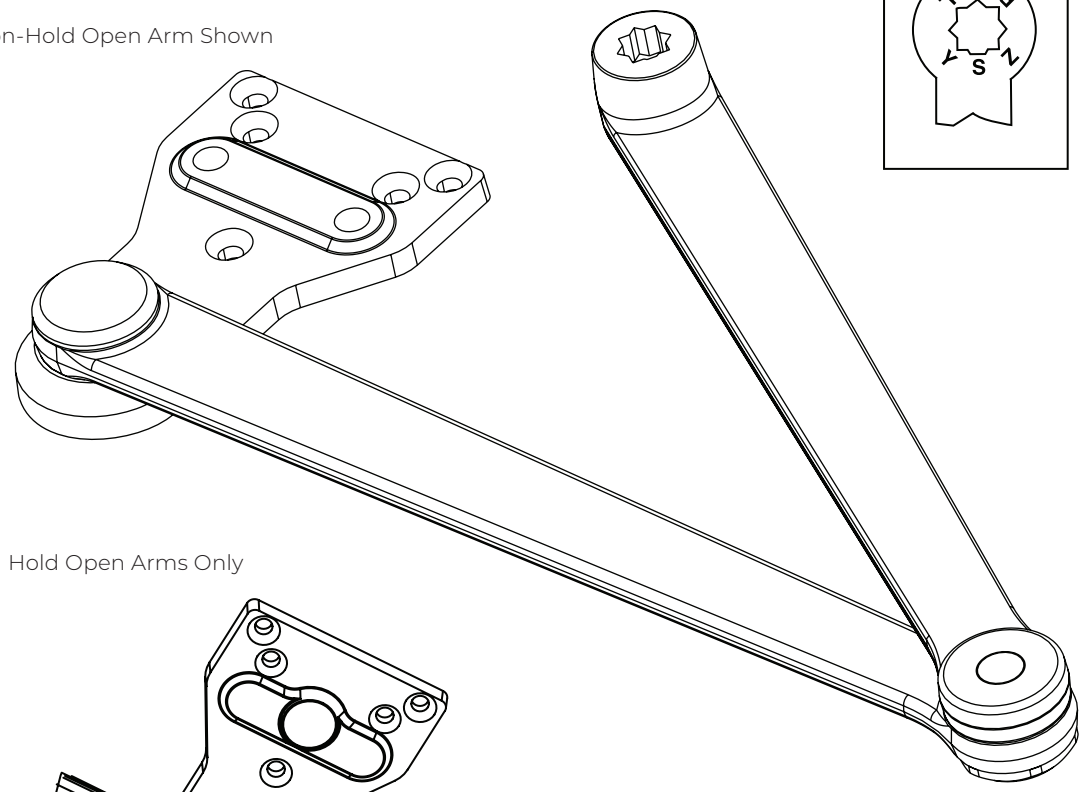
1. C to C length shown in parentheses.
2. C of connecting link to end of rod shown in parentheses.
3. Same as 7701-3 but includes 1628H soffit adapter plate.

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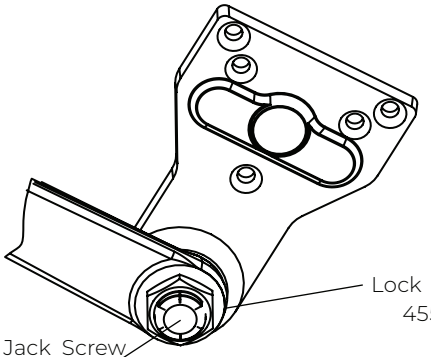
PARALLEL RIGID ARM ASSEMBLIES



Non-Hold Open Arm Shown



Hold Open Arms Only



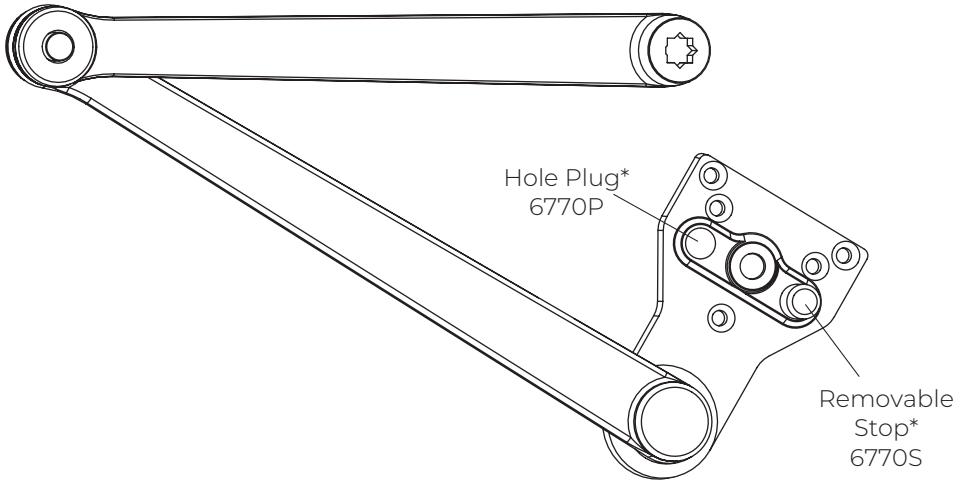
Note: Mounting hardware included with all parts orders.

Arm Function	Complete Arm Assembly	Jack Screw
Non-hold open	PR7701-5	N/A
Hold open	PR7701-8R (right hand)	1543R
	PR7701-8L (left hand)	1543L

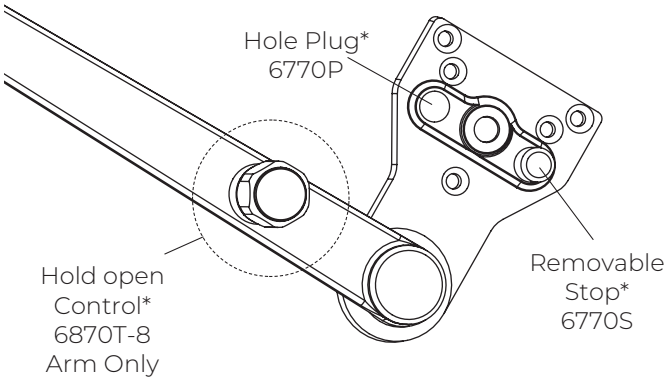
NORTON RIXSON
ASSA ABLOY

CLOSERPLUS® ARM ASSEMBLIES

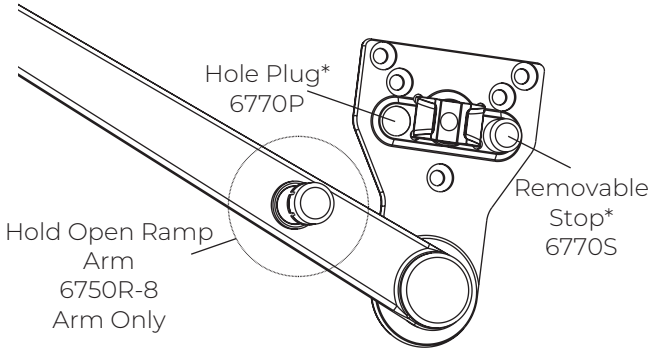
CLP
Non-Hold Open



CLP-T
Thumbturn Hold Open



CLP-R
Ramp Hold Open



Note: Mounting hardware included with all parts orders.

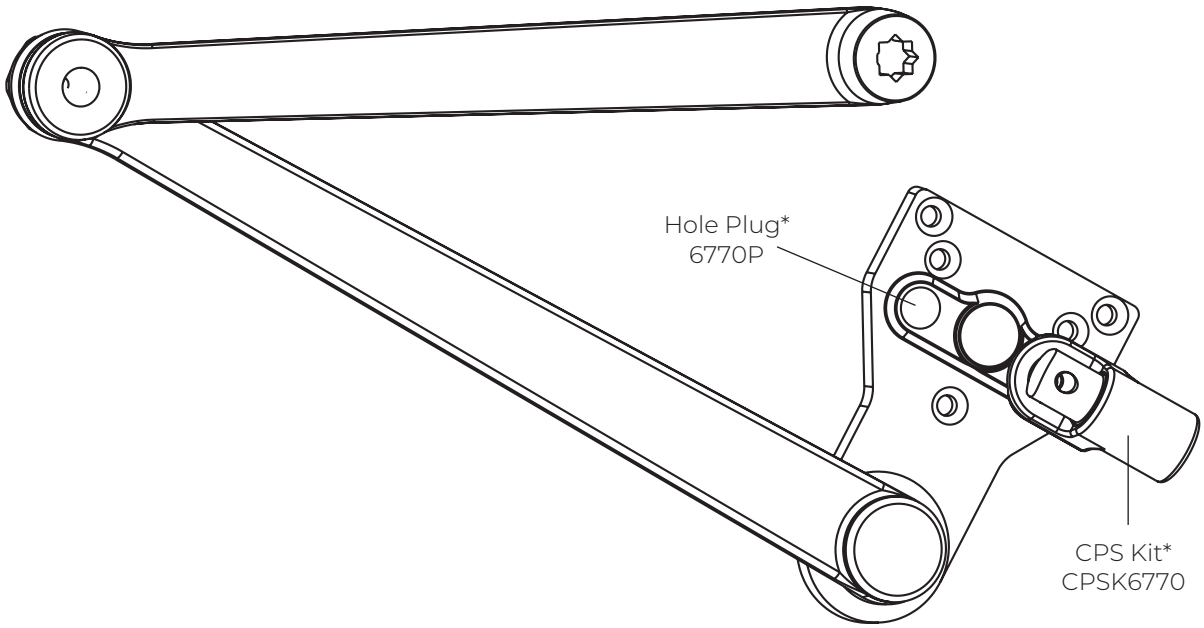
Arm Function	Complete Arm Assembly
Non-hold open	6770-5
Thumbturn hold open	6870T-8
Ramp hold open	6750R-8

* These parts and screw pack are included with complete arm assemblies.

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CLOSERPLUS SPRING™ ARM ASSEMBLIES

Non-Hold Open Arm Shown

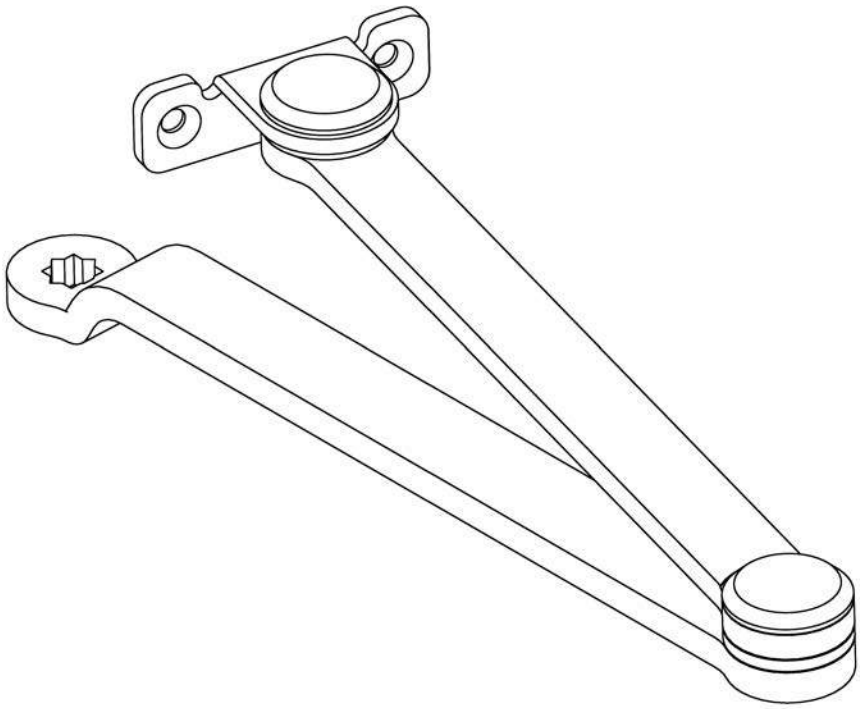


Note: Mounting hardware included with all parts orders.

Arm Function	Complete Arm Assembly
Non-hold open	CPS6770-5
Thumbturn hold open	CPS6870T-8

* These parts and screw pack are included with complete arm assemblies.

REGULAR RIGID HEAVY-DUTY ARM

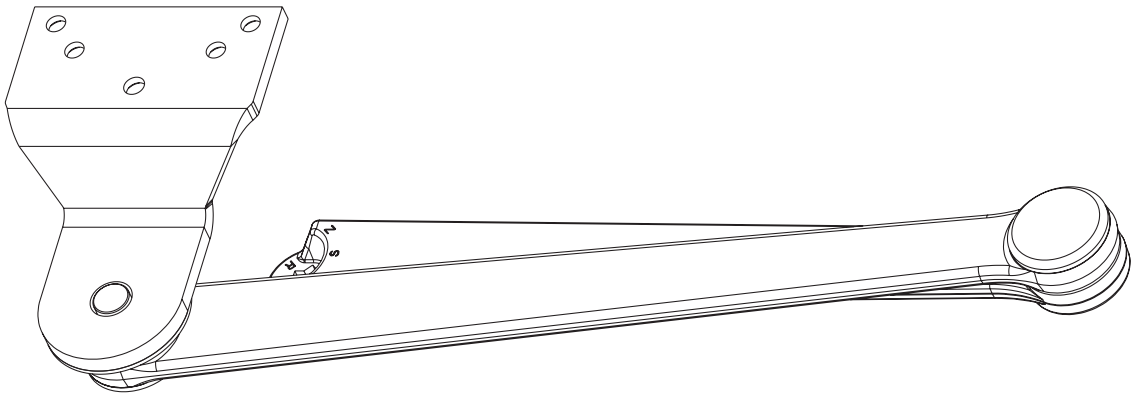


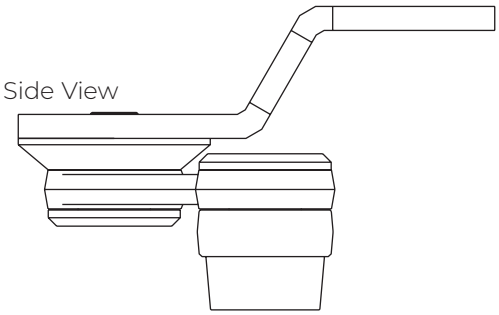
Note: Mounting hardware included with all parts orders.

Closer Series	Arm Function	Complete Arm Assembly
R7500	Non-hold open	R7701-1

PARALLEL RIGID OFFSET ARM ASSEMBLIES

Non-Hold Open





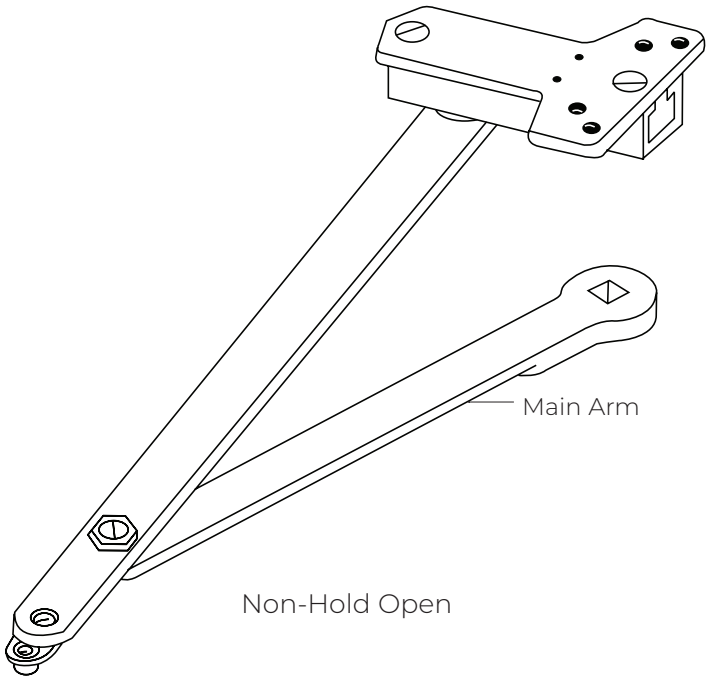
Note: Mounting hardware included with all parts orders.

Complete Arm Assembly	Arm Function
PRO7701-5	Non-hold open
PRO7701-8R	Hold open, right hand
PRO7701-8L	Hold open, left hand

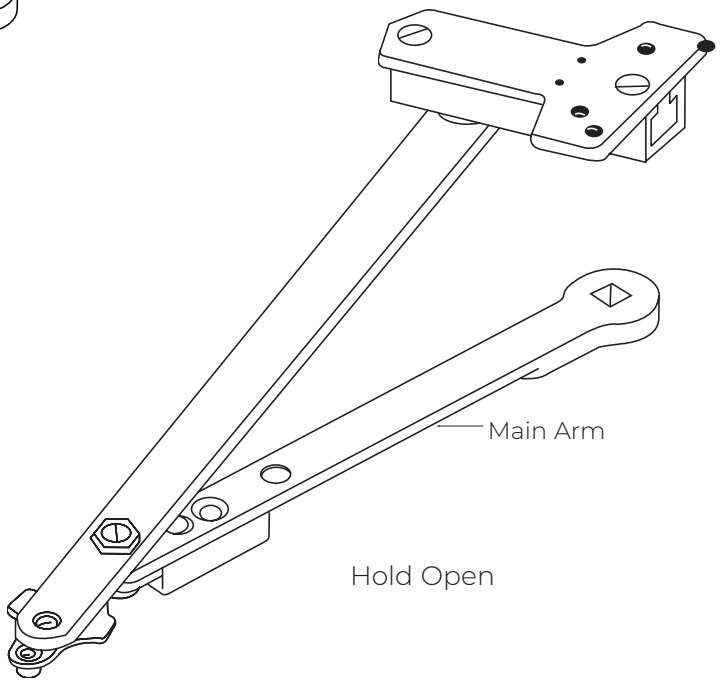
NORTON RIXSON
ASSA ABLOY

7500
INSTITUTIONAL DOOR CLOSER

Parallel Arm



Non-Hold Open



Hold Open

Note: Mounting hardware included with all parts orders.

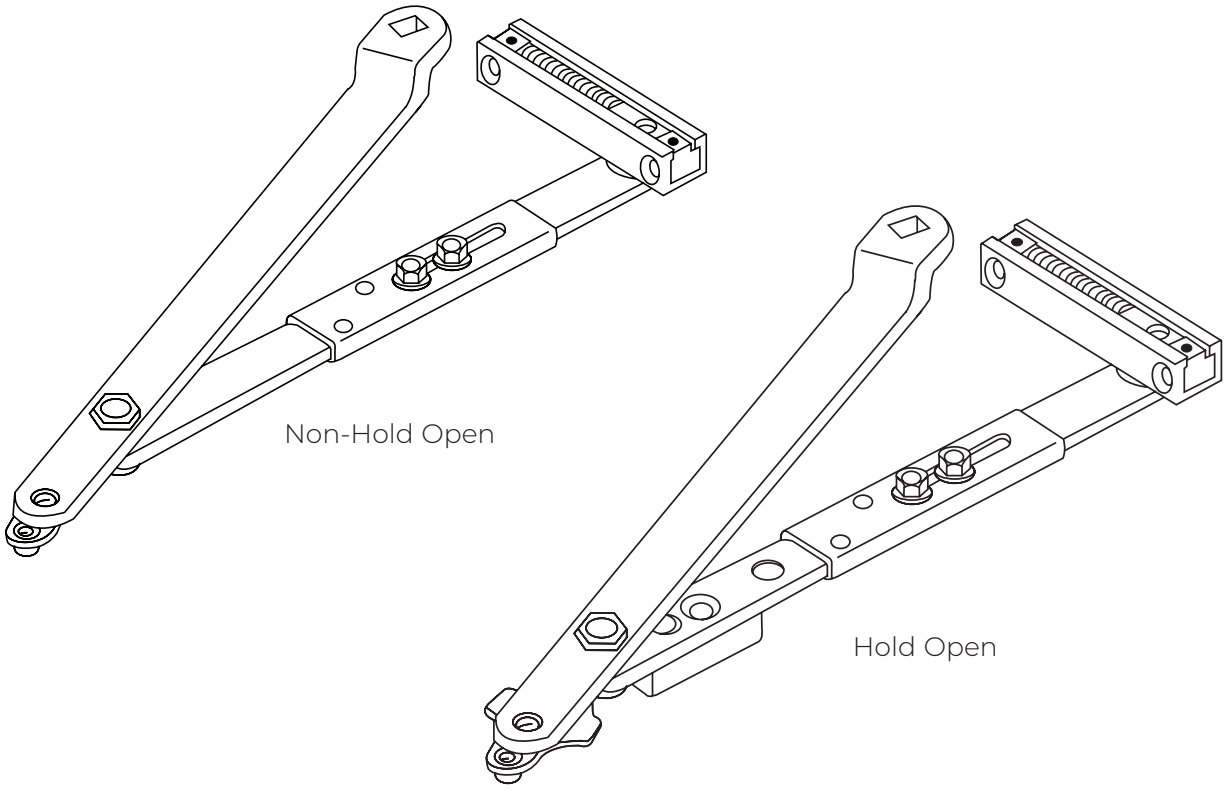
Door Width (cm)	Main Arm Length* (mm)	Complete Arm Assembly	
		Non-Hold Open	Hold Open
28" - 32" (71- 81)	9-1/2" (241)	6100-11	6100-1
33"- 41" (84 - 104)	11" (279)	6100-13	6100-3
42" - 48" (107 - 122)	12-1/2" (318)	6100-14	6100-4

Only available in painted finishes.

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UNITROL® ARM ASSEMBLIES

Top Jamb

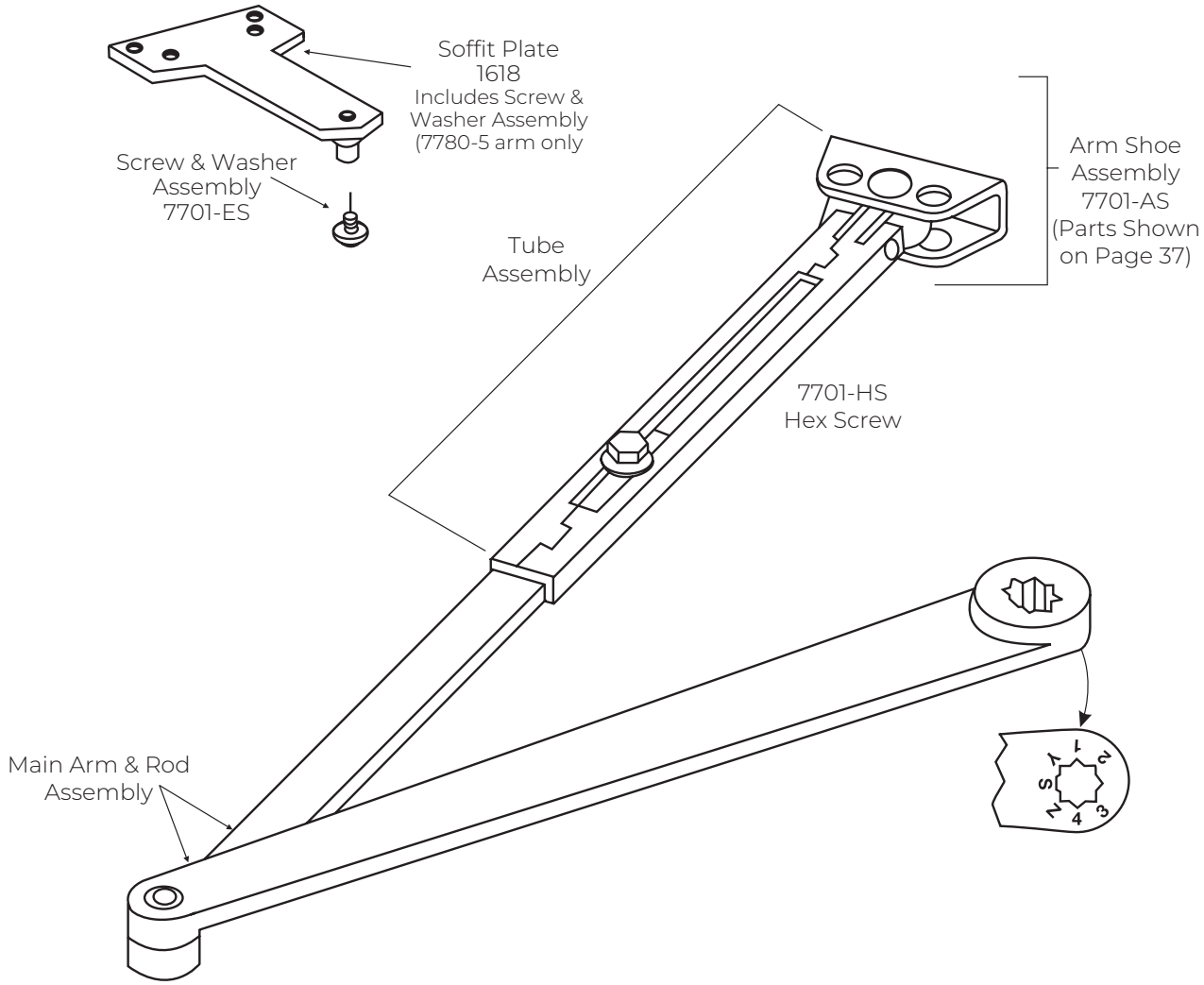


Note: Mounting hardware included with all parts orders.

Complete Arm Assembly		For Frame Reveals (mm)
Non-Hold Open	Hold Open	
J6100-4	J6100-7	2-1/8" - 3-1/4" (54 - 83)
J6200-4	J6200-7	1/2" - 2" (13 - 51)
J6400-4	J6400-7	3-3/8" - 4-1/4" (86 - 108)
J6500-41	J6500-71	4-3/8" - 5-3/8" (111 - 137)
J6500-42	J6500-72	5-1/2" - 6-3/8" (140 - 162)
J6500-43	J6500-73	6-1/2" - 7-3/8" (165 - 187)
J6600-4	J6600-7	0" - 3/8" (0 - 10)

Only available in painted finishes.

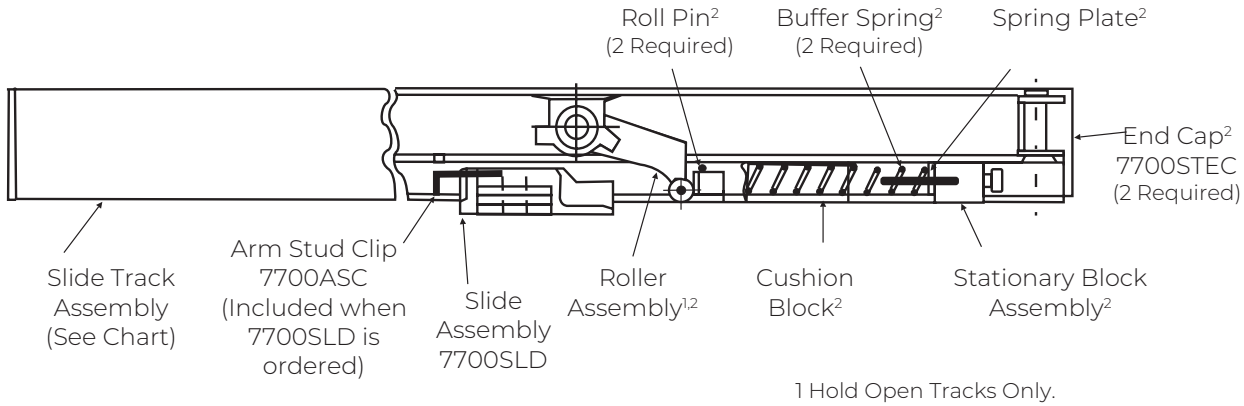
LOW PROFILE ARM ASSEMBLIES



Note: Mounting hardware included with all parts orders.

Arm Application	Complete Arm Assembly	Main Arm & Adjusting Rod Assembly	Tube & Shoe/Soffit Assembly
Regular	7780-1	7780-1MR	7780-1TS (With 7701-AS)
Parallel	7780-5		7780-5TS (With 1618)
Tri-pack	7780-25		

TRACK ASSEMBLIES



1 Hold Open Tracks Only.
2 Part of Slide Track Assembly.

* Consists of track, slider assembly and two end caps auxiliary door stop required.

Note: Mounting hardware included with all parts orders.

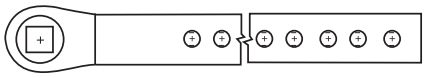
Track Assemblies	Part Number	
	Non-Hold Open	Hold Open
Pull side mounted	7701ST-1T	7701ST-3T
Push side mounted	7701ST-5T	7701ST-8T
Pull side mounted (180°)	7701ST-1T180°	N/A

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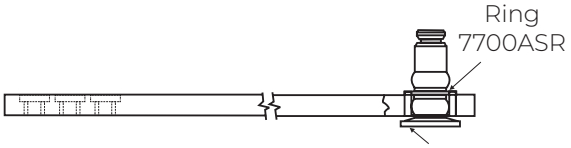
TRACK ASSEMBLIES

Standard Arm Assembly

7701ST-1A[1,2]



Arm Tube Assembly
7701ST-1AT[1]

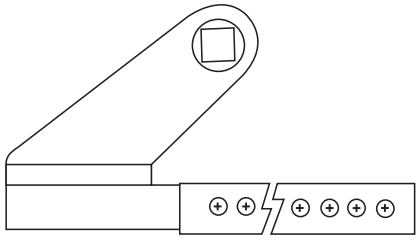


Adjusting Rod Assembly
7701ST-1AR[1]

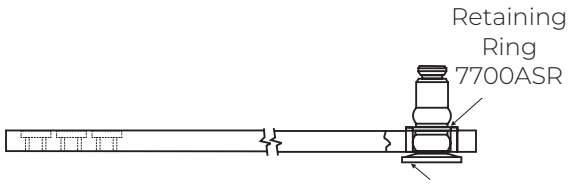
Arm Stud
7700AS

Double Egress Arm Assembly

7701PT-DE-1R (Right Hand)[1,2]
7701PT-DE-1L (Left Hand)[1,2]



Arm Tube Assembly
7701ST-1ATR[1] (right hand)
7701ST-1ATL[1] (left hand)

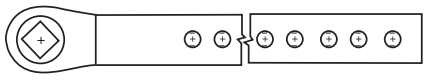


Adjusting Rod Assembly
7701ST-1AR[1]

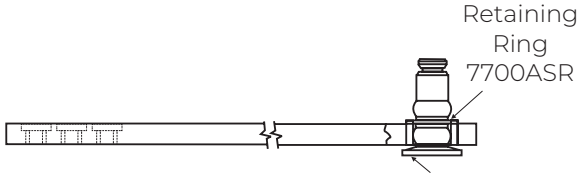
Arm Stud
7700AS

STP Arm Assembly (Pocket Doors Only)

7701STP-1A[1,2]



Arm Tube Assembly
7701STP-1AT[1]



Adjusting Rod Assembly
7701ST-1AR[1]

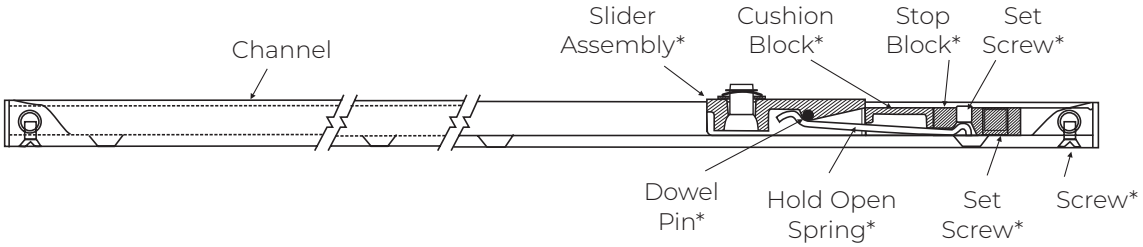
Arm Stud
7700AS

1 Includes arm length adjusting screw 7700ALAS
2 Includes arm tube & adjusting rod assembly

Note: Mounting hardware included with all parts orders.

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TRACK ASSEMBLIES - SHALLOW DEPTH

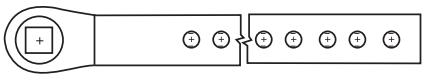


*Part of an Assembly Pack
NHO=7740SLD
HO=7740HSLD

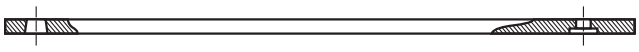
Note: Mounting hardware included with all parts orders.

Track Assemblies	Part Number	
	Non-Hold Open	Hold Open
Pull side mounted	7740ST-1T	7740ST-3T
Push side mounted	7740ST-5T	7740ST-8T

Arm Assembly



Arm Tube Assembly
7701ST-1AT[2]



Adjusting Rod Assembly
7740ST-1AR[2]

1 Includes arm length adjusting screw.
2 Includes arm tube & adjusting rod assembly.

FASTENERS

Standard Fasteners	With Arms Specified Below					
	Regular Parallel & Top Jamb	Low Profile	Parallel Rigid (PR) CloserPlus (CLP) CloserPlus Spring (CPS)	Unitrol (UNI)	Unitrol-J (UNI-J)	Slide Track (ST)
Door						
Self drilling self tapping	S	S	S	S		
Machine screw	S	S	S	S	S	S
Sleeve nut/sex nut			S	S	S	S
Frame						
Self drilling self tapping	S	S	S	S	S	S
Machine screw	S	S	S	S	S	S

S = Standard
Fasteners are standard (included) with closer package.
Examples:
7500 includes self drilling, self tapping and machine screws
PR7500 includes self drilling, self tapping, machine screws and sleeve nut/sex nuts

Optional Fasteners	Description	With Arms Specified Below					
		Regular Parallel & Top Jamb	Low Profile	Parallel Rigid (PR) CloserPlus (CLP) CloserPlus Spring (CPS)	Unitrol (UNI)	Unitrol-J (UNI-J)	Slide Track (ST)
Door							
SN^	Sleeve nut/sex nut	O	O				
TBGN^	Thru bolts & grommet nuts	O	O	O	O	O	O
SMS*	Sheet metal screws & machine screws	O	O	O	O	O	O
SSPxSMS	Standard screw pack & sheet metal screws	O	O	O	O	O	O
TORX®*	Torx drive security screw	O	O	O	O	O	O
Frame							
SMS*	Sheet metal screws & machine screws	O	O	O	O	O	O
SSPxSMS	Standard screw pack & sheet metal screws	O	O	O	O	O	O
TORX®*	Torx drive security screw	O	O	O	O	O	O

O = Optional
^ When SN or TBGN are ordered, standard screw packs are also furnished.
***When SMS or TORX screws are specified, standard screw packs ARE NOT furnished.**
Examples:
7500 x **SN** includes self drilling, self tapping, machine screws and sleeve/sex nuts
7500 x **SMS** includes sheet metal screws and machine screws

SN are for use on hollow metal doors and can also be used for thru bolting on wood doors. When selected, SNs are supplied for 1-3/4" (44mm) thick doors unless specified for 2-1/4" (57mm) thick doors

TBGN are an alternative to SN for wood doors. When selected, TBGNs are supplied standard for 1-3/4" (44mm) thick doors. .

SMS - when the option is specified, closer will be packed with sheet metal screws for the door and sheet metal screws plus machine screws for the frame.

FINISHES

Norton Rixson offers waterborne acrylic, polyster powder coat and plated finishes. Custom finishes are available on special order. A sample and approval is required. Waterborne acrylic and polyester powder coat will withstand 100 hours of salt spray (ANSI requires 25 hours).

ANSI/BHMA (US)	Description
605 (US3)	Bright brass, clear coated
606 (US4)	Satin brass, clear coated
611 (US9)	Bright bronze, clear coated
612 (US10)	Satin bronze, clear coated
613E (US10BE)	Dark oxidized satin bronze - equiv.
619 (US15)	Satin nickel plated, clear coated
625 (US26)	Bright chrome plated over nickel
626 (US26D)	Satin chrome plated over nickel
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
691 (US10)	Light bronze, painted
693	Black, painted
694	Medium bronze, painted
696 (US4)	Gold , painted
BSP	Black suede powder coat
WSP	White suede powder coat
600^	Prime coat

^ 600 is a special rust-inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat.

- Closer bodies and plastic covers are available in waterborne acrylic finishes. Arms and metal covers are available in powder coat or plated finishes.
- When a plated finish is ordered, arm and cover will be plated unless "cover only" is specified.

NORTON RIXSON
ASSA ABLOY

7500
INSTITUTIONAL DOOR CLOSER

HOW TO ORDER

NOTE: For optimum protection of door and frame assemblies, always use auxiliary wall, floor, or overhead door stop.

J L	75	0	0	H
Prefixes	Closer series	Specifies some options	Closer size	Suffixes

No Prefix } 7500 series designates Tri-Style® packaging (tri-packed for regular, top jamb or parallel mounting)

- **S** - Regular arm application only, non-hold open
- **JS** - Top Jamb application only (3" maximum reveal), non-hold open
- **P** - 7500 parallel arm application only, non-hold open 7580 low profile closer 7500SS corrosion resistant closer
- **J** - Top jamb installation. Supplied with 7786 backplate 2-3/4" - 7" reveal, 150° swing
- **JL** - Top jamb installation. Supplied with 7786 back plate 2-3/4" - 7" reveal, 180° swing
- **PR** - Parallel Rigid arm (parallel arm only); specify hand for hold open functions
- **PRO** - Parallel Rigid arm with offset soffit plate (parallel arm only); specify hand for hold open applications
- **PS** - 7500ST / 7540ST for push side mounting only
- **R** - Rigid heavy-duty regular arm (Torx® screws not included) (N/A in stainless steel or hold open)
- **CLP** - CloserPlus® arm (parallel arm only)
- **CPS** - CloserPlus Spring™ arm (parallel arm only)
- **UNI** - Unitrol® arm (parallel arm only - specify door width) Frame reveals 1-7/8" to 4-5/8" (48-117mm) standard
- **UNIJ** - Unitrol arm (top jamb only - specify frame reveal) 7-3/8" (187mm) maximum

- **0** - Specifies standard arm
- **3** - Indicates top jamb (J prefix) for frame reveal 0 to 3" (0-76mm) 7786 back plate included.
- **4** - Specifies shallow 11/16" (17mm) depth slide track for closer with "ST" suffix. (ST-DE is not available)
- **7** - Specifies closer having a security arm, security cover and Torx® security screws (specify hand)
- **8** - Specifies low-profile arm (use prefix "P" parallel arm or "J" for top jamb) Non-hold open only

0 – Adjustable 1-6

- **None** - Non-hold open arm function
- **H** - Hold open arm function (specify hand when "PR" prefix is ordered)
- **M** - Metal cover (cover is handed for top jamb applications)
- **MLL** - Lead lined metal cover
- **DA** - Optional delayed action feature
- **EBC** - Optional enhanced backcheck
- **ST** - Slide track - single lever arm (auxiliary stop recommended). For push side - prefix PS
- **ST-180** - Slide track - single lever arm, **pull side** track without buffer assembly for maximum door swing (auxiliary stop required)
- **ST-DE** - Slide track - pull side double egress
- **SS** - Corrosion resistant closer. Available with non-hold open adjustable arm only; for regular arm, top jamb "J" prefix or parallel arm "P" prefix
- **T** - Thumbturn hold open on CloserPlus® (CLP) or CloserPlus Spring™ (CPS) arm
- **R** - Ramp hold open on CloserPlus® (CLP) arm
- **G** - ABS cover
- **EP** - Extra Power (specify 7706EP and arm (RA, PA, or TJ) when ordering)
- **STP** - Slide Track Pocket Door (specify 7706EPSTP)
- **DLP** - Double Lever Pocket Door (specify 7706EPDLP)

NOTE:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

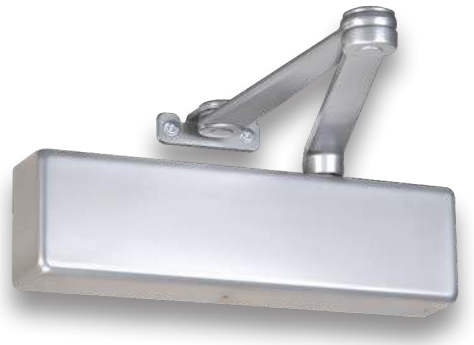
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7570
SECURITY DOOR CLOSER

NORTON RIXSON
ASSA ABLOY

INTRODUCTION

7570 Series are high security closers designed to withstand maximum abuse, deter tampering and help protect doors, walls and hardware. Available with a large number of arm and track assemblies, the 7570 Series closers are capable of providing a high level of reliable performance for a wide variety of openings. Schools, government buildings, financial institutions, industrial facilities, and prisons and detention centers are ideal applications for this closer.



FEATURES

- Adjustable spring sizes 1 through 6
- Security arms – joints feature permanent, orbital riveted elbow and arm shoe/soffit plate joints which prevent disassembly
- Adjustable backcheck cushioning and positioning
- Door weight: 250 lbs.
- Torx drive machine screws with security pin
- Heavy-duty arms: Regular Rigid, Parallel Rigid, CloserPlus® and CloserPlus Spring™
- Slide track – push or pull mounting
- 30-year limited warranty

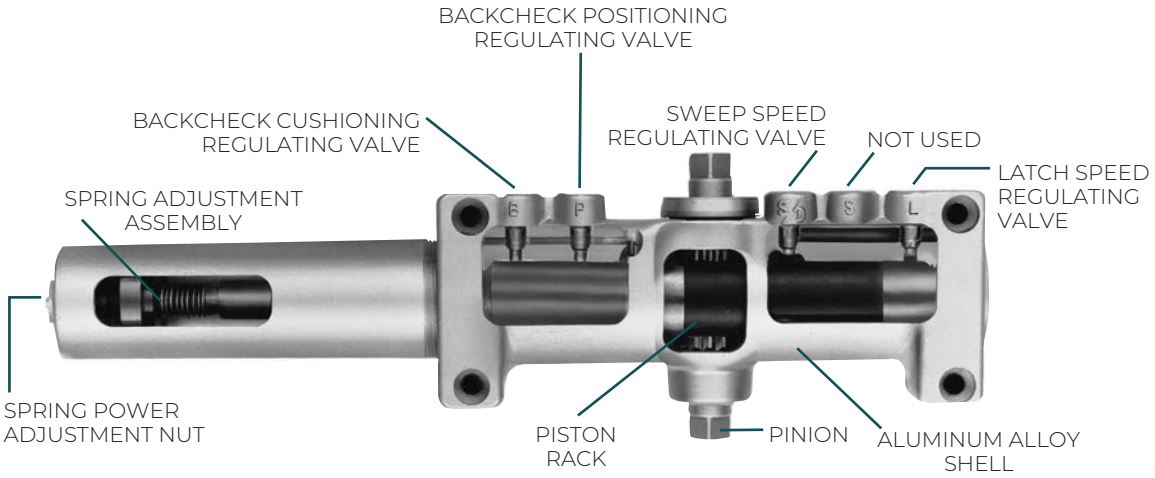
OPTIONAL FEATURES

- Delayed action
- Enhanced backcheck

NORTON RIXSON
ASSA ABLOY

7570
SECURITY DOOR CLOSER

OVERVIEW



CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1
- ANSI/BHMA A117.1
- Americans with Disabilities Act (ADA) Compliant
- MEA - City of New York Approved
- UL10C positive pressure up to 3 hours
- UL-cUL listed
- Manufactured in an ISO 9001, ISO 14001 facility

CAUTION: Door Closers for Low Opening Force Applications:
Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

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EXPLANATION OF FEATURES

Aluminum Alloy Housing
Closer bodies are constructed of a special aluminum alloy, carefully selected to accommodate interactive steel components and operating conditions.

Rack & Pinion Operation
Provides a smooth constant control of the door through its full opening and closing cycle. 180° door swing can be achieved when door, frame, hardware and arm function do not interfere.

Handed
All series 7570 closer covers are handed (closer cover must match hand of door).

Sweep Speed Control Valve
Allows adjustment of door speed from the door's full open position down to approximately 5° from the closed position.

Latch Speed Control Valve
Allows adjustment of door speed from approximately 5° down to the door's fully closed position.

Non-Critical Control Valves
All control valves for sweep speed, latch speed and backcheck cushioning are non-critical and are adjusted by a standard 1/8" (3mm) hex wrench.

Adjustable Backcheck Cushion Valve
Provides control of the door in the opening cycle, beginning at approximately 75° of door opening. It slows/cushions the door opening, when the door is forcibly opened beyond its pre-adjusted limits.

Adjustable Backcheck Position Valve
Allows the door opening position, where backcheck cushioning begins, to be adjusted to a greater door angle, up to a maximum of 20° farther (approximately 95°).

Security Cover
Supplied standard with all series 7570 door closers. This deep drawn steel cover is handed for all applications. The cover is fastened to the closer body at two points on top and to the door closer body stand-offs at two points on the bottom.

Warranty
These closers carry a limited 30-year warranty against defect, and life of the building on the aluminum housing.

Closer Fluid
NorGlide® closer fluid is a specially formulated multi-viscosity hydraulic fluid that contains lubricity and anti-oxidation agents that provide optimum performance and efficiency. This fluid complements the interaction of the door closer's aluminum housing with its steel and brass components, while maintaining stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as -40° F.

DOOR CLOSER POWER OPTIONS

Series 7570 Multi-Sized Door Closer
Adjustable through the entire power range of door closer sizes 1 through 6, as outlined in ANSI/BHMA standard A156.4. Option PT-4H.

The series 7570 also conforms to the minimum opening force requirements of the Americans with Disabilities Act (A.D.A.) and ANSI/BHMA standard A117.1 for interior doors.

NORTON RIXSON
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7570
SECURITY DOOR CLOSER

OPTIONAL FEATURES

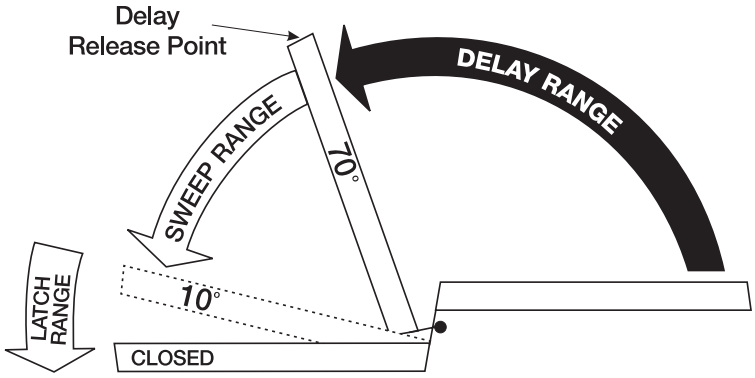
Adjustable Delayed Action Closing

An optional hydraulic feature that adds a third speed range to the closing cycle. This feature becomes effective when the door is opened and released at any point beyond 70°. The amount of time delay depends upon the combination of the angle of door release and valve adjustment. The valve can be adjusted with a 1/8" (3mm) hex key from no delay time up to maximum delay times of:

Door Opened and Released at	Approximate Time of Delay Cycle
180°	4-5 minutes
120°	2-3 minutes
90°	25-30 seconds

Pressure Relief Safety Valve

The delayed action hydraulic system contains a pressure relief valve. Any time the door is forced toward the closed direction while it is in the closing cycle, the valve will open and permit the door to close. This prevents damage to door, frame and closer.



Suggested Applications

Delayed Action closing allows slow-moving traffic to clear the opening before the door closer's normal closing cycle begins. This feature can be helpful in health care facilities such as hospitals and nursing homes. It provides sufficient time for persons on crutches or in wheelchairs to pass through a door without concern of it closing. At the same time, it can accommodate the facility's staff with movement of food service carts, beds, and other wheeled traffic.

Use of delayed action closers on many doors throughout industrial and commercial buildings can also assist the flow of traffic. Locations where additional time to clear the opening is advantageous are doors between office and factory/warehouse facilities, doors to workshops or laboratories, to kitchen and food processing areas.

Non-Hold Open

Self-closes door every time door is opened. Auxiliary stop (by others) required except when using the CloserPlus®, CloserPlus Spring™ or Unitrol® arms.

Hold Open

Achieved by means of ball and detent/roller. Ball and detent or roller hold open is effective in a range of 85° to 110°.

Hold open arm door closers are not permitted to be used on fire door assemblies.

Arm Function	Regular Rigid Arm	Parallel Rigid Arm	CloserPlus® Parallel Arm	CloserPlus Spring™ Parallel Arm	Unitrol® Parallel Arm	Slide Track
Non-Hold Open	✓	✓	85° to 110°	85° to 110°	85° to 110°	85° to 110°/180°
Hold Open	—	—	85° to 110°	85° to 110°	—	—

✓=180° trim and template permitting

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SPECIFICATIONS

7570 Series

Closers for interior and exterior doors shall be full rack-and-pinion type with cast aluminum alloy body. Closers shall be surface mounted and shall project no more that 2-3/16" from the surface of the door. Closers shall be reversible but supplied with a handed metal cover. Closer fluid shall contain lubricity and anti-oxidation agents. Closer fluid shall maintain stable viscosity to allow door closer to perform in temperatures ranging from extremely high to as low as -40°F. Closers shall have multi-size spring power adjustment to permit setting of spring from 1 through 6. Closers shall have two non-critical valves, hex key adjusted, to independently regulate sweep and latch speed. Closers shall have backcheck cushioning controlled by a hex key adjustable valve. Closers shall have backcheck position controlled by a hex key adjustable valve.

[Closers shall have adjustable delayed-action closing controlled by a hex key adjustable valve.]

**Closers shall be enclosed in a [plated] [sprayed] metal cover. Closers to be Norton Rixson [7570]. Covers shall be fastened to the body at four points, two at the top and two at the bottom to prevent prying.

**For special arms insert the appropriate specification from column two on this page.

**Unitrol® Arm

Door closers shall have built-in door stop effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop shall be cushioned by a shock-absorbing heavy-duty spring action effective at the soffit plate pivot. Closers shall be provided for parallel arm installation using rigid steel main arm and secondary arm lengths proportional to the door width.

**CloserPlus® Arm

Door closers shall have built-in door stop [and holder] effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop mechanism shall be reversible and attached to soffit plate. [Hold open mechanism shall have engage/disengage selection actuated by thumbturn]. Closers shall be provided for parallel arm installation using rigid steel main and secondary arms.

**CloserPlus Spring™ Arm

Door closers shall have built in door stop [and holder] effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop mechanism shall have a buffer spring that engages prior to the dead stop feature, reducing shock loads to the door and frame assembly. Door stop mechanism shall be reversible and attached to soffit plate. [Hold open mechanism shall have engage/disengage selection actuated by thumbturn]. Closers shall be provided for parallel installation using rigid steel main and secondary arms.

NORTON RIXSON
ASSA ABLOY

7570
SECURITY DOOR CLOSER

APPLICATIONS



Regular Rigid Arm

This double lever arm features a non-adjustable secondary arm. Orbitally riveted joints prevent tampering or disassembly. The rigid heavy-duty arm is standard with the security closers featuring a regular arm applicaton.

Auxiliary door stop required. Available non-hold open only.



Parallel Rigid Arm

An enhanced variation of the standard parallel arm assembly that is intended for use in heavy traffic areas where auxiliary door stops are installed.

Auxiliary door stop required. Available non-hold open only.



CloserPlus® Arm

Similar to the Parallel Rigid arm, this arm incorporates a stop at the arm's soffit plate to dead stop the door at a predetermined degree of door swing between 85° and 110°, in 5° increments. Prior to dead stop the door closer's backcheck feature slows the door speed to reduce the impact of the stop action.

CloserPlus arm is intended for use where an auxiliary door stop cannot be utilized and no more than moderate abuse is anticipated. Where more extreme conditions are expected, use of a Unitrol® arm is recommended.

Thumbturn hold open available. (Hold open strength is adjustable.)

APPLICATIONS



CloserPlus Spring™ Arm

This heavy-duty stop arm includes all of the features of the CloserPlus Arm, plus an added buffer spring that is compressed prior to the arm hitting the dead stop point. This greatly reduces the shock of the stopping action that occurs with the CloserPlus arm.

CloserPlus Spring Arm is intended for use where an auxiliary door stop cannot be utilized and no more than moderate abuse is anticipated. Where more extreme conditions are expected, use of a Unitrol arm is recommended.

Thumbturn hold open available. (Hold open strength is adjustable.)



Unitrol® Arm (Parallel Arm)

Unitrol arms combine the features of a double lever arm overhead door stop/holder with the backcheck feature of the door closer to reduce door stopping shock loads to a minimum. This arm uses a compression spring buffer at thesoffit plate/arm shoe that will absorb 30 lbs. of force, 5° prior to the door's dead stop. Coupled with the door closer's backcheck feature, the Unitrol Arm offers the most controlled stop available with a surface door closer.

There are three different length arm assemblies. Each length is designed for a specific range of door widths to provide precise door control. This further lessens the dead stop impact on the door's hinges/pivots.

Only available in painted finishes.



Pull Side



Push Side

Slide Track Mounting

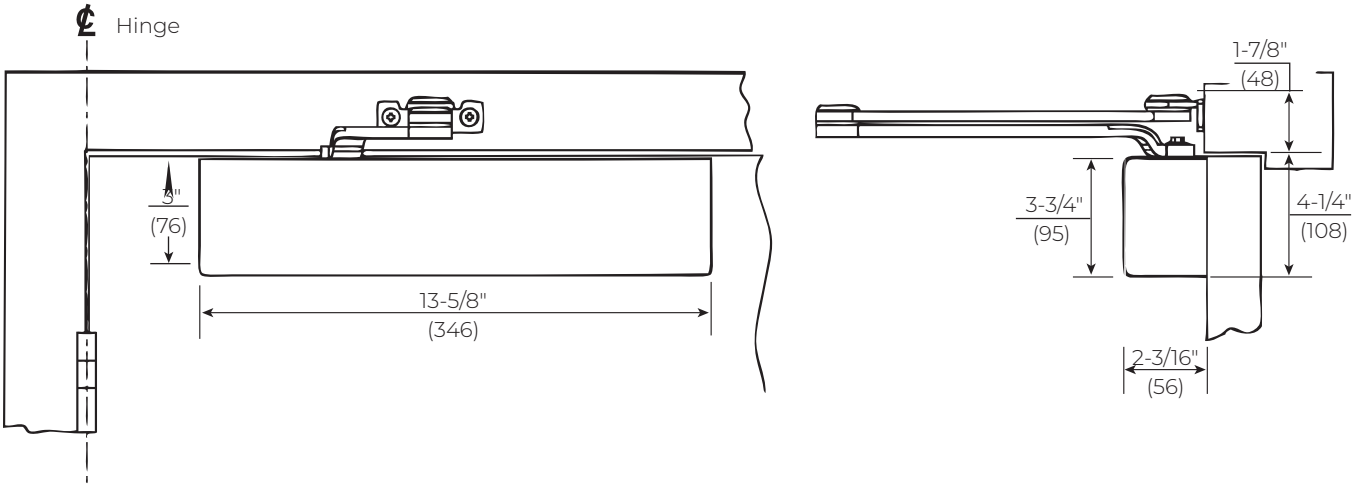
Whether pull or push side mounted, this application provides the designer with the smoothest lines available in a surface-mounted door closer. The single lever arm allows components to be located in a stack configuration to minimize projection and eliminate obtrusive arm angles.

Auxiliary door stop is recommended for this application.

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7570
SECURITY DOOR CLOSER

REGULAR RIGID ARM



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

Model Number
Non-Hold Open
7570

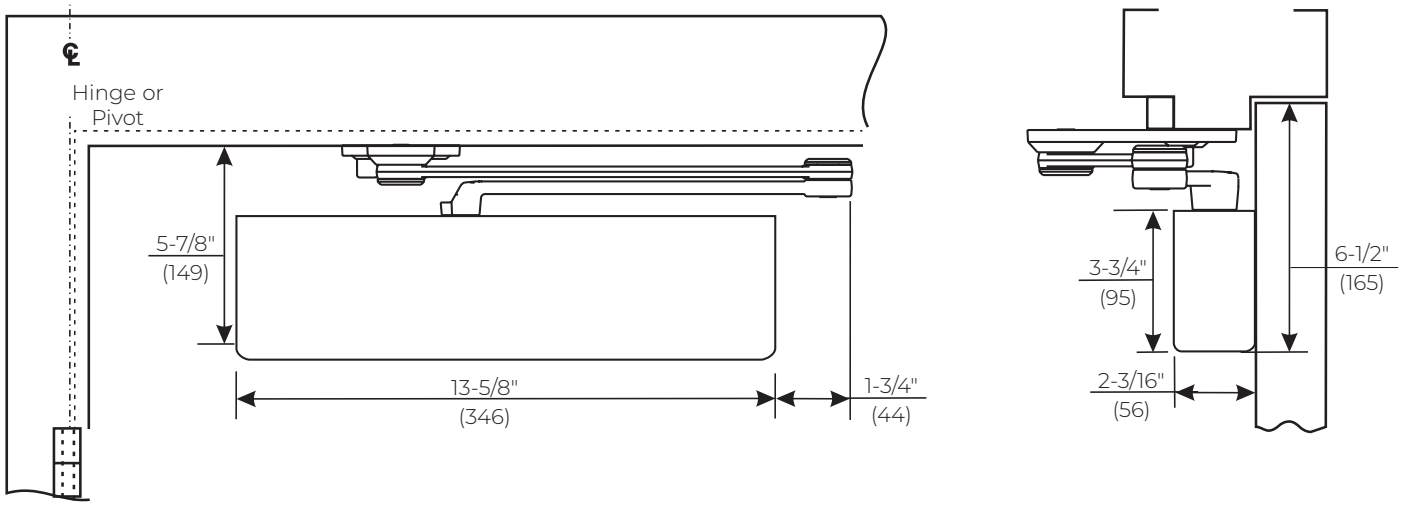
Note:

- Door closers are set at midpower range from the factory.
- Standard door widths: interior 36"-54" (91-137cm), exterior 30"-52" (76-132cm)

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7570
SECURITY DOOR CLOSER

PARALLEL RIGID ARM



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

Model Number
Non-Hold Open
PR7570

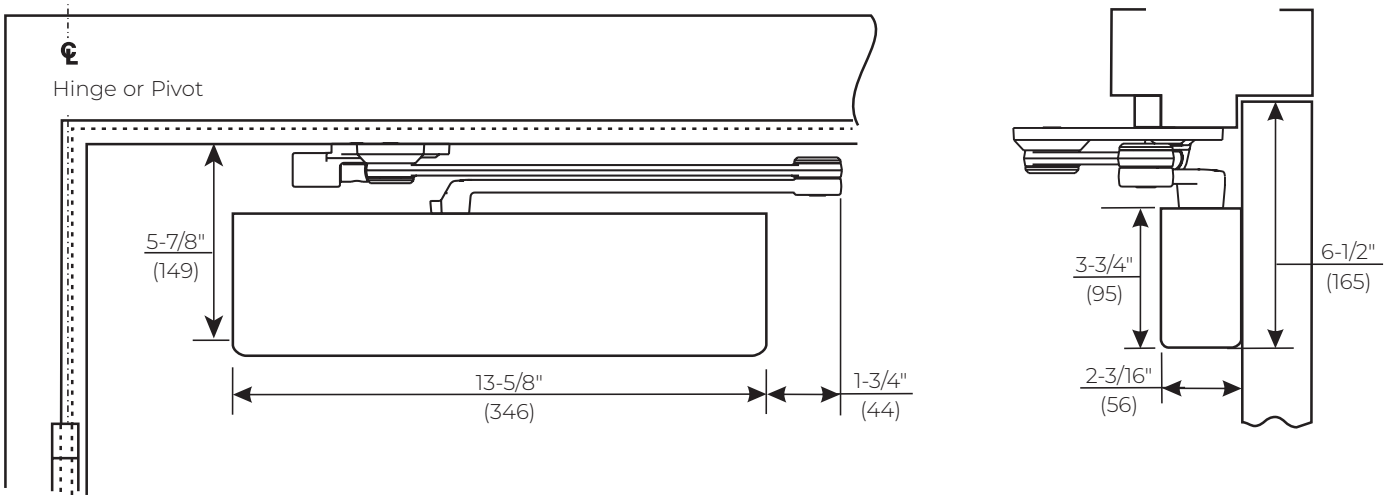
Note:

- Door closers are set at midpower range from the factory
- Standard door widths: interior 30"-48" (76-122cm), exterior 32"-48" (81-122cm)

NORTON RIXSON
ASSA ABLOY

7570
SECURITY DOOR CLOSER

CLOSERPLUS® ARM



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

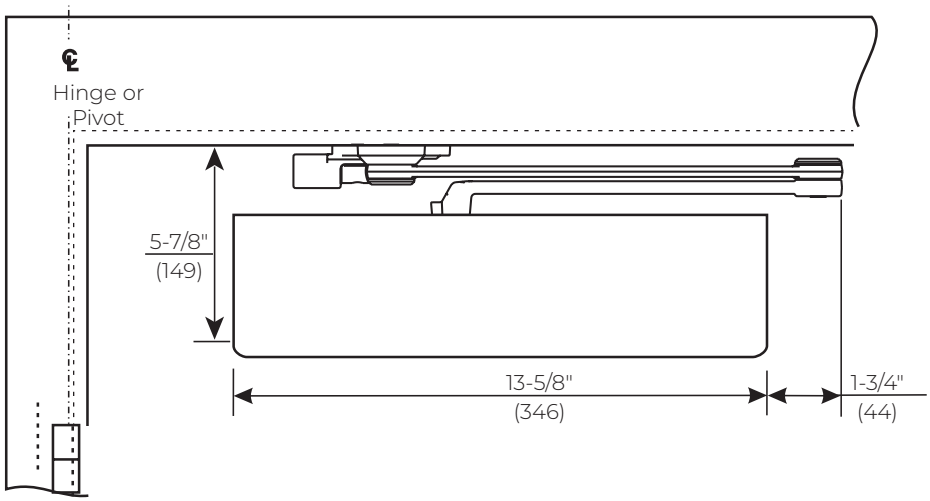
Model Number	
Non-Hold Open	Hold Open
CLP7570	CLP7570T

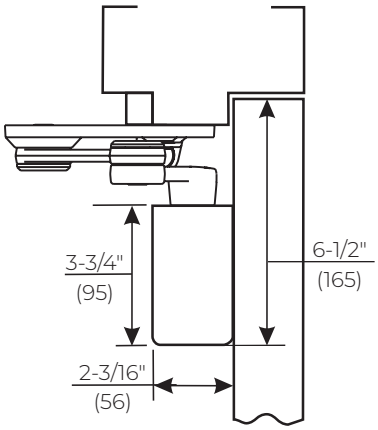
Note:

- Door closers are set at midpower range from the factory.
- Standard door widths: interior 30"-48" (76-122cm), exterior 32"-48" (81-122cm)

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CLOSERPLUS SPRING™ ARM





Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

Model Number	
Non-Hold Open	Thumbturn Hold Open
CPS7570	CPS7570T

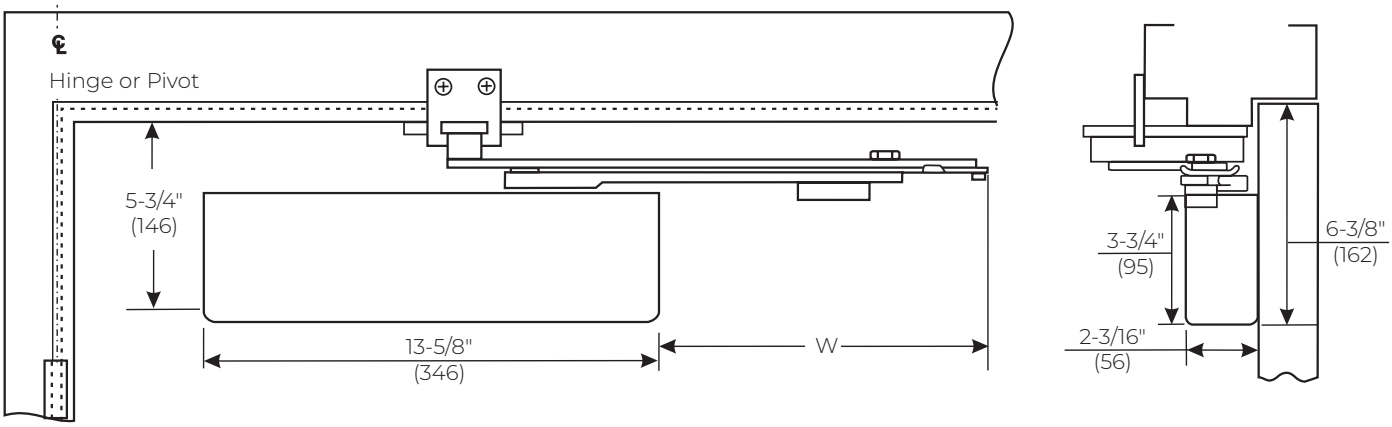
Note:

- Door closers are set at midpower range from the factory.
- Standard door widths: interior 30"-48" (76-122cm), exterior 32"-48" (81-122cm)

NORTON RIXSON
ASSA ABLOY

7570
SECURITY DOOR CLOSER

UNITROL® PARALLEL ARM



Door width must be specified when ordering.
Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

Use 6190* bracket for reveals 1-7/8" - 4-5/8" (48 to 117mm). Reveals in excess of 4-5/8" (117mm) requires use of 6191** reinforcing kit. Reveals to 1/8" (3mm) require use of a 2022** angle bracket.

* 6190 bracket is supplied standard with Unitrol arms.
** 6191 and 2022 must be specified in lieu of 6190 when required.

Door Width Inches (cm)	W Arm Extension Beyond Closer
28-32" (71-81)	8-5/8" (219)
33-41" (84-104)	10-1/8" (257)
42-48" (107-122)	11-1/2" (292)

Model Number
Non-Hold Open
UNI7570

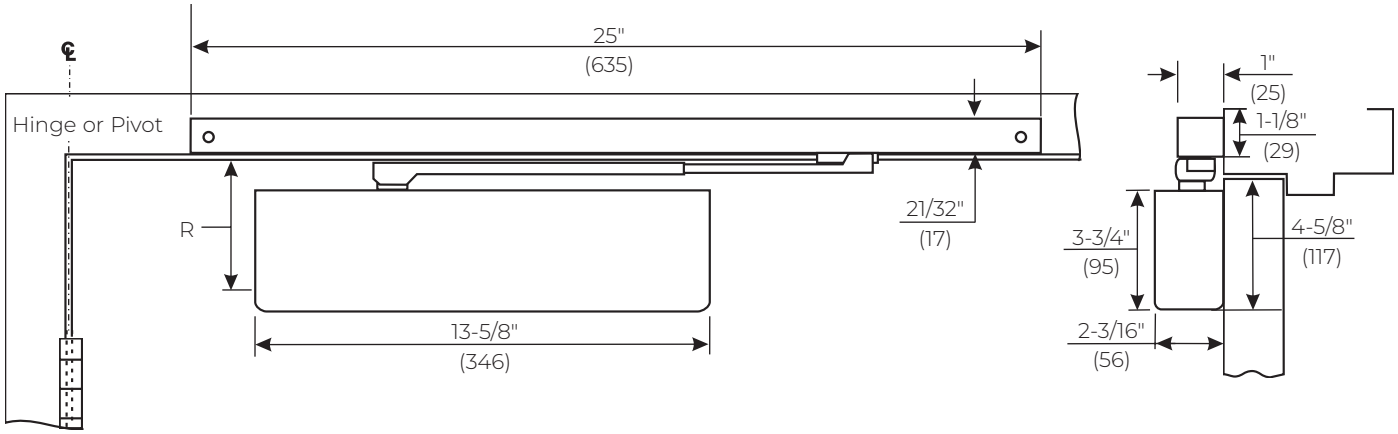
Note:

- Door closers are set at midpower range from the factory.
- Standard door widths: 30"-48" (76-122cm)

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7570
SECURITY DOOR CLOSER

PULL SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R Minimum Top Rail of Door with Frame Stop	
Without Drop Plate	**With 7786 Drop Plate**
3-1/2" (89mm)	2" (51mm)

Model Number
Non-Hold Open
7570ST

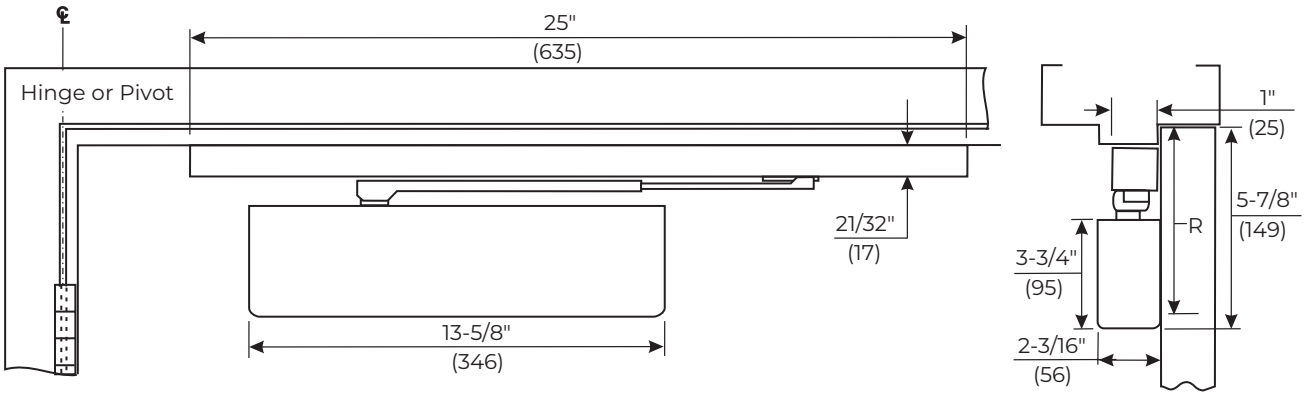
Notes:

- Door closers are set at midpower range from the factory.
- Door will swing up to 110° with buffer. Without buffer, door will swing to 180°. Auxiliary stop required for all applications.
- Standard door width: interior 32"-48" (81-122cm)

NORTON RIXSON
ASSA ABLOY

7570
SECURITY DOOR CLOSER

PUSH SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R Minimum Top Rail of Door with Frame Stop 5/8" (16mm)	
Without Drop Plate	**With 7788 Drop Plate**
5-1/4" (133mm)	3-5/8" (92mm)

Model Number
Non-Hold Open
PS7570ST

Notes:

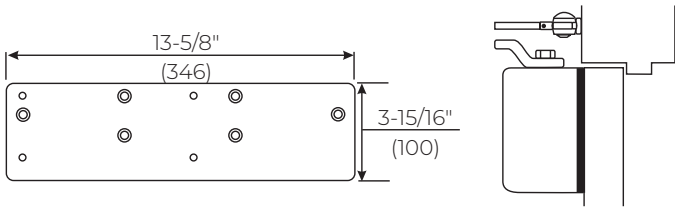
- Door closers are set at midpower range from the factory.
- Maximum degree of door swing is 125°. Auxiliary stop required for all applications.
- Standard door width: interior 32"-48" (81-122cm)

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REGULAR RIGID ARM

Closer Mounting Plate

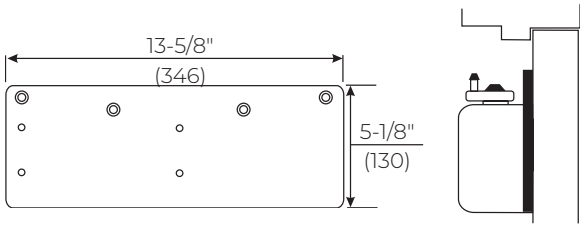
Narrow Top Rail - 7786 Drop Plate: For use where the narrow top rail of the door prevents the closer from being mounted directly to the door surface. This drop plate must be used for a closer mounted on a top rail between 1-7/8" and 3-3/8" (48 and 86mm) in height.



PARALLEL RIGID ARM

Closer Mounting Plate

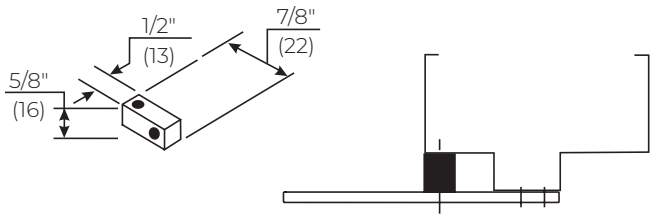
Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-1/2" (64mm) in height.



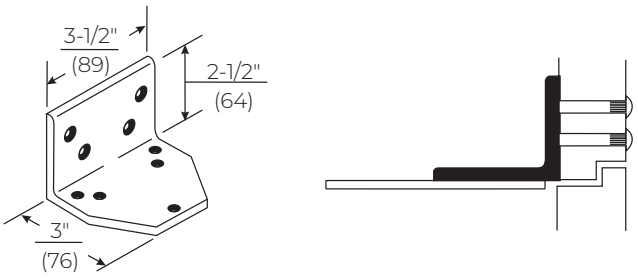
NORTON RIXSON
ASSA ABLOY

PARALLEL RIGID ARM

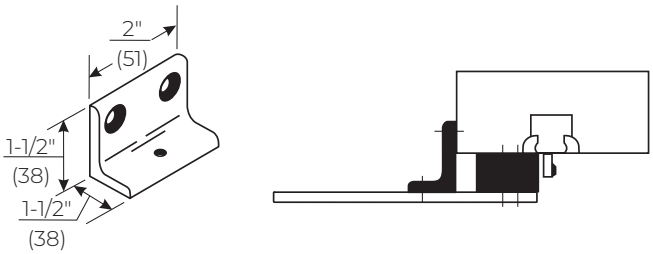
Brackets for Non-Hold Open Arms



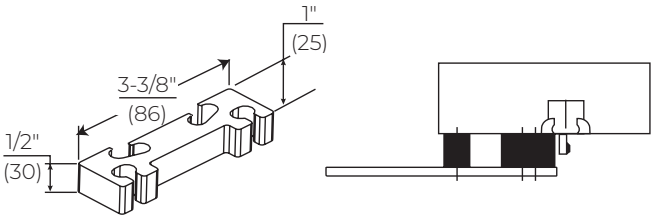
Standard - 2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all Parallel Rigid arm closers.



Flush Rabbeted Transom - 2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the standard soffit plate.



Narrow Frame - 6890 Support Bracket: For use where the frame is narrow, and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop.



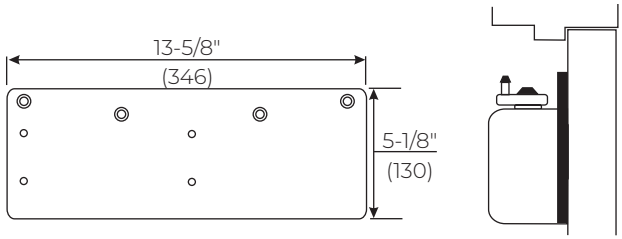
Clearance/Support Blade Stop - 6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard spacer block to provide clearance of the blade stop.

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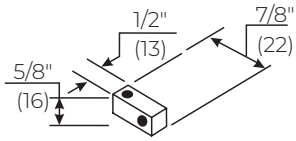
CLOSER PLUS® AND CLOSER PLUS SPRING™ ARMS

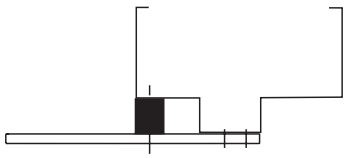
Closer Mounting Plate

Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-1/2" (64mm) in height.

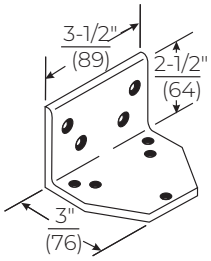


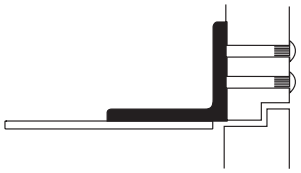
Brackets for Non-Hold Open Arms & Hold Open Arms



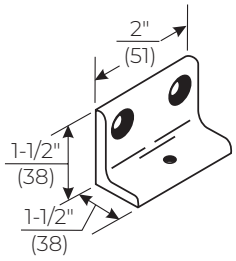


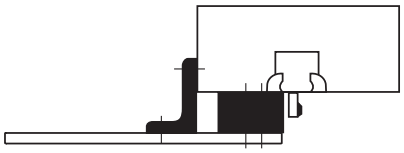
Standard - 2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied standard with all Parallel Rigid arm closers.



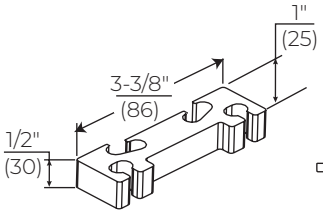


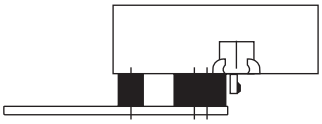
Flush Rabbeted Transom - 2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the standard soffit plate.





Narrow Frame - 6890 Support Bracket: For use where the frame is narrow, and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop.





Clearance/Support Blade Stop - 6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard spacer block to provide clearance of the blade stop.

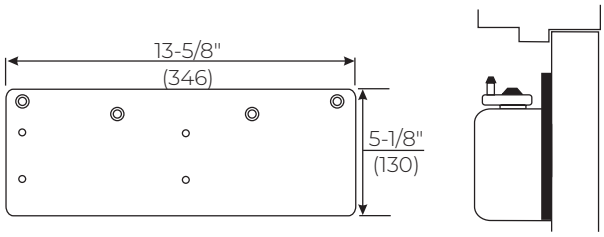
NORTON RIXSON
ASSA ABLOY

7570
SECURITY DOOR CLOSER

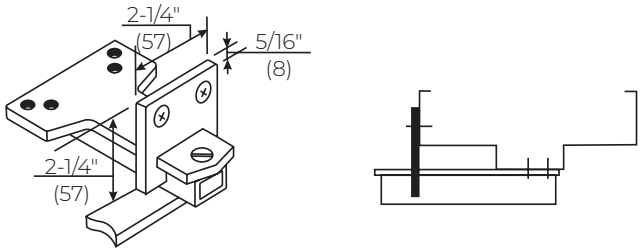
UNITROL® ARM

Closer Mounting Plate

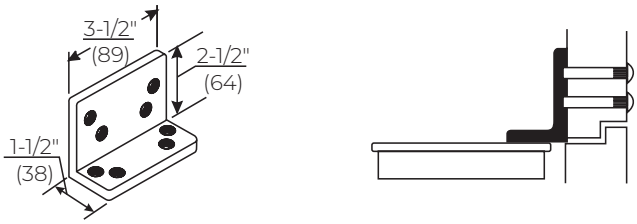
Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-3/8" (60mm) in height.



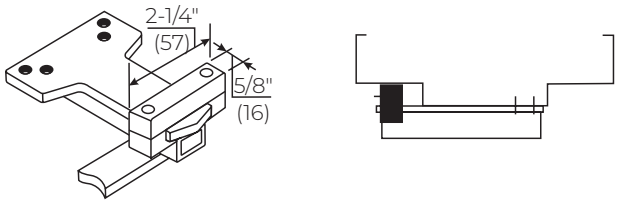
Soffit Plate Reinforcing Brackets

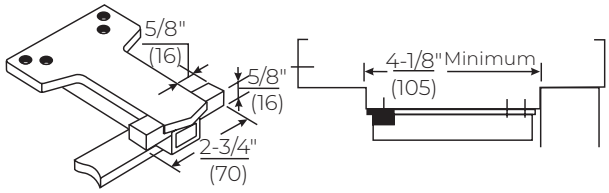


Additional Support - 6190 Reinforcing Bracket: Standard for use with all Unitrol parallel arms. Provides additional support to the soffit plate on installations with door frame reveals from 1-7/8" to 4-5/8" (48 to 117mm).



Flush Rabbeted Transom - 2022 Angle Bracket: Optional for use with all Unitrol parallel arms. For use where rabbeted or flush transom conditions prevent installation of the soffit plate assembly. This bracket fastens to the overhead transom to provide a mounting surface for the soffit plate assembly.

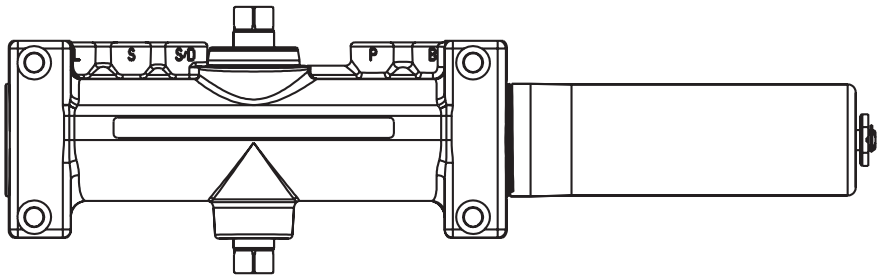




Wide Frame - 6191 Reinforcing Kit: Optional for use with all Unitrol parallel arms. Used to support the soffit plate on installations with wide frames. Clamps may be used with or without the spacer block, depending on frame conditions.

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BODY ASSEMBLIES, COVERS



Closer Bodies	
Part Number	**Description**
7500LAP	Multi-size closer body
7500DALAP	With delayed action

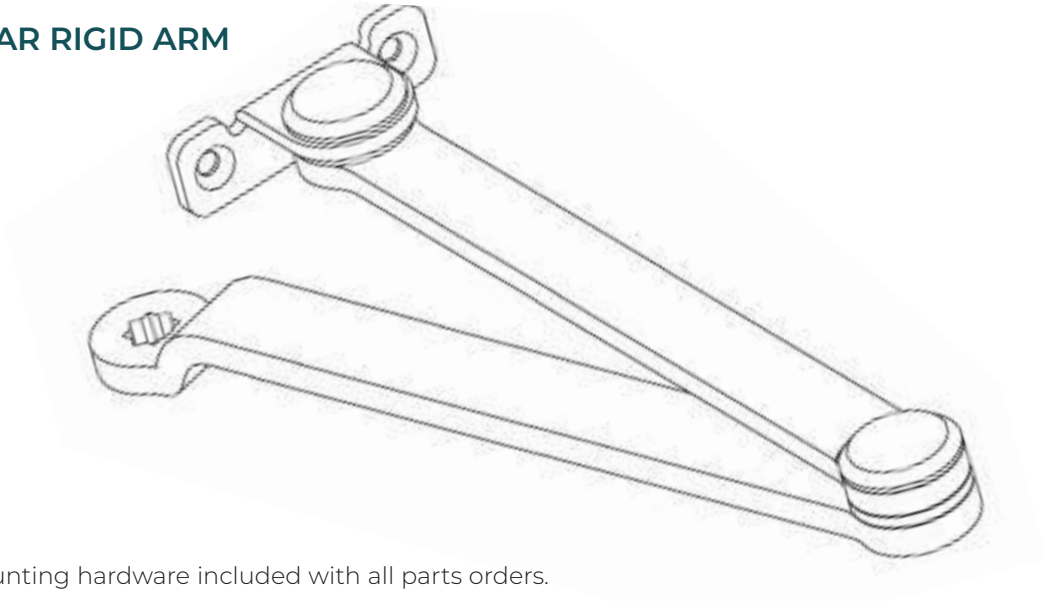
LAP = less all parts

Covers				
Part Number	**Mounting**	**Handing**	**Dimensions**	**Material**
7770MRR	Regular arm	Right hand	Length: 13-5/8" (346mm) Width: 3-3/4" (95mm) Projection: 2-3/16" (56mm)	Metal
7770MRL		Left hand		
7770MPR	Parallel arm	Right hand		
7770MPL		Left hand		

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7570
SECURITY DOOR CLOSER

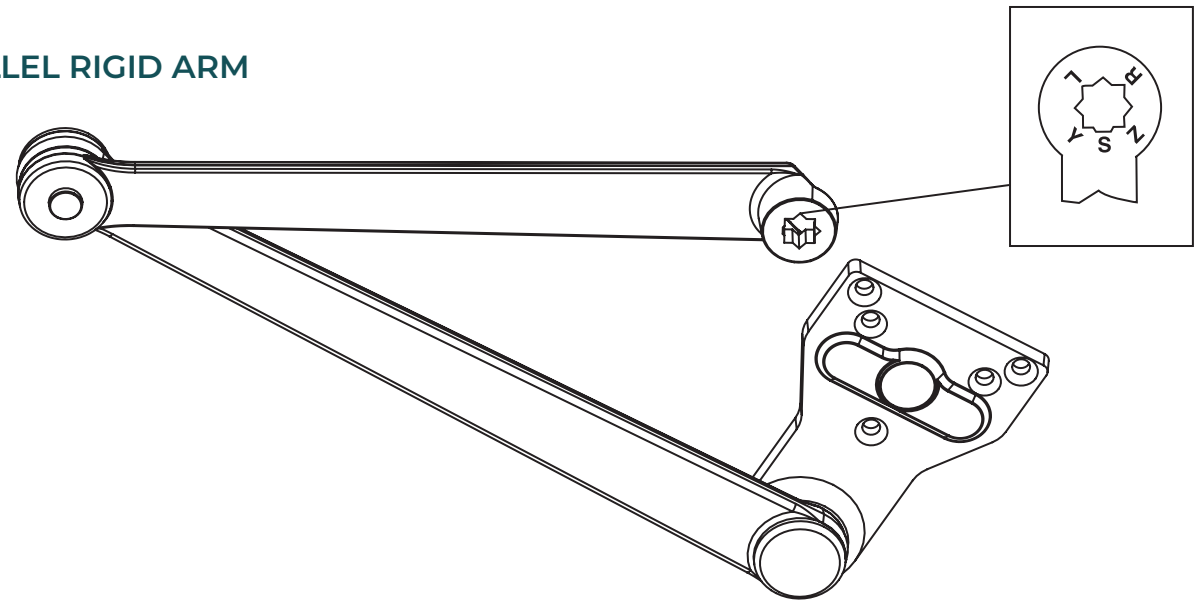
REGULAR RIGID ARM



Note: Mounting hardware included with all parts orders.

Closer Series	Arm Function	Complete Arm Assembly
R7570	Non-hold open	7771-1

PARALLEL RIGID ARM



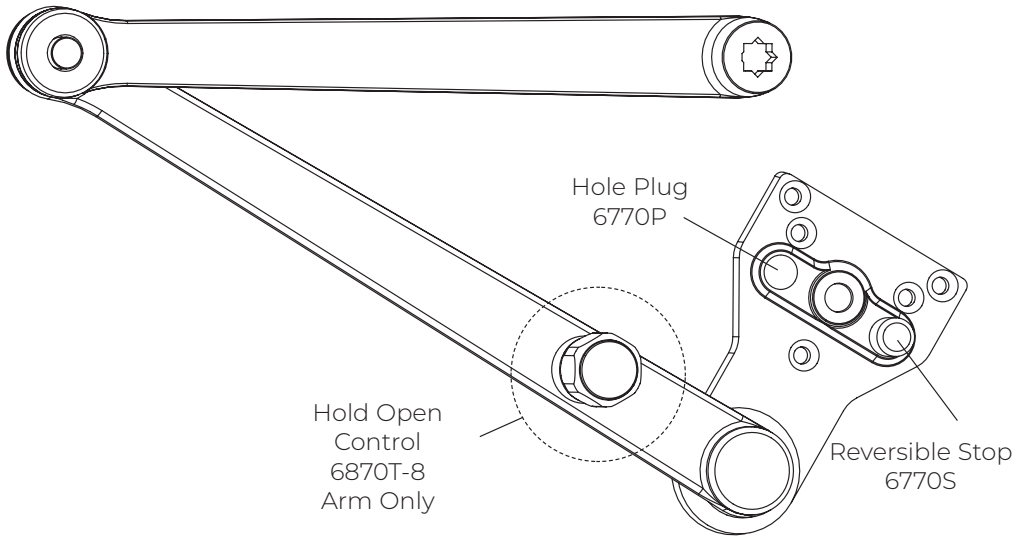
Note: Mounting hardware included with all parts orders.

Closer Series	Arm Function	Complete Arm Assembly
PR7570	Non-hold open	7771-5

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CLOSERPLUS® ARM

Hold Open Arm Shown (CLP-T)

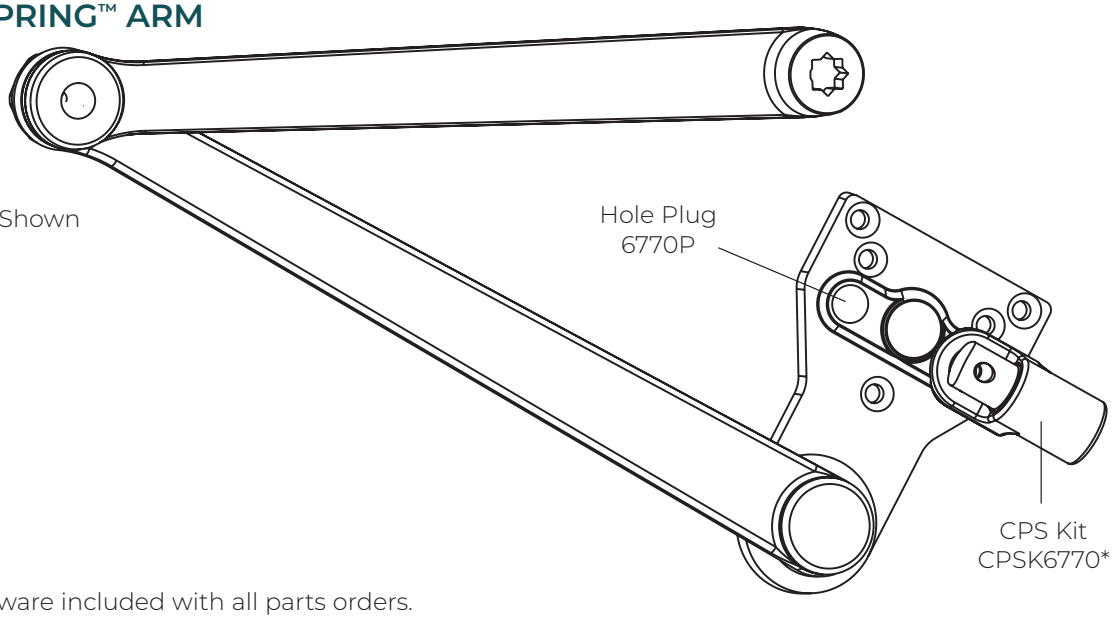


Note: Mounting hardware included with all parts orders.

Closer Series	Arm Function	Complete Arm Assembly
CLP7570	Non-hold open	CLP7771-5
CLP7570T	Thumbturn hold open	CLP7771-8T

CLOSERPLUS SPRING™ ARM

Non-Hold Open Arm Shown



Note: Mounting hardware included with all parts orders.

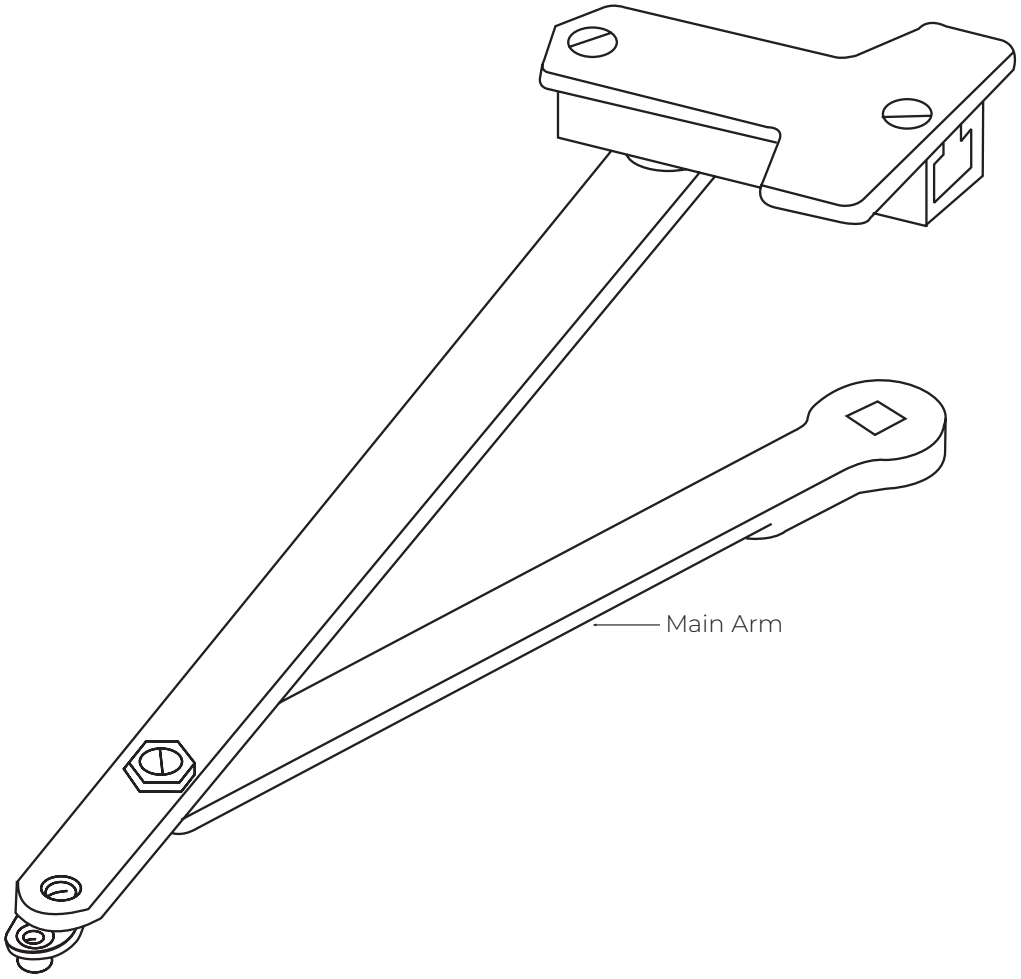
Closer Series	Arm Function	Complete Arm Assembly
CPS7570	Non-hold open	CPS7771-5
CPS7570T	Thumbturn hold open	CPS7771-8T

* CPSK6770 kit can be used to upgrade CLP7771-5 or CLP7771-8T arms.

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SECURITY DOOR CLOSER

UNITROL® ARM



Note: Mounting hardware included with all parts orders.

Door Width (cm)	Main Arm Length* (mm)	Complete Arm Assembly
		Non-Hold Open
28" - 32" (71- 81)	9-1/2" (241)	6100-11
33"- 41" (84 - 104)	11" (279)	6100-13
42" - 48" (107 - 122)	12-1/2" (318)	6100-14

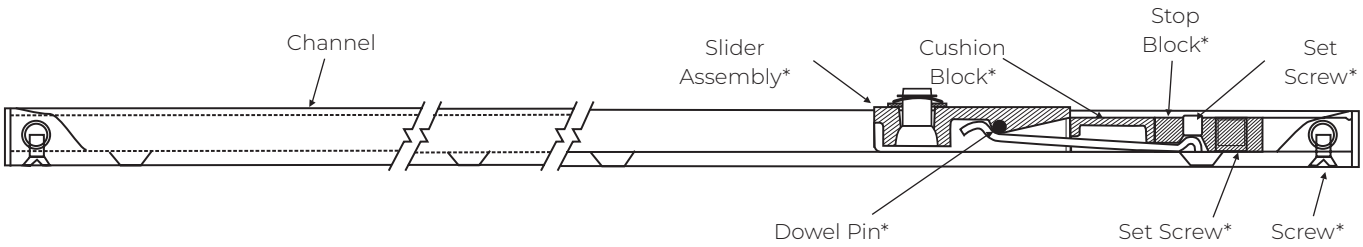
* Center to center length.
Only available in painted finishes.

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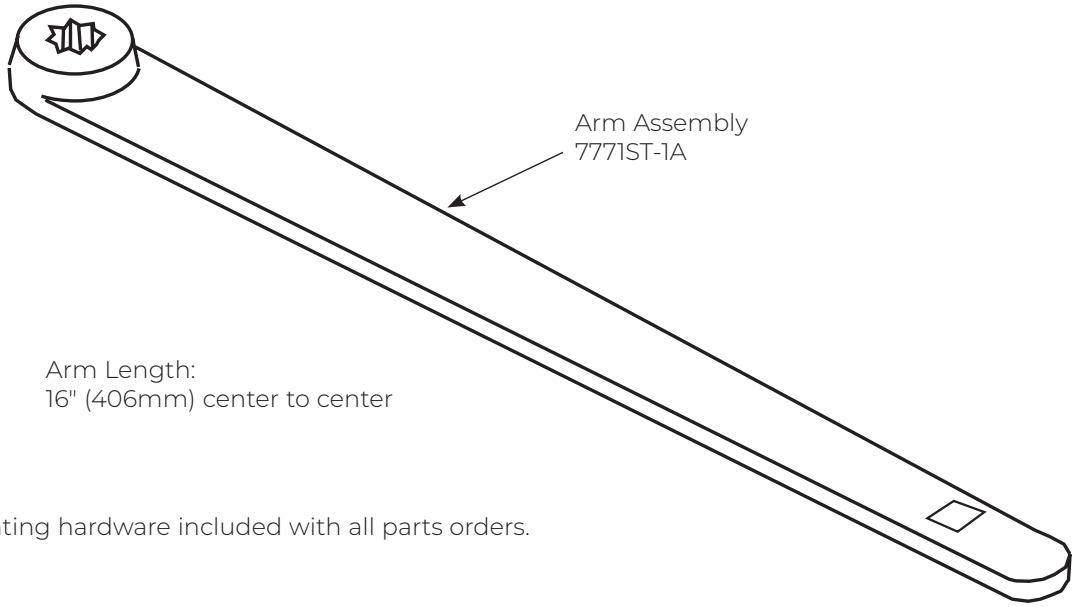
TRACK ASSEMBLIES

Non-Hold Open Arm Shown

Non-Hold Open	
Model	**Slide Track Assembly**
Pull-side mounted	7771ST-1T
Push-side mounted	7771ST-5T



*Part of an assembly pack non-hold open = 7740SLD



Note: Mounting hardware included with all parts orders.

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FASTENERS

Type	Description	Arm					
		RA	PR	CLP	CLS	UNI	ST
Torx®	Lobular *Torx* drive screws	S	S	S	S	S	S
SN	Sex nut	O	O	O	O	S	S
SDST	Self drilling self tapping	O	O	O	O	O	O

S = Standard; O = Optional

Torx drive screws, for tamper resistance are standard with 7570 closers. These screws are only offered with machine threads for fastening to metal doors and frames. #14-10 wood or sheet metal fasteners if required, must be supplied by others.

SN are for use on unreinforced hollow metal doors or to prevent any hollow metal door from collapse/dimpling. They can also be used for thru bolting on wood doors. **When selected as an add-on option,** SN are supplied for 1-3/4" (44mm) thick doors unless specified for 2-1/4" (57mm) thick doors.

Torx® Screw Pack^	
Arm Type	Part Number
Regular Rigid heavy-duty	RTX47
Parallel Rigid, CloserPlus® CloserPlus Spring™	PRTX47
Unitrol®	UNITX47

^Torx screws with machine screw threads are supplied with security closers.

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FINISHES

Norton Rixson offers waterborne acrylic, polyster powder coat and plated finishes. Custom finishes are available on special order. A sample and approval is required.

Waterborne acrylic and polyester powder coat will withstand 100 hours of salt spray (ANSI requires 25 hours).

ANSI/BHMA (US)	Description
605 (US3)	Bright brass, clear coated
606 (US4)	Satin brass, clear coated
611 (US9)	Bright bronze, clear coated
612 (US10)	Satin bronze, clear coated
613E (US10BE)	Dark oxidized satin bronze - equiv.
619 (US15)	Satin nickel plated, clear coated
625 (US26)	Bright chrome plated over nickel
626 (US26D)	Satin chrome plated over nickel
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
691 (US10)	Light bronze, painted
693	Black, painted
694	Medium bronze, painted
696 (US4)	Gold , painted
BSP	Black suede powder coat
WSP	White suede powder coat
600^	Prime coat

^ 600 is a special rust inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat.

- Closer bodies and plastic covers are available in waterborne acrylic finishes. Arms and metal covers are available in powder coat or plated finishes.
- When a plated finish is ordered, arm and cover will be plated unless "cover only" is specified.

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7570
SECURITY DOOR CLOSER

HOW TO ORDER

For optimum protection of door and frame assemblies, always use auxiliary wall, floor, or overhead door stop.

CLP	75	7	0	T
Prefixes	**Closer series**	**Specifies some options**	**Closer size**	**Suffixes**

No Prefix – Regular Rigid arm
PR – Parallel Rigid arm (parallel arm only). Non-hold open only.
PS – 7570ST for push side mounting only.
CLP – CloserPlus® arm (parallel arm only).
CPS – CloserPlus Spring™ arm (parallel arm only).
UNI – Unitrol® arm (parallel arm only - specify door width). Frame reveals 1-7/8" to 4-5/8" (48-117mm) standard.

7 – Specifies closer having a security arm, security cover and Torx® security screws (specify hand).

0 – Adjustable 1-6

None – Non-hold open arm function
ST – Slide track – single lever arm (auxiliary stop recommended)
T – Thumbturn hold open on CloserPlus® (CLP) or CloserPlus Spring™ (CPS) arm
EBC – Enhanced Backcheck
DA – Delayed Action
EP – Extra Power (specify model 7776EP)

NOTE:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).or wind/draft conditions) may require adjustment of spring setting, selection of a larger size closer or different closer.

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ARCHITECTURAL DOOR CLOSER

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INTRODUCTION

Multi-sized surface closer offering a complete range of arms and a sleek, minimal design suited for moderate- to high-traffic, architectural openings.



FEATURES

- Exceeds 25 million cycles
- Adjustable spring sizes 1 through 6
- Door weight: 250 lbs.
- Tri-Style® packaging standard (regular arm, top jamb and parallel arm mounting)
- Non-handed
- Staked valves
- Cast aluminum closer body
- Rack and pinion design
- 1-1/4" (32mm) diameter piston
- 5/8" (16mm) diameter pinion journals
- 2-1/8" (54mm) projection (standard covers)
- All standard arm applications (with slim, full or metal covers) allow doors to swing 180 degrees, conditions permitting
- Full size template
- Standard, separate and independent, latch, sweep and back check intensity valves
- Application specific arms: Regular (S), Top Jamb (JS) and Parallel (P)
- Heavy-duty arms; Regular Rigid, Parallel Rigid, CloserPlus®, CloserPlus Spring™, Unitrol®
- Slide Tracks: push or pull side mounting
- 30-year limited warranty

OPTIONAL FEATURES

- Lead lined metal cover - suffix MLL
- Metal, architectural plastic or architectural metal covers (8501 only)
- Delayed action

Features	8301	8501
Slim Line Cover	✓	
Full cover		✓

PATENTS

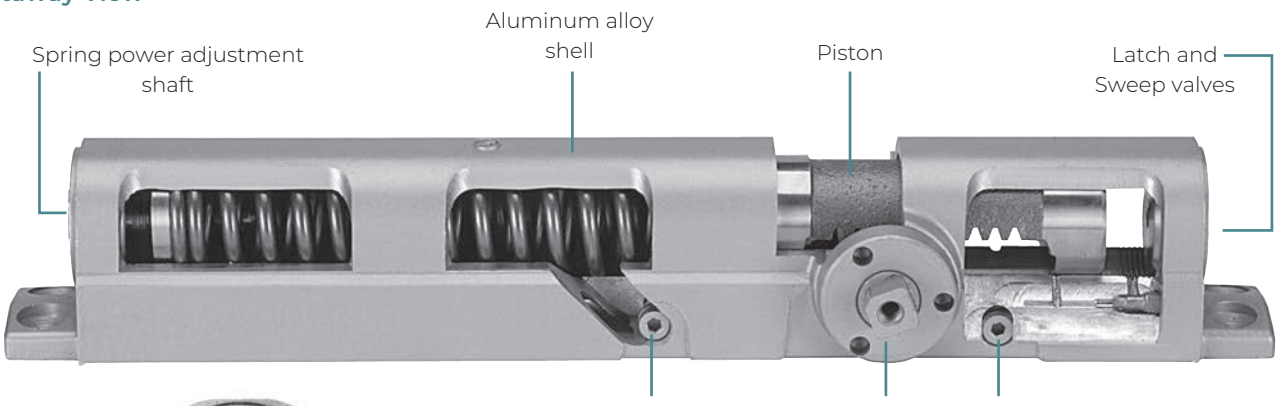
- assaabloydss.com/patents

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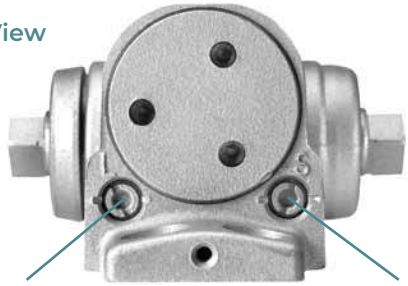
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OVERVIEW

Cutaway View



End View



CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1
- ANSI/BHMA A117.1
- Americans with Disabilities Act (ADA) Compliant
- Environmental Product Declaration (EPD)
- UL10C positive pressure up to 3 hours
- UL-cUL listed
- Manufactured in an ISO 9001, ISO 14001 facility

CAUTION: Door Closers for Low Opening Force Applications:
Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

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EXPLANATION OF FEATURES

Aluminum Alloy Housing
Closer bodies are constructed of a special aluminum alloy, carefully selected to accommodate interactive steel components and operating conditions.

Rack & Pinion Operation
Provides a smooth constant control of the door through its full opening and closing cycle. 180° door swing can be achieved when door, frame, hardware and arm function do not interfere.

Non-handed
With few exceptions all series 8301/ 8501 door closers are non-handed and can be installed on either right- or left-hand swing doors. Pinion shaft extends vertically through the closer body in both directions. Some options will require that the hand of the closer be specified.

Sweep Speed Control Valve
Allows adjustment of door speed from the door's full open position down to approximately 10° from the closed position.

Latch Speed Control Value
Allows adjustment of door speed from approximately 10° down to the door's fully closed position.

Tri-Style®
8301/8501 comes with screws, brackets and soffit plates to allow for regular, top jamb, and parallel arm installations.

Adjustable Backcheck Cushion Valve
Provides control of the door in the opening cycle, beginning at approximately 75° of door opening. It cushions the door opening when the door is forcibly opened beyond its pre-adjusted limits.

Standard Molded Covers
Molded of high-impact U.L. listed material. These covers are non-handed for all applications.

Warranty
Limited 30-year warranty for defects and life of the building on the aluminum housing.

Closer Fluid
NorGlide® closer fluid is a specially formulated multi-viscosity hydraulic fluid that contains lubricity and anti-oxidation agents that provide optimum performance and efficiency. This fluid complements the interaction of the door closer's aluminum housing with its steel and brass components, while maintaining stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as -40° F.

DOOR CLOSER POWER OPTIONS

Series 8301/8501 Multi-Sized Door Closer
Adjustable through the power range of sizes 1 through 6; as outlined in ANSI/ BHMA specification A156.4 option PT 4H.

Closers will also comply with the opening force requirements as outlined in the Americans with Disabilities Act (ADA) and ANSI/BHMA standard A117.1 for interior doors.

Optional Metal Cover
This steel cover is non-handed for regular and parallel arm applications, but is handed for top jamb applications. Cover is available in sprayed or plated finishes.



Optional Architectural Covers *

Plastic

Architectural plastic covers are molded of high-impact U.L. listed material. They are non-handed and available in sprayed finishes.

Metal

The architectural metal covers are steel and non-handed for all applications. These covers are available in sprayed or plated finishes.



Optional ABS Cover
Consult factory for details

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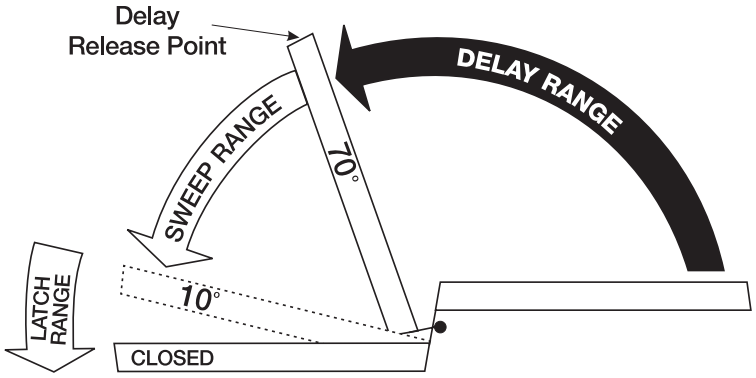
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ARCHITECTURAL DOOR CLOSER

EXPLANATION OF FEATURES

Adjustable Delayed Action Closing
An optional hydraulic feature that adds a third speed range to the closing cycle. This feature becomes effective when the door is opened and released at any point beyond 70°. The amount of time delay depends upon the combination of the angle of door release and valve adjustment. The valve can be adjusted with a 1/8" (3mm) hex key from no delay time up to maximum delay times of:

Door Opened and Released at	Approximate Time of Delay Cycle
180°	4-5 minutes
120°	2-3 minutes
90°	25-30 seconds

Pressure Relief Safety Valve
The delayed action hydraulic system contains a pressure relief valve. Any time the door is forced toward the closed direction while it is in the closing cycle, the valve will open and permit the door to close. This prevents damage to door, frame and closer.



Suggested Applications
Delayed Action closing allows slow moving traffic to clear the opening before the door closer's normal closing cycle begins. This feature can be helpful in health care facilities such as hospitals and nursing homes. It provides sufficient time for persons on crutches or in wheelchairs to pass through a door without concern of it closing. At the same time, it can accommodate the facility's staff with movement of food service carts, beds, and other wheeled traffic.

Use of delayed action closers on many doors throughout industrial and commercial buildings can also assist the flow of traffic. Locations where additional time to clear the opening is advantageous are doors between office and factory/ warehouse facilities, doors to workshops or laboratories, to kitchen and food processing areas, etc.

Non-Hold Open
Self-closes door every time door is opened. Auxiliary stop (by others) required except when using the CloserPlus®, CloserPlus Spring™ or Unitrol® arms.

Hold Open
Achieved by means of friction or ball and detent/ roller. Friction hold open has a range of 90° to 180° using template location and mechanical adjustment.

Ball and detent or roller hold open is effective in a range of 85° to 110°.

Hold open arm door closers are not permitted to be used on fire door assemblies.

Door Opening Degrees

Arm Function	Regular Top Jamb Parallel Arm	Parallel Rigid Arm	CloserPlus® Parallel Arm	CloserPlus Spring™ Parallel Arm	Unitrol® Parallel Arm	Unitrol® Top Jamb	Low Profile Regular, Parallel	Slide Track
Non-Hold Open	✓	✓	85° to 110°	85° to 110°	85° to 110°	85° to 110°	✓	85° to 110°/180°
Hold Open	90° to 180°	85° to 180°	85° to 110°	85° to 110°	85° to 180°	85° to 180°	N/A	85° to 110°

✓=180° trim and template permitting

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SUGGESTED SPECIFICATIONS

8301/8501 Series

Closers for interior and exterior doors shall be full rack-and-pinion type with cast aluminum alloy shell. Closers shall be surface mounted and shall project no more than 2-1/8" from the surface of the door with standard cover. Closers shall be non-handed to permit installation on doors of either hand. Closer fluid shall contain lubricity and anti-oxidation agents. Closer fluid shall maintain stable viscosity to allow door closer to perform in temperatures ranging from extremely high to as low as -40°F. Closers shall have multi-size spring power adjustment to permit setting of spring from size 1 through size 6. Closers shall have two non-critical valves, hex key adjusted, to independently regulate sweep speed and latch speed. Closers shall have adjustable backcheck intensity controlled by a hex key adjusted valve.

[Closers shall have adjustable delayed action closing controlled by a hex key adjustable valve.]

Regular arm and top jamb closers shall have a non-hold open shoe permitting 15% (+ or – 7-1/2%) power adjustment. **Closers shall be enclosed in a [molded resin cover] [plated or sprayed metal cover], Closers to be Norton Rixson [8301/8501] [8501M] [8501MA] [8501A].

**For special arms insert the appropriate specification from column two on this page.

**Unitrol® Arm

Door closers shall have a fixed door stop feature effective at one point selected at installation, from 85° - 110° in five-degree increments.

Door stop shall be cushioned by a shock-absorbing heavy-duty spring action effective at the [soffit plate] [arm shoe] pivot. [Closers shall be provided for parallel arm installation using a rigid steel main arm and secondary arm lengths proportional to the door width.][Closers shall be provided for top jamb installation using a forged steel, rigid main arm and telescoping secondary arm adequate for the frame reveal of the openings.]

**CloserPlus® Arm

Door closers shall have a field reversible door stop. Door closer shall have a feature with selectable on and off ball and detent hold open. Hold open tension shall be adjustable effective at one point selected at installation, from 85° - 110° in five degree increments. [Hold open mechanism shall have engage/disengage selection actuated by thumbturn]. Closers shall be provided for parallel arm installation using a forged rigid steel main arm and secondary arm.

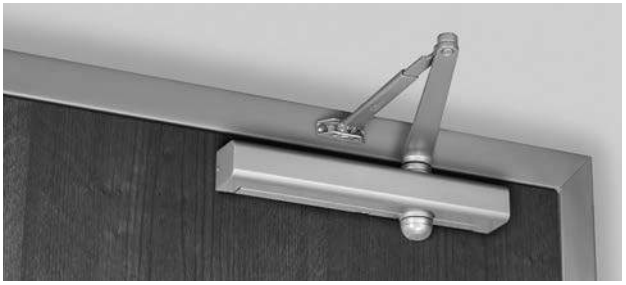
**CloserPlus Spring™ Arm

Door closers shall have built-in door stop [and holder] effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop mechanism shall be reversible and have a buffer spring that engages prior to the dead stop feature, reducing shock loads to the door and frame assembly. Door stop mechanism shall be non-handed and attached to soffit plate. [Hold open mechanism shall have engage/disengage selection actuated by thumbturn]. Closers shall be provided for parallel installation using a forged rigid steel main arm and secondary arm.

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ARCHITECTURAL DOOR CLOSER

APPLICATIONS



8301 - slim cover

Regular Arm
This is the only pull side application where a double lever arm is used. It is the most power-efficient application for a door closer. Sufficient frame, door and/or ceiling clearance must be considered.



8501 - full cover

Since the arm assembly projects directly out from the frame, this application may present an aesthetics issue or be prone to vandalism.



Top Jamb
For efficiency reasons this application provides the best alternative to the regular arm application. There must be sufficient frame face and/or ceiling clearance for this application. It requires a top rail on the door of just 2-1/4" (57mm). This application provides the best door control for doors in exterior walls that swing out of a building.



The entire door closer and arm assembly project from the frame, similar to the regular arm application, where matters of appearance and malicious abuse can be of concern. Consideration must be given to depth of frame reveal.



Parallel Arm
This application provides the most appealing design appearance for a surface mounted door closer having a double lever arm. This also makes it beneficial in vandalism-prone areas. It is on the push side of the door and the arm assembly extends almost parallel to the door. In the closed position, there is very little or no hardware projecting beyond the frame face in most situations.



Due to the geometry of the arm it is approximately 25% less power efficient than a regular arm application. The entire closer and arm assembly are mounted below the frame stop. Top rail clearance dimensions will vary based on the type of cover used.

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APPLICATIONS



Non-hold open arm shown

Parallel Rigid Arm

An enhanced variation of the standard parallel arm assembly that is intended for use in heavy traffic areas where auxiliary door stops are installed.

Hold open available - specify hand when ordering.



Non-hold open arm shown

CloserPlus® Arm

Similar to the Parallel Rigid arm, this arm incorporates a stop at the arm's soffit plate to dead stop the door at a predetermined degree of door swing between 85° to 110°, in 5° increments. Prior to dead stop the door closer's backcheck feature slows the door speed to reduce the impact of the stop action.

The CloserPlus Arm is intended for use where an auxiliary door stop cannot be utilized and no more than moderate abuse is anticipated. Where more extreme conditions are expected, use of a Unitrol arm is recommended.

Available with or without hold open. (Hold open strength is adjustable.)



Non-hold open arm shown

CloserPlus Spring™

This arm has all the characteristics of the CloserPlus arm with an additional steel buffer spring that provides greater protection at the end of the door opening cycle.

For extreme conditions, use of a Unitrol arm is recommended. Available with or without hold open.



CloserPlus Ramp™

The CLP-R uses a patent pending ramp and plunger design that easily slides into place reducing wear often seen on traditional hold open arms. Ideal for applications where the door will constantly be pulled out of hold open.

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APPLICATIONS



Regular Rigid Arm

This double lever arm features a non-adjustable secondary arm. Orbitally riveted joints prevent tampering or disassembly. Prefix "R" to model number. Available non-hold open only.



Non-hold open arm shown

Parallel Rigid Offset Arm

This heavy-duty parallel rigid arm provides additional vertical clearance. It is well suited for applications where weather stripping or other hardware prevents the use of the standard Parallel Rigid (PR) soffit plate. The non-hold open and hold arms allow 1-1/4" clearance. When used in conjunction with a 6891 spacer block, the PRO arm provides 1-7/8" clearance to accommodate the use of a surface overhead stop/holder.



Parallel



Top Jamb

Unitrol® Arm

Can be used for either parallel arm or top jamb applications. Unitrol arms combine the features of a double lever arm overhead door stop/holder with the backcheck feature of the door closer to reduce door stopping shock loads to a minimum. The Unitrol uses a compression spring buffer at the soffit plate/arm shoe that will absorb 30 lbs. of force, 5° prior to the door's dead stop. Coupled with the door closer's backcheck feature, this arm provides the most controlled stop available with a surface door closer.

For parallel arm applications there are three different length arm assemblies. Each length is designed for a specific range of door widths, to provide precise door control. This further lessens the dead stop impact on the door's hinges/pivots.

Only available in painted finishes.

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APPLICATIONS



Pull side



Low profile pull side



Push side



Low profile push side

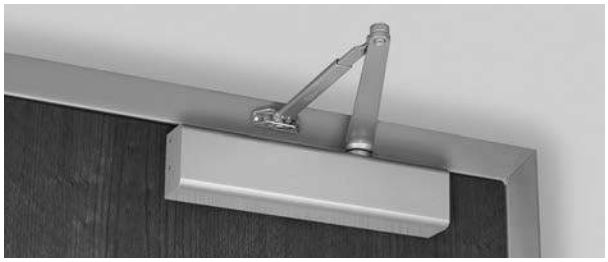
Slide Track

Whether pull or push side mounted, slide track applications provide the designer with the smoothest lines available in a surface mounted door closer. The single lever arm allows components to be located in a stack configuration to minimize projection and eliminate obtrusive arm angles. The arm geometry reduces door closer power efficiency by approximately 25% from that of a regular arm.

Standard Unit

Adjustable 85° to 110° (hold open and non-hold open). Track is supplied with a spring buffered stop. An auxiliary stop, by others, is recommended.

- Specify if hold open unit is required.
- 180° swing (non-hold open, pull side only) is also available. This track assembly requires that a door stop, by others, be supplied to stop the door.



Regular Arm - allows closer to be installed where there is as little as 1" (25mm) of frame face or ceiling clearance.



Parallel Arm - allows closer to be installed 1/2" (13mm) higher up on door than standard parallel arm application.

Low Profile Arm

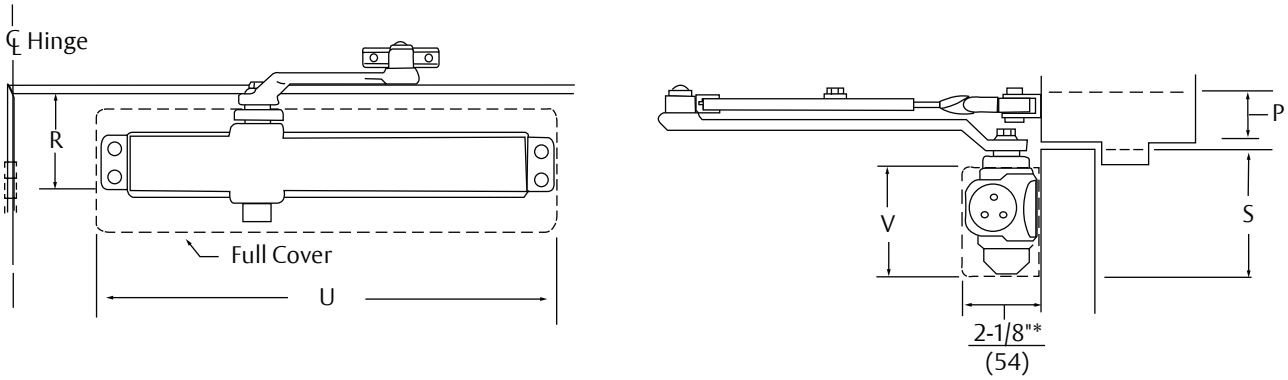
Supplied with 8381/8581 series door closers for non-hold open installations only. Low profile arms have a reduced height elbow joint and a straight main arm. This enables the door closer to be installed in less vertical space.

Note: Low profile arm door closers are not supplied with Tri-Style® packaging.

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ARCHITECTURAL DOOR CLOSER

REGULAR ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	Covers	P Minimum Ceiling Clearance			R Minimum Top Rail				S Minimum Top Rail Clearance		U Closer Length	V Closer Height
					W/O Drop Plate		W/8146 Drop Plate					
		NHO	Low Profile	HO	NHO	Low Profile	NHO	Low Profile	NHO	Low Profile		
8101	No cover	1-1/2" (38)	1" (25)	1-5/8" (41)	2-1/2" (64)	2-3/8" (60)	1-5/8" (41)	1-1/2" (38)	3-1/2" (89)	3-3/8" (86)	12-3/4" (324)	2-7/8" (73)
8301	Slim line plastic										13" (330)	
8501	Full plastic											
8501M	Metal								4-1/4" (108)	4-1/8" (105)	13-5/8" (346)	3-3/4" (95)
8501A	Arch. plastic								3-5/8" (92)	3-1/2" (89)	14" (356)	3-1/8" (79)
8501MA	Arch. metal								3-1/2" (89)	3-3/8" (86)		3" (76)

Model Number	
Non-Hold Open	Hold Open
8301 8501	8301H 8501H

Notes:

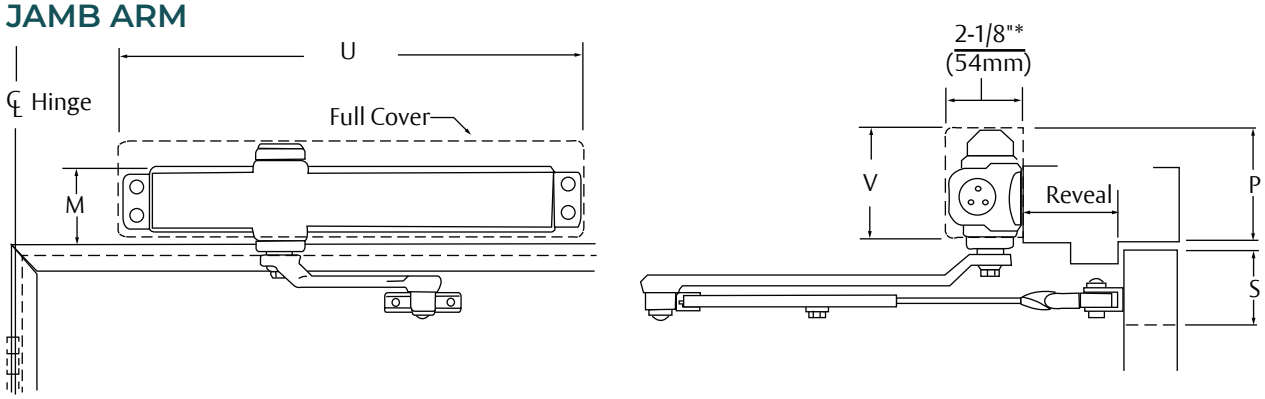
- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: 30"-48" (76-122cm)

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TOP JAMB ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm). Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	Covers	M Minimum Frame Face			P Minimum Ceiling Clearance			S Minimum Top Rail Clearance 5/8" (16mm) Frame Stop									U Closer Length	V Closer Height
								W/O Drop Plate			W/8146 Drop Plate			With 8148/8547 Drop Plate				
		W/O Drop Plate	With 8146 Drop Plate	With 8148, 8158, 8547, 8547A Drop Plate	W/O Drop Plate	With 8146 Drop Plate	With 8148, 8158, 8547, 8547A Drop Plate	NHO	Low Profile	HO	NHO	Low Profile	HO	NHO	Low Profile	HO		
8101	No cover	1-3/4" (40)	1-1/8" (29)	1-1/2" (38)	2-3/4" (70)	1-5/8" (41)	1-1/2" (38)	2-1/4" (57)	N/A	2-1/2" (64)	3-3/8" (86)	2-3/4" (70)	3-5/8" (92)	4-3/8" (111)	3-3/4" (95)	4-5/8" (117)	12-3/4" (324)	2-7/8" (73)
8301	Slim line plastic																13" (330)	
8501	Full plastic																	
8501M	Metal		N/A	1-5/8" (41)	3-3/4" (95)	N/A	1-5/8" (41)										13-5/8" (346)	3-3/4" (95)
8501A	Arch. plastic			1-1/2" (38)	3" (76)		1-1/2" (38)										14" (356)	3-1/8" (79)
8501MA	Arch. metal				2-7/8" (73)													3" (76)

Model Number	
Non-Hold Open	Hold Open
8301 8501	8301H 8501H

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: 30"-48" (76-122cm)
- Reveal range information is based upon 1-3/4" (44) doors hung on 4-1/2" wide hinges

Reveal Information

Model Number	Reveal Range Inches (mm)	Maximum Door Opening	
		NHO	HO
J8301, J8501	2-3/4" (70) to 4-1/4" (108)	180°	
J8301, J8501	4-1/4" (108) to 7" (178)	150°	
J8301H, J8501H	2-1/8" (54) to 4-1/4" (108)		180°
J8301H, J8501H	4-1/4" (108) to 6-3/4" (171)		150°

Reveal Information (regular arm installed top jamb)

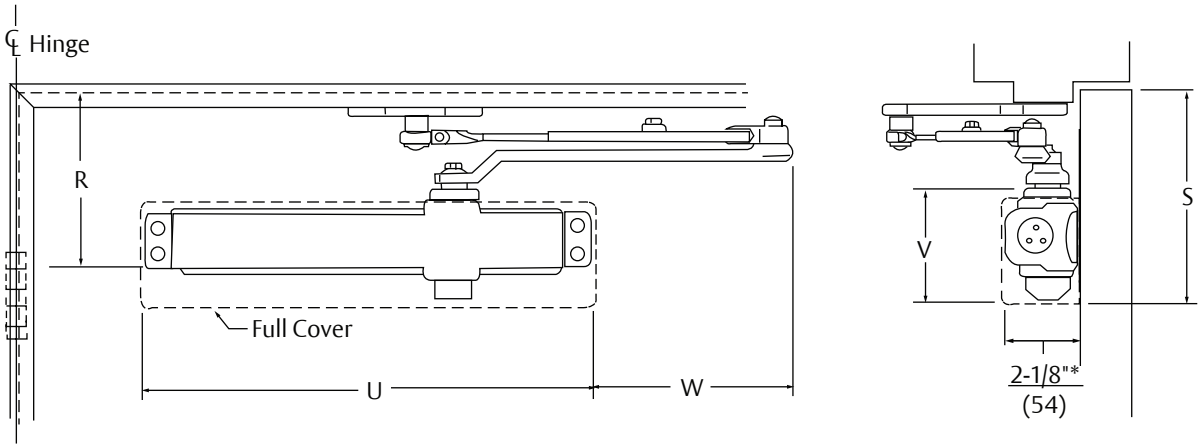
Model Number	Reveal Range Inches (mm)	Maximum Door Opening	
		NHO	HO
8301, 8501	0 to 2-7/8" (73)	180°	—
8301, 8501 w/Drop Plate^^	0 to 2-3/4" (70)	180°	
8301H, 8501H	0 to 2-3/4" (70)		180°

^^ Drop plate 8146, 8148, 8158, 8547 or 8547A

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PARALLEL ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	Covers	R Minimum Top Rail Minimum Top Rail 5/8" (16mm) Frame Stop						S Minimum Top Rail Clearance			U Closer Length	V Closer Height	W Arm Extension
		W/O Drop Plate			With 8148, 8158, 8548, 8548A Drop Plate								
		NHO	Low Profile	HO	NHO	Low Profile	HO	NHO	Low Profile	HO			
8101	No cover	5-1/4" (133)	4-5/8" (117)	5-1/4" (133)	3" (76)	2-3/8" (60)	3" (76)	6-1/4" (159)	5-5/8" (143)	6-1/4" (159)	12-3/4" (324)	2-7/8" (73)	8-1/8" (206)
8301	Slim line plastic										13" (330)		8" (203)
8501	Full plastic												
8501M	Metal							6-7/8" (175)	6-1/4" (159)	6-7/8" (175)	13-5/8" (346)	3-3/4" (95)	7-5/8" (194)
8501A	Arch. plastic							6" (152)	5-3/8" (137)	6" (152)	14" (356)	3-1/8" (79)	
8501MA	Arch. metal							5-7/8" (149)	5-1/4" (133)	5-7/8" (149)		3" (76)	

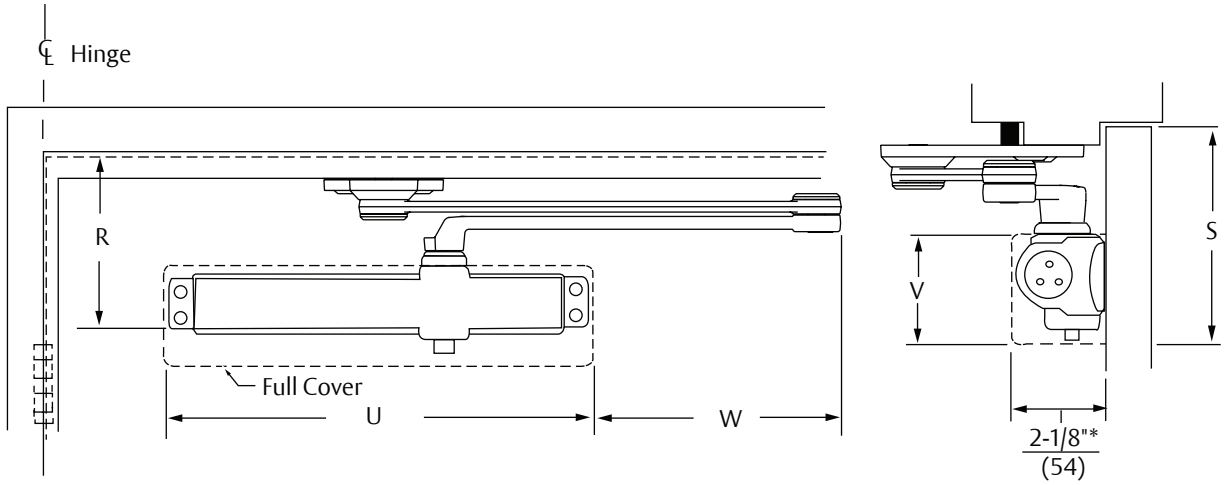
Model Number	
Non-Hold Open	Hold Open
8301 8501	8301H 8501H

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: 30"-48" (76-122cm)

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PARALLEL RIGID ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	Covers	R Minimum Top Rail		S Minimum Top Rail Clearance	U Closer Length	V Closer Height	W Arm Extension
		W/O Drop Plate	With Drop Plate				
8101	No cover	4-5/8" (117)	2-3/8" (60)	5-7/8" (149)	12-3/4" (324)	2-7/8" (73)	8" (203)
8301	Slim line plastic				13" (330)		
8501	Full plastic						
8501M	Metal			6-1/2" (165)	13-5/8" (346)	3-7/8" (98)	7-5/8" (194)
8501A	Arch. plastic			6" (152)	14" (356)	3-1/8" (79)	7-1/2" (191)
8501MA	Arch. metal			5-7/8" (149)		3" (76)	

Model Number	
Stop Only	Hold Open
PR8301 PR8501	PR8301H PR8501H

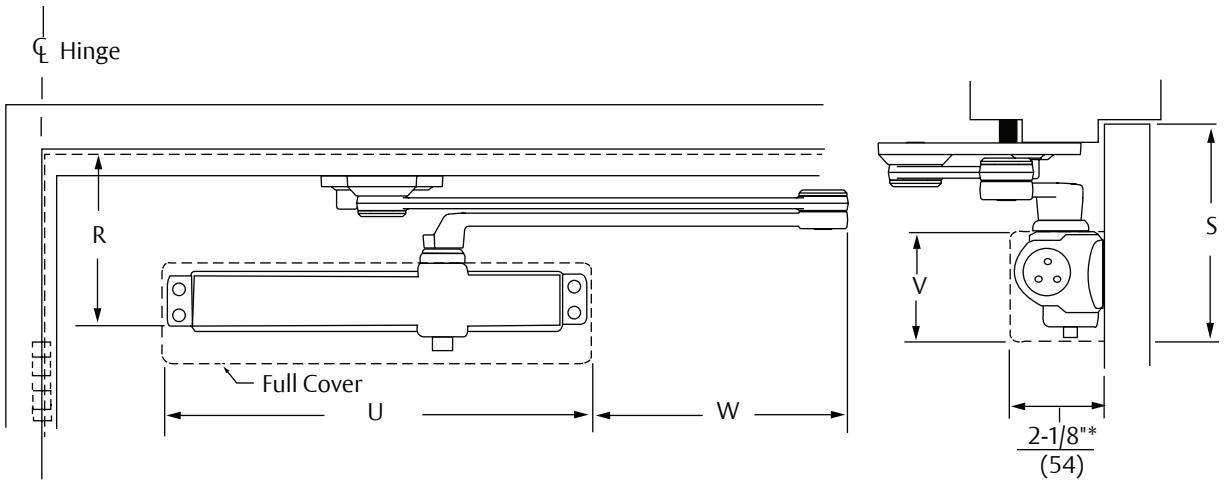
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: 28"-48" (71-122cm)

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CLOSERPLUS® ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	Covers	R Minimum Top Rail		S Minimum Top Rail Clearance	U Closer Length	V Closer Height	W Arm Extension
		W/O Drop Plate	With Drop Plate				
8101	No cover	4-5/8" (117)	2-3/8" (60)	5-7/8" (149)	12-3/4" (324)	2-7/8" (73)	8" (203)
8301	Slim line plastic				13" (330)		
8501	Full plastic						
8501M	Metal			6-1/2" (165)	13-5/8" (346)	3-7/8" (98)	7-5/8" (194)
8501A	Arch. plastic			6" (152)	14" (356)	3-1/8" (79)	7-1/2" (191)
8501MA	Arch. metal			5-7/8" (149)		3" (76)	

Model Number		
Stop Only	Thumbturn Hold Open	Ramp Hold Open
CLP8301 CLP8501	CLP8301T CLP8501T	CLP8301R CLP8501R

Notes:

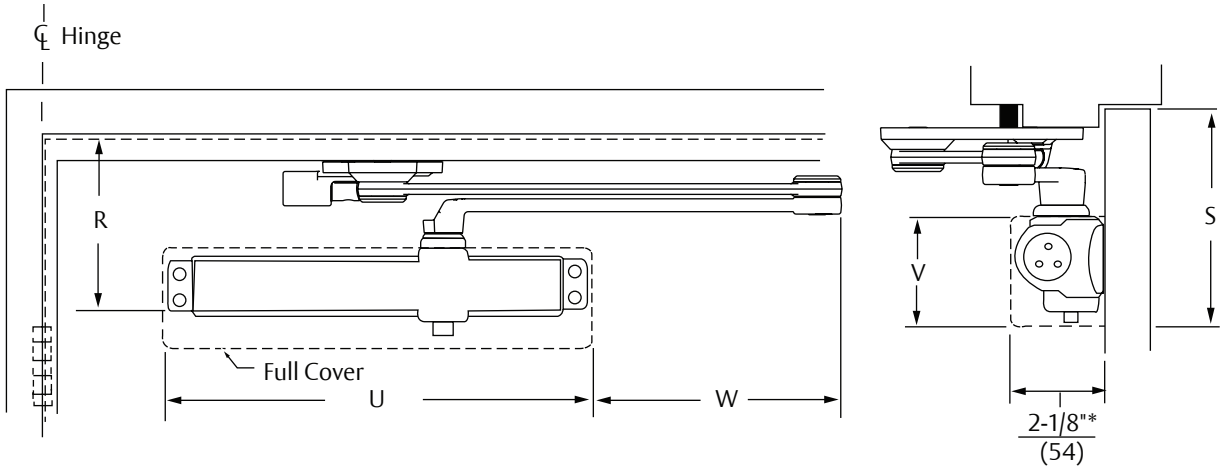
- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: 28"-48" (71-122cm)

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CLOSERPLUS SPRING™ ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	Covers	R Minimum Top Rail		S Minimum Top Rail Clearance	U Closer Length	V Closer Height	W Arm Extension
		W/O Drop Plate	With Drop Plate				
8101	No cover	4-5/8" (117)	2-3/8" (60)	5-7/8" (149)	12-3/4" (324)	2-7/8" (73)	8" (203)
8301	Slim line plastic				13" (330)		
8501	Full plastic						
8501M	Metal			6-1/2" (165)	13-5/8" (346)	3-7/8" (98)	7-5/8" (194)
8501A	Arch. plastic			6" (152)	14" (356)	3-1/8" (79)	7-1/2" (191)
8501MA	Arch. metal			5-7/8" (149)		3" (76)	

Model Number	
Stop Only	Hold Open
CPS8301 CPS8501	CPS8301T CPS8501T

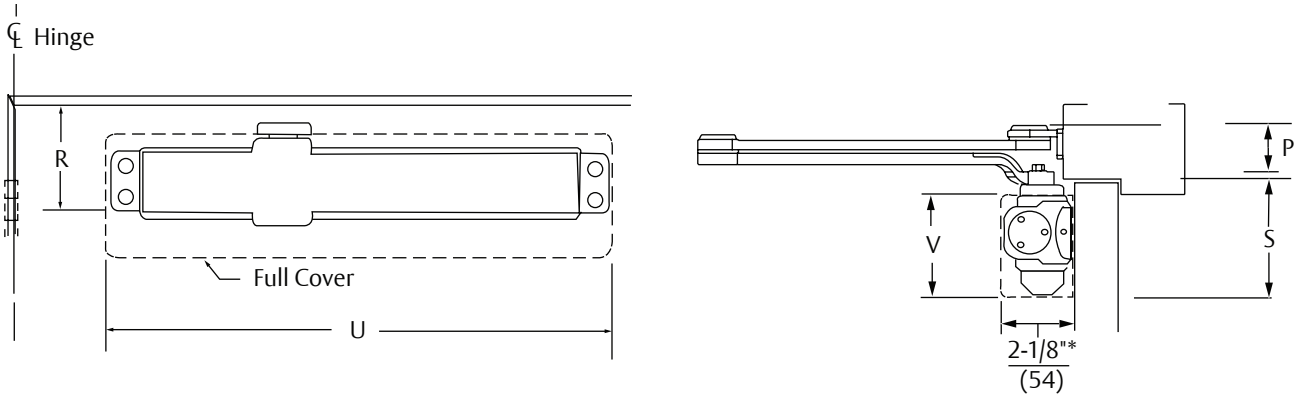
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: 28"-48" (71-122cm)

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ARCHITECTURAL DOOR CLOSER

REGULAR RIGID HEAVY-DUTY ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	Covers	P Minimum Ceiling Clearance	R Minimum Top Rail		S Minimum Top Rail Clearance	U Closer Length	V Closer Height
			W/O Drop Plate	W/8146 Drop Plate			
		NHO	NHO	NHO	NHO		
8101	No cover	1-3/4" (44)	2-1/2" (64)	1-5/8" (41)	3-1/2" (89)"	12-3/4" (324)	2-7/8" (73)
8301	Slim line plastic					13" (330)	
8501	Full plastic						
8501M	Metal				4-1/4" (108)	13-5/8" (346)	3-3/4" (95)
8501A	Arch. plastic				3-5/8 (92)	14" (356)	3-1/8" (79)
8501MA	Arch. metal				3-1/2" (89)		3" (76)

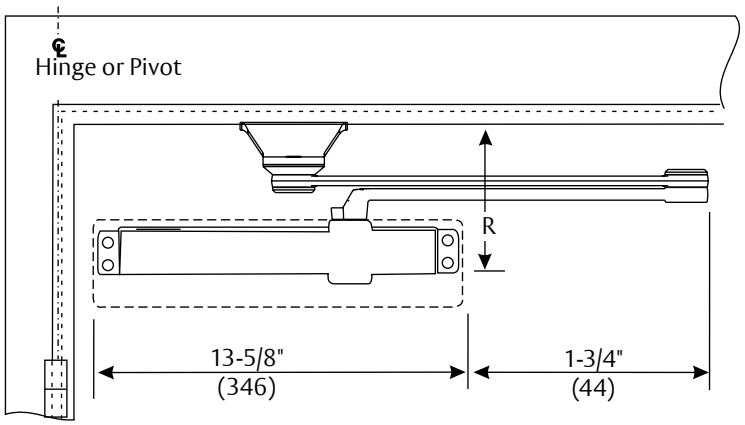
Model Number
Non-Hold Open Only
R8301 R8501

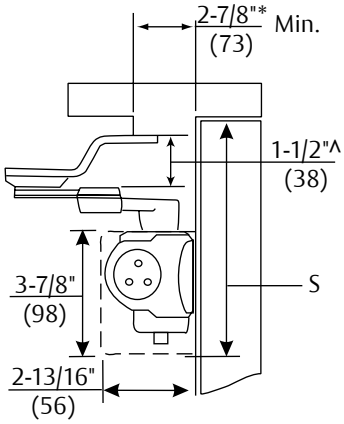
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior – 36"-54" (91-137cm), exterior – 30"-52" (76-132cm)

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PARALLEL RIGID OFFSET ARM





Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.
^ If clearance greater than 1-1/2" is needed, 6891 spacer block is required.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm). Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

R (inches/mm) Minimum Top Rail of Door with 5/8" (16mm) Frame Stop		S Minimum Top Rail of Door	
Without 6891 Spacer	With 6891 Spacer	Without 6891 Spacer	With 6891 Spacer
7-1/8" (181)	7-5/8" (194)	7-5/8" (194)	8-1/8" (206)

Model Number	
Non-Hold Open	Hold Open
PRO8301 PRO8501	PRO8301H PRO8501H

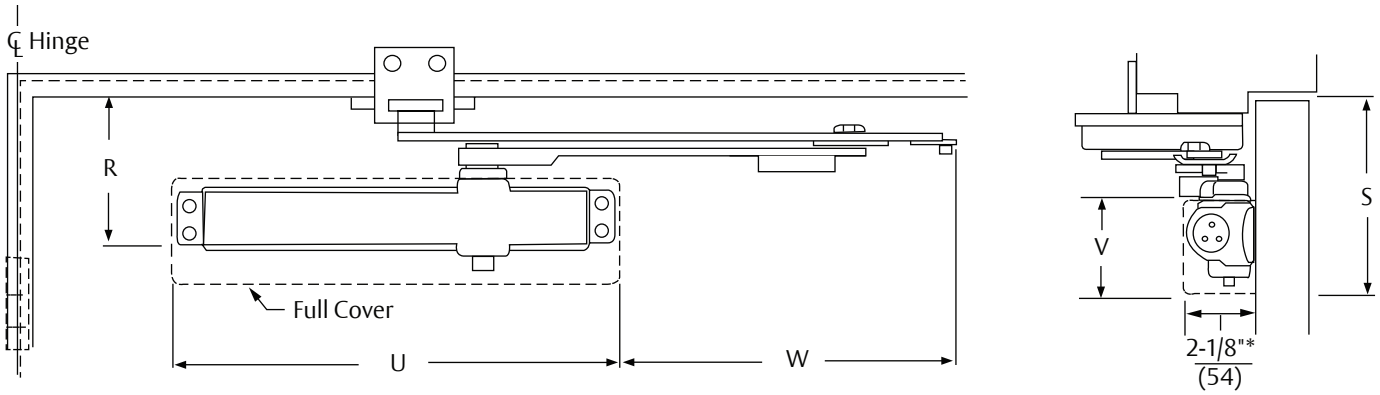
Notes:

- Door closers are set at midpower range from the factory
- Closers with hold open arms are handed. Specify when ordering.
- Measurements are inches/mm unless noted
- Standard door widths: interior 30"-48" (76-122cm), exterior 32-48" (81-122cm)

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ARCHITECTURAL DOOR CLOSER

PARALLEL UNITROL® ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

*Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm). Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	Door Width	Covers	R Minimum Top Rail		S Minimum	U Closer Length	V Closer Height	W Arm Extension
			W/O Drop Plate	With Drop Plate				
8301	28"-32"	Slim line	4-3/4" (121)	2-1/2" (64)	5-3/4" (146)	13" (330)	2-7/8" (73)	8-3/8" (213)
	33"-41"							9-7/8" (251)
	42"-48"							11-1/4" (286)
8501	33"-41"^	Full plastic						9-7/8" (251)
8501M		Metal			6-3/8" (162)	13-5/8" (346)	3-7/8 (98)	9-1/2" (241)
8501A		Arch. plastic			5-1/2" (140)	14" (356)	3-1/8" (79)	9-3/8" (238)
8501MA		Arch. metal			5-3/8" (137)		3" (76)	9" (229)

^ Consult installation instructions for additional door width dimensions.

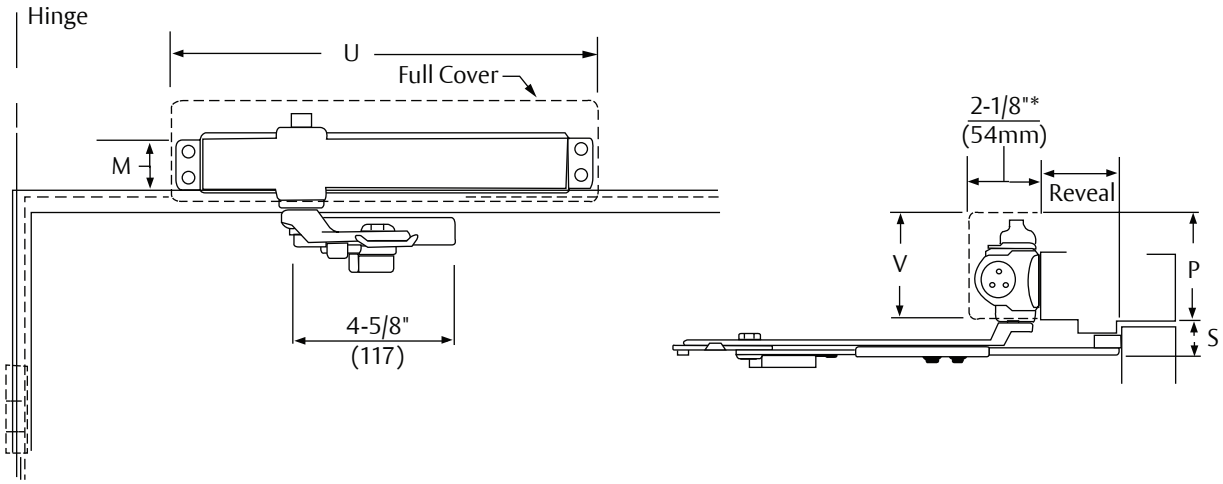
Model Number		
Stop Only	Hold Open	Specify frame reveal
UNI8301 UNI8501	UNI8301H UNI8501H	

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: 28"-48" (71-122cm)

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TOP JAMB UNITROL® ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm). Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	Covers	R Minimum Top Rail		P Minimum Ceiling Clearance		S Minimum Top Rail Clearance		U Closer Length	V Closer Height
		W/O Drop Plate	With 8148, 8158, 8547, 8547A Drop Plate	W/O Drop Plate	With Drop Plate	W/O Drop Plate	With 8148, 8158, 8547, 8547A Drop Plate		
8301	Slim line	1-3/4" (44)	1-1/2" (38)	2-3/4" (70)	1-1/2" (38)	1-7/8" (48)	3-3/4" (95)	13" (330)	2-7/8" (73)
8501	Full plastic								
8501M	Metal		1-5/8" (41)	3-3/4" (95)	1-5/8" (41)			13-5/8" (346)	3-7/8" (98)
8501A	Arch. plastic		1-1/2" (38)	3" (76)	1-1/2" (38)			14" (356)	3-1/8" (79)
8501MA	Arch. metal			2-7/8" (73)					

Model Number		
Non-Hold Open	Hold Open	Specify frame reveal
UNIJ8301 UNIJ8501	UNIJ8301H UNIJ8501H	

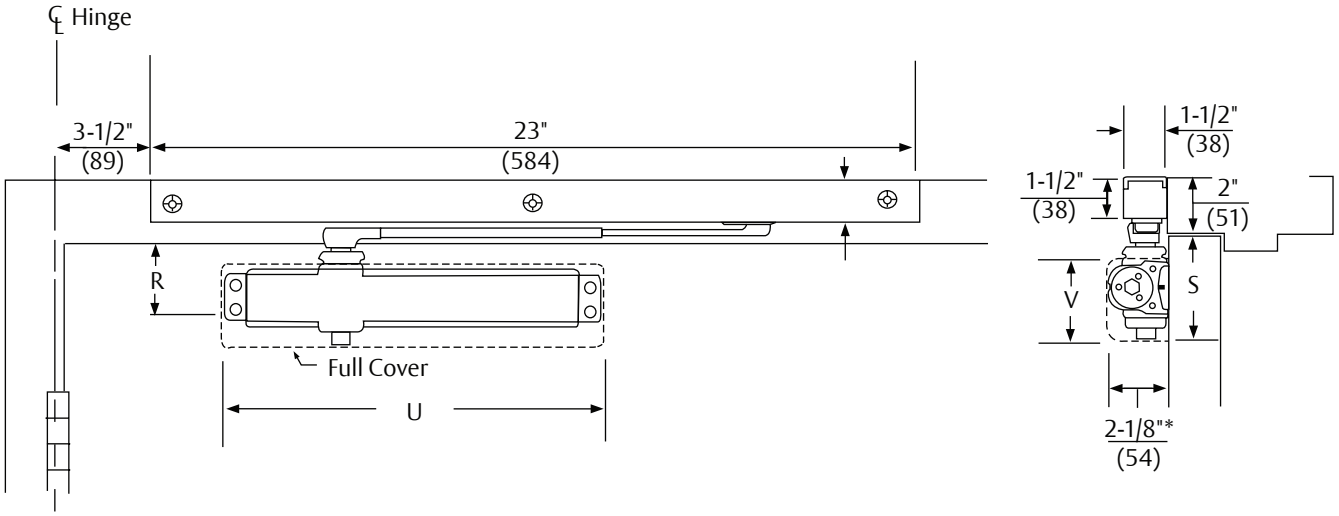
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: 28"-48" (71-122cm)

NORTON RIXSON
ASSA ABLOY

8000
ARCHITECTURAL DOOR CLOSER

PULL SIDE SLIDE TRACK



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	R Minimum Top Rail		S Minimum Top Rail Clearance				U Closer Length				V Closer Height			
	w/o Drop Plate	with Drop Plate	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal
8301ST	2-1/2" (64)	1-5/8" (41)	3-1/2" (89)	4-1/8" (105)	3-5/8" (92)	3-1/2" (89)	13" (330)	13-5/8" (346)	14" (356)		2-7/8" (73)	3-3/4" (95)	3-1/8" (79)	3" (76)
8501ST														

Model Number		
Non-Hold Open		Hold Open
85°-110°++	85°-180°~~	85°-110°~~
8301ST 8501ST	8301ST-180 8501ST-180	8301STH 8501STH

++ Track is furnished with a spring buffered stop. Additional stop, by others, is recommended where abusive conditions are anticipated.

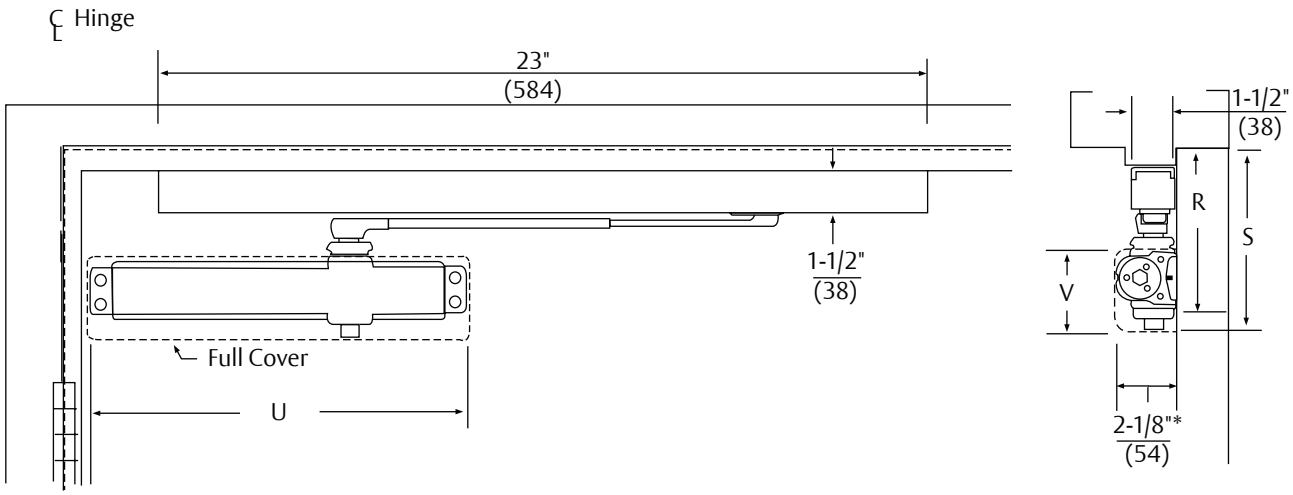
~~ Track is supplied without the spring buffered assembly. An auxiliary door stop, by others, is required.

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm), exterior 32"-38" (81-97cm)

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PUSH SIDE SLIDE TRACK



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

* Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	R Minimum Top Rail	S Minimum Top Rail Clearance				U Closer Length				V Closer Height			
	w/o Drop Plate	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal
PS8301ST	5" (127)	6" (152)	6-5/8" (168)	6-1/8" (156)	6" (152)	13" (330)	13-5/8" (346)	14" (356)		2-7/8" (73)	3-3/4" (95)	3-1/8" (79)	3" (76)
PS8501ST													

Model Number	
Non-Hold Open	Hold Open
85°-110°	
PS8301ST PS8501ST	PS8301STH PS8501STH

Optional	
Drop Plates	Model
8148	PS8301ST
8158	PS8501ST
8548	PS8501STM
8548A	PS8501STMA

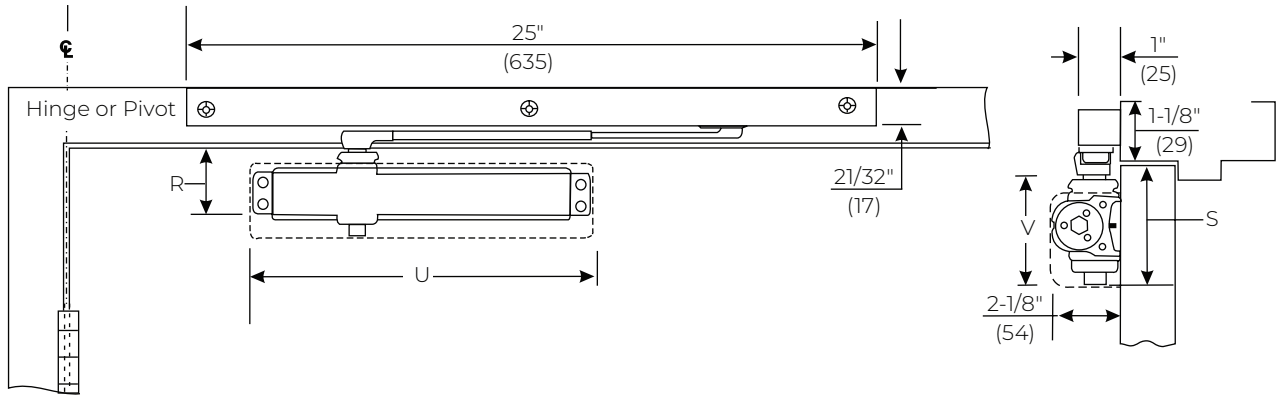
Notes:

- Door closers are set at midpower range from the factory
- All track assemblies are supplied with a spring buffered stop
- A separate door stop, by others, is recommended where abusive conditions are anticipated
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm), exterior 32"-38" (81-97cm)

NORTON RIXSON
ASSA ABLOY

8000
ARCHITECTURAL DOOR CLOSER

LOW PROFILE PULL SIDE SLIDE TRACK



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.

*Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	R Minimum Top Rail		S Minimum Top Rail Clearance				U Closer Length				V Closer Height			
	w/o Drop Plate	with 8146 Drop Plate	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal
8341ST	2-1/2" (64)	5/8" (16)	3" (76)	4-5/8" (117)	3-1/8" (79)	3" (76)	13" (330)	13-5/8" (346)	14" (356)		3" (76)	3-7/8" (98)	3-1/4" (83)	3-1/8" (79)
8541ST														

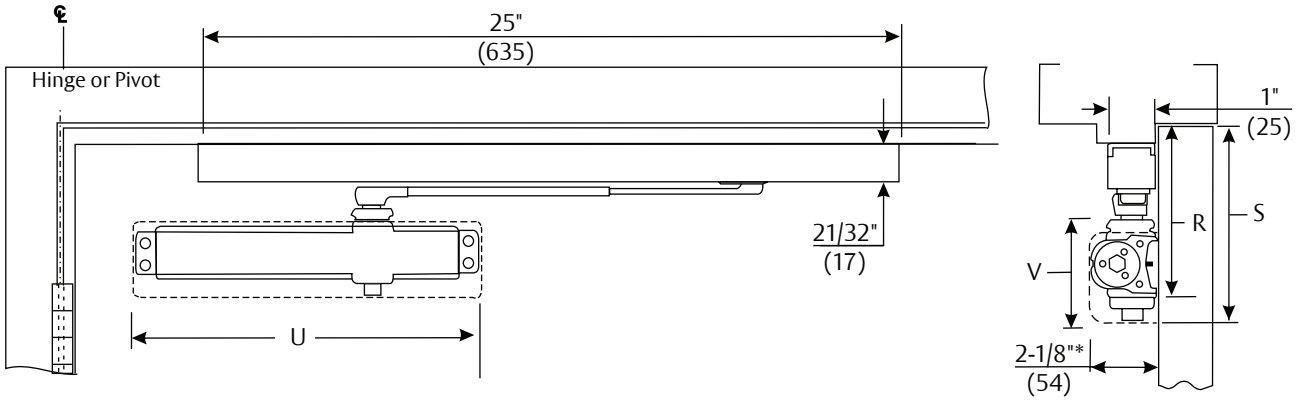
Model Number	
Non-Hold Open	Hold Open
8341ST 8541ST	8341STH 8541STH

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: **interior only** 32"-48" (81-122cm)

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LOW PROFILE PUSH SIDE SLIDE TRACK



Mounting holes for closer body are spaced 3/4" (19mm) vertically x12" (305mm) horizontally.

*Projection is for slim line or full covers. Projection for metal covers = 2-3/16" (56mm).
Projection for architectural plastic & architectural metal covers = 2-1/4" (57mm).

Closer Series	R Minimum Top Rail		S Minimum Top Rail Clearance				U Closer Length				V Closer Height			
	w/o Drop Plate	with 8146, 8158, 8548, 8548A Drop Plate	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal	Slim or Full Cover	Metal Cover	Arch Plastic	Arch Metal
PS8341ST	4" (102)	1-3/4" (44)	5" (127)	5-5/8" (143)	5-1/8" (130)	5" (127)	13" (330)	13-5/8" (346)	14" (356)		3" (76)	3-7/8" (98)	3-1/4" (83)	3-1/8" (79)
PS8541ST														

Model Number	
Non-Hold Open	Hold Open
PS8341ST PS8541ST	PS8341STH PS8541STH

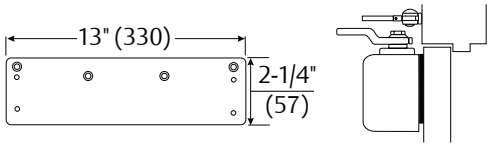
Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: **interior only** 32"-48" (81-122cm)

NORTON RIXSON
ASSA ABLOY

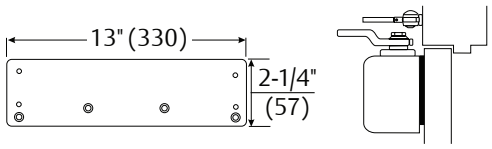
REGULAR ARM

Closer Mounting Plate
Slim Line Installations



Narrow Top Rail - 8146 Drop Plate:

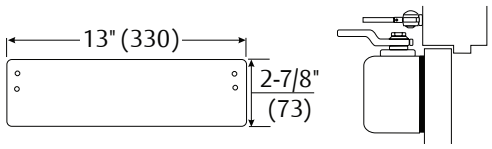
For use where the narrow top rail of the door prevents the closer from being mounted directly on to the door surface. This drop plate must be used for any Series 8000 closer mounted on a top rail between 1-9/16" and 2-7/16" (40 and 62mm) in height, or any Series 8080 closer mounted on a top rail between 1-7/16" and 2-5/16" (36 and 59mm) in height.



Concealed Door Holder - 8146 Drop Plate:

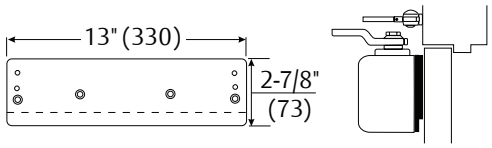
For use where a concealed door holder prevents normal mounting of the closer to the door. This is the same plate used for narrow rail mounting, but is inverted for this application to permit the mounting screws to clear the bottom of the door-holder preparation in the top rail of the door. This places the centerline of the plate's upper mounting screws at 2-3/16" (56mm) from the top of the door.

Full Cover Installations



Exposed Back - 8445 Molded Full Cover Decorative Back Plate:

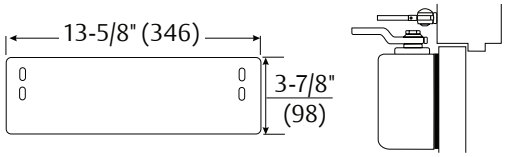
For use on doors with glass lights where a closer with a molded full cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.



Exposed Back/Narrow Top Rail - Exposed Back Concealed Door Holder - 8446 Molded Full Cover Drop Plate Kit:

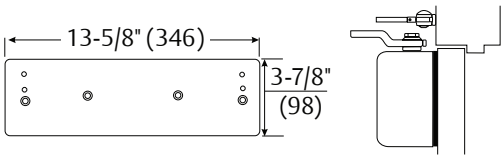
For use with molded full cover installation when an 8146 plate is needed as a drop plate on a narrow top rail, or as a clearance plate for a concealed door holder, and the closer back is exposed. Kit contains an 8146 drop plate and an 8445 decorative plate.

Metal Cover Installations



Exposed Back - 8545 Metal Cover Decorative Back Plate:

For use on doors with glass lights where a closer with a metal full cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.

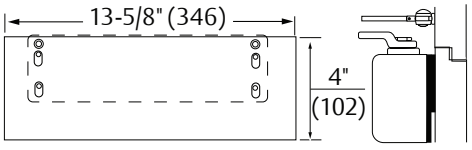


Concealed Door Holder - 8546 Metal Cover Drop Plate:

For use where a concealed door holder prevents the normal mounting of the closer to the door. This plate permits the mounting screws to clear the bottom of the door-holder preparation in the top rail of the door. This places the centerline of the plate's upper mounting screws at 2-3/16" (56mm) from the top of the door.

Exposed Back/Narrow Top Rail - 8549 Metal Cover Drop Plate Kit:

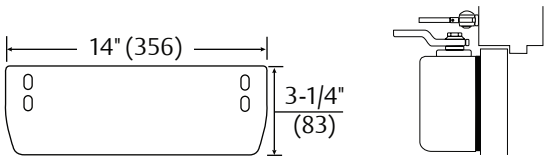
For use with metal full cover installations, when an 8146 plate is needed as a drop plate on a narrow top rail and the closer back is exposed. Kit contains an 8146 drop plate and an 8545 decorative plate.



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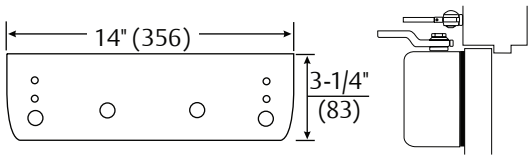
REGULAR ARM

Closer Mounting Plate
Architectural Plastic or Metal Cover Installations



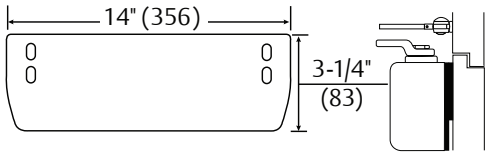
Exposed Back - 8545A Architectural Plastic or Architectural Metal Cover Decorative Back Plate:

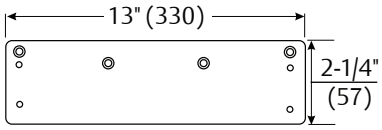
For use on doors with glass lights where a closer with an architectural plastic or metal cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.



Concealed Door Holder - 8546A Architectural Plastic or Architectural Metal Cover Drop Plate:

For use where a concealed door holder prevents the normal mounting of the closer to the door. This plate permits the mounting screws to clear the bottom of door-holder preparation in the top rail of the door. This places the centerline of the plate's upper mounting screws at 2-3/16" (56mm) from the top of the door.





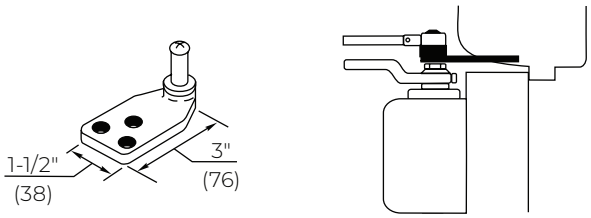
Exposed Back/Narrow Top Rail - 8549A Architectural Plastic or Architectural Metal Cover Drop Plate Kit:

For use with architectural plastic or metal cover installations when an 8146 plate is needed as a drop plate on a narrow top rail and the closer back is exposed. Kit contains an 8146 drop plate and an 8545A decorative plate.

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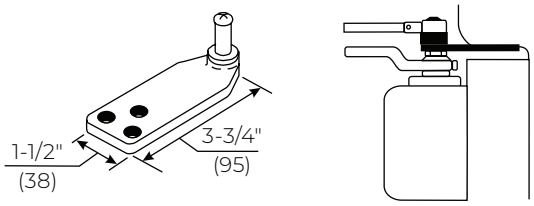
REGULAR ARM

Brackets for Non-Hold Open Arms



Molded/Bull Nose Trim - 2403B Bracket:

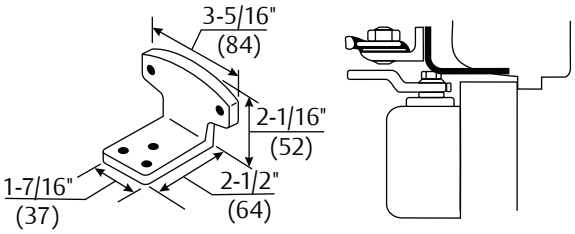
For use where the door frame has molded or bull nose trim which will not accept a standard non-hold open shoe. The bracket is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a frame rabbet up to 2" (51mm) deep.



Molded / Bull Nose Trim - 2403-3/4 Bracket:

This bracket is similar to, but longer than, the 2403B bracket. It is designed to accommodate frame rabbets from 2" to 2-7/8" (51 to 73mm) deep.

Brackets for Non-Hold Open Arms

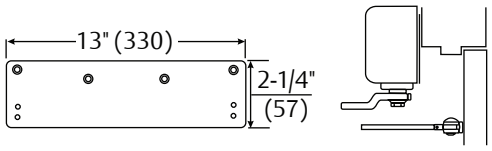


Molded / Bull Nose Trim - 80 Bracket:

For use where the door frame has molded or bull nose trim which will not accept a standard hold open shoe. It is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a rabbet up to 2" (51mm) deep. This bracket is used in combination with the standard hold-open mounting shoe.

TOP JAMB ARM

Closer Mounting Plates
Slim Line Installations



Low Ceiling Clearance - 8146 Drop Plate:

For use where low ceiling clearance prevents normal top jamb mounting. This plate is used when clearance is from 1-7/8" to 2-7/8" (48 to 73mm). Where ceiling clearance is less than 1-7/8" (48mm) see 8148 drop plate on page 106.

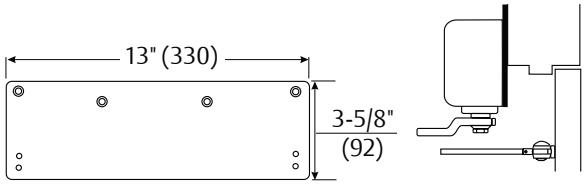
Overhead Door Holder - 8146 Drop Plate:

For use where a surface or concealed overhead door holder prevents normal top jamb mounting. This plate drops the closer and allows arm mounting screws to clear the bottom of the door holder. This places the centerline of the arm mounting screws at 2-7/8" (73mm) from the top of the door.

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TOP JAMB ARM

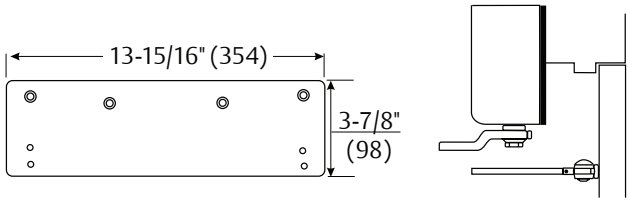
Closer Mounting Plates
Slim Line Installations



Low Ceiling Clearance - 8148 Drop Plate:

For use where the ceiling clearance is between 1-1/2" and 1-3/4" (38 and 44mm).

Metal Cover Installations

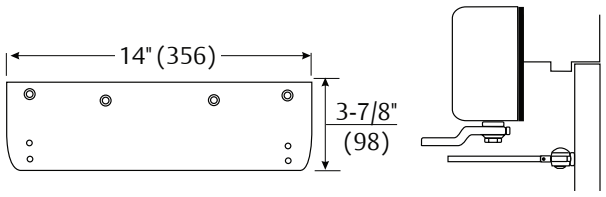


Low Ceiling Clearance - Overhead Door Holder - 8547 Metal Full Cover Drop Plate:

For use where a low ceiling clearance prevents normal top jamb mounting. This plate is used when the clearance is between 1-5/8" and 3-7/8" (41 and 98mm). Or for use where a surface or concealed overhead door holder prevents normal top jamb mounting of a closer with a metal full cover.

This plate drops the closer and allows arm mounting screws to clear the bottom of the door holder. This places the centerline of the arm mounting screws at 3-7/8" (98mm) from the top of the door.

Architectural Plastic or Metal Cover Installations



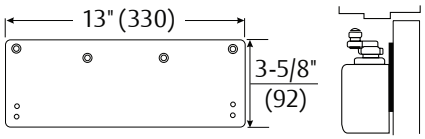
Low Ceiling Clearance - Overhead Door Holder - 8547A Architectural Plastic or Architectural Metal Cover Drop Plate:

For use where low ceiling clearance prevents normal top jamb mounting. This plate is used when the clearance is between 1-5/8" and 3-7/8" (41 and 98mm). Also for use where a surface or concealed overhead door holder prevents normal top jamb mounting of a closer with an architectural plastic or metal full cover. This plate drops the closer and allows arm mounting screws to clear the bottom of the door holder. This places the centerline of the arm mounting screws at 3-7/8" (98mm) from the top of the door.

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PARALLEL ARM

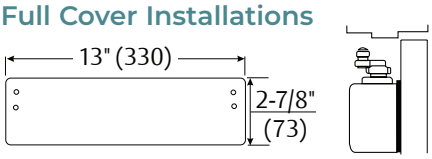
Closer Mounting Plates
Slim Line Installations



Narrow Top Rail - 8148 Drop Plate:

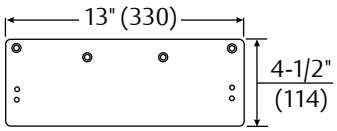
For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-7/8" (73mm) in height.

Full Cover Installations



Exposed Back - 8445 Molded Full Cover Decorative Back Plate:

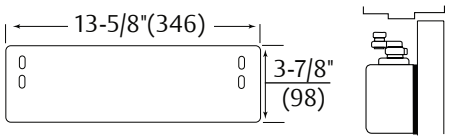
For use on doors with glass lights where a closer with molded full cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.



Exposed Back/Narrow Top Rail - 8158 Molded Full Cover Drop Plate:

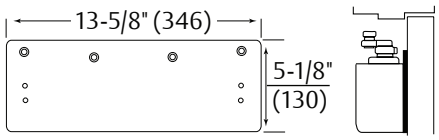
For use on doors with glass lights where a closer with molded full cover is installed and the back of the closer is exposed. This covers the back of the installation and gives a pleasing appearance from the reverse side.

Metal Cover Installations



Exposed Back - 8545 Metal Full Cover Decorative Back Plate:

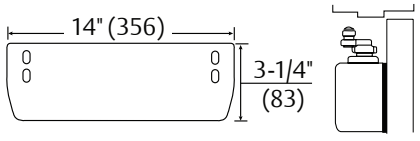
For use on doors with glass lights where a closer with full metal cover is installed and the back of the closer is exposed. This plate covers the back of the installation and gives a pleasing appearance from the reverse side.



Exposed Back/Narrow Top Rail - 8548 Metal Full Cover Drop Plate:

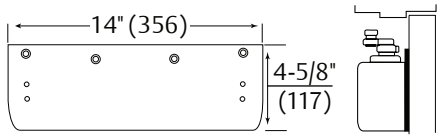
For use on doors with glass lights where a closer with metal full cover is installed on a narrow top rail, and the back of the cover is exposed. This drop plate can be used to mount a closer on a top rail as narrow as 2-7/8" (73mm) in height. This plate covers the back of the installation and gives a pleasing appearance from the reverse side.

Architectural Plastic or Metal Cover Installations



Exposed Back - 8545A Architectural Plastic or Architectural Metal Cover Decorative Back Plate:

For use on doors with glass lights where a closer with an architectural plastic or metal cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.



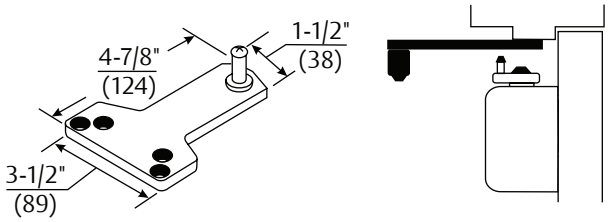
Exposed Back/Narrow Top Rail - 8548A Architectural Plastic or Architectural Metal Cover Drop Plate:

For use on doors with glass lights where a closer with an architectural plastic or metal cover is installed on a narrow top rail, and the back of the cover is exposed. This drop plate can be used to mount a closer on a top rail as narrow as 2-7/8" (73mm) in height. This plate covers the back of the installation to give a pleasing appearance from the reverse side.

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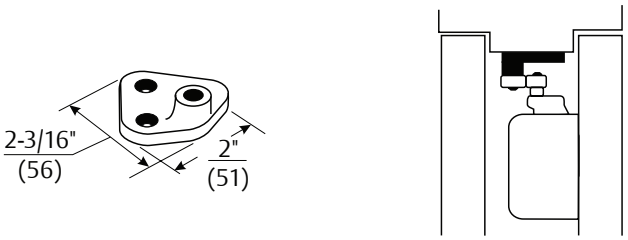
PARALLEL ARM

Brackets for Non-Hold Open Arms



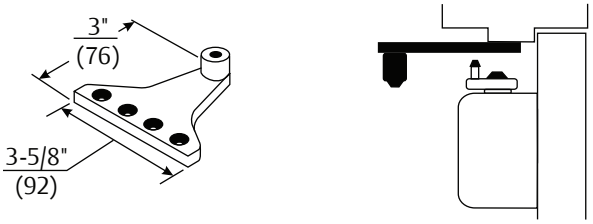
Standard Installation - 1618A Soffit Plate:

This soffit plate is supplied standard with parallel arm closers. It can be mounted where the frame soffit is as narrow as 1" (25 mm).



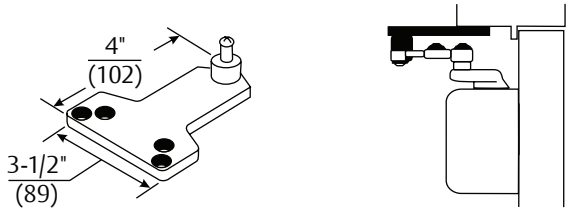
Mounting between Doors - 2018 Soffit Bracket:

For use where insufficient space between companion doors does not permit use of other soffit plates. This bracket permits mounting of the closer between doors with as little as 3" (76mm) of header space. Permits closer arm to clear up to 5/8" (16mm) high stop.



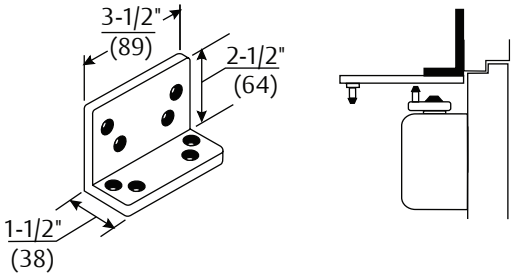
Narrow Frame/Removable Stop - 2018B Soffit Plate:

For use where a narrow frame or frame with removable stop does not permit use of the standard soffit plate. This soffit plate may be mounted on the frame soffit or the frame rabbet where the stop does not exceed 5/8" (16mm) in height. All of the screw holes are in a straight line, requiring as little as 1-1/4" (32mm) of frame reveal to mount bracket and maintain good closer arm geometry. Where the frame soffit is as wide as 2" (51mm), this soffit plate may be used to clear weather-stripping that is up to 1-3/8" (35mm) wide and 5/8" (16mm) in height.



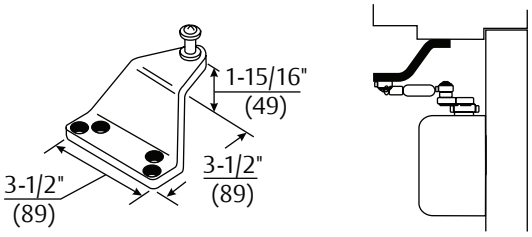
Blade/Applied Stop - 2018D Soffit Plate:

For use where a blade or applied stop does not permit installation of the standard soffit plate. Mounts to either the frame soffit or rabbet. Since this soffit plate projects 7/8" (22mm) less than a standard soffit plate, it requires a minimum frame reveal of 1-1/2" (38mm). Permits closer to clear up to a 5/8" (16mm) stop.



Flush Transom - 2022 Angle Bracket:

For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1618 soffit plate, or may be used in combination with the 2018S soffit plate when it is necessary for the closer arm to clear a separate overhead door holder.

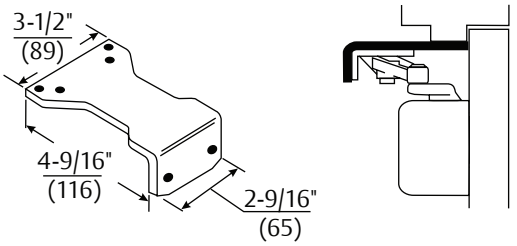


Extra-Clearance - 2018S Offset Soffit Plate:

For use where the need for additional clearance prevents use of the standard soffit plate. This plate mounts to the frame soffit to provide up to 2" (51mm) of clearance when a separate overhead door holder is used. Standard mounting requires a 2-5/8" (67mm) wide frame soffit. It may also be used where unusually high frame stops or weatherstripping prevent the use of other soffit plates.

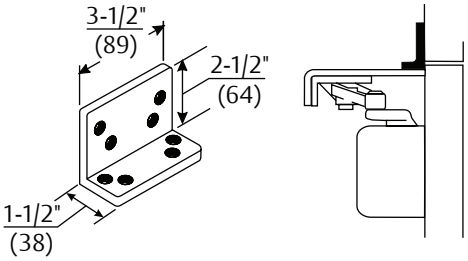
PARALLEL ARM

Brackets for Non-Hold Open & Hold Open Arms



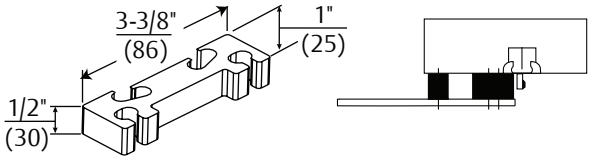
Parallel Hold Open - 1628H Adapter Plate:

Supplied standard with all parallel arm hold open closers. It can also be used to convert regular arm or top jamb hold open arms to parallel arm installation. It can be mounted where the frame soffit is as narrow as 1" (25mm).



Flush Transom - 2022 Angle Bracket:

For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1628H adapter plate, this bracket fastens to the overhead transom to provide a mounting surface for the soffit plate assembly.

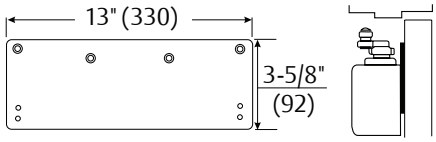


Clearance/Support Blade Stop - 6891 Spacer Block:

For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard spacer block to provide clearance of the blade stop. Also used with non-hold open arms.

PARALLEL RIGID, CLOSERPLUS & CLOSERPLUS SPRING ARMS

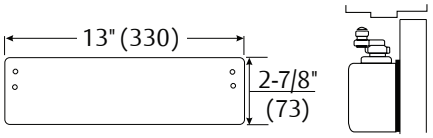
Closer Mounting Plate
Slim Line Installations



Narrow Top Rail - 8148 Drop Plate:

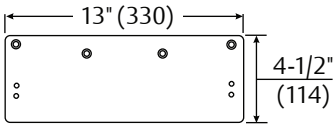
For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-9/16" (65mm) in height.

Full Cover Installations



Exposed Back - 8445 Molded Full Cover Decorative Back Plate:

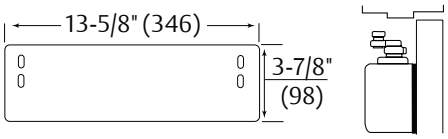
For use on doors with glass lights where a closer with molded full cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.



Exposed Back/Narrow Top Rail - 8158 Molded Full Cover Drop Plate:

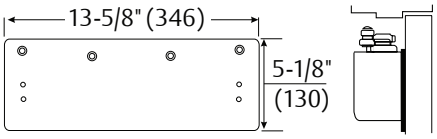
For use on doors with glass lights where a closer with molded full cover is installed and the back of the closer is exposed. This covers the back of the installation and gives a pleasing appearance from the reverse side.

Metal Cover Installations



Exposed Back - 8545 Metal Full Cover Decorative Back Plate:

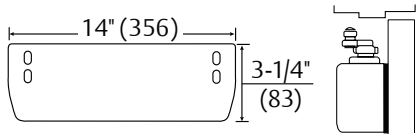
For use on doors with glass lights where a closer with full metal cover is installed and the back of the closer is exposed. This plate covers the back of the installation and gives a pleasing appearance from the reverse side.



Exposed Back/Narrow Top Rail - 8548 Metal Full Cover Drop Plate:

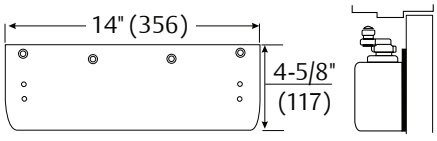
For use on doors with glass lights where a closer with metal full cover is installed on a narrow top rail, and the back of the cover is exposed. This drop plate can be used to mount a closer on a top rail as narrow as 2-9/16" (65mm) in height. This plate covers the back of the installation and gives a pleasing appearance from the reverse side.

Architectural Plastic or Metal Cover Installations



Exposed Back - 8545A Architectural Plastic or Architectural Metal Cover Decorative Back Plate:

For use on doors with glass lights where a closer with an architectural plastic or metal cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.

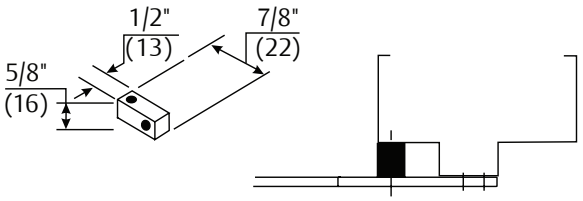


Exposed Back/Narrow Top Rail - 8548A Architectural Plastic or Architectural Plastic or Architectural Metal Cover Drop Plate:

For use on doors with glass lights where a closer with an architectural plastic or metal cover is installed on a narrow top rail, and the back of the cover is exposed. This drop plate can be used to mount a closer on a top rail as narrow as 2-9/16" (65mm) in height. This plate covers the back of the installation to give a pleasing appearance from the reverse side.

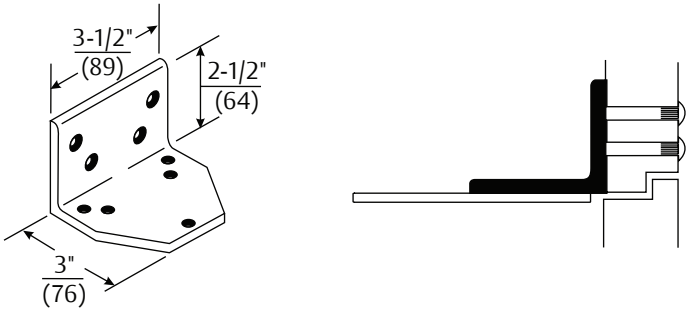
PARALLEL RIGID, CLOSERPLUS & CLOSERPLUS SPRING ARMS

Brackets for Non-Hold Open Arms & Hold Open Arms



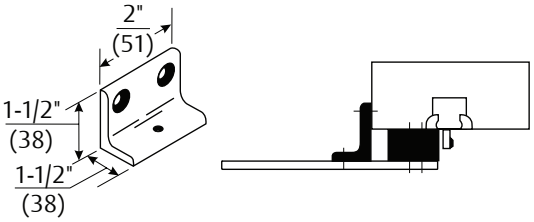
Standard - 2019S Spacer Block:

For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all Parallel Rigid arm closers.



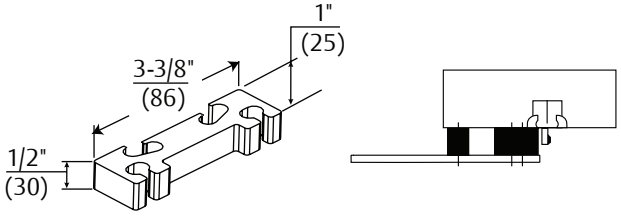
Flush Rabbeted Transom - 2019L Angle Bracket:

For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the standard soffit plate.



Narrow Frame - 6890 Support Bracket:

For use where the frame is narrow and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop. Used on frames where the frame stop does not exceed 5/8" (16mm) in height.



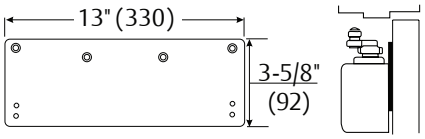
Clearance/Support Blade Stop - 6891 Spacer Block:

For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard spacer block to provide clearance of the blade stop.

UNITROL® ARM

Closer Mounting Plate

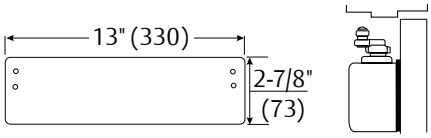
Parallel Arm



Narrow Top Rail - 8148 Drop Plate:

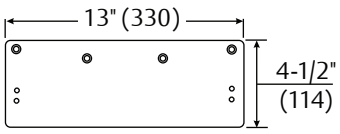
For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-7/16" (62mm) in height.

Full Cover Installations



Exposed Back - 8445 Molded Full Cover Decorative Back Plate:

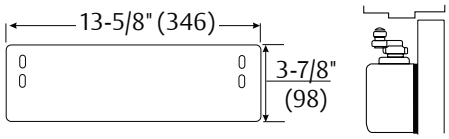
For use on doors with glass lights where a closer with molded full cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.



Exposed Back/Narrow Top Rail - 8158 Molded Full Cover Drop Plate:

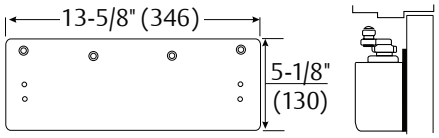
For use on doors with glass lights where a closer with molded full cover is installed and the back of the closer is exposed. This covers the back of the installation and gives a pleasing appearance from the reverse side.

Metal Cover Installations



Exposed Back - 8545 Metal Full Cover Decorative Back Plate:

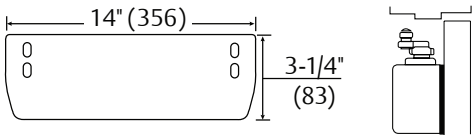
For use on doors with glass lights where a closer with full metal cover is installed and the back of the closer is exposed. This plate covers the back of the installation and gives a pleasing appearance from the reverse side.



Exposed Back/Narrow Top Rail - 8548 Metal Full Cover Drop Plate:

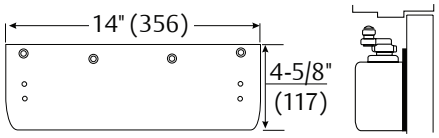
For use on doors with glass lights where a closer with metal full cover is installed on a narrow top rail, and the back of the cover is exposed. This drop plate can be used to mount a closer on a top rail as narrow as 2-9/16" (65mm) in height. This plate covers the back of the installation and gives a pleasing appearance from the reverse side.

Architectural Plastic or Metal Cover Installations



Exposed Back - 8545A Architectural Plastic or Architectural Metal Cover Decorative Back Plate:

For use on doors with glass lights where a closer with an architectural plastic or metal cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.



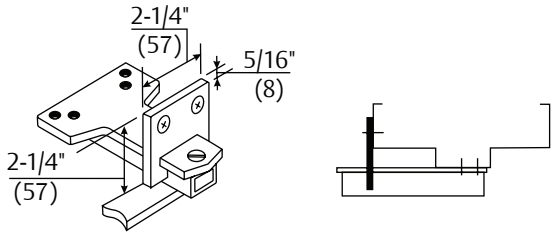
Exposed Back/Narrow Top Rail - 8548A Architectural Plastic or Architectural Plastic or Architectural Metal Cover Drop Plate:

For use on doors with glass lights where a closer with an architectural plastic or metal cover is installed on a narrow top rail, and the back of the cover is exposed. This drop plate can be used to mount a closer on a top rail as narrow as 2-7/16" (62mm) in height. This plate covers the back of the installation to give a pleasing appearance from the reverse side.

NORTON RIXSON
ASSA ABLOY

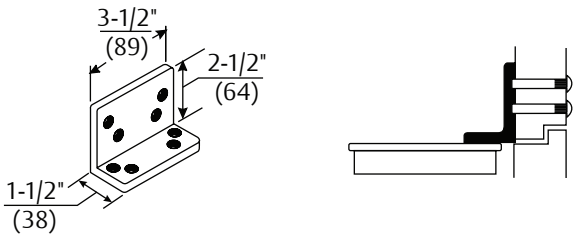
UNITROL® ARM

Soffit Plate Reinforcing Brackets (for Parallel Arm)



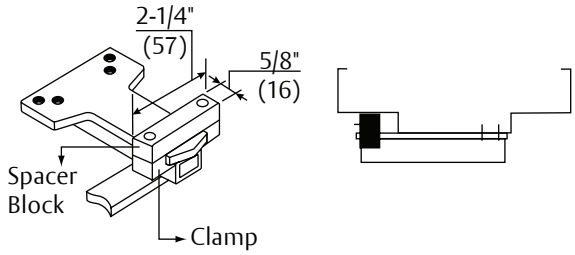
Additional Support - 6190 Reinforcing Bracket:

Standard for use with all Unitrol parallel arms. Provides additional support to the soffit plate on installations with door frame reveals from 1-7/8" to 4-5/8" (48 to 117mm).



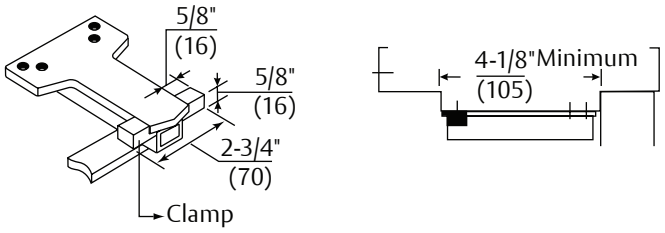
Flush Rabbeted Transom - 2022 Angle Bracket:

Optional for use with all Unitrol parallel arms. For use where rabbeted or flush transom conditions prevent installation of the soffit plate assembly. This bracket fastens to the overhead transom to provide a mounting surface for the soffit plate assembly.



Wide Frame - 6191 Reinforcing Kit:

Optional for use with all Unitrol parallel arms. Used to support the soffit plate on installations with wide frames. Clamps may be used with or without the spacer block, depending on frame conditions.

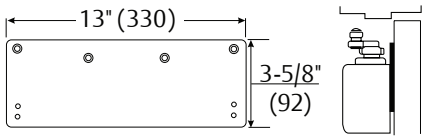


Experience a safer
and more open world

UNITROL® ARM

Closer Mounting Plate

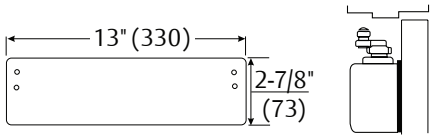
Top Jamb



Narrow Top Rail - 8148 Drop Plate:

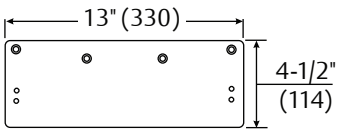
For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-7/16" (62mm) in height.

Full Cover Installations



Exposed Back - 8445 Molded Full Cover Decorative Back Plate:

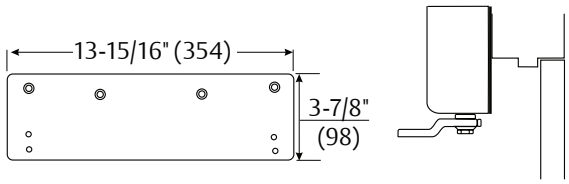
For use on doors with glass lights where a closer with molded full cover is installed and the closer back is exposed. This plate covers the back of the installation to give a pleasing appearance from the reverse side.



Exposed Back/Narrow Top Rail - 8158 Molded Full Cover Drop Plate:

For use on doors with glass lights where a closer with molded full cover is installed and the back of the closer is exposed. This covers the back of the installation and gives a pleasing appearance from the reverse side.

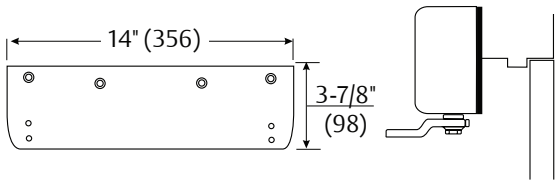
Metal Cover Installations



Low Ceiling Clearance - Overhead Door Holder - 8547 Metal Full Cover Drop Plate:

For use where a low ceiling clearance prevents normal top jamb mounting. This plate is used when the clearance is between 1-5/8" and 3-3/4" (41 and 95mm). Or for use where a surface or concealed overhead door holder prevents normal top jamb mounting of a closer with a metal full cover. This plate drops the closer and allows arm mounting screws to clear the bottom of the door holder. This places the centerline of the arm mounting screws at 3-7/8" (98mm) from the top of the door.

Architectural Plastic or Metal Cover Installations



Low Ceiling Clearance - Overhead Door Holder - 8547A Architectural Plastic or Architectural Metal Cover Drop Plate:

For use where low ceiling clearance prevents normal top jamb mounting. This plate is used when the clearance is between 1-5/8" and 3-3/4" (41 and 95mm). Or for use where a surface or concealed overhead door holder prevents normal top jamb mounting of a closer with an architectural plastic or metal full cover. This plate drops the closer and allows arm mounting screws to clear the bottom of the door holder. This places the centerline of the arm mounting screws at 3-7/8" (98mm) from the top of the door.

NORTON RIXSON
ASSA ABLOY

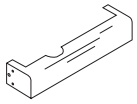
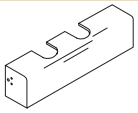
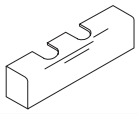
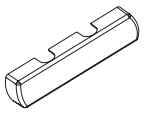
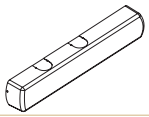
8000
ARCHITECTURAL DOOR CLOSER

DOOR CLOSER BODY ASSEMBLIES

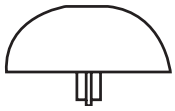
Model Number	Description
8101LAP	Multi-sized closer bodies (8101, 8301 or 8501)

LAP = less all parts

Closer Series	Plastic	Metal	Arch. Plastic	Arch. Metal
8301	8200P	N/A	N/A	N/A
8501	8400P	8400M	8400A	8400MA

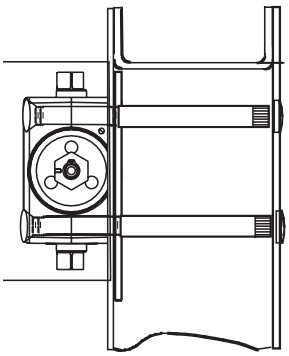
Cover Model	Cover Drawing
Slim line* 8200P or 8200PG 1-3/4" high x 2-1/8" deep x 13" long (44 x 54 x 330)	
Full plastic 8400P or 8400PG 2-7/8" high x 2-1/8" deep x 13" long (73 x 54 x 330)	
Metal 8400M 3-7/8" high x 2-3/16" deep x 13-5/8" long (98 x 54 x 346)	
Architectural plastic 8400A or 8400AG 3-3/32" high x 2-1/4" deep x 13-7/8" long (79 x 56 x 352)	
Architectural metal 8400MA 3" high x 2-3/16" deep x 13-15/16" long (76 x 56 x 354)	

*The 1639 pinion cap is NOT included with the 8200P or 8200PG covers. The cap is included with the complete closer package (8300, 8301).



STEEL DOOR APPLICATION

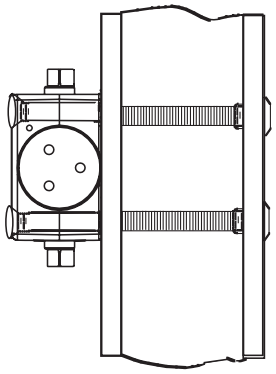
Sleeve-nut : "SN" (4 per pack) or
Sleeve-nut & screw: "SNB" (4 per pack)



Door	SN's	SNB's
1-3/4"	SN-134	SNB134-38
2"	NA	SNB200-38
2-1/4"	SN-214	SNB214-38
S.S. SNB'S 1-3/4"	SN-134SS	SNB134SS-38

ALUMINUM AND WOOD DOOR APPLICATION (Aluminum Door Shown)

Thru bolt & grommet nut : "TBGN" (4 per pack)

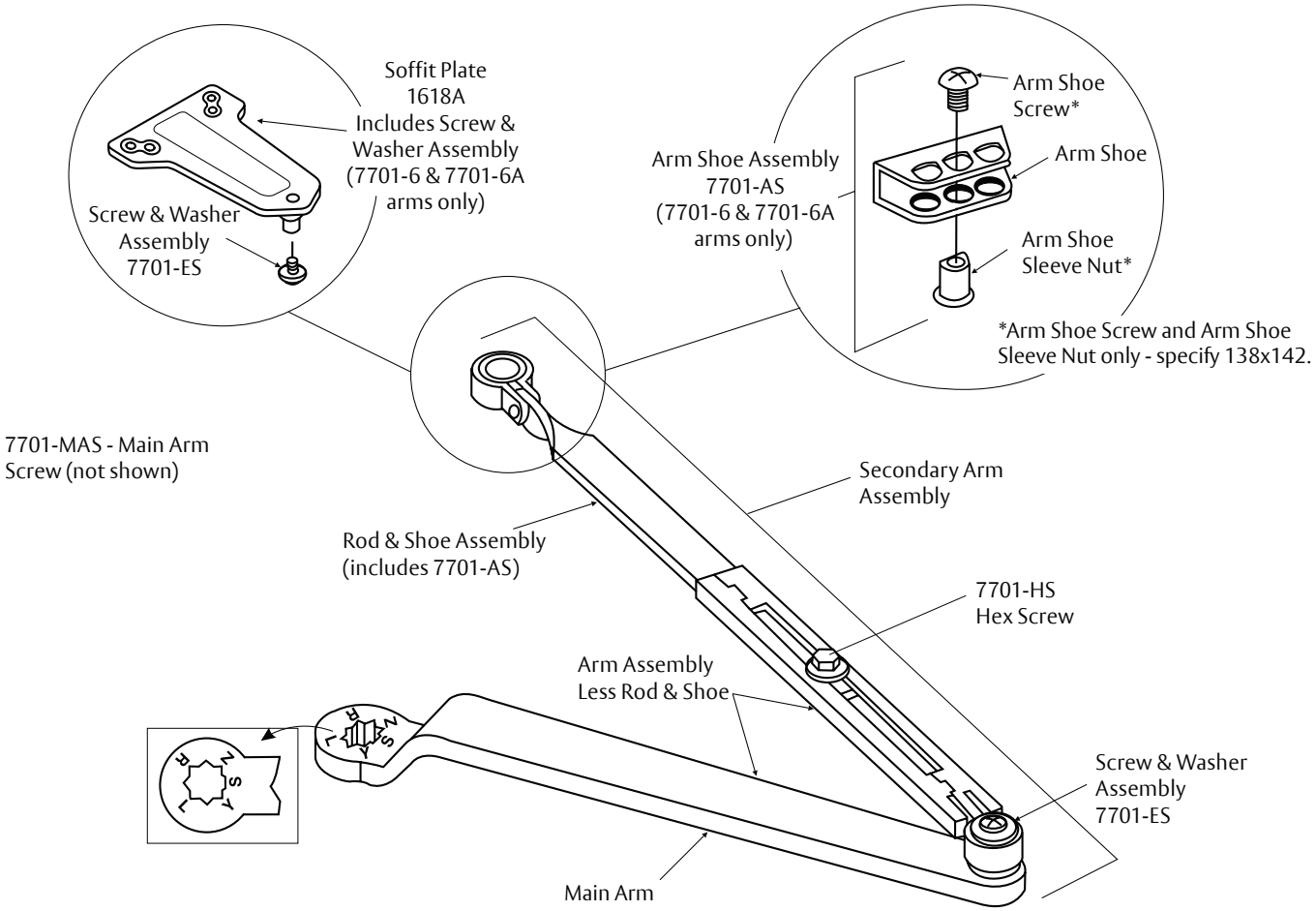


Door	SN's
1-3/8"	TBGN138-38
1-3/4"	TBGN134-38

Arm Type	Torx® Screw Packs
Regular, Parallel & Top Jamb	TX38
Parallel Rigid, CloserPlus® & CloserPlus Spring™	PRTX38
Regular Rigid Heavy-Duty	RTX38
Unitrol®	UNITX38
Slide Track	STTX38

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NON-HOLD OPEN ARM ASSEMBLIES

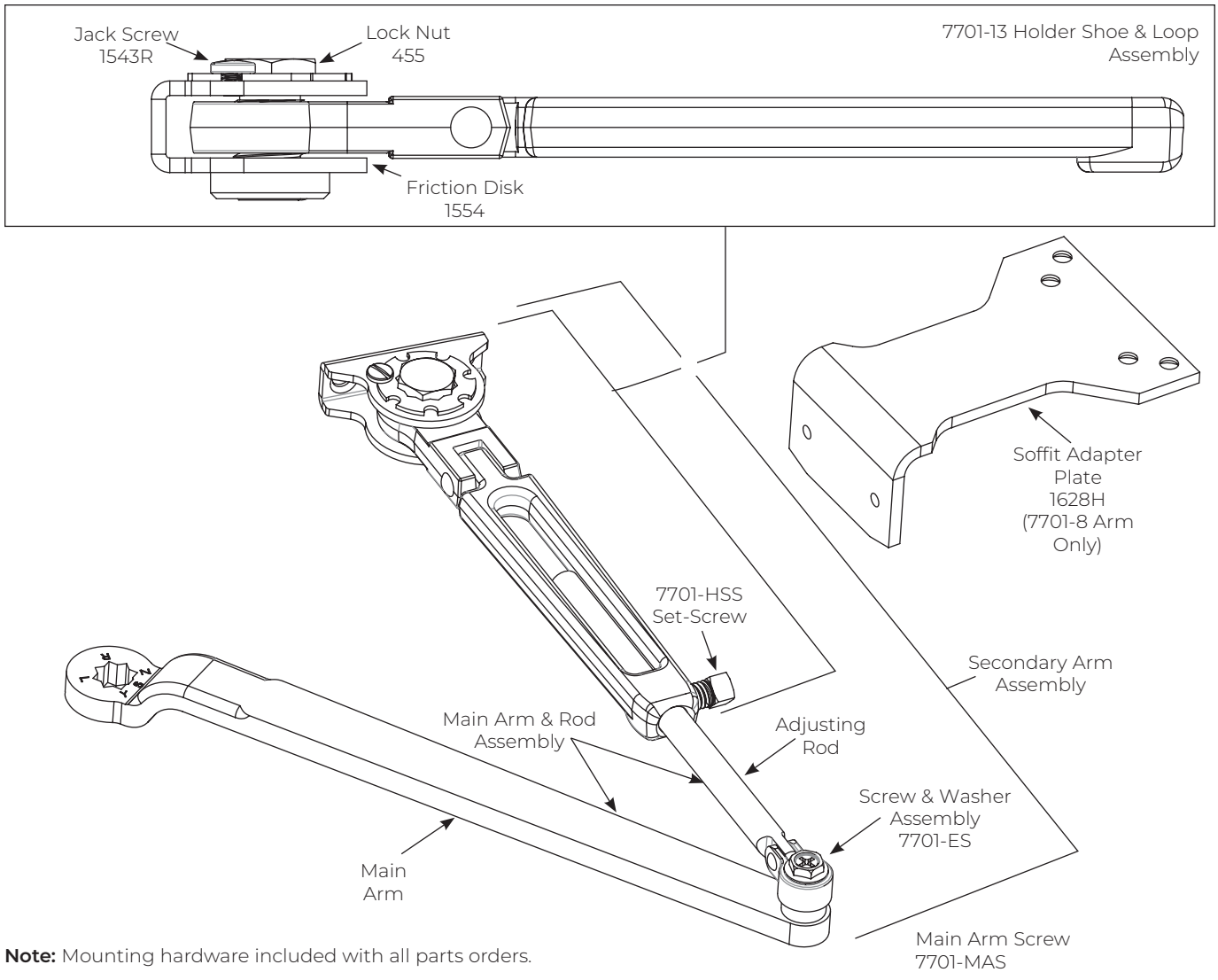


Note: Mounting hardware included with all parts orders.

Closer Series	Complete Arm Assembly	Main Arm Assembly[1] (length)(mm) (includes 7701-ES)	Secondary Arm Assembly (includes 7701-ES)	Arm Assembly Less Rod and Shoe	Rod & Shoe Assembly[2] (length)(mm)
8000	7701-1	7701-1M (11)(279)	7701-111	7701-1W	7701-11 (8-7/8)(225)
J8000	7701-1A		7701-121		7701-11A (12-9/16)(319)
P8000	7701-6		7701-116		7701-16 (8-7/8)(225)
P8000[3]	7701-6A		7701-116A		7701-16A (12-9/16)(319)
7500	7701-26 (tri pack includes 7701-1 plus 1618A plate)	1. C to C length shown in parentheses. 2. C of connecting link to end of rod shown in parentheses. 3. For 180° door swing when using a special template for doors hung on 6" to 8" (162 to 203mm) wide throw hinges.			

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HOLD OPEN ARM ASSEMBLIES



Note: Mounting hardware included with all parts orders.

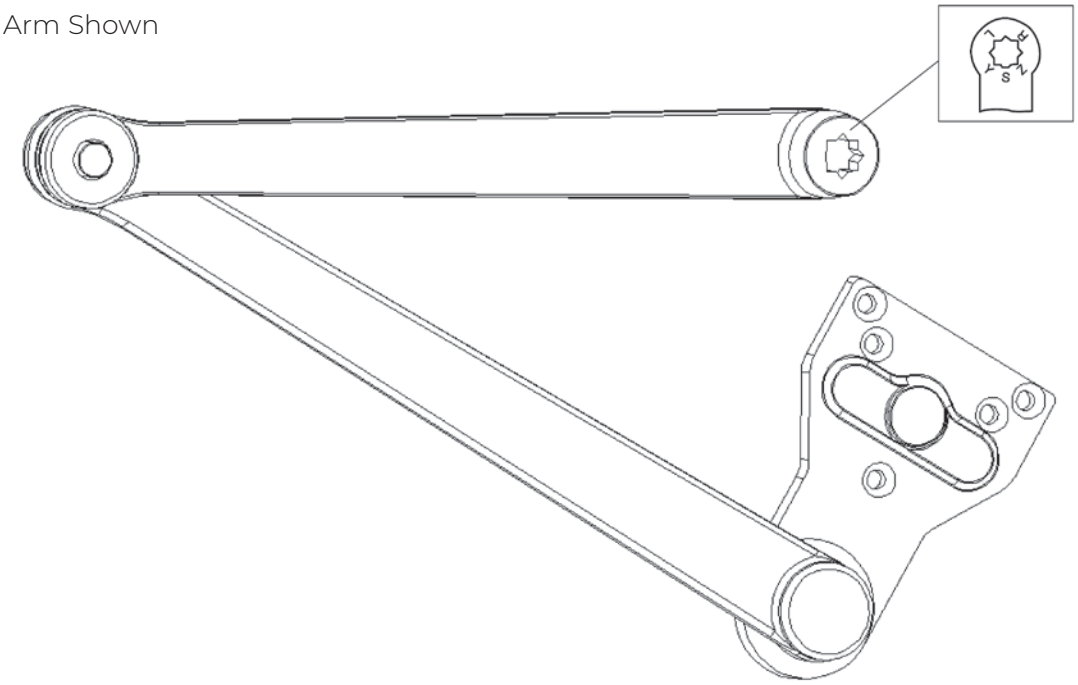
Closer Series	Complete Arm	Main Arm Assembly[1] (mm) (includes 7701-ES)	Secondary Arm (includes 7701-ES)	Main Arm & Rod Assembly	Holder Shoe & Loop Assembly	Adjusting Rod[2] (Length)(mm)
8000H	7701-3/7701-8[3]	7701-1M (11)(279)	7701-113/7700-118 (Reg.) / (Par.)	7701-3W	7701-13/7701-18[4]	7701-31 (7-3/8)(187)
J8000H	7701-3A		7701-123	7701-3WA	7701-13	7701-31A (10-13/16)(275)

1. C to C length shown in parentheses.
2. C of connecting link to end of rod shown in parentheses.
3. Same as 7701-3 but includes 1628H soffit adapter plate.
4. Same as 7701-13 but includes 1628H soffit adapter plate.

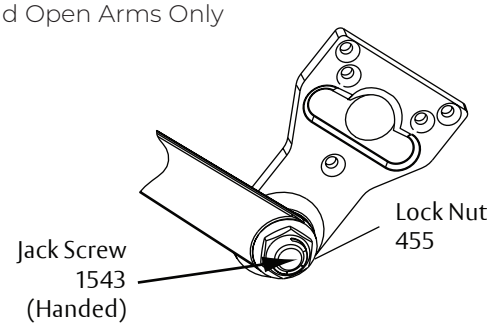
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PARALLEL RIGID ARM ASSEMBLIES

Non-Hold Open Arm Shown



Hold Open Arms Only



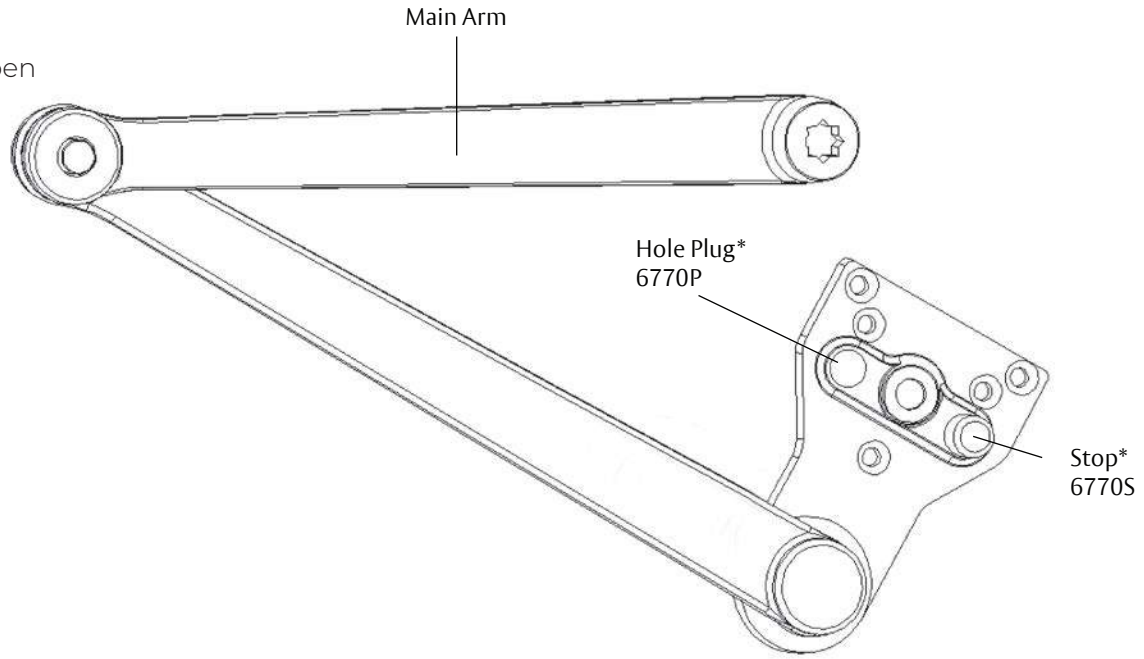
Note: Mounting hardware included with all parts orders.

Arm Function	Complete Arm Assembly
Non-hold open	PR7701-5
Hold open	PR7701-8R (right hand)
	PR7701-8L (left hand)

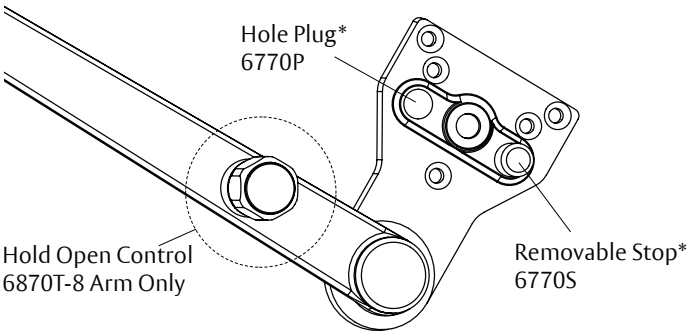
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CLOSERPLUS® ARM ASSEMBLIES

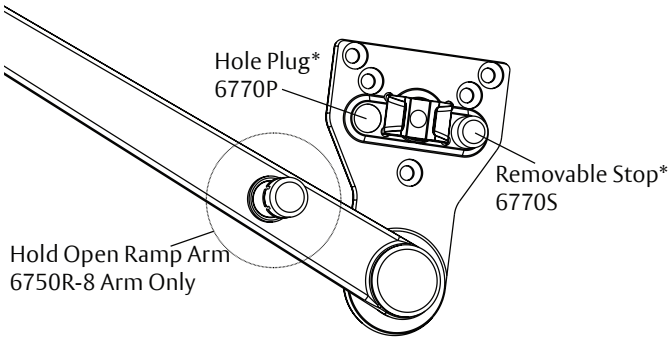
CLP
Non-Hold Open



CLP-T
Thumbturn Hold Open



CLP-R
Ramp Hold Open



Note: Mounting hardware included with all parts orders.

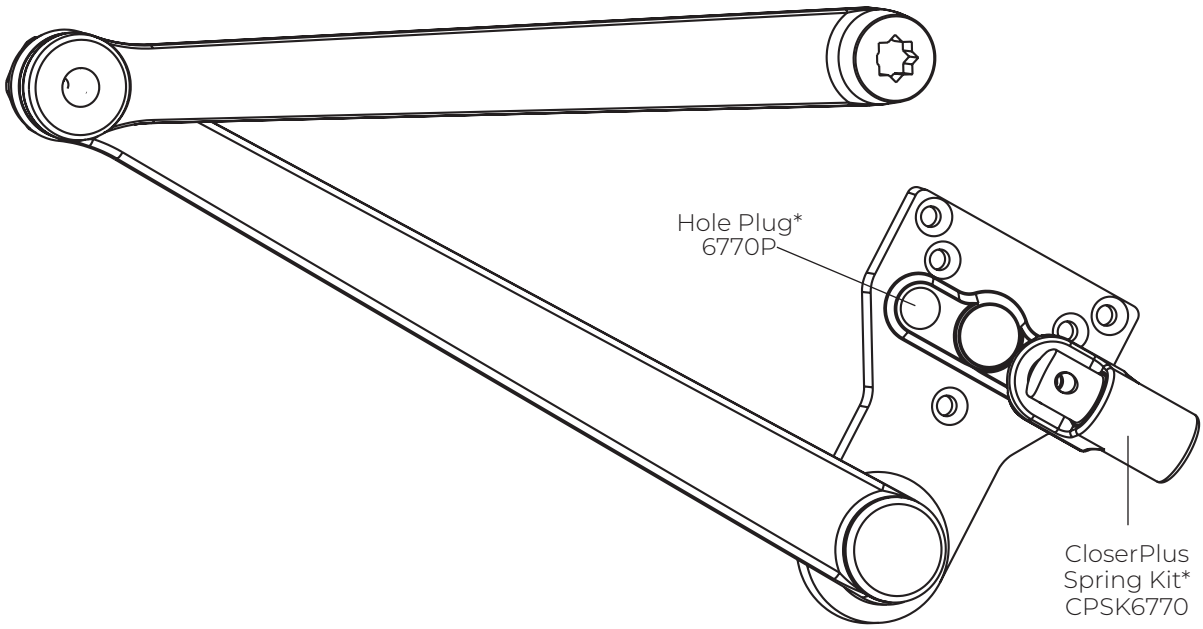
Arm Function	Complete Arm Assembly
Non-hold open	6770-5
Thumbturn hold open	6870T-8
Ramp hold open	6750R-8

* These parts and screw pack are included with complete arm assemblies.

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CLOSERPLUS SPRING™ ARM ASSEMBLIES

Non-Hold Open Arm Shown

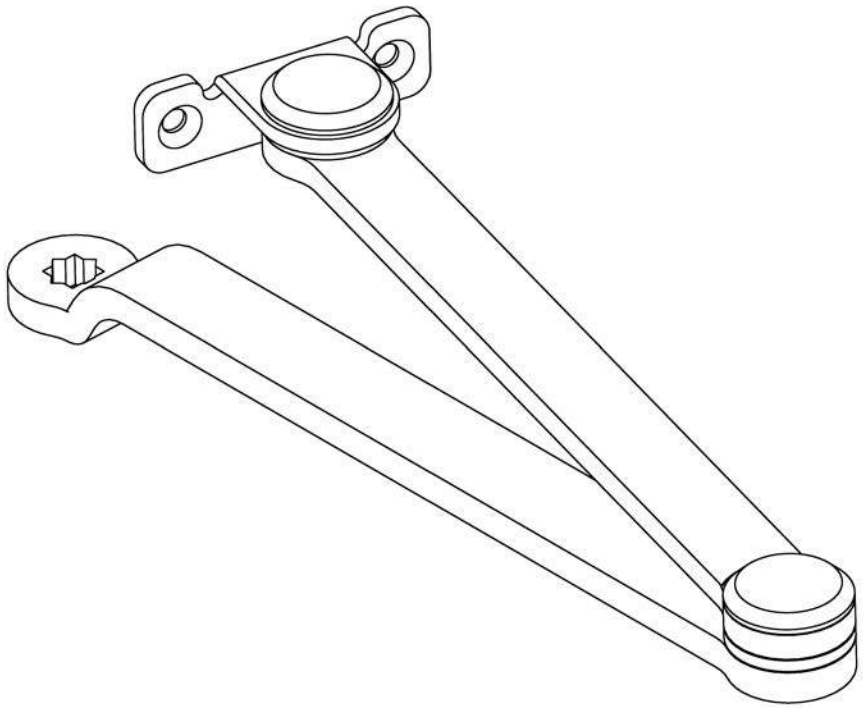


Note: Mounting hardware included with all parts orders.

Arm Function	Complete Arm Assembly
Non-hold open	CPS6770-5
Thumbturn hold open	CPS6870T-8

* These parts and screw pack are included with complete arm assemblies.

REGULAR RIGID HEAVY-DUTY ARMS

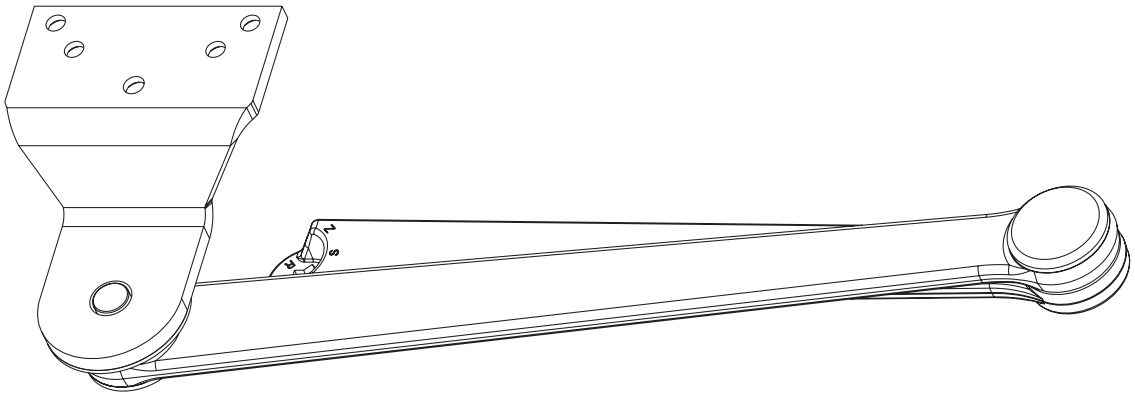


Note: Mounting hardware included with all parts orders.

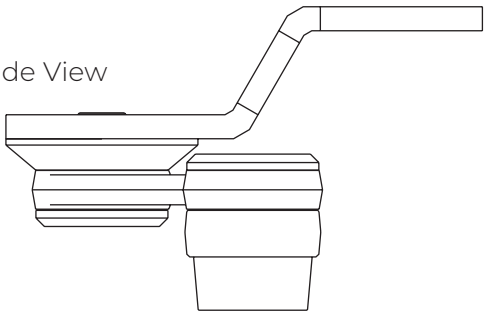
Arm Function	Complete Arm Assembly
Non-hold open	R7701-1

PARALLEL RIGID OFFSET ARM ASSEMBLIES

Non-Hold Open



Side View



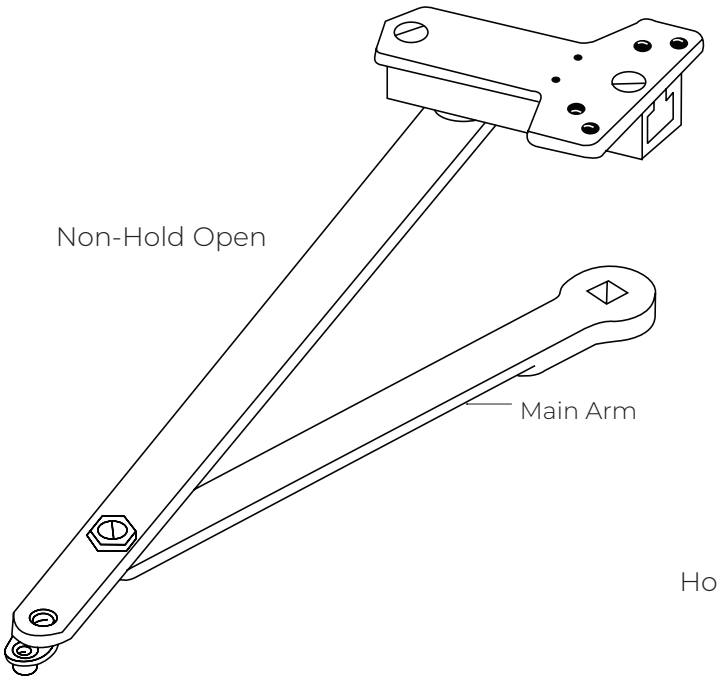
Note: Mounting hardware included with all parts orders.

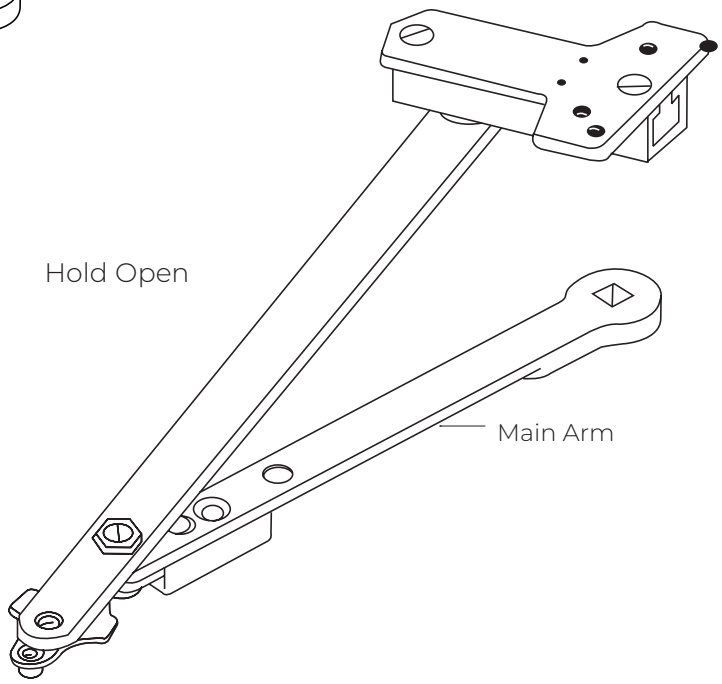
Arm Function	Complete Arm Assembly
Non-hold open	PRO7701-5
Hold open, right hand	PRO7701-8R
Hold open, left hand	PRO7701-8L

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UNITROL® ARM ASSEMBLIES

Parallel Arm





Note: Mounting hardware included with all parts orders.

Door Width (cm)	Main Arm Length* (mm)	Complete Arm Assembly	
		Non-Hold Open	Hold Open
28" - 32" (71- 81)	9-1/2" (241)	6100-11	6100-1
33"- 41" (84 - 104)	11" (279)	6100-13	6100-3
42" - 48" (107 - 122)	12-1/2" (318)	6100-14	6100-4

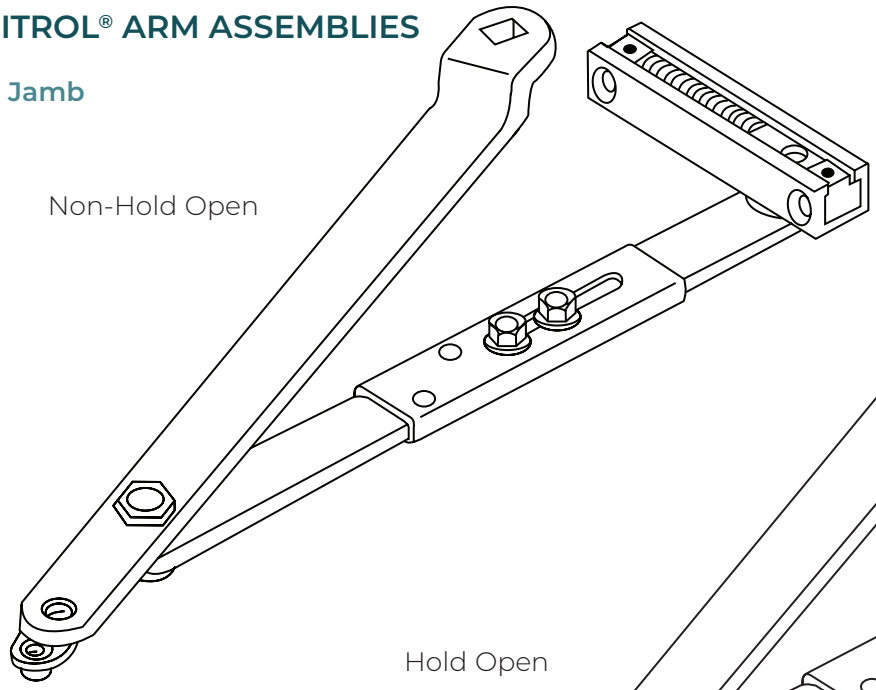
* Center to center length.
Only available in painted finishes.

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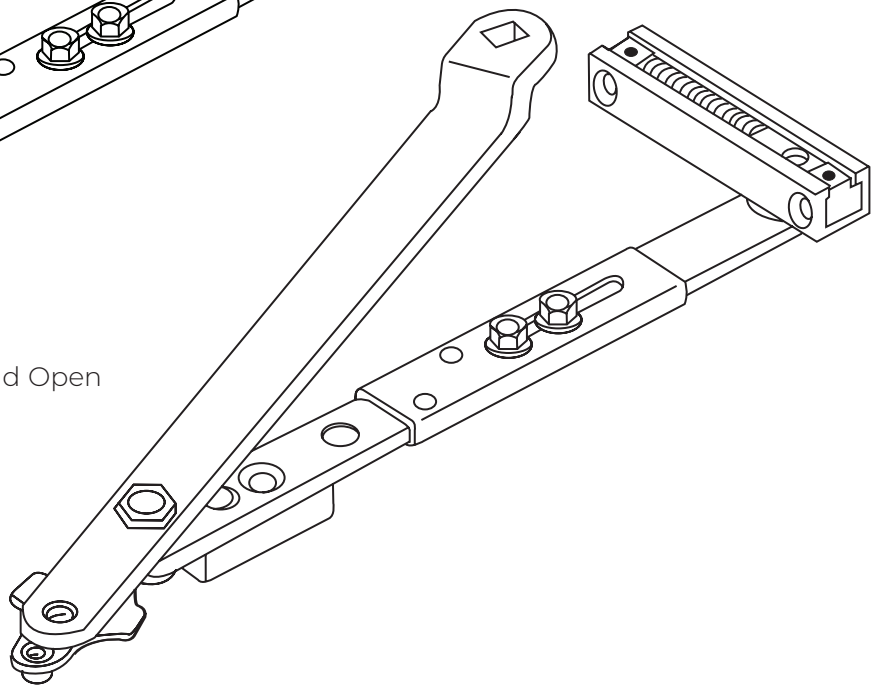
UNITROL® ARM ASSEMBLIES

Top Jamb

Non-Hold Open



Hold Open



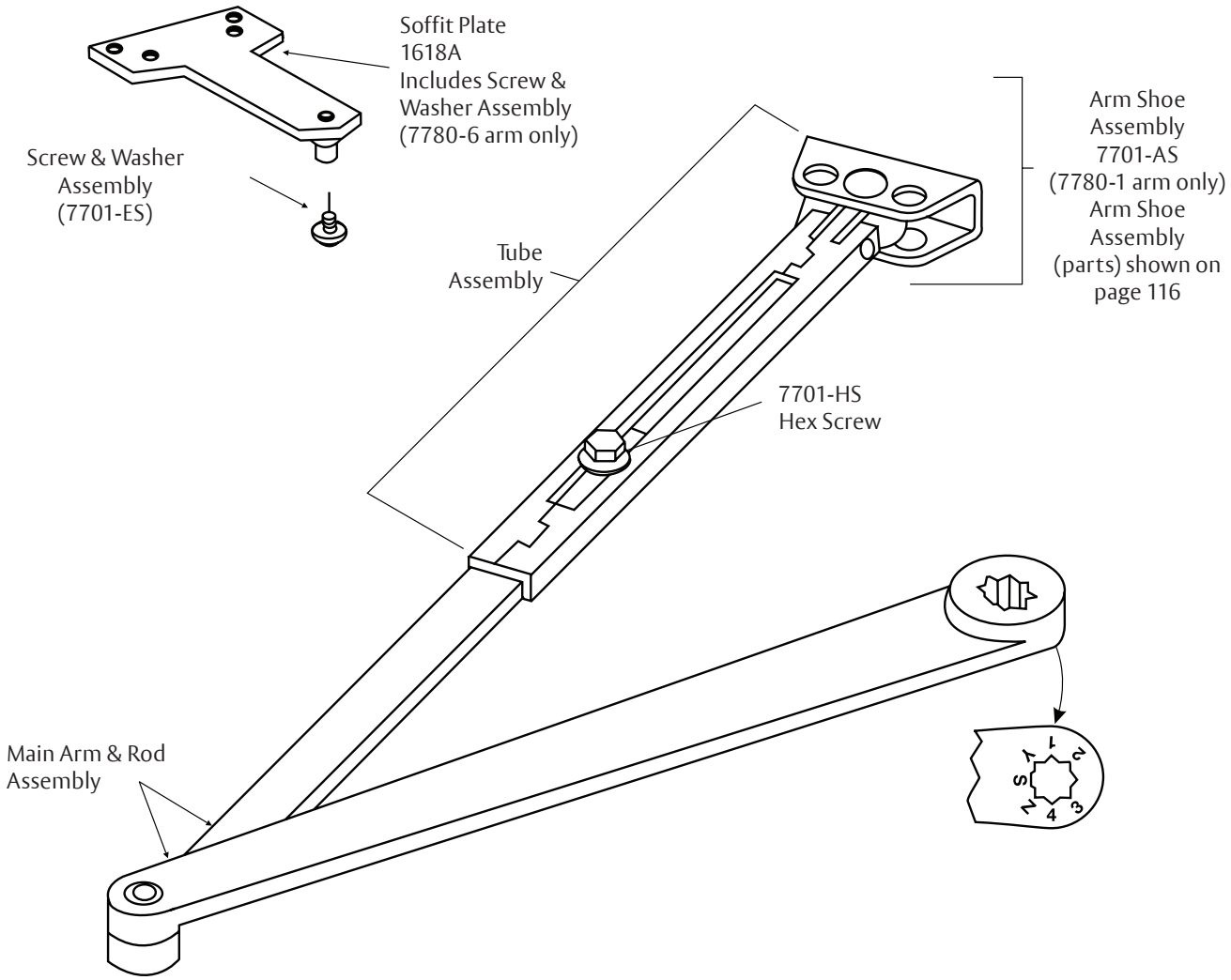
Note: Mounting hardware included with all parts orders.

Complete Arm Assembly		For Frame Reveals (mm)
Non-Hold Open	Hold Open	
J6100-4	J6100-7	2-1/8" - 3-1/4" (54 - 83)
J6200-4	J6200-7	1/2" - 2" (13 - 51)
J6400-4	J6400-7	3-3/8" - 4-1/4" (86 - 108)
J6500-41	J6500-71	4-3/8" - 5-3/8" (111 - 137)
J6500-42	J6500-72	5-1/2" - 6-3/8" (140 - 162)
J6500-43	J6500-73	6-1/2" - 7-3/8" (165 - 187)
J6600-4	J6600-7	0" - 3/8" (0 - 10)

Only available in painted finishes.

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LOW PROFILE ARM ASSEMBLIES

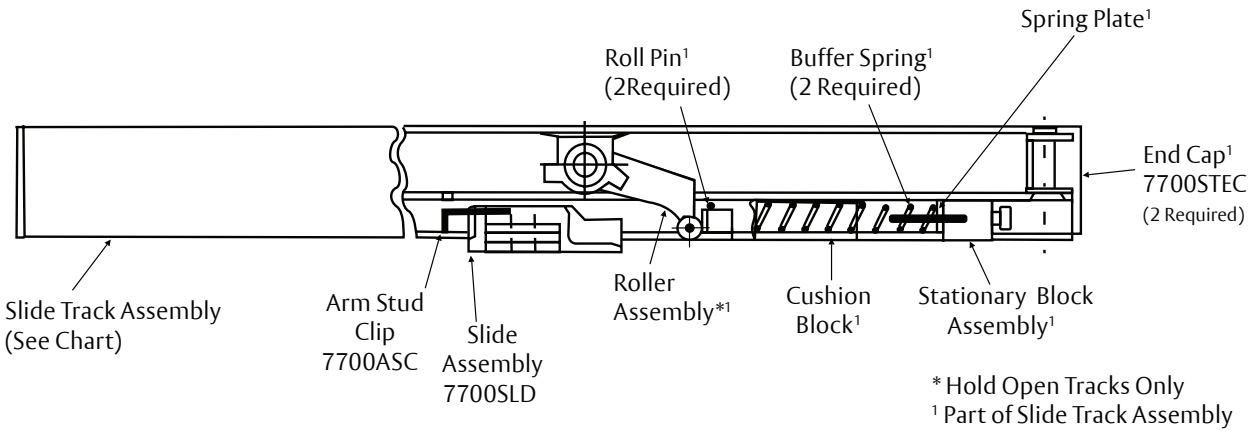


Note: Mounting hardware included with all parts orders.

Arm Application	Complete Arm Assembly	Main Arm & Adjusting Rod Assembly	Tube & Shoe/Soffit Assembly
Regular	7780-1	7780-1MR	7780-1TS (With 7701-AS)
Parallel	7780-6		7780-6TS (With 1618A)
Tri-pack	7780-26		

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TRACK & ARM ASSEMBLIES



Note: Mounting hardware included with all parts orders.

Slide Track Assembly	Part Number	
Description	Non-Hold Open	Hold Open
Pull-side	7701ST-1T	7701ST-3T
Pull side (180°)	7701ST-1T180	N/A
Push side	7701ST-5T	7701ST-8T

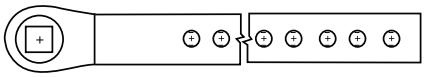
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TRACK & ARMS ASSEMBLIES

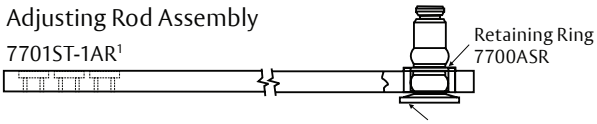
Standard Arm Assembly

7701ST-1A*[1]

Arm Tube Assembly
7701ST-1AT[1]

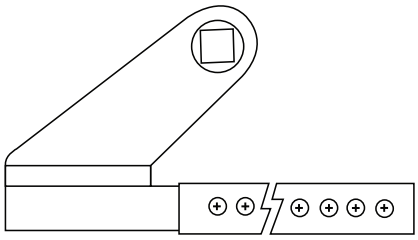


Adjusting Rod Assembly
7701ST-1AR[1]

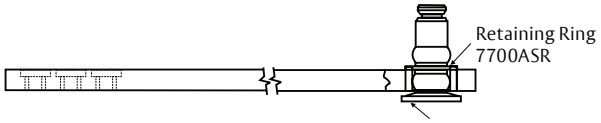


Double Egress Arm Assembly

7701PT-DE-1R (Right Hand)*[1]
7701PT-DE-1L (Left Hand)*[1]



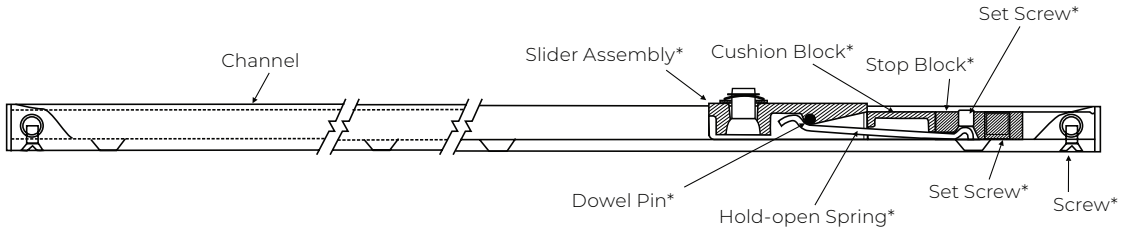
Arm Tube Assembly
7701ST-1ATR[1] (right hand)
7701ST-1ATL[1] (left hand)



Adjusting Rod Assembly
7701ST-1AR[1]

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TRACK ASSEMBLIES - SHALLOW DEPTH

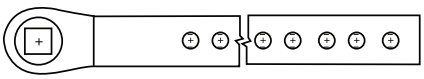


*Part of an assembly pack
NHO= 7740SLD
Ho = 7740HSLD

Note: Mounting hardware included with all parts orders.

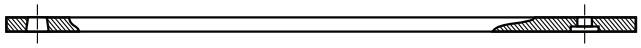
Track Assemblies	Part Number	
Description	Non-Hold Open	Hold Open
Pull-side mounted	7740ST-1T	7740ST-3T
Push-side mounted	7740ST-5T	7740ST-8T

Arm Assembly



Arm Tube Assembly
7701ST-1AT[2]

7740ST-1A[1, 2]



Adjusting Rod Assembly
7740ST-1AR[2]

1 Includes arm length adjusting screw.
2 Includes arm tube & adjusting rod assembly.

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FASTENERS

Standard Fasteners	With Arms Specified Below					
	Regular Parallel & Top Jamb	Low Profile	Parallel Rigid (PR) CloserPlus (CLP) CloserPlus Spring (CPS)	Unitrol (UNI)	Unitrol-J (UNI-J)	Slide Track (ST)
Door						
Self drilling self tapping	S	S	S	S		
Machine screw	S	S	S	S	S	S
Sleeve nut/sex nut			S	S	S	S
Frame						
Self drilling self tapping	S	S	S	S	S	S
Machine screw	S	S	S	S	S	S

S = Standard
Fasteners are standard (included) with closer package.
Examples:
8501 includes self drilling, self tapping and machine screws
PR8501 includes self drilling, self tapping, machine screws and sleeve nut/sex nuts

Optional Fasteners	Description	With Arms Specified Below					
		Regular Parallel & Top Jamb	Low Profile	Parallel Rigid (PR) CloserPlus (CLP) CloserPlus Spring (CPS)	Unitrol (UNI)	Unitrol-J (UNI-J)	Slide Track (ST)
Door							
SN^	Sleeve nut/sex nut	O	O				
TBGN^	Thru bolts & grommet nuts	O	O	O	O	O	O
SMS*	Sheet metal screws & machine screws	O	O	O	O	O	O
SSPxSMS	Standard screw pack & sheet metal screws	O	O	O	O	O	O
TORX®*	Torx drive security screw	O	O	O	O	O	O
Frame							
SMS*	Sheet metal screws & machine screws	O	O	O	O	O	O
SSPxSMS	Standard screw pack & sheet metal screws	O	O	O	O	O	O
TORX®*	Torx drive security screw	O	O	O	O	O	O

O = Optional
^ When SN or TBGN are ordered, standard screw packs are also furnished.
***When SMS or TORX screws are specified, standard screw packs ARE NOT furnished.**
Examples:
8501 x **SN** includes self drilling, self tapping, machine screws and sleeve/sex nuts
8501 x **SMS** includes sheet metal screws and machine screws

SN are for use on hollow metal doors and can also be used for thru bolting on wood doors. When selected SNs are supplied for 1-3/4" (44mm) thick doors unless specified for 2-1/4" (57mm) thick doors

TBGN are an alternative to SN for wood doors. When selected, TBGNs are supplied standard for 1-3/4" (44mm) thick doors.

SMS - when the option is specified, closer will be packed with sheet metal screws for the door and sheet metal screws plus machine screws for the frame.

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FINISHES

Norton Rixson offers waterborne acrylic, polyster powder coat and plated finishes. Custom finishes are available on special order. A sample and approval is required.

Waterborne acrylic and polyester powder coat will withstand 100 hours of salt spray (ANSI requires 25 hours).

ANSI/BHMA (US)	Description
605 (US3)	Bright brass, clear coated
606 (US4)	Satin brass, clear coated
611 (US9)	Bright bronze, clear coated
612 (US10)	Satin bronze, clear coated
613E (US10BE)	Dark oxidized satin bronze - equiv.
619 (US15)	Satin nickel plated, clear coated
625 (US26)	Bright chrome plated over nickel
626 (US26D)	Satin chrome plated over nickel
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
691 (US10)	Light bronze, painted
693	Black, painted
694	Medium bronze, painted
696 (US4)	Gold , painted
BSP	Black suede powder coat
WSP	White suede powder coat
600^	Prime coat

^ 600 is a special rust-inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat.

- Closer bodies and plastic covers are available in waterborne acrylic finishes. Arms and metal covers are available in powder coat or plated finishes.
- When a plated finish is ordered, arm and cover will be plated unless "cover only" is specified.

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8000
ARCHITECTURAL DOOR CLOSER

HOW TO ORDER

For optimum protection of door and frame assemblies, always use auxiliary wall, floor, or overhead door stop.

CLP	8	5	0	1	T
Prefixes	Closer series	Cover options	Specifies some options	Closer size	Suffixes

Prefixes

No Prefix - 8301/8501 series designates Tri-Style®
S - 8301/8501 regular arm application only, non-hold open
JS - 8301/8501 top jamb application only, non-hold open
P - 8301/8501 parallel arm application only, non-hold open 8381/8581 low profile closer
J - Top Jamb installation. 2-3/4 to 7" reveal - 150° swing
PR - Parallel Rigid arm (parallel arm only - specify hand for hold open functions)
PRO - Parallel Rigid arm with offset soffit plate (parallel arm only - specify hand for hold open applications)
PS - For push side mounted slide track only
R - Regular Rigid heavy-duty arm (Torx® screws not included)
CLP - CloserPlus® arm (parallel arm only)
CPS - CloserPlus Spring™ arm (parallel arm only)
UNI - Unitrol® arm (parallel arm only - specify door width)
UNIJ - Unitrol arm (top jamb only - specify frame reveal)

Closer series

8

Cover options

Appearance Options
1 - without cover
3 - closer with Slim Line cover
5 - closer with Full cover

Specifies some options

0 - Specifies standard type arms for non-hold open, hold open closers
4 - Specifies low profile slide track
8 - Specifies a low profile arm for non-hold open closers only

Closer size

1 - Adjustable 1-6

Suffixes

No Suffixes - Standard non-hold open arm
H - Standard hold open arm
M - Metal cover; optional for series 8501 closers only (Specify hand for Top Jamb closer
MLL - Lead lined metal cover
A - Optional architectural plastic cover (8501 only)
MA - Optional architectural metal cover (8501 only)
T - Thumbturn hold open on CloserPlus (CLP) & CloserPlus Spring (CPS) arms
DA - Adjustable delayed action closing optional. Available with adjustable backcheck cushioning for all series
ST - Slide track single lever arm (pull side standard. For push side prefix PS)
ST-180 - Slide track single lever (pull side only); 180° swing
DE - Pull side slide track arm for double egress frame with reveal (Handed)
G - ABS cover
R - Ramp hold open on CloserPlus® arm

Note:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

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1600

ALUMINUM STOREFRONT DOOR CLOSER

INTRODUCTION

The 1600 Series door closers offer proven quality, performance and reliability unmatched by the competition. A staple in the industry, these ANSI/BHMA Grade 1 closers are designed for exterior or interior doors. A full complement of regular and heavy-duty arms, brackets and options make the 1600 Series closers ideal for virtually any medium traffic, commercial application.



FEATURES

- Exceeds 25 million cycles
- Non-handed
- Rack-and-pinion design
- Cast aluminum closer body
- Door weight: 250 lbs.
- 2-7/8" (73mm) projection
- 1-3/8" (35mm) diameter piston
- 5/8" (16mm) diameter pinion journals
- Tri-Style® packaging (regular arm, top jamb and parallel arm mounting)
- All standard arm applications allow doors to swing 180°, conditions permitting
- Staked valves
- Heavy-duty arms: Parallel Rigid, CloserPlus®, CloserPlus Spring™, and Unitrol®
- Standard, separate and independent, latch, sweep and backcheck intensity valves
- 30-year limited warranty

Features	1600BC	1601
Sized springs 3 or 4 with no power adjustment	X	
Adjustable spring sizes 1 through 6		X

OPTIONAL FEATURES

- Molded plastic cover - specify suffix P
- Corrosion-resistant model (non-hold open only) - specify 1601SS (not tri-packed)

PATENTS

- assaabloydss.com/patents

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1600
ALUMINUM STOREFRONT DOOR CLOSER

CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1
- ANSI/BHMA A117.1
- Americans with Disabilities Act (ADA) Compliant
- Environmental Product Declaration (EPD)
- UL10C positive pressure up to 3 hours
- UL-cUL listed
- Manufactured in an ISO 9001 and ISO14001 facility

CAUTION: Door Closers for Low Opening Force Applications:

Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

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ALUMINUM STOREFRONT DOOR CLOSER

EXPLANATION OF FEATURES

Aluminum Alloy Housing
Closer bodies are constructed of a special aluminum alloy, carefully selected to accommodate interaction with steel components and operating conditions.

Rack & Pinion Operation
Provides a smooth constant control of the door through its full opening and closing cycle. 180° door swing can be achieved when door, frame, hardware and arm function do not limit door swing.

Non-Handed
With few exceptions, all series 1600BC and series 1601 door closers are non-handed and can be installed on either right- or left- hand swing doors. Pinion shaft extends vertically through the closer body in both directions. Some options (such as Parallel Rigid hold open arms) will require that the hand of the closer be specified.

Tri-Style®
1600BC/1601 closers come with screws, brackets & soffit plate to allow for regular, top jamb, & parallel arm installations.

Sweep Speed Control Valve
Allows adjustment of door speed from the door's full open position down to approximately 10° from the closed position.

Latch Speed Control Value
Allows adjustment of door speed from approximately 10° down to the door's fully closed position.

Adjustable Backcheck Cushion Valve
Provides control of the door in the opening cycle, beginning at approximately 75° of door opening. It slows/cushions the door opening, when the door is forcibly opened beyond its pre-adjusted opening speed limits.

Warranty
These closers carry a limited 30-year warranty against defects and a limited lifetime warranty on the aluminum housing.

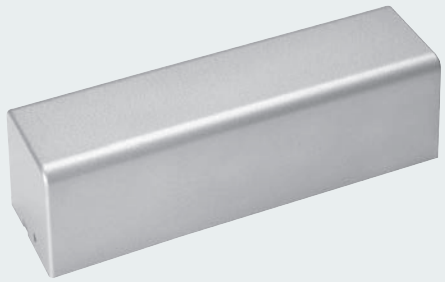
Closer Fluid
NorGlide® door closer fluid is a specially formulated hydraulic fluid that contains lubricity and anti oxidation agents that provide optimum performance and efficiency. This fluid complements the interaction of the door closer's aluminum housing with its steel and zinc components, while maintaining stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as -40° F.

Door Closer Power Options
Sized Door Closer: 1600BC

Available in power sizes 3 or 4. Outlined in ANSI specification A156.4. Spring power is not adjustable.

Multi-Sized Door Closer: 1601

Adjustable through the power range of sizes 1 through 6 to comply with the opening force requirements as outlined in the Americans with Disabilities Act (A.D.A.) and ANSI A117.1 for interior doors. Outlined in ANSI specification A156.4.



Optional Molded Cover - 1600P
Molded of high-impact U.L. listed material that covers the entire closer body assembly. This cover is non-handed for regular and parallel arm applications. Suffix "P" to catalog number. Not designed for top jamb applications.

Corrosion Resistant Door Closer
The series 1601SS door closers are available for use where corrosive conditions exist. This series is provided with zinc diecast adjustment valves, a 440 grade stainless steel pinion shaft, an all-aluminum body and bronze closer arm bushings; all other components and fasteners are of 302/303 grade stainless steel. This product is available for standard regular arm, top jamb and parallel arm, non-hold open, applications only. Not Tri-Style packed. "P" or "J" prefix required for parallel arm and top jamb applications.

Non-Hold Open
Self-closes door every time door is opened. Auxiliary stop (by others) required except when using the CloserPlus®, CloserPlus Spring™ or Unitrol® Arms.

Hold Open
Achieved by means of friction or ball and detent/roller. Friction hold open has a range of 90° to 180° using template location and mechanical adjustment. Ball and detent or roller hold open is effective in a range of 85° to 110°.

Hold open arm door closers are not permitted to be used on fire door assemblies.

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ALUMINUM STOREFRONT DOOR CLOSER

Door Opening Degrees

Arm Function	Regular Arm, Top Jamb Parallel Arm	Parallel Rigid Arm	*CloserPlus* Parallel Arm	*CloserPlus* Spring Parallel Arm	*Unitrol* Parallel Arm	*Unitrol* Top Jamb	Low Profile Regular, Parallel	Cushion Stop Arm
Non-Hold Open	✓	✓	85° to 110°	85° to 110°	85° to 110°	85° to 110°	✓	85° to 110°
Hold Open	90° to 180°	85° to 180°	85° to 110°	85° to 110°	85° to 110°	85° to 110°	N/A	N/A

✓ *= 180˚ trim and template permitting*

SPECIFICATIONS

1601 Series

Closers for interior and exterior doors shall be full rack-and-pinion type with cast aluminum alloy shell. Closers shall be surface mounted and shall project no more that 2-7/8" from the surface of the door. Closers shall be non-handed to permit installation on doors of either hand. Closer fluid shall contain lubricity and anti-oxidation agents. Closer fluid shall maintain stable viscosity to allow door closer to perform in temperatures ranging from extremely high to as low as -40°F. Closers shall have multi-size spring power adjustment to permit setting of spring from (1 through 6). Closers shall have two non-critical valves, hex key adjusted, to independently regulate sweep and latch speed. Closers shall have adjustable backcheck cushioning controlled by a hex key adjusted valve.

[Closer body shall be enclosed in/concealed with a full molded cover.]

[Closers shall be highly corrosion resistant and shall have all external body components of aluminum, zinc alloy or stainless steel material and all stainless steel fasteners.]

Regular arm and top jamb closers shall have a non-hold open shoe permitting 15% (+/- 7-1/2%) power adjustment. ** Norton Rixson [1601] [1601SS].

***For special arms insert the appropriate specification from column two on this page.*

1600BC Series

Closers for interior and exterior doors shall be full rack-and-pinion type with cast aluminum alloy shell. Closers shall be surface mounted and shall project no more that 2-7/8" from the surface of the door. Closers shall be non-handed to permit installation of doors of either hand. Closer fluid shall contain lubricity and anti-oxidation agents. Closer fluid shall maintain stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as -40°F. Closers shall be sized for each door. Closers shall have two non-critical valves, hex key adjusted, to independently regulate sweep and latch speed. [Closers shall have adjustable backcheck cushioning controlled by a hex key adjusted valve.]

Regular arm and top jamb closers shall have a non-hold open shoe permitting 15% (+/- 7-1/2%) power adjustment.** Norton Rixson [1600BC].

***For special arms insert that specification here (see column two on this page).*

**Unitrol® Arm

Door closers shall have built in-door stop [and holder] effective at one point selected at installation, from 85° - 115° in five-degree increments. Door stop shall be cushioned by a shock-absorbing heavy-duty spring action effective at the [soffit plate] [arm shoe] pivot. [Closers shall be provided for parallel arm installation using rigid steel main arm and secondary arm lengths proportional to the door width to reduce racking at the hinge/pivot.] [Closers shall be provided for top jamb installation using steel, rigid main arm and telescoping secondary arm adequate for the frame reveal of the openings.] (Closer arm shall have ball and detent hold open feature that can be engaged or disengaged by 1/4 turn of mechanism; and hold open strength shall be adjustable.)

**CloserPlus® Arm

Door closers shall have built-in door stop [and holder] effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop mechanism shall be reversible and attached to soffit plate. [Hold open mechanism shall have engage/disengage and strength selection actuated by thumbturn.] Closers shall be provided for parallel arm installation using rigid steel main and secondary arm.

**CloserPlus Spring™ Arm

Door closers shall have built in door stop[and holder] effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop mechanism shall have a buffer spring that engages prior to the dead stop feature, reducing shock loads to the door and frame assembly. Door stop mechanism shall be reversible and attached to soffit plate. [Hold open mechanism shall have engage/disengage and strength selection actuated by thumbturn.] Closers shall be provided for parallel installation using rigid steel main and secondary arm.

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APPLICATIONS



Non-hold open arm shown

Regular Arm

This is the only pull-side application where a double lever arm is used. It is the most power-efficient application for a door closer. Sufficient frame, door and/or ceiling clearance must be considered.

Since the arm assembly projects directly out from the frame, this application may present an aesthetics issue or be prone to vandalism.

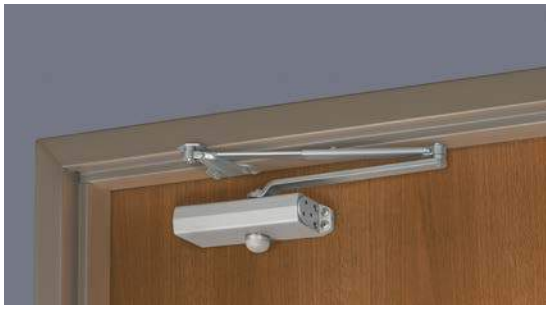


Non-hold open arm shown

Top Jamb

For efficiency reasons this application provides the best alternative to the regular arm application. There must be sufficient frame face and/or ceiling clearance for this application. It requires a top rail on the door of just 2-1/8" (54mm). This application provides the best door control for doors in exterior walls that swing out of a building.

The entire door closer and arm assembly project from the frame, similar to the regular arm application, where the matters of appearance and malicious abuse can be of concern. Consideration must be given to depth of the frame reveal.



Non-hold open arm shown

Parallel Arm

This application provides the most appealing design appearance for a surface-mounted door closer having a double lever arm. This may also be beneficial in vandalism-prone areas. It is on the push side of the door and the arm assembly extends almost parallel to the door. In the closed position, there is very little or no hardware projecting beyond the frame face in most situations.

Due to the geometry of the arm it is approximately 25% less power-efficient than a regular arm application.

The entire closer and arm assembly are mounted below the frame stop, requiring a top rail clearance on the door of between 5-3/8" (137mm), when using a low-profile arm (1680 series), to 6-3/8" (162mm), when using the hold open arm.

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ALUMINUM STOREFRONT DOOR CLOSER

APPLICATIONS



Corner Bracket

This application can be used where top jamb and parallel arm application will not accommodate the door and frame conditions. Requires minimal top rail on the door; however, vertical clearance to the floor within the door opening should be checked to ensure code compliance.

The close proximity, for this application, of the door closer to the door's pivot point reduces the door closer's power efficiency by approximately 25% when compared to a regular arm. The projection of the arm from the door face might pose questions regarding design parameters or environment.

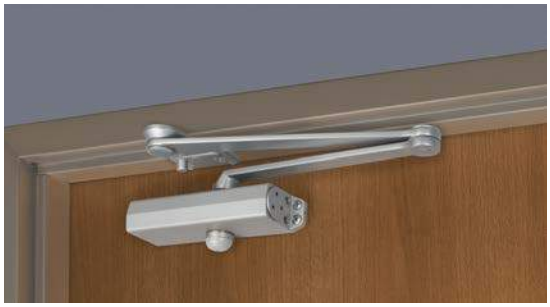


Non-hold open arm shown

Parallel Rigid Arm

An enhanced variation of the standard parallel arm assembly that is intended for use in heavy traffic areas where auxiliary door stops are installed.

Hold open arm available - specify hand when ordering.



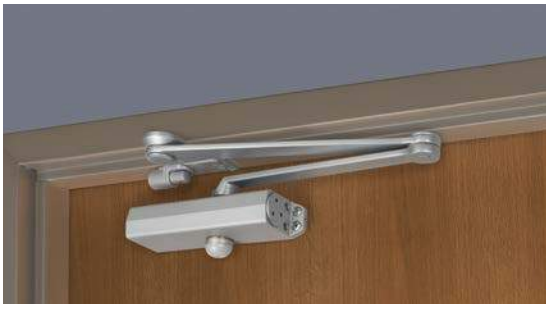
Non-hold open arm shown

CloserPlus® Arm

Similar to the Parallel Rigid arm, this arm incorporates a stop at the arm's soffit plate to dead stop the door at a predetermined degree of door swing between 85° and 110°, in 5° increments. Prior to dead stop the door closer's backcheck feature slows the door speed to reduce the impact of the stop action.

The CloserPlus Arm is intended for use where an auxiliary door stop cannot be utilized and no more than moderate abuse is anticipated. Where more extreme conditions are expected, use of a Unitrol® arm is recommended.

Hold open arm available; hold open tension is adjustable.



CloserPlus Spring™ Arm

This heavy-duty stop arm includes all the features of the *CloserPlus* arm, plus an added buffer spring that is compressed prior to the arm hitting the dead stop point. This greatly reduces the shock of the stopping action that occurs with the *CloserPlus* arm.

Thumbturn hold open is available.

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APPLICATIONS



Cushion Stop Arm

The Cushion Stop arm is designed to help protect the closer from damage in applications where an auxiliary stop cannot be used and moderate abuse is anticipated. Available for regular arm, non-hold open installations, this arm has a stop mounted on the arm elbow and allows the door to swing 85° to 110° based on template installation.



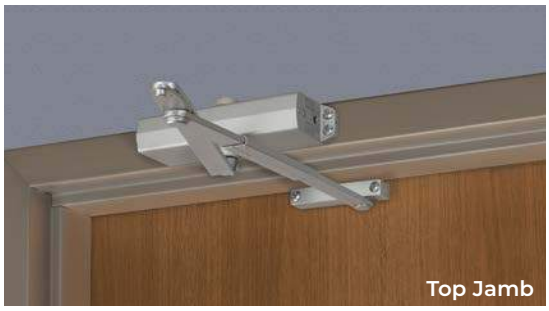
Unitrol® Arm

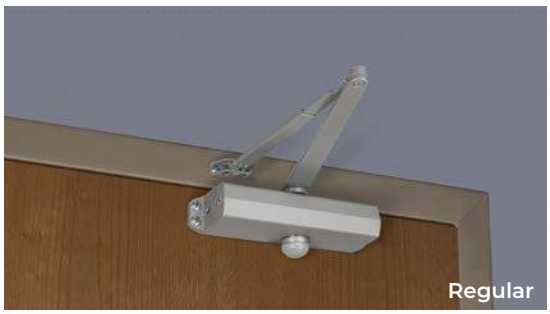
Can be used for either parallel arm or top jamb applications. *Unitrol* arms combine the features of a double lever arm overhead door stop/holder with the backcheck feature of the door closer to reduce door stopping shock loads to a minimum. The *Unitrol* uses a compression spring buffer at the soffit plate/arm shoe that will absorb 30 lbs. of force, 5° prior to the door's dead stop. Coupled with the door closer's backcheck feature, this arm provides the most controlled stop available with a surface door closer.

For parallel arm applications there are three different length arm assemblies. Each length is designed for a specific range of door widths, to provide precise door control. This further lessens the dead stop impact on the door's hinges/pivots.

Only available in painted finishes.

Specify depth of reveal when using top jamb mounting.





Low-Profile Arms

Supplied with series door closers for non-hold open installations only. Low-profile arms have a reduced height elbow joint and a straight main arm. This enables the door closer to be installed in less vertical space. Non-hold open function only.

Regular arm: allows closer to be installed where there is as little as 1" (25mm) of frame face or ceiling clearance. If installed top jamb, a 1687 drop plate is required. Order drop plate separately.

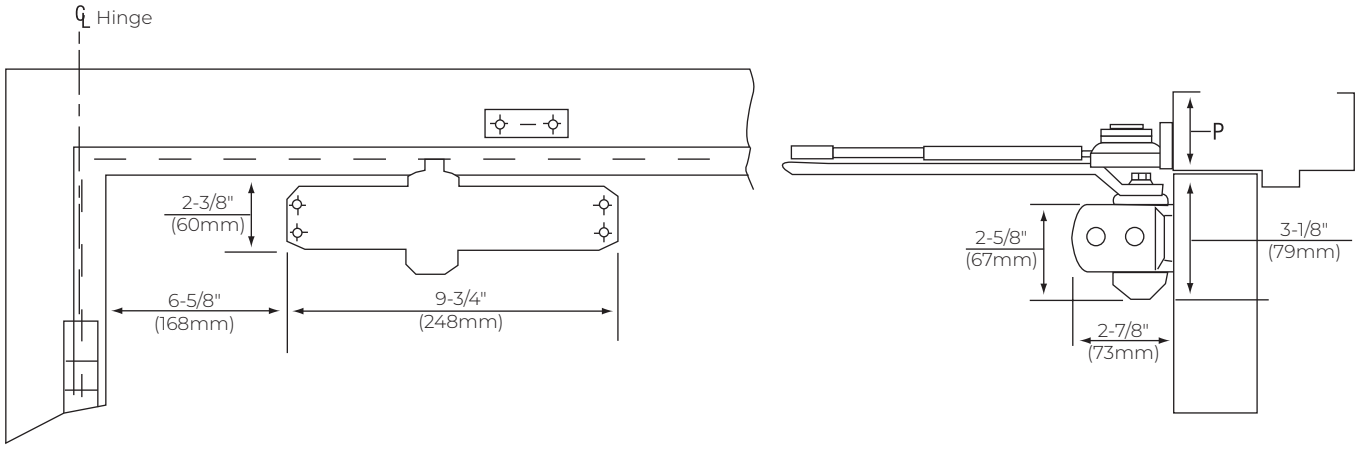


Parallel arm: allows closer to be installed 1/2" (13mm) higher up on door than standard parallel arm application. Suffix "P" to the catalog number; i.e., P1680BC, P1681.

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1600
ALUMINUM STOREFRONT DOOR CLOSER

REGULAR ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Maximum Door Size Inches (cm)		Model Number			
		Sized Closers		Multi-Sized Closers	
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
32" (81)	—	—	—	1601	1601H
38" (97)	30" (76)	1603BC	1603BCH		
42" (107)	36" (91)	1604BC	1604BCH		
48" (122)	42" (107)	—	—		
—	48" (122)	—	—		

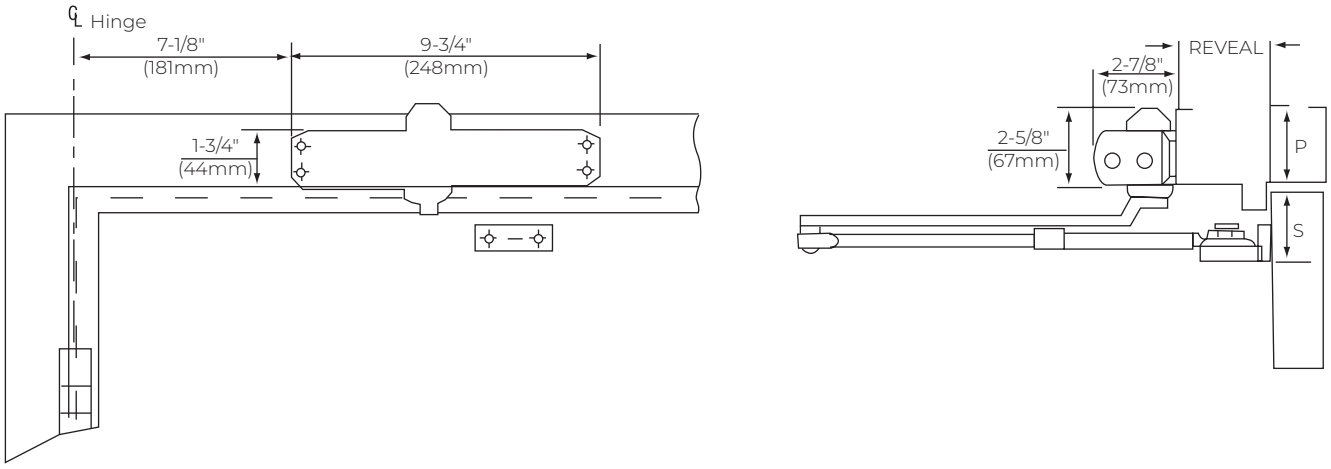
P Minimum Ceiling Clearance Inches/mm		
Non-Hold Open		Hold Open
1600BC/1601	1680BC/1681	1-5/8" (41)
1-1/2" (38)	1" (25)	

Notes:
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

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ALUMINUM STOREFRONT DOOR CLOSER

TOP JAMB



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Maximum Door Size Inches (cm)		Model Number			
		Sized Closers		Multi-Sized Closers	
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
32" (81)	—	—	—	1601	1601H
38" (97)	30" (76)	1603BC J1603BC J1683BC^	1603BCH J1603BCH		
42" (107)	36" (91)	1604BC J1604BC J1684BC^	1604BCH J1604BCH		
48" (122)	42" (107)	—	—		
—	48" (122)	—	—		

Notes:
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

^Narrow-profile arm closers can only be installed with 1687 drop plate. Order drop plate separately.

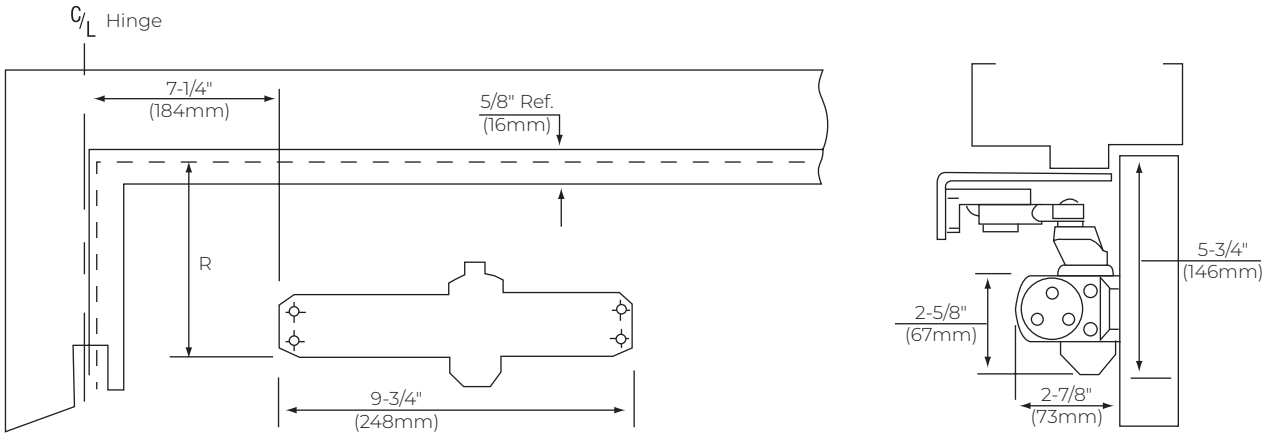
Non-hold open - use standard 1600 closer for frame reveals between 0"- to 3" (0-76mm). Use top jamb J1600 closer for frame reveals from 3" to 7" (76 to 178mm). Hold open use standard 1600H closer for frame reveals between 0" to 2-3/4" (0-70mm). Use top jamb J1600H closer for frame reveals from 2-3/4" to 6-3/4" (70 to 171mm).

P Minimum Ceiling Clearance		S Minimum Top Rail Clearance		
Without Drop Plate	With Drop Plate	Without Drop Plate	With 1687 Drop Plate	With 1688 Drop Plate
1600BC/1601	1600BC/1601 1680BC/1681	1600BC/1601	1600BC/1601	1600BC/1601 1680BC/1681
2-5/8" (67)	1-3/4" (44)	1-7/8" (48)	2-5/8" (67)	4" (102)

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1600
ALUMINUM STOREFRONT DOOR CLOSER

PARALLEL ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Maximum Door Size Inches (cm)		Model Number			
		Sized Closers		Multi-Sized Closers	
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
30" (76)	—	—	—	1601	1601H
36" (91)	30" (76)	P1603BC	P1603BCH		
42" (107)	36" (91)	P1604BC	P1604BCH		
48" (122)	42" (107)	—	—		
—	48" (122)	—	—		

Notes:
This door sizing information also applies to corner bracket mounted closers.

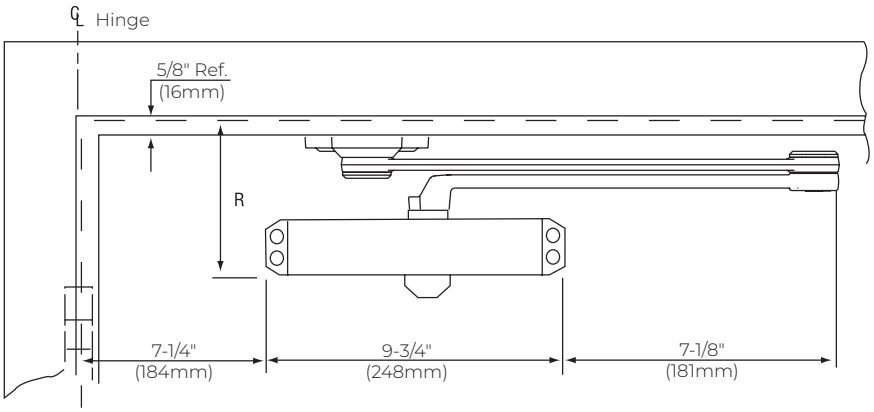
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

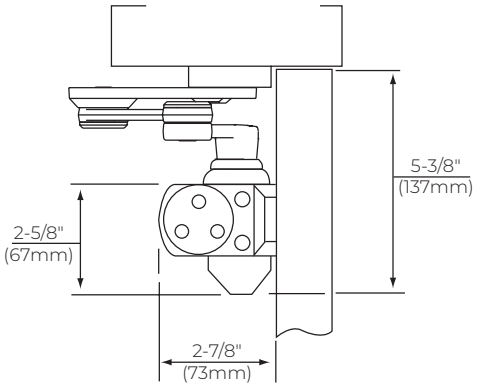
R Minimum Top Rail of Door with 5/8" (16mm) frame stop Inches/mm			
Without Drop Plate		With Drop Plate	
1600BC 1601	1680BC 1681	1600BC 1601	1680BC 1681
5" (127)	4" (102)	3-1/8" (79)	2-1/8" (54)

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ALUMINUM STOREFRONT DOOR CLOSER

PARALLEL RIGID ARM





Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Door Size Wood or Metal Inches (cm)		Model Number			
		Sized Closers		Multi-Sized Closers	
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
28"-32" (71-81)	—	—	—	PR1601	PR1601H
33"-36" (84-91)	28"-32" (71-81)	PR1603BC	PR1603BCH		
37"-42" (94-107)	33"-36" (84-91)	PR1604BC	PR1604BCH		
43"-48" (109-122)	37"-42" (94-107)	—	—		
—	43"-48" (109-122)	—	—		

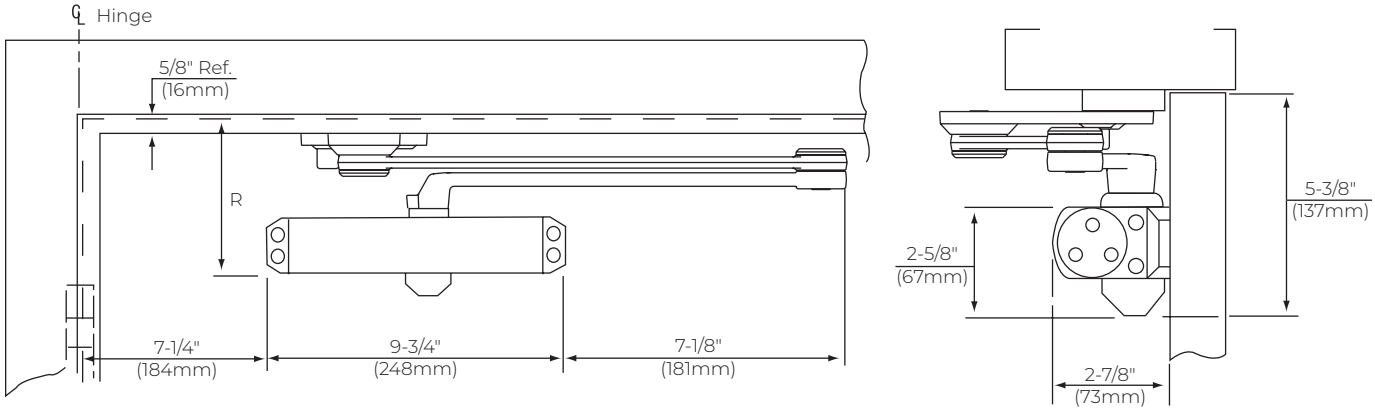
Notes:
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

R Minimum Top Rail of Door with 5/8" (16mm) frame stop	
Without Drop Plate	With Drop Plate
4-1/2" (114)	2-5/8" (67)

NORTON RIXSON
ASSA ABLOY

1600
ALUMINUM STOREFRONT DOOR CLOSER

CLOSERPLUS® ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

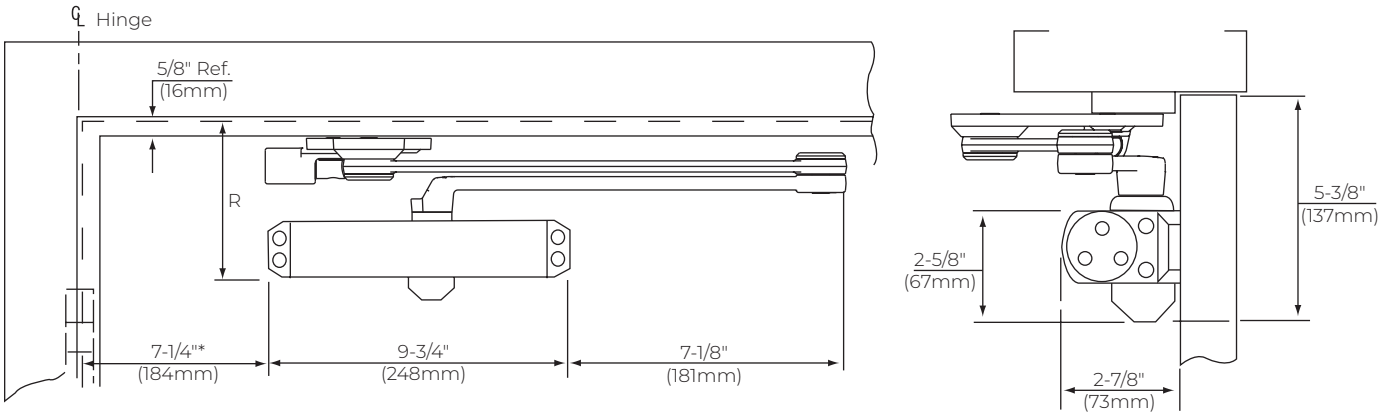
Door Size Wood or Metal Inches (cm)		Model Number			
		Sized Closers		Multi-Sized Closers	
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
28"-32" (71-81)	—	—	—	CLP1601	CLP1601T
33"-36" (84-91)	28"-32" (71-81)	CLP1603BC	CLP1603BCT		
37"-42" (94-107)	33"-36" (84-91)	CLP1604BC	CLP1604BCT		
43"-48" (109-122)	37"-42" (94-107)	—	—		
—	43"-48" (109-122)	—	—		

Notes:
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

R Minimum Top Rail of Door with 5/8" (16mm) frame stop	
Without Drop Plate	With Drop Plate
4-1/2" (114)	2-5/8" (67)

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CLOSERPLUS SPRING™ ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Door Size Wood or Metal Inches (cm)		Model Number			
		Sized Closers		Multi-Sized Closers	
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
28"-32" (71-81)	—	—	—	CPS1601	CPS1601T
33"-36" (84-91)	28"-32" (71-81)	CPS1603BC	CPS1603BCT		
37"-42" (94-107)	33"-36" (84-91)	CPS1604BC	CPS1604BCT		
43"-48" (109-122)	37"-42" (94-107)	—	—		
—	43"-48" (109-122)	—	—		

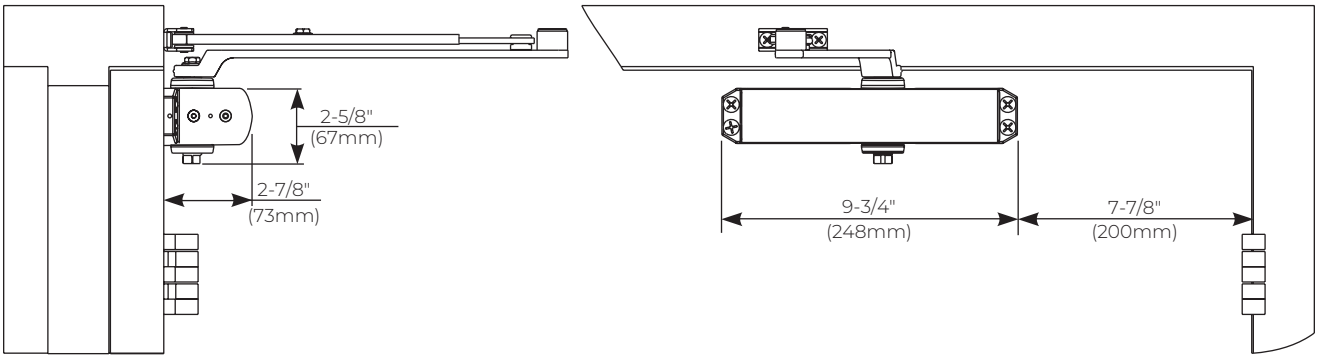
Notes:
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

R Minimum Top Rail of Door with 5/8" (16mm) frame stop	
Without Drop Plate	With Drop Plate
4-1/2" (114)	2-5/8" (67)

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ASSA ABLOY

1600
ALUMINUM STOREFRONT DOOR CLOSER

CUSHION STOP ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Maximum Door Size Inches (cm)		Model Number	
		Sized Closers	Multi-Sized Closers
Interior	Exterior	Non-Hold Open	Non-Hold Open
32" (81)	—	—	1601
38" (97)	30" (76)	1603BC	
42" (107)	36" (91)	1604BC	
48" (122)	42" (107)	—	
—	48" (122)	—	

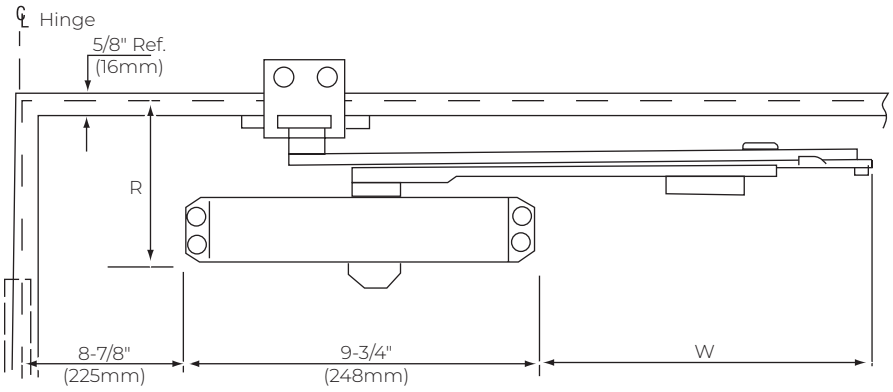
Notes:
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

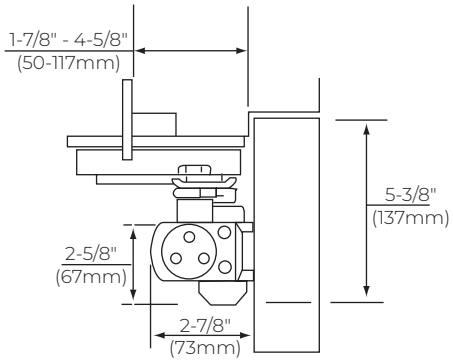
Minimum Ceiling Clearance Inches/mm
Non-Hold Open
1600BC/1601
1-1/2" (38)

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1600
ALUMINUM STOREFRONT DOOR CLOSER

PARALLEL UNITROL® ARM





Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Door Size Wood or Metal Inches (cm)		Model Number				
		Sized Closers		Multi-Sized Closers		
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	
28"-32" (71-81)	—	—	—	UNI1601	UNI1601H	x Specify Door Width
33"-36" (84-91)	28"-32" (71-81)	UNI1603BC	UNI1603BCH			
37"-41" (94- 104)	33"-36" (84-91)	UNI1604BC	UNI1604BCH			
42"-48" (107-122)	37"-41" (94-104)	—	—			
—	42"-48" (107-122)	—	—			

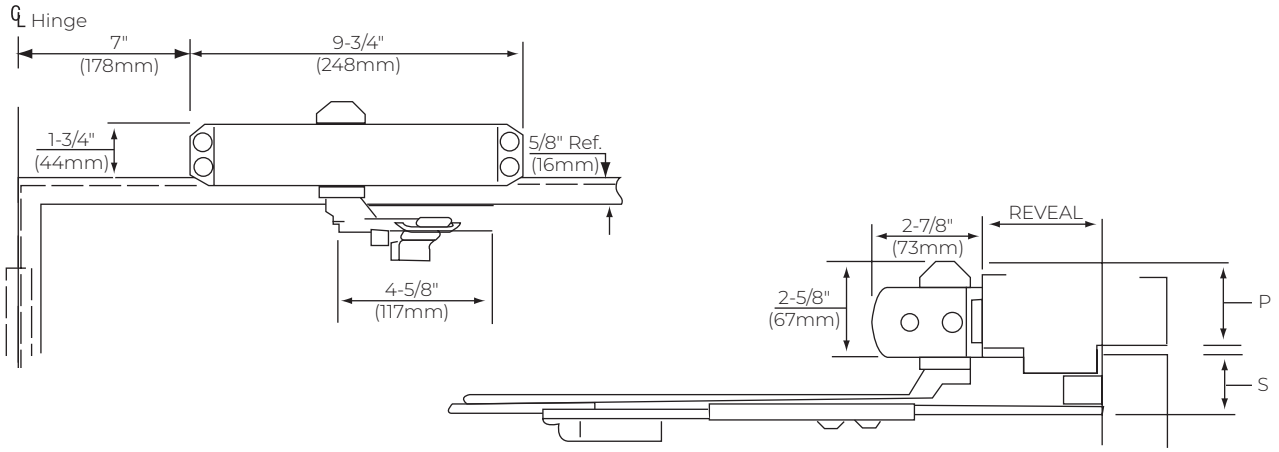
Notes:
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

Door Width	R Minimum Top Rail		W Arm Extension
	Without Drop Plate	With Drop Plate	
28"-32" (71- 81)	4-1/2" (114)	2-5/8" (67)	7" (178)
33"-41" (84- 104)			8-1/2" (216)
42"-48" (107- 122)			10" (254)

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1600
ALUMINUM STOREFRONT DOOR CLOSER

TOP JAMB UNITROL® ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Door Size Wood or Metal Inches (cm)		Model Number				
		Sized Closers		Multi-Sized Closers		
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	
28"-34" (71-86)	—	—	—	UNIJ1601	UNIJ1601H	x Specify Frame Reveal
35"-42" (89-107)	28-34 (71-86)	UNI1603BC	UNIJ1603BCH			
43"-48" (109-122)	35-42 (89-107)	UNI1604BC	UNIJ1604BCH			
49"-54" (124-137)	43-48 (109-122)	—	—			
—	49-54 (124-137)	—	—			

Notes:
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

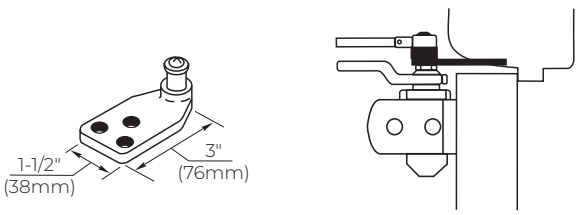
P Minimum Ceiling Clearance		S Minimum Top Rail Clearance	
Without Drop Plate	With Drop Plate	Without Drop Plate	With Drop Plate
2-5/8" (67)	1-3/4" (44)	2-3/8" (60)	3-1/8" (79)

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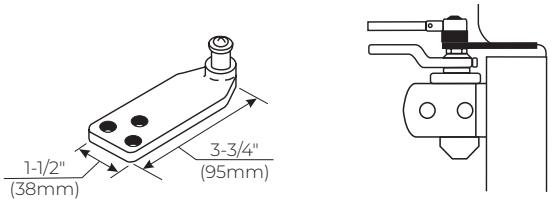
1600
ALUMINUM STOREFRONT DOOR CLOSER

REGULAR ARM

Brackets for Non-Hold Open Arms

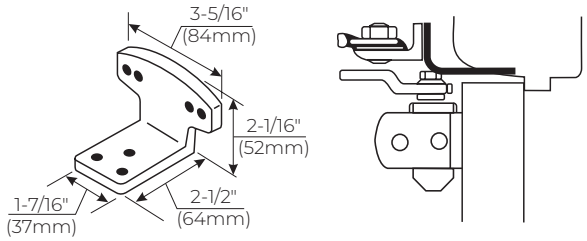


Molded/Bull Nose Trim - 2403B Bracket: For use where the door frame has molded or bull nose trim which will not accept a standard non-hold open shoe. The bracket is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a frame rabbet up to 2" (51mm) deep.



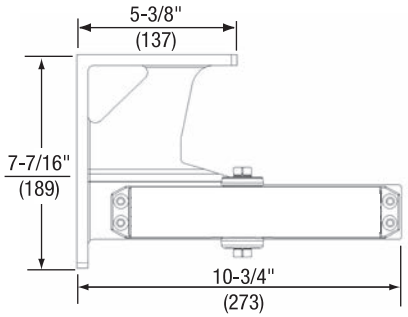
Molded/Bull Nose Trim - 2403-3/4 Bracket: This bracket is similar to-but longer than-the 2403B bracket. It is designed to accommodate frame rabbets from 2" to 2-7/8" (51 to 73mm) deep.

Brackets for Hold Open Arms



Molded/Bull Nose Trim - 80 Bracket: For use where the door frame has molded or bull nose trim which will not accept a standard hold open shoe. It is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a rabbet up to 2" (51mm) deep. This bracket is used in combination with the standard hold open mounting shoe.

Corner Brackets for Closer Mounting

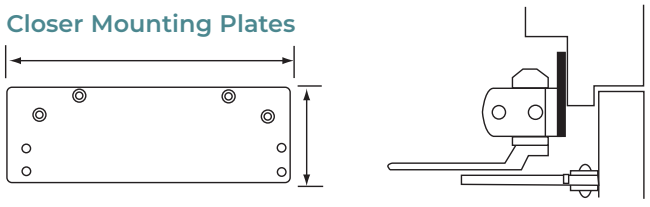


For Closer sizing information, use the Parallel Arm sizing chart on page 141.

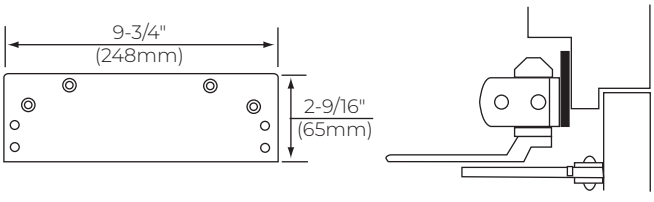
Mounting Opposite Hinge Side - 1647 Corner Bracket: For use where it is desired to mount the closer regular arm on the opposite to hinge side of the door. Can also be used to clear an overhead door holder.

TOP JAMB

Closer Mounting Plates



Overhead Door Holder - 1688 Drop Plate: For use where a overhead door holder prevents normal top jamb mounting. This places the center line of the arm mounting screws at 3-1/2" (89mm) from the top of the door.

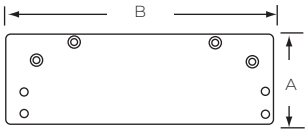


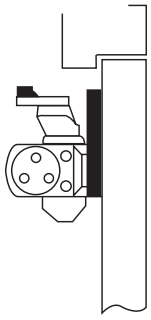
Low Ceiling Clearance - Overhead Door Holder - 1687 Drop Plate: For use where the ceiling clearance is between 1-3/4" and 2-5/8" (44 and 67mm). Or for use where an overhead door holder prevents normal top jamb mounting. This places the centerline of the arm mounting screws at 2-1/8" (54mm) from the top of door.

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1600
ALUMINUM STOREFRONT DOOR CLOSER

PARALLEL ARM
Closer Mounting Plate



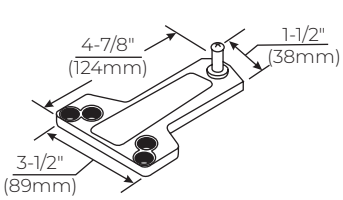


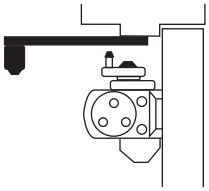
Note: 1688C – To be used when optional cover is specified.

Plate No.	Dimensions	
	A (width)	B (length)
1688	3-1/4" (83)	9-3/4" (248)
1688C	4-1/8" (105)	9-7/8" (251)

Narrow Top Rail - 1688 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 3-1/8" (79mm) in height for 1600BC or 2-1/8" (54mm) for 1680BC.

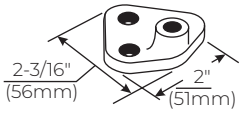
Brackets for Non-Hold Open Arms

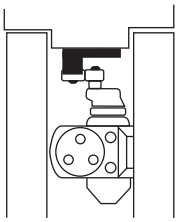




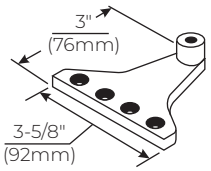
Standard Installation - 1618A Soffit Plate: This soffit plate is supplied standard with parallel arm closers. It can be mounted where the frame soffit is as narrow as 1" (25 mm).

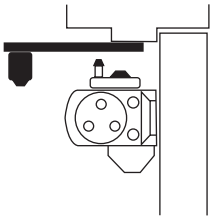
Specify 1618A-SS for stainless steel soffit plate: With Series P1600SS closers, a 1618A-SS soffit plate fabricated of stainless steel is supplied standard.



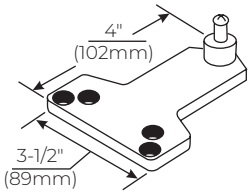


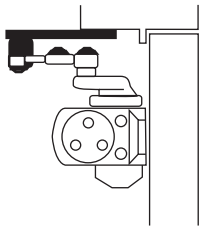
Mounting Between Doors - 2018 Soffit Bracket: For use where insufficient space between companion doors does not permit use of other soffit plates. This bracket permits mounting of the closer between doors with as little as 3" (76mm) of header space. Permits closer arm to clear up to 5/8" (16mm) high stop.





Narrow Frame/Removable Stop - 2018B Soffit Plate: For use where a narrow frame or frame with removable stop does not permit use of the standard soffit plate. This soffit plate may be mounted on the frame soffit or the frame rabbet where the stop does not exceed 5/8" (16mm) in height. All of the screw holes are in a straight line, requiring as little as 1-1/4" (32mm) of frame reveal to mount bracket and maintain good closer arm geometry. Where the frame soffit is as wide as 2" (51mm), this soffit plate may be used to clear weather-stripping that is up to 1-3/8" (35mm) wide and 5/8" (16mm) in height.



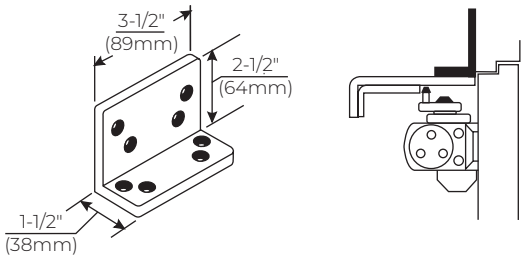


Blade/Applied Stop - 2018D Soffit Plate: For use where a blade or applied stop does not permit installation of the standard soffit plate. Mounts to either the frame soffit or rabbet. Since this soffit plate projects 7/8" (22mm) less than a standard soffit plate, it requires a minimum frame reveal of 1-1/2" (38mm). Permits closer to clear up to a 5/8" (16mm) high frame stop.

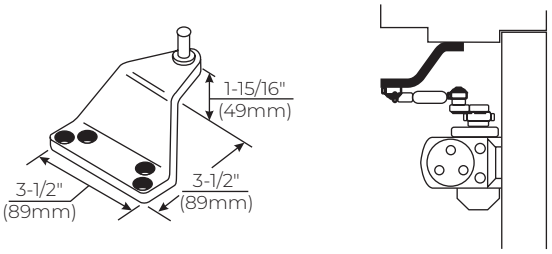
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PARALLEL ARM

Brackets for Non-Hold Open Arms (continued)



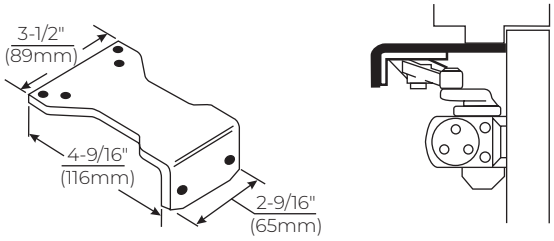
Flush Transom - 2022 Angle Bracket: For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1618A soffit plate, or may be used in combination with the 2018S soffit plate when it is necessary for the closer arm to clear a separate overhead door holder.



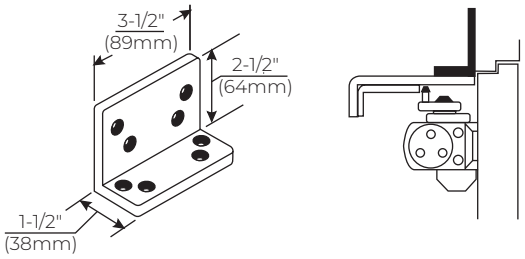
Extra-Clearance - 2018S Offset Soffit Plate: For use where the need for additional clearance prevents use of the standard soffit plate. This plate mounts to the frame soffit to provide up to 2" (51mm) of clearance when a separate overhead door holder is used.

Standard mounting requires a 2-5/8" (67mm) wide frame soffit. It may also be used where unusually high frame stops or weatherstripping prevents the use of other soffit plates.

Brackets for Hold Open Arms



Parallel Hold Open - 1628H Adapter Plate: This Adapter Plate is supplied standard with all parallel arm hold open closers. It can also be used to convert regular arm or top jamb hold open arms to parallel arm installation. It can be mounted where the frame soffit is as narrow as 1" (25mm).



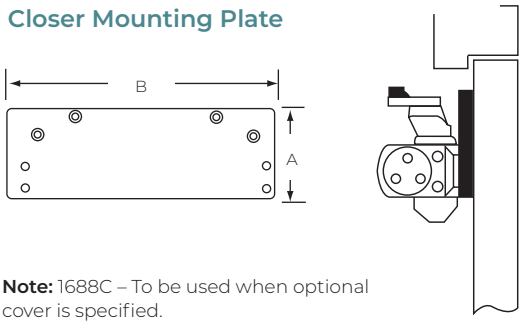
Flush Transom Hold Open - 2022 Angle Bracket: For use where rabbeted or flush transom conditions prevent installation of the standard 1628H hold open adapter plate. It is used in combination with the 1628H adapter plate.

NORTON RIXSON
ASSA ABLOY

1600
ALUMINUM STOREFRONT DOOR CLOSER

PARALLEL RIGID ARM

Closer Mounting Plate

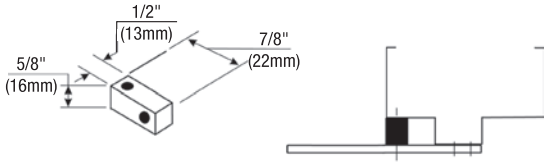


Note: 1688C – To be used when optional cover is specified.

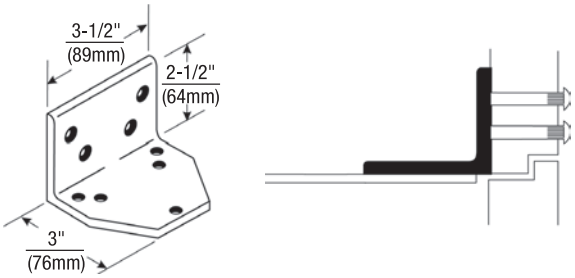
Plate No.	Dimensions	
	A (width)	B (length)
1688	3-1/4" (83)	9-3/4" (248)
1688C	4-1/8" (105)	9-7/8" (251)

Narrow Top Rail - 1688 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-5/8" (67mm) in height.

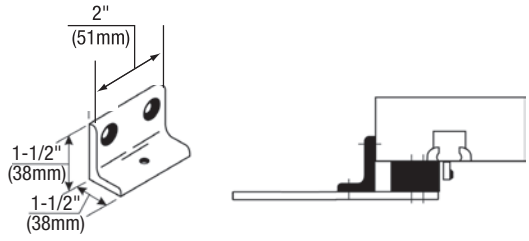
Brackets for Non-Hold Open Arms & Hold Open Arms



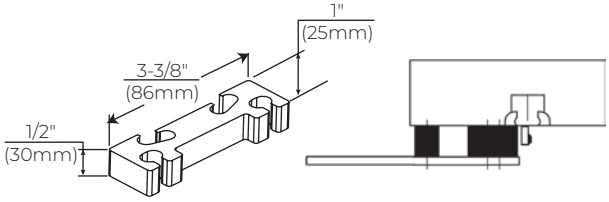
Standard - 2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all Parallel Rigid arm closers. For use on frame with either 1/2" (13mm) or 5/8" (16mm) high frame stop.



Flush Rabbeted Transom - 2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the arm's soffit plate.



Narrow Frame - 6890 Support Bracket: For use where the frame is narrow and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop. Used on frame where frame stop does not exceed 5/8" (16mm) in height.

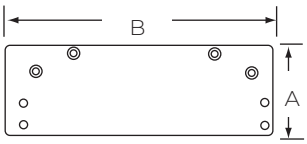


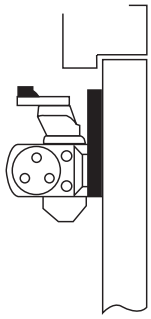
Clearance/Support Blade Stop - 6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard 2019S Spacer Block to provide clearance of the blade stop. For clearance of 5/8" (16mm) high-frame stop.

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CLOSERPLUS® AND CLOSERPLUS SPRING™ ARMS

Closer Mounting Plate



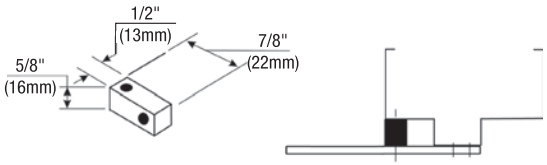


Note: 1688C - To be used when optional cover is specified.

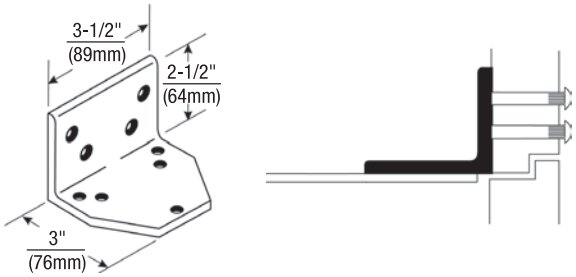
Plate No.	Dimensions	
	A (width)	B (length)
1688	3-1/4" (83)	9-3/4" (248)
1688C	4-1/8" (105)	9-7/8" (251)

Narrow Top Rail - 1688 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-5/8" (67mm) in height.

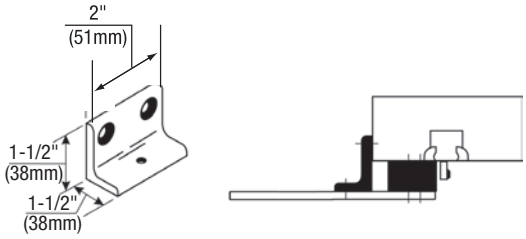
Brackets for Non-Hold Open Arms & Hold Open Arms



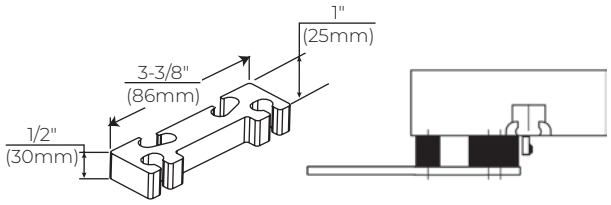
Standard - 2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all Parallel Rigid arm closers. For use on frame with either 1/2" (13mm) or 5/8" (16mm) high frame stop.



Flush Rabbeted Transom - 2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the arm's soffit plate.



Narrow Frame - 6890 Support Bracket: For use where the frame is narrow and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop. Used on frame where frame stop does not exceed 5/8" (16mm) in height.



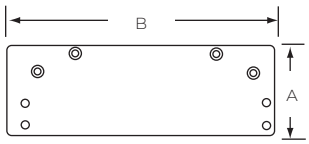
Clearance/Support Blade Stop - 6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard 2019S Spacer Block to provide clearance of the blade stop. For clearance of 5/8" (16mm) high-frame stop.

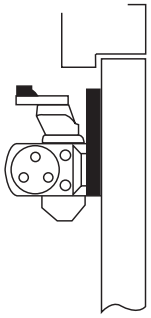
NORTON RIXSON
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1600
ALUMINUM STOREFRONT DOOR CLOSER

UNITROL® ARM

Closer Mounting Plate (for Parallel Arm)



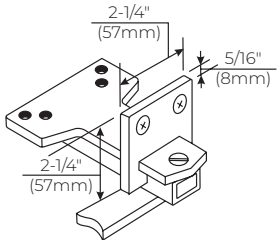


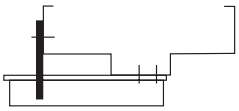
Note: 1688C – To be used when optional cover is specified.

Plate No.	Dimensions	
	A (width)	B (length)
1688	3-1/4" (83)	9-3/4" (248)
1688C	4-1/8" (105)	9-7/8" (251)

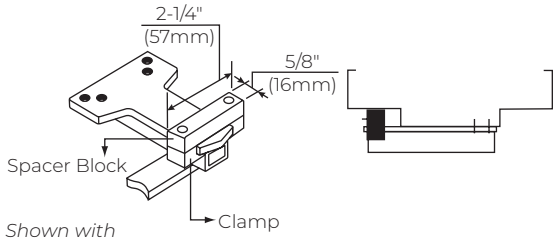
Narrow Top Rail - 1688 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-5/8" (67mm) in height.

Soffit Plate Reinforcing Brackets (for Parallel Arm)



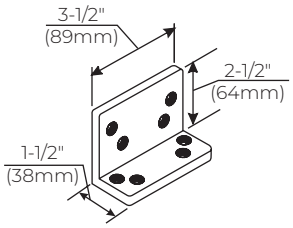


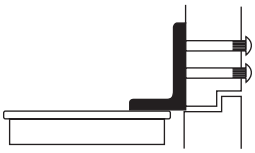
Additional Support - 6190 Reinforcing Bracket: Standard for use with all Unitrol parallel arms. Provides additional support to the soffit plate on installations with door frame reveals from 1-7/8" to 4-5/8" (48 to 117mm).



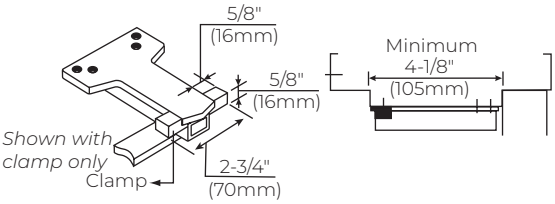
Shown with spacer block and clamps

Wide Frame - 6191 Reinforcing Kit: Optional for use with all Unitrol parallel arms. Used to support the soffit plate on installations with deep frames. Clamps may be used with or without the spacer block, depending on frame conditions.

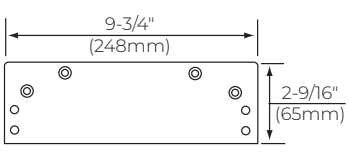


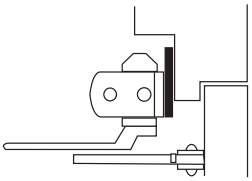


Flush Rabbeted Transom - 2022 Angle Bracket: Optional for use with all Unitrol parallel arms. For use where rabbeted or flush transom conditions prevent installation of the soffit plate assembly. This bracket fastens to the overhead transom to provide a mounting surface for the soffit plate assembly.



Closer Mounting Plate (for Top Jamb)

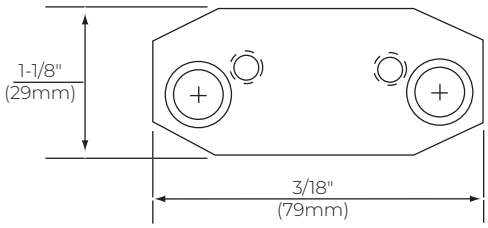


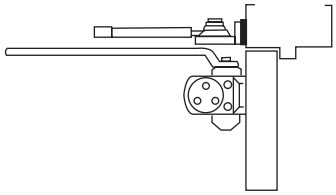


Low Ceiling Clearance - 1687 Drop Plate: For use where the ceiling clearance is between 1-3/4" and 2-5/8" (44 and 67mm). This places the centerline of the arm mounting screws at 2-5/8" (67mm) from the top of door.

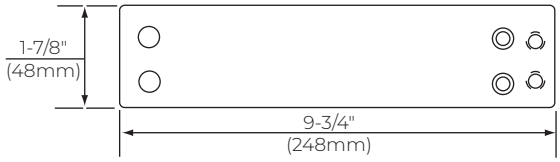
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SPECIAL ACCESSORIES





Converting Old Hold Open Installations - 2017 Adapter Plate: For use on old hold open installations with 2-1/2" (64mm) hole spacing on the holder bracket. Plate uses existing holes in either door or frame and accepts the new hold open bracket with 1-3/4" (44mm) hole spacing. For regular arm or top jamb installations.



1699 Adapter Plate: Converts old 1602/1603 closer installations with 3/4" (19mm) x 8-3/16" (208mm) - spacing to new 1603 using existing mounting holes in door or frame.

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1600
ALUMINUM STOREFRONT DOOR CLOSER

PARTS

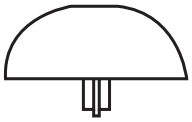
Body Only (Standard)	
160*BCLAP	Sized closer
1601LAP	Multi-sized
1601SSLAP	Stainless steel

Note: Mounting hardware included with all parts orders.

LAP = less all parts

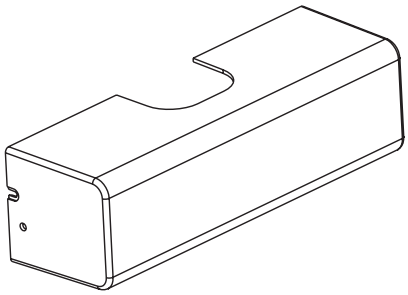
* Specify closer size 3 or 4. Pinion cap and mounting screws supplied.

1639 Pinion Cap



Optional Cover - 1600P

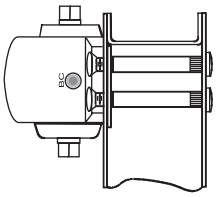
For regular arm and parallel arm applications. 2-7/8" (73mm) height x 3-1/6" (78mm) deep x 9-7/8" (251mm) long. To order with closer use "P" suffix; i.e. 1604BCP.



Steel Door Application

Sex-nut / sleeve-nut : "SN" (4 per pack) or

Sex-nut / sleeve-nut & screw: "SNB" (4 per pack)

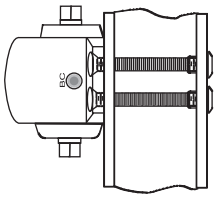


Door	SN's	SNB's
1-3/4"	SN-134	SNB134-38
2"	N/A	SNB200-38
2-1/4"	SN-214	SNB214-38
S.S. SNB's 1-3/4"	SN-134SS	SNB134SS-38

Aluminum and Wood Door Application

(Aluminum door shown)

Thru bolt & grommet nut : "TBGN" (4 per pack)

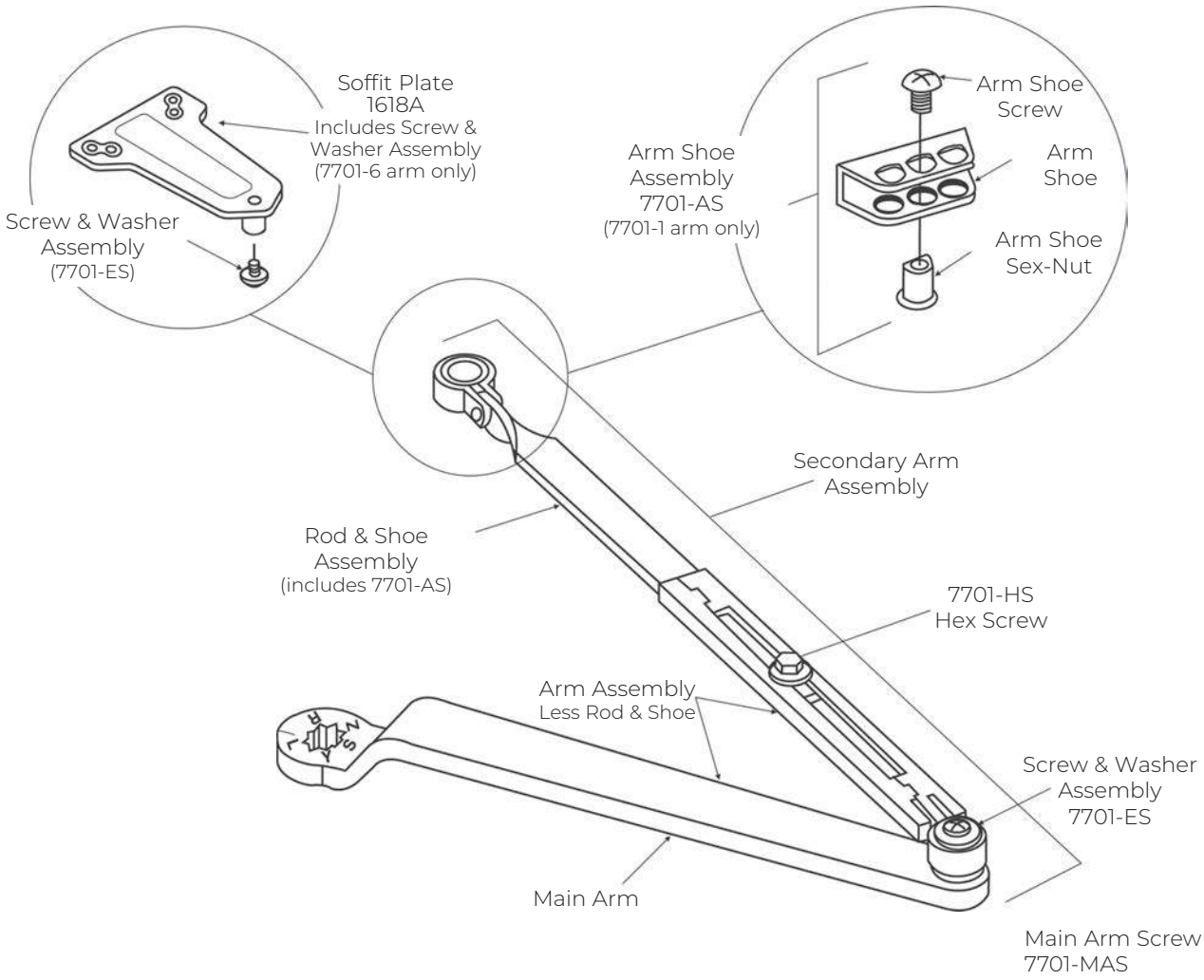


Door	TBGN's
1-3/8"	TBGN138-38
1-3/4"	TBGN134-38

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NON-HOLD OPEN ARM ASSEMBLIES



Note: Mounting hardware included with all parts orders.

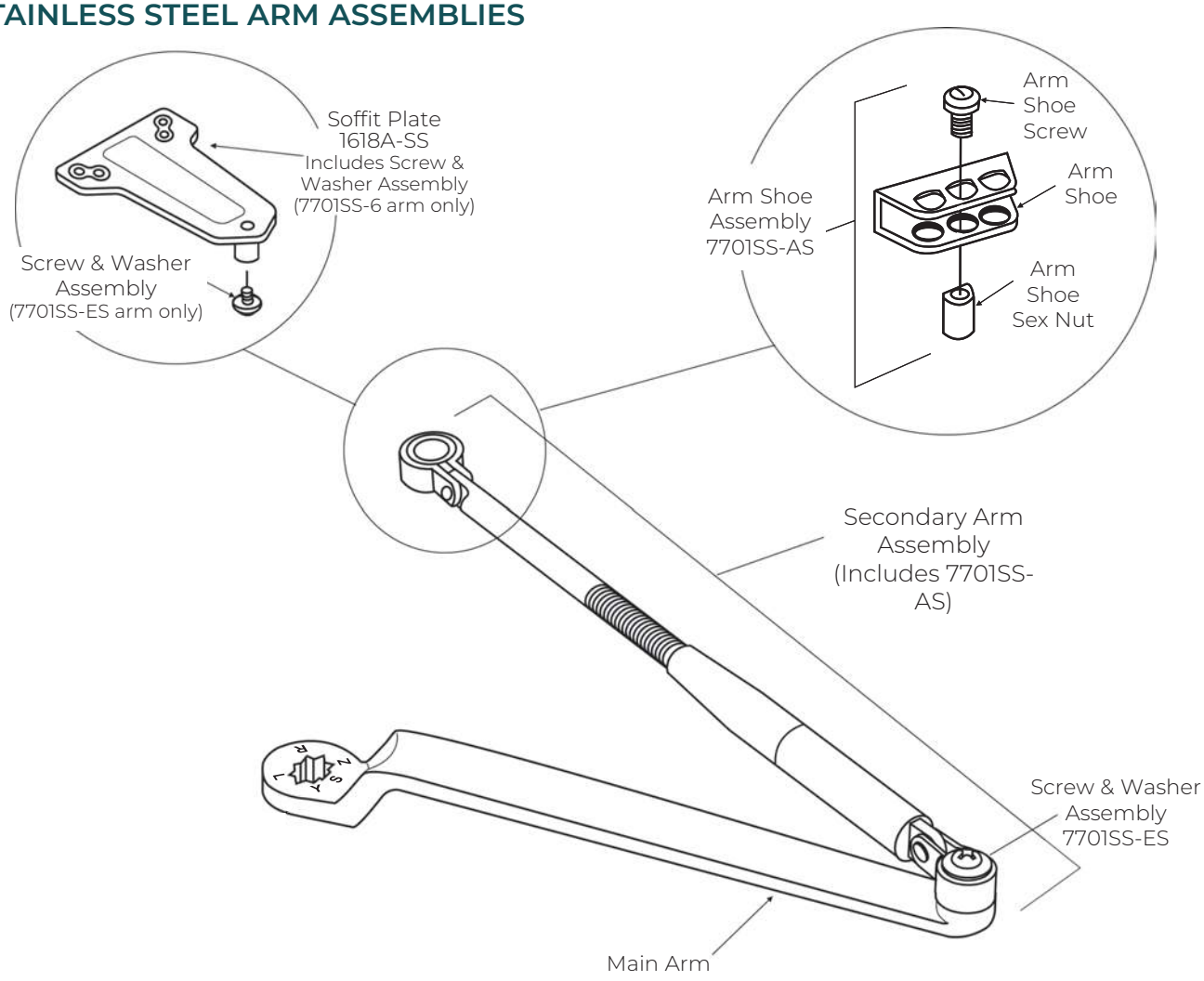
Closer Series	Complete Arm Assembly	Main Arm Assembly[1] (length)(mm) (includes 7701-ES)	Secondary Arm Assembly (includes 7701-ES)	Arm Assembly Less Rod and Shoe	Rod & Shoe[2] Assembly (length)(mm)
1600BC/1601	7701-1	7701-1M (11)(279)	7701-111	7701-1W	7701-11 (8-7/8)(225)
J1600BC/J1601	7701-1A		7701-121		7701-11A (12-1/2)(318)
P1600BC/P1601	7701-6		7701-116		7701-16 (8-7/8)(225)
P1600BC/P1601[3]	7701-6A		7701-116A		7701-16A (12-1/2)(318)
1600BC/1601	7701-26 (Tri-Style® includes 7701-1 plus 1618A plate)				

1. C to C length shown in parentheses.
2. C of connecting link to end of rod shown in parentheses.
3. For 180° door swing when using a special template for doors hung on 6" to 8" (162 to 203mm) wide throw hinges.

NORTON RIXSON
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1600
ALUMINUM STOREFRONT DOOR CLOSER

STAINLESS STEEL ARM ASSEMBLIES



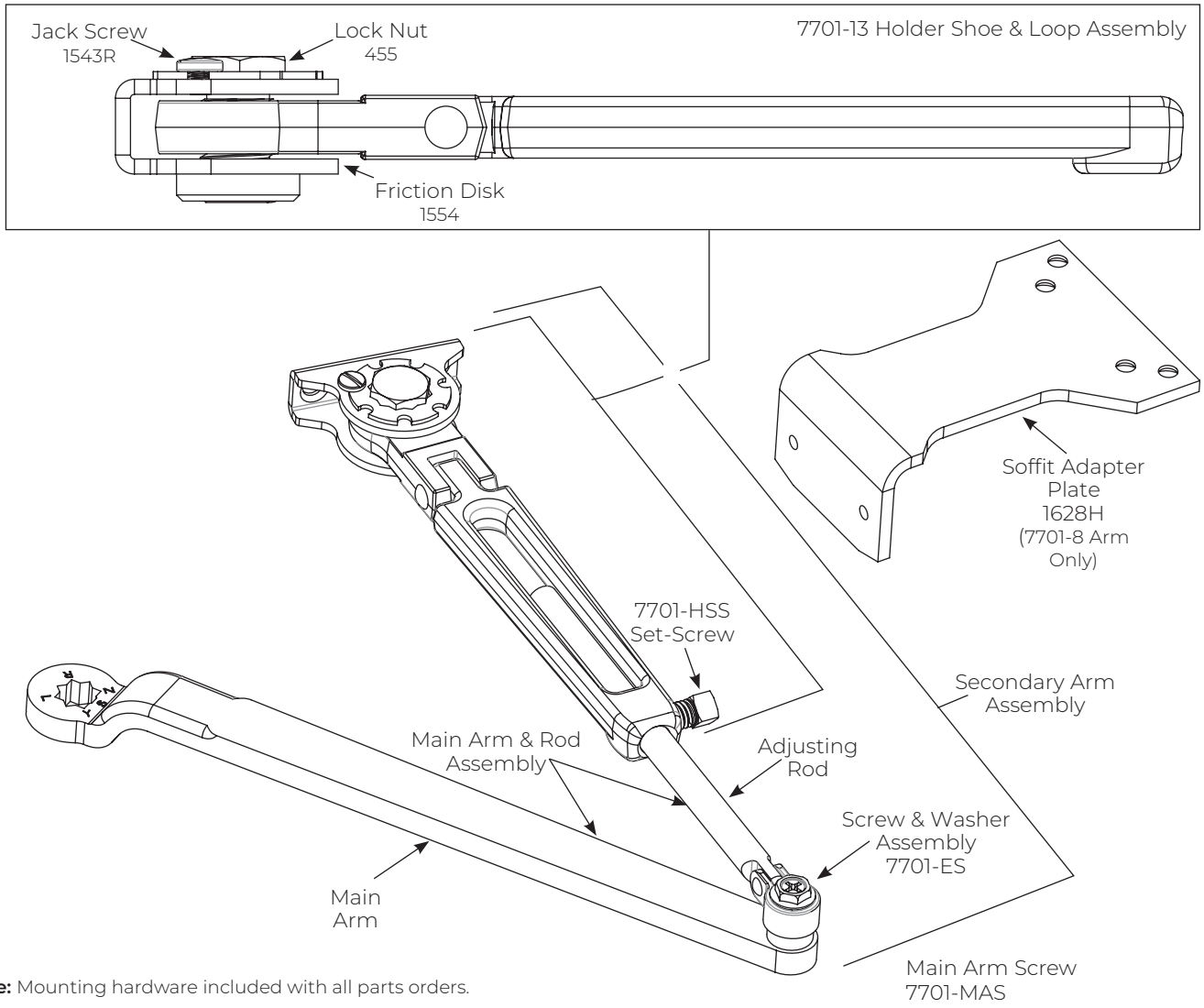
Note: Mounting hardware included with all parts orders.

Closer Series	Complete Arm Assembly	Main Arm Assembly[1] (length)(mm) (includes 7701SS-ES)	Secondary Arm Assembly (includes 7701SS-ES)
1601SS	7701SS-1	7701SS-1M (11) (279)	7701SS-111 (8-7/8)(225)
J1601SS	7701SS-1A		7701SS-121 (12-1/2)(318)
P1601SS	7701SS-6		7701SS-116 (8-7/8)(225)

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1600
ALUMINUM STOREFRONT DOOR CLOSER

HOLD OPEN ARM ASSEMBLIES



Note: Mounting hardware included with all parts orders.

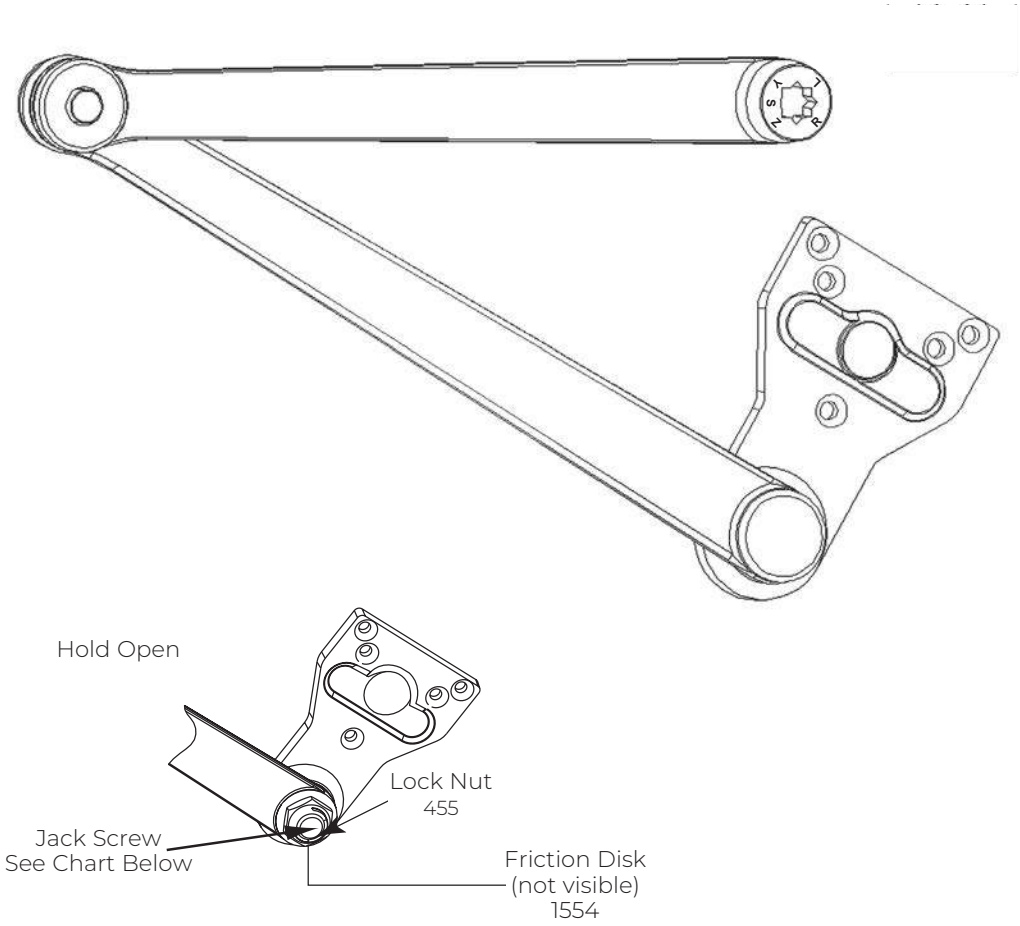
Closer Series Assembly	Complete Arm Assembly	Main Arm[1] (Length)(mm) (includes 7701-ES)	Secondary Arm (includes 7701-ES)	Main Arm & Rod Assembly	Holder Shoe & Loop Assembly	Adjusting Arm[2] (Length)(mm)
1600BCH/1601H	7701-3/7701-8[3] Reg./Par.	7701-1M (11) (279)	7701-113/7700-118 Reg./Par.	7701-3W	7701-13/7701-18[4] Reg./Par.	7701-31 (7-3/8) (187)
J1600BCH/J1601H	7701-3A		7701-123	7701-3WA		7701-31A (10-13/16) (275)

1. C to C length shown in parentheses.
2. C of connecting link to end of rod shown in parentheses.
3. Same as 7701-3 but includes 1628H soffit adapter plate.
4. Same as 7701-13 but includes 1628H soffit adapter plate.

NORTON RIXSON
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PARALLEL RIGID ARM ASSEMBLIES

Non-Hold Open Arm



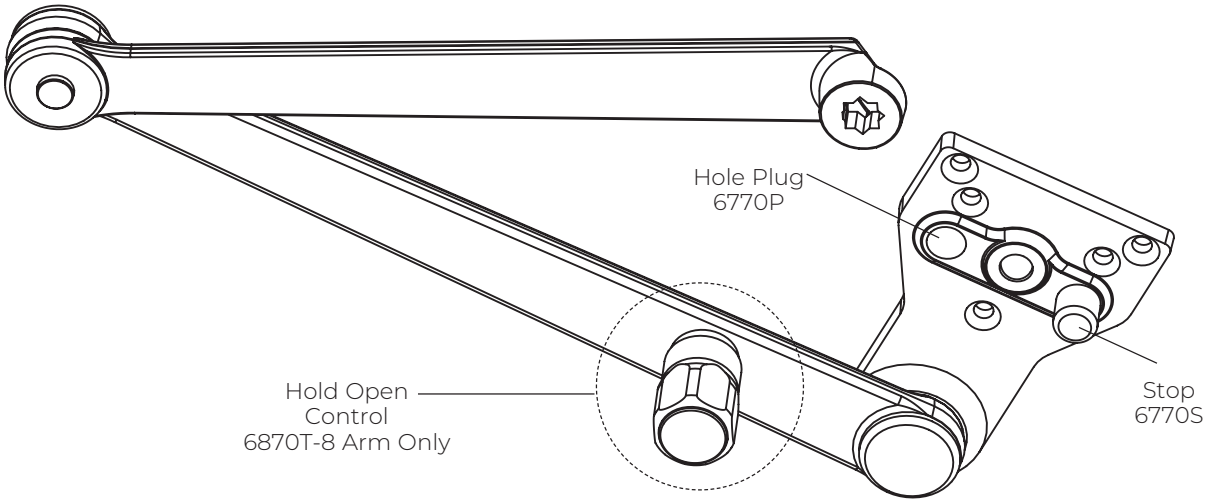
Note: Mounting hardware included with all parts orders.

Complete Arm Assembly	Arm Function	Jack Screw
PR7701-5	Non-hold open	N/A
PR7701-8R (right hand)	Hold open	1543R
PR7701-8L (left hand)		1543L

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CLOSERPLUS® ARM ASSEMBLIES

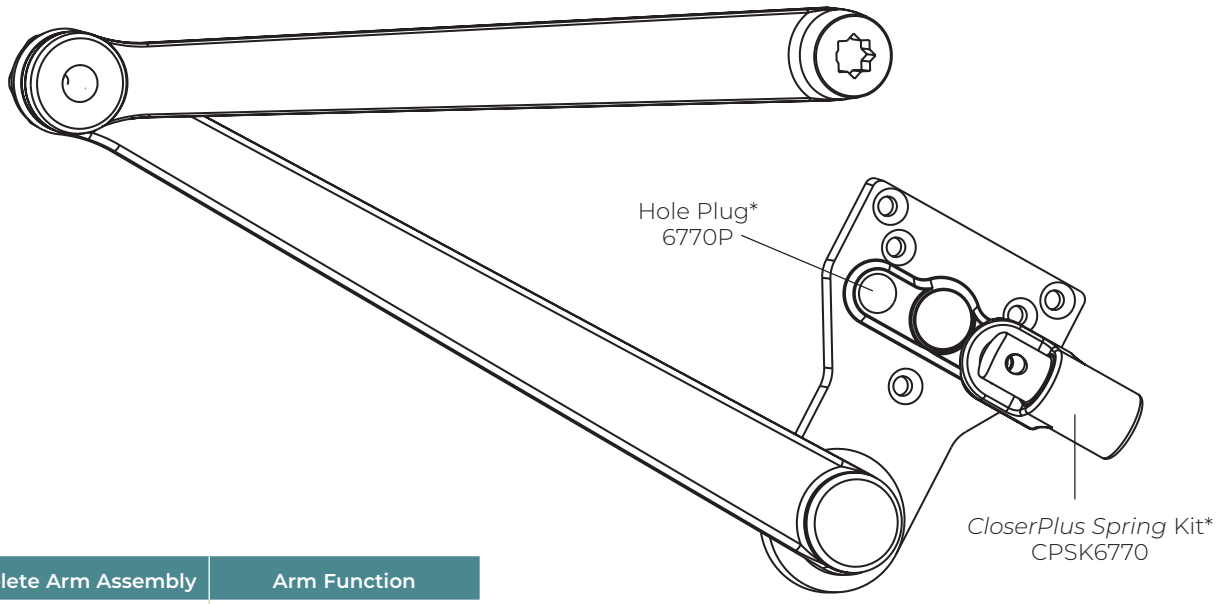
Hold Open Arm shown (CLP-T)



Complete Arm Assembly	Arm Function
6770-5	Non-hold open
6870T-8	Thumbturn hold open

Note: Mounting hardware included with all parts orders.

CLOSERPLUS SPRING™ ARM ASSEMBLIES



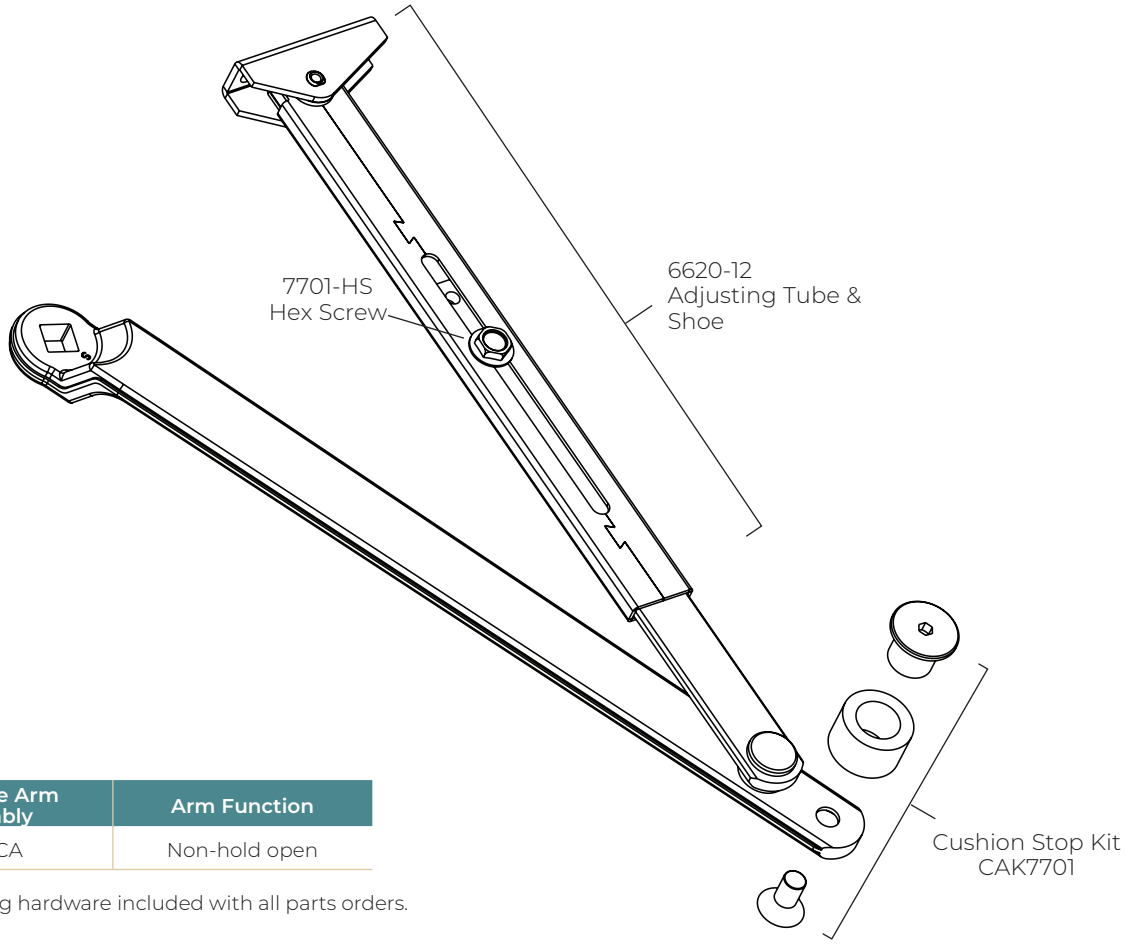
Complete Arm Assembly	Arm Function
CPS6770-5	Non-hold open
CPS6870T-8	Thumbturn hold open

Note: Mounting hardware included with all parts orders.

* These parts and screw pack are included with complete arm assemblies.

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CUSHION STOP ARM ASSEMBLIES



Complete Arm Assembly	Arm Function
7701-CA	Non-hold open

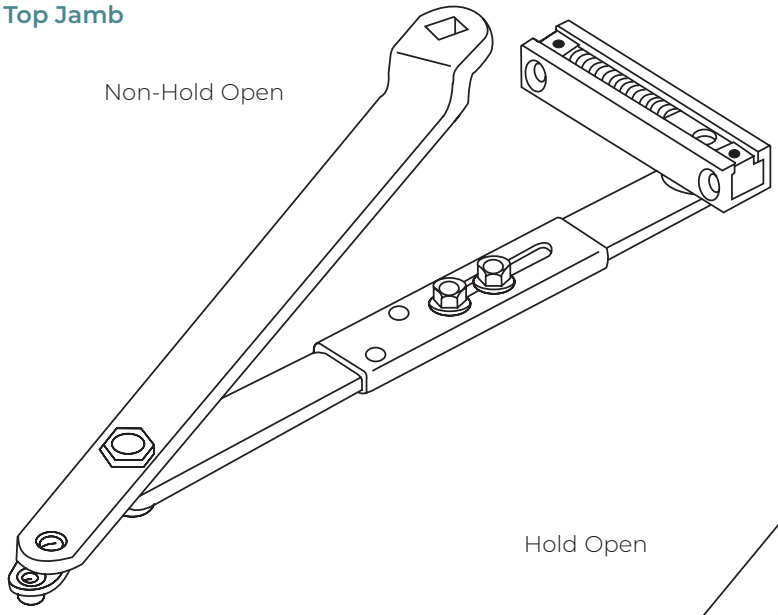
Note: Mounting hardware included with all parts orders.

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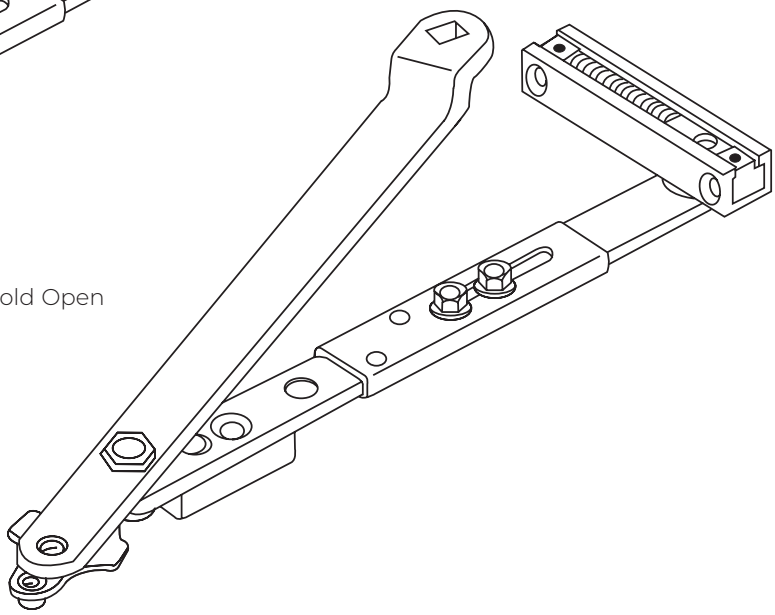
UNITROL® ARM ASSEMBLIES

Top Jamb

Non-Hold Open



Hold Open



Note: Mounting hardware included with all parts orders.

Complete Arm Assembly		
Non-Hold Open	Hold Open	For Frame Reveals (mm)
J6100-4	J6100-7	2-1/8" - 3-1/4" (54 - 83)
J6200-4	J6200-7	1/2" - 2" (13 - 51)
J6400-4	J6400-7	3-3/8" - 4-1/4" (86 - 108)
J6500-41	J6500-71	4-3/8" - 5-3/8" (111 - 137)
J6500-42	J6500-72	5-1/2" - 6-3/8" (140 - 162)
J6500-43	J6500-73	6-1/2" - 7-3/8" (165 - 187)
J6600-4	J6600-7	0 - 3/8" (0 - 10)

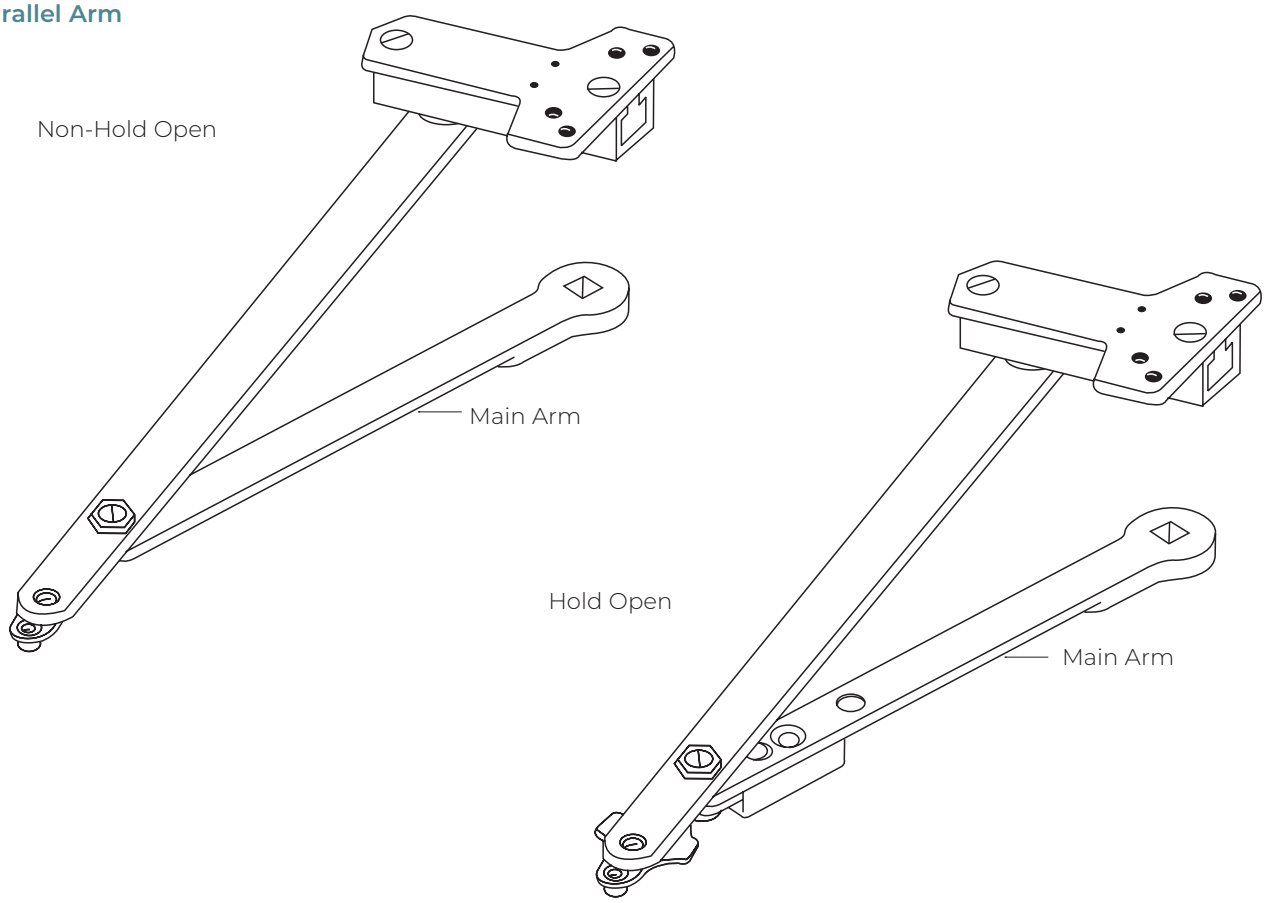
Only available in painted finishes.

NORTON RIXSON
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1600
ALUMINUM STOREFRONT DOOR CLOSER

UNITROL® ARM ASSEMBLIES

Parallel Arm



Note: Mounting hardware included with all parts orders.

Complete Arm Assembly			
Non-Hold Open	Hold Open	Door Width (cm)	Main Arm Length* (mm)
6100-11	6100-1	28" - 32" (71- 81)	9-1/2" (241)
6100-13	6100-3	33"- 41" (84 - 104)	11" (279)
6100-14	6100-4	42" - 48" (107 - 122)	12-1/2" (318)

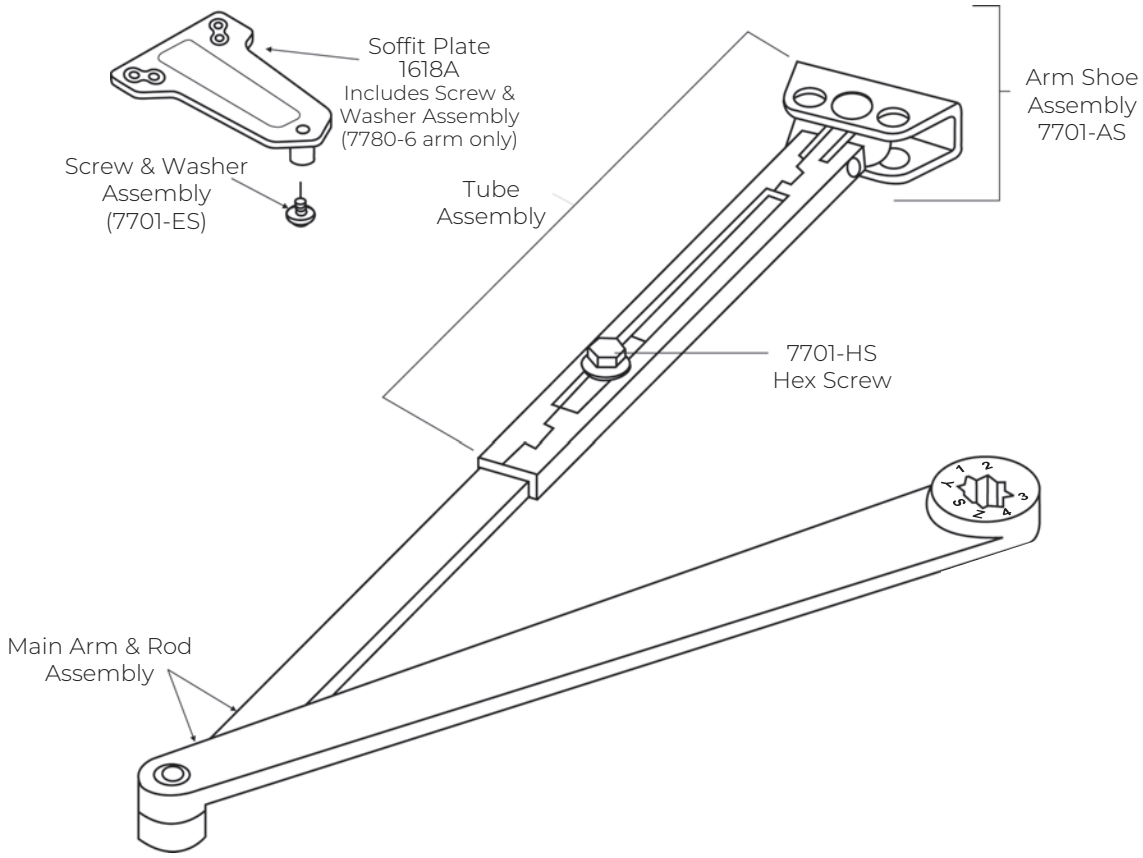
* Center to center length.

Only available in painted finishes.

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LOW PROFILE ARM ASSEMBLIES

Non-Hold Open Arm shown



Note: Mounting hardware included with all parts orders.

Arm Application	Complete Arm Assembly	Main Arm & Adjusting Rod Assembly	Tube & Shoe/Soffit Rod Assembly
Regular	7780-1	7780-1MR	7780-1TS (with 7701-AS)
Parallel	7780-6		7780-6TS (with 1618A)
Tri-Style®	7780-26		

NORTON RIXSON
ASSA ABLOY

1600
ALUMINUM STOREFRONT DOOR CLOSER

FASTENERS

Standard Fasteners	With Arms Specified Below					
	Regular Parallel & Top Jamb	Low Profile	Parallel Rigid (PR) CloserPlus (CLP) CloserPlus Spring (CPS)	Unitrol (UNI)	Unitrol-J (UNI-J)	Cushion Stop (CA)
Door						
Self drilling self tapping	S	S	S	S	S	S
Machine screw	S	S	S	S	S	S
Sleeve nut/sex nut			S	S	S	
Frame						
Self drilling self tapping	S	S	S	S	S	S
Machine screw	S	S	S	S	S	S

S = Standard
Fasteners are standard (included) with closer package.
Examples:
1601 includes self drilling, self tapping and machine screws
PR1601 includes self drilling, self tapping, machine screws and sleeve nut/sex nuts

Optional Fasteners	Description	With Arms Specified Below					
		Regular Parallel & Top Jamb	Low Profile	Parallel Rigid (PR) CloserPlus (CLP) CloserPlus Spring (CPS)	Unitrol (UNI)	Unitrol-J (UNI-J)	Cushion Stop (CA)
Door							
SN^	Sleeve nut/sex nut	O	O				O
TBGN^	Thru bolts & grommet nuts	O	O	O	O	O	O
SMS*	Sheet metal screws & machine screws	O	O	O	O	O	O
SSPxSMS	Standard screw pack & sheet metal screws	O	O	O	O	O	O
Frame							
SMS*	Sheet metal screws & machine screws	O	O	O	O	O	O
SSPxSMS	Standard screw pack & sheet metal screws	O	O	O	O	O	O

O = Optional
^ When SN or TBGN are ordered, standard screw packs are also furnished.
***When SMS are ordered, standard screw packs ARE NOT furnished.**
Examples:
1601 x **SN** includes self drilling, self tapping, machine screws and sleeve/sex nuts
1601 x **SMS** includes sheet metal screws and machine screws

SN are for use on hollow metal doors and can also be used for thru bolting on wood doors. When selected, SNs are supplied for 1-3/4" (44mm) thick doors unless specified for 2-1/4" (57mm) thick doors

TBGN are an alternative to SN for wood doors. When selected, TBGNs are supplied standard for 1-3/4" (44mm) thick doors.

SMS - when the option is specified, closer will be packed with sheet metal screws for the door and sheet metal screws plus machine screws for the frame.

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FINISHES

Norton Rixson offers waterborne acrylic, polyster powder coat and plated finishes. Custom finishes are available on special order. A sample and approval is required.

Waterborne acrylic and polyester powder coat will withstand 100 hours of salt spray (ANSI requires 25 hours).

ANSI/BHMA (US)	Description
605 (US3)	Bright brass, clear coated
606 (US4)	Satin brass, clear coated
611 (US9)	Bright bronze, clear coated
612 (US10)	Satin bronze, clear coated
613E (US10BE)	Dark oxidized satin bronze - equiv.
619 (US15)	Satin nickel plated, clear coated
625 (US26)	Bright chrome plated over nickel
626 (US26D)	Satin chrome plated over nickel
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
691 (US10)	Light bronze, painted
693	Black, painted
694	Medium bronze, painted
696 (US4)	Gold , painted
BSP	Black suede powder coat
WSP	White suede powder coat
600^	Prime coat

^ 600 is a special rust-inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat.

* Closer bodies and plastic covers are available in waterborne acrylic finishes. Arms are available in powder coat or plated finishes.

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1600
ALUMINUM STOREFRONT DOOR CLOSER

HOW TO ORDER

For optimum protection of door and frame assemblies, always use auxiliary wall, floor, or overhead door stop.

J	16	0	3BC	H	689
Prefixes	Closer series	Specifies some options	Closer size	Suffixes	Finish (See page 166)

1 - Adjustable 1-6
3BC - ANSI Size 3
4BC - ANSI Size 4

0 - Specifies standard arm
8 - Specifies low-profile arm (prefix "P" for parallel arm) NHO only

1600BC series designates Tri-Style®, sized 1601 series designates Tri-Style®, multi-sized closer

J - Top jamb installation – reveals in excess of 2-3/4 to 7"

P - 1600BC parallel arm units requiring specialty brackets

No Prefix
- 1601 parallel arm units requiring specialty brackets
- 1680BC low-profile closer
- 1681, 1680BC low profile-closers. If installed top jamb, a 1687 drop plate is required. Order drop plate separately
- 1601SS corrosion-resistant closer – not available Tri-Style

PR - Parallel Rigid arm (parallel arm only) – specify hand for hold open functions
CLP - CloserPlus® arm (parallel arm only)
CPS - CloserPlus Spring™ arm (parallel arm only)
UNI - Unitrol® arm (parallel arm only - specify door width)
UNIJ - Unitrol arm (top jamb only - specify frame reveal)
CA - Cushion stop arm (regular arm only)

NONE - Non-hold open arm function
H - Hold open arm function (specify hand when "PR" prefix is ordered)
SS - Series 1601 only corrosion-resistant closer (not available Tri-Style). Available with non-hold open arm only for regular arm, top jamb "J" prefix or parallel arm "P" prefix
T - Thumbturn hold open on CloserPlus® (CLP) and CloserPlus Spring™ (CPS) arms
P - Cover

Notes:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

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78-B/F

TRADITIONAL DOOR CLOSER

INTRODUCTION

The 78-B/F Series is a surface closer with traditional styling that offers multiple sizes within a single size aluminum alloy shell. Templates for installing this closer are the same for all closer sizes. Only two springs are needed for 78-B/F closers to accommodate the complete range of door sizes. These can also be adjusted to meet the exact power requirements of the application.



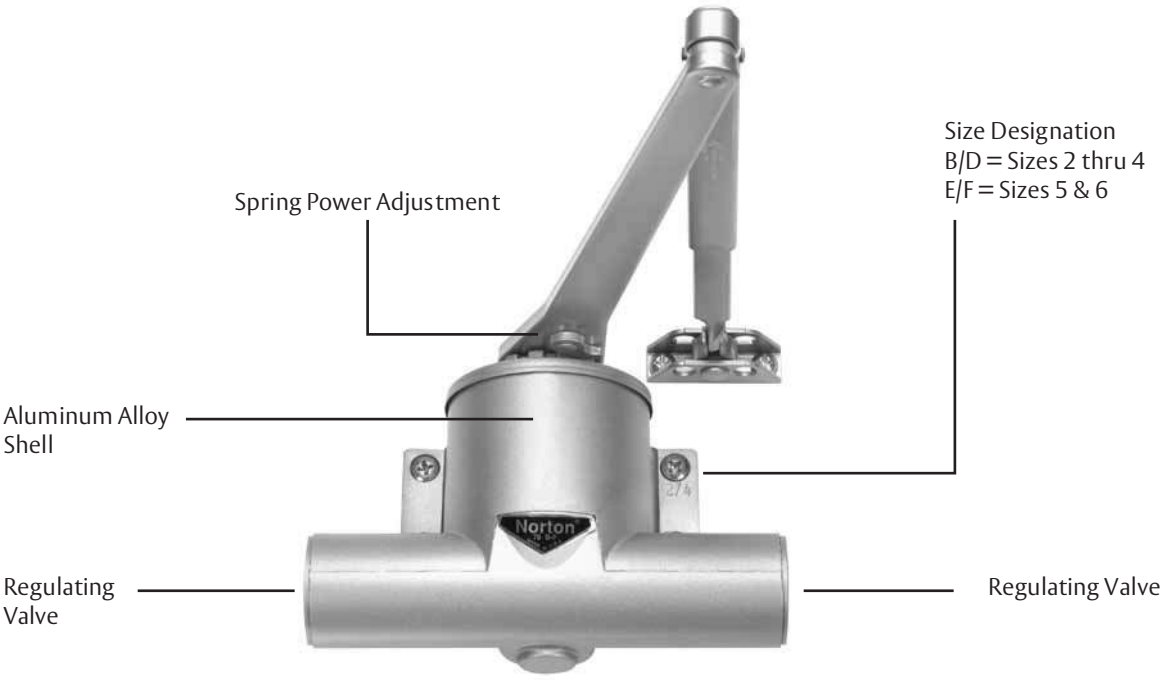
FEATURES

- Choice of adjustable spring power
  - B/D - Spring size 2, 3, or 4
  - E/F - Spring size 5 and 6
- Door weight: 250 lbs.
- Handed (closer spring can be reversed in the field)
- Heavy-duty arms available: Parallel Rigid and Unitrol®
- 10-year limited warranty

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78-B/F
TRADITIONAL DOOR CLOSER

OVERVIEW



CERTIFICATIONS

- MEA - City of New York Approved
- UL10C positive pressure up to 3 hours
- UL-cUL listed
- Manufactured in an ISO 9001, ISO 14001 facility

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EXPLANATION OF FEATURES

Aluminum Alloy Shell

Closer shells are constructed of a special aluminum alloy, carefully selected to accommodate individual closer characteristics and operating conditions.

Adjustable Spring Power

Clock-type coil spring affords a wide range of closer power. Permits a fine adjustment of the closer to the environment.

Rack & Pinion Operation

Provides a smooth transmission of power for control of the door through its full opening and closing cycle.

Adjustable Sweep/Latch Speed

A dual purpose regulating valve, hex-key operated, permits independent adjustment of both sweep and latch speed.

Adjustable Backcheck Cushioning

An independent regulating valve, hex-key operated, provides an adjustable hydraulic cushion to the door opening speed toward the end of the opening cycle. This feature is standard with all but delayed action closers. Backcheck is not available with delayed action closers.

Non-Hold Open Arm

Standard closer will be supplied with a non-hold open arm. This arm is non-handed (field reversible).

Hold Open Arm

Available with heavy-duty arms (Parallel Rigid and Unitrol)

Warranty

Limited ten-year warranty for defects and life of the building on the aluminum housing.

Field Reversible

Closer spring can be field-reversed to accommodate the hand of the door. It is recommended that wherever possible the closer be ordered handed. Parallel hold open arms and delayed action closers **are not reversible.**

Spring Power

Choice of adjustable spring power: B/D - Spring size 2, 3, or 4 E/F - Spring size 5 and 6

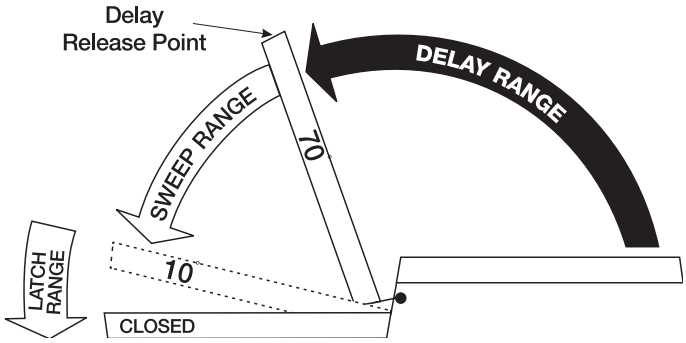
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78-B/F
TRADITIONAL DOOR CLOSER

OPTIONAL FEATURES

Adjustable Delayed Action Closing* (supplied in lieu of backcheck feature)

An optional hydraulic feature that adds a third speed range to the closing cycle. This feature becomes effective when the door is opened and released at any point beyond 70°. The amount of time delay depends upon the combination of the angle of door release and valve adjustment. The valve can be adjusted with a 1/8" (3mm) hex-key from no delay time up to maximum delay times of:



Door Opened and Released at	Approximate Time of Delay Cycle
180°	4-5 minutes
120°	2-3 minutes
90°	25-30 seconds

* Regular arm (NHO units only) are handed - not reversible

Suggested Applications

Delayed action closing allows slow moving traffic to clear the opening before the door closer's normal closing cycle begins. This feature can be helpful in health care facilities such as hospitals and nursing homes. It provides sufficient time for persons on crutches or in wheelchairs to pass through a door without concern of it closing. At the same time, it can accommodate the facility's staff with movement of food service carts, beds, and other wheeled traffic. Use of delayed action closers on many doors throughout industrial and commercial buildings can also assist the flow of traffic. Locations where additional time to clear the opening is advantageous are doors between office and factory/warehouse facilities, doors to workshops or laboratories, to kitchen and food processing areas, etc.

SPECIFICATIONS

Closer for interior (and) exterior doors shall be rack-and-pinion type enclosed in a cast aluminum alloy shell. Closer spring shall be clocktype coil spring and shall be adjustable through a wide range of closing power. Closer shall be equipped with a single hex-key operated regulating valve for control of both closing and latch speeds. Closer shall have a hex-key operated regulating valve to control the adjustable backcheck feature. Closer shall be Norton Rixson Series 78-B/F Traditional Surface Closer or equivalent.

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APPLICATIONS



Regular Arm

This is the only pull-side application where a double lever arm is used. It is the most power-efficient application for a door closer. Sufficient frame, door and/or ceiling clearance must be considered. Since the arm assembly projects directly out from the frame, this application may present an aesthetics issue or be prone to vandalism. Only available with non-hold open arm.



Parallel Arm

This application provides the most appealing design appearance for a surface mounted door closer having a double lever arm. This also makes it beneficial in vandalism-prone areas. It is on the push side of the door and the arm assembly extends almost parallel to the door. In the closed position, there is very little or no hardware projecting beyond the frame face in most situations.

Due to the geometry of the arm it is approximately 25% less power efficient than a regular arm application. The entire closer and arm assembly are mounted below the frame stop, requiring a top rail of 5-3/8" (137mm) to mount the body. Clearance to the bottom of the closer body from the top of the door is 7-3/8" (187mm). (Based on 5/8" (16mm) high frame stop.) Only available with non-hold open arm.

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78-B/F
TRADITIONAL DOOR CLOSER

APPLICATIONS



Parallel Rigid Arm

An enhanced variation of the standard parallel arm assembly that is intended for use in heavy traffic areas where auxiliary door stops are installed. Hold open available – specify hand when ordering.



Unitrol® Arm (Parallel Arm applications only)

Unitrol arms combine the features of a double lever arm overhead door stop/holder with the backcheck feature of the door closer to reduce door stopping shock loads to a minimum. The Unitrol uses a compression spring buffer at the soffit plate/arm shoe that will absorb 30 lbs. of force, 5° prior to the door's dead stop. Coupled with the door closer's backcheck feature, this arm provides the most controlled stop available with a surface door closer.

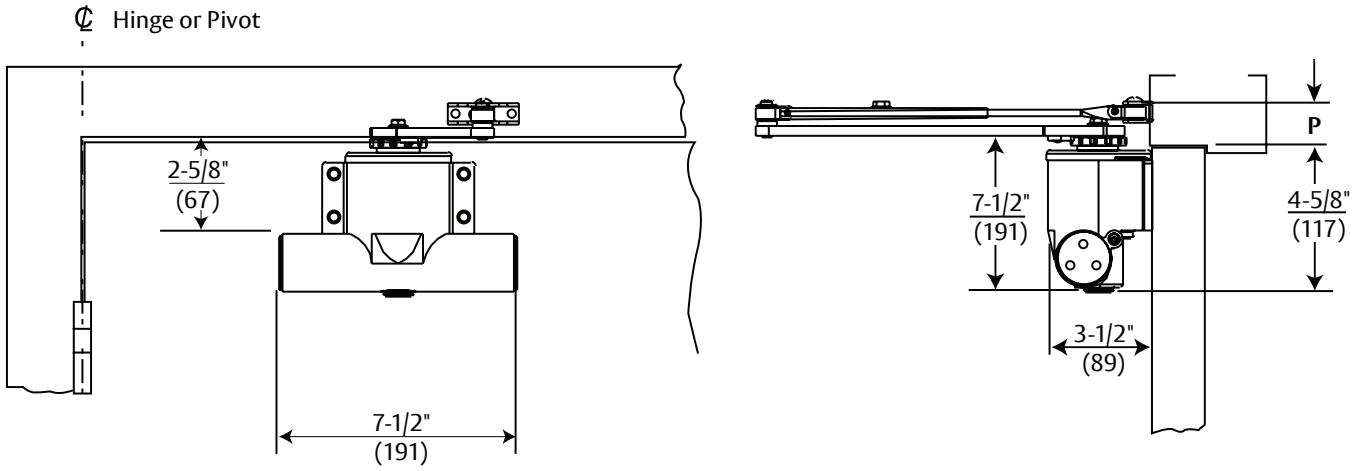
For parallel arm applications there are three different length arm assemblies. Each length is designed for a specific range of door widths, to provide precise door control. This further lessens the dead stop impact on the door's hinges/pivots.

Only available in painted finishes.

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78-B/F
TRADITIONAL DOOR CLOSER

REGULAR ARM



Body mounting holes are spaced 4-1/8" (105mm) horizontally and 1-3/8" (76mm) vertically.

Maximum Door Size Wood or Metal Inches (cm)		Model Number
Interior	Exterior	Non-Hold Open
48" (122)	36" (91)	78B/D-RA
—	44" (112)	78E/F-RA

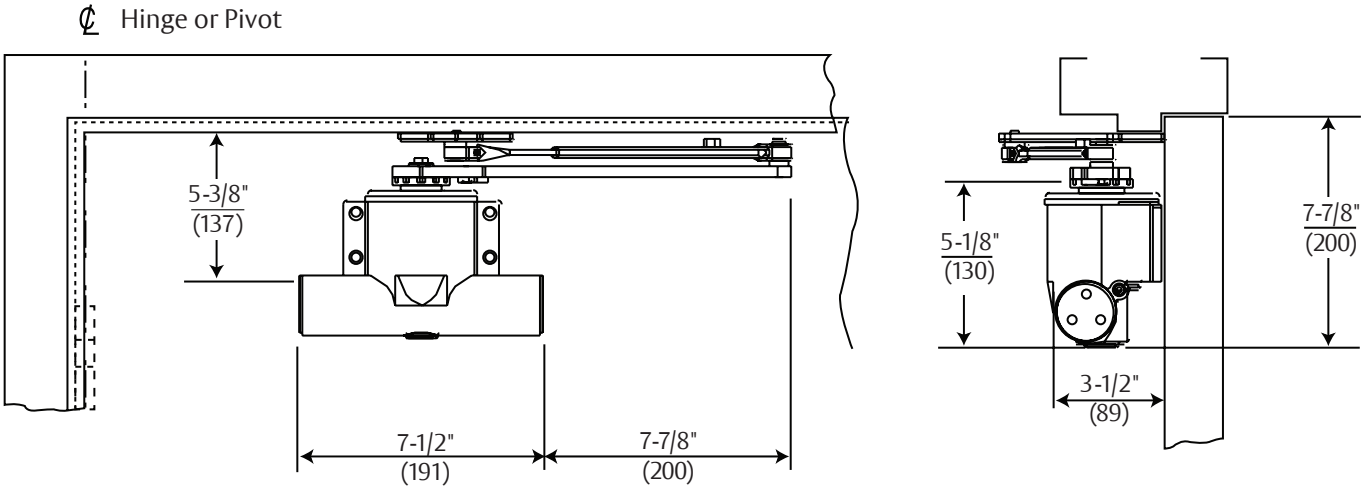
P Minimum Ceiling Clearance
Non-Hold Open
1-1/2" (38)

All dimensions are for reference only.

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78-B/F
TRADITIONAL DOOR CLOSER

PARALLEL ARM



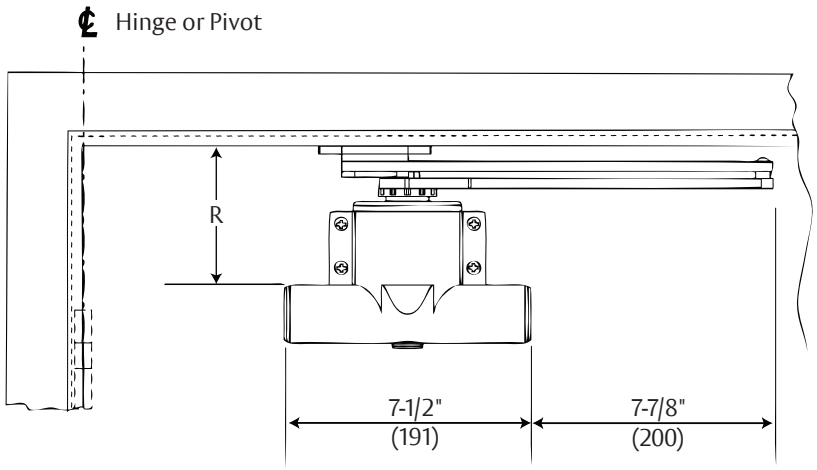
Body mounting holes are spaced 4-1/8" (105mm) horizontally and 1-3/8" (76mm) vertically.

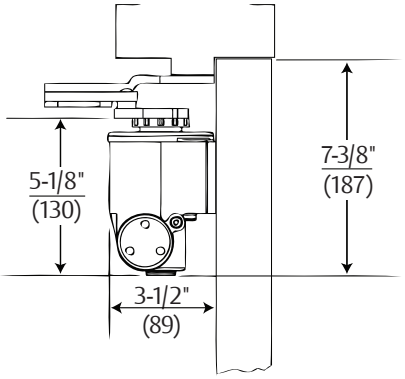
Maximum Door Size Wood or Metal Inches (cm)		Model Number
Interior	Exterior	Non-Hold Open
42" (107)	36" (91)	78B/D-PA
—	44" (112)	78E/F-PA

All dimensions are for reference only.

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PARALLEL RIGID ARM





Body mounting holes are spaced 4-1/8" (105mm) horizontally and 1-3/8" (76mm) vertically.

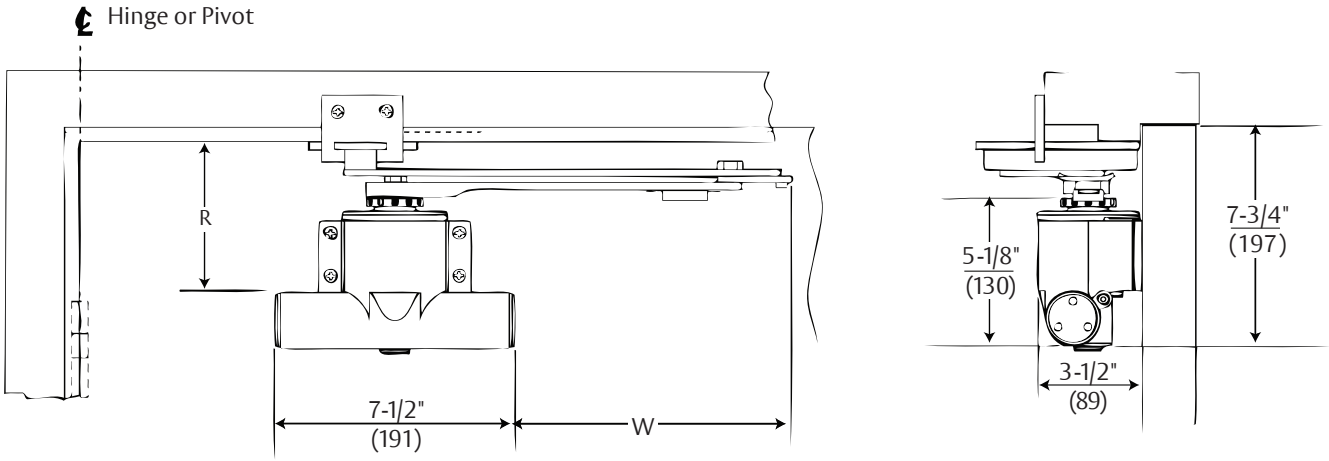
Maximum Door Size Wood or Metal Inches (cm)		Model Number	
Interior	Exterior	Non-Hold Open	Hold Open
48" (122)	36" (91)	78B/D-PRA	78B/D-PRHA
—	44" (112)	78E/F-PRA	78E/F-PRHA

R Minimum Top Rail 5/8" (16mm) frame stop	
Without Drop Plate	With 88 Drop Plate
5-3/8" (137)	2-1/2" (64)

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78-B/F
TRADITIONAL DOOR CLOSER

UNITROL® ARM



Body mounting holes are spaced 4-1/8" (105mm) horizontally and 1-3/8" (76mm) vertically.

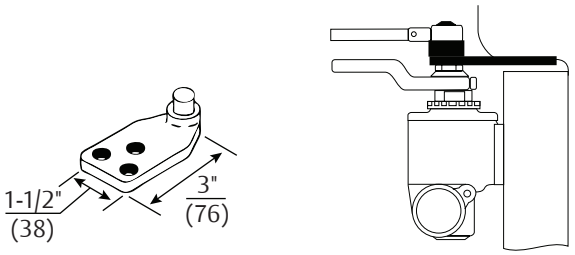
Door Width Inches (cm)	R - Minimum Top Rail 5/8" (16mm) Frame Stop		W - Arm Extension Beyond Closer
	Without Drop Plate	With 88 Drop Plate	
28-32" (71-81)	5-5/8" (143)	2-3/4" (70)	8-7/8" (225)
33-41" (84-104)			10-3/8" (264)
42-48" (107-122)			11-7/8" (302)

Maximum Door Size Inches (cm)		Model Number		
Interior	Exterior	Non-Hold Open	Hold Open	
28-41" (71-104)	28-36" (71-91)	UNI78-B/D	UNI78-B/D-H	x Specify Door Width
42-48" (107-122)	37-48" (94-122)	UNI78-E/F	UNI78-E/F-H	

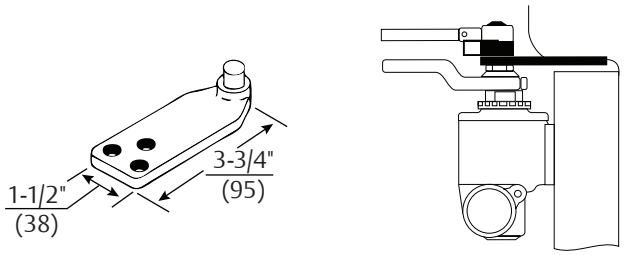
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REGULAR ARM

Brackets for Non-Hold Open Arms

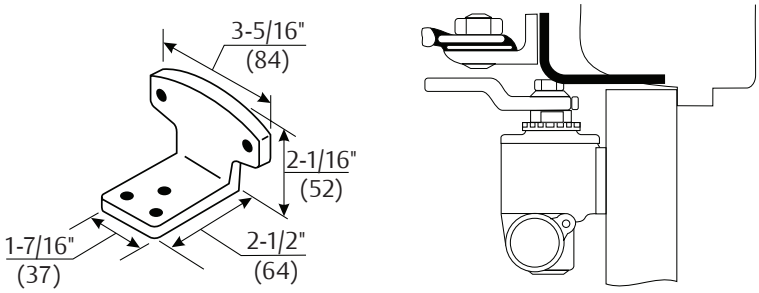


Molded/Bull Nose Trim - 2403B Bracket:
For use where the door frame has molded or bull nose trim which will not accept a standard non-hold open shoe. The bracket is mortised into the frame rabbet and projects beyond the face of the frame. It will accommodate a frame rabbet up to 2" (51mm) deep.



Molded/Bull Nose Trim - 2403 3/4 Bracket:
This bracket is similar to - but longer than – the 2403B bracket. It is designed to accommodate frame rabbets from 2" to 2-7/8" (51 to 73mm) deep.

Brackets for Non-Hold Open Arms



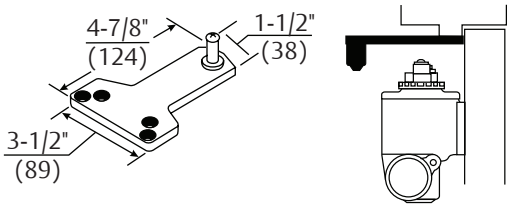
Molded/Bull Nose Trim - 80 Bracket:
For use where the door frame has molded or bull nose trim which will not accept a standard hold open shoe. It is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommdate a rabbet up to 2" (51mm) deep. This bracket is used in combination with the standard hold-open mounting shoe.

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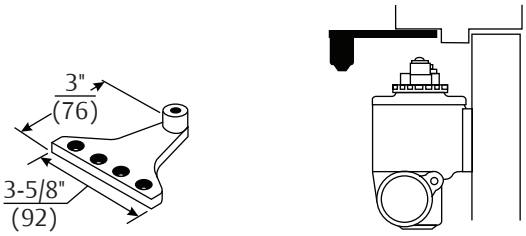
78-B/F
TRADITIONAL DOOR CLOSER

PARALLEL ARM

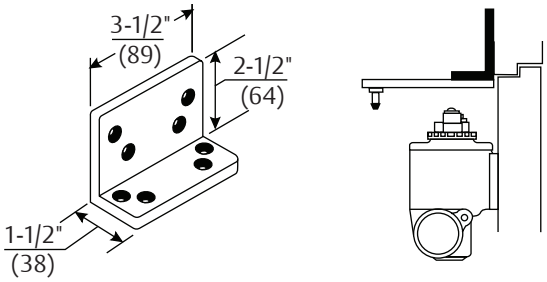
Brackets for Non-Hold Open Arms



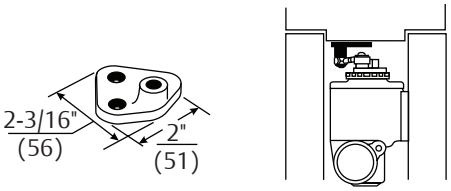
Standard Installation - 1618 Soffit Plate:
This soffit plate is supplied standard with parallel arm closers. It can be mounted where the frame soffit is as narrow as 1" (25mm).



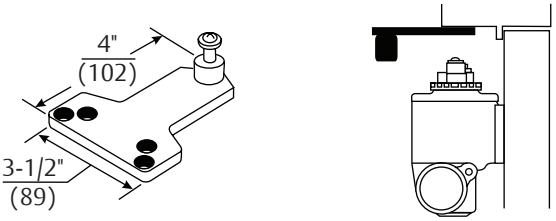
Narrow Frame/Removable Stop - 2018B Soffit Plate:
For use where a narrow frame or frame with removable stop does not permit use of the standard soffit plate. This plate may be mounted on the frame soffit or the frame rabbet where the stop does not exceed 5/8" (16mm) in height. All of the screw holes are in a straight line, requiring as little as 1-1/4" (32mm) of frame reveal to mount bracket and maintain good closer arm geometry. Where the frame soffit is as wide as 2" (51mm), this soffit plate may be used to clear weatherstripping that is up to 1-3/8" (35mm) wide and 5/8" (16mm) in height.



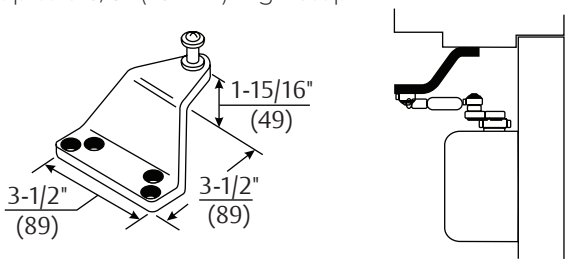
Flush Transom - 2022 Angle Bracket:
For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1618 soffit plate, or it may be used in combination with the 2018S soffit plate when it is necessary for the closer arm to clear a separate overhead door holder.



Mounting Between Doors - 2018 Soffit Bracket:
For use where insufficient space between companion doors does not permit use of other soffit plates. This bracket permits mounting of the closer between doors with as little as 4-1/8" (105mm) of header space. Permits closer arm to clear up to a 5/8" (16mm) high stop.



Blade/Applied Stop - 2018D Soffit Plate:
For use where a blade or applied stop does not permit installation of the standard soffit plate. Mounts to either the frame soffit or rabbet. Since this soffit plate projects 7/8" (22mm) less than a standard soffit plate, it requires a minimum frame reveal of 1-1/2" (38mm). Permits closer arm to clear up to a 5/8" (16mm) high stop.

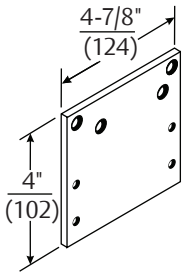


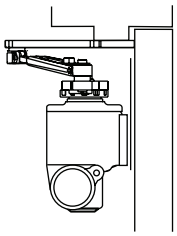
Extra-Clearance - 2018S Offset Soffit Plate:
For use where the need for additional clearance prevents use of the standard soffit plate. This plate mounts to the frame soffit to provide up to 1-1/2" (38mm) of clearance when a separate overhead door holder is used. Standard mounting requires a 2-5/8" (67mm) wide frame soffit. It may also be used where unusually high frame stops or weatherstripping prevent the use of other soffit plates.

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PARALLEL ARM

Closer Mounting Plates

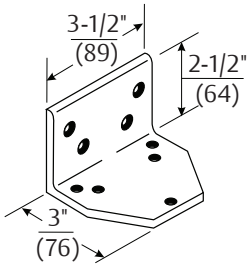


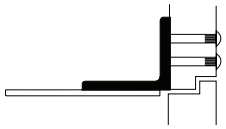


Narrow Top Rail - 88 Drop Plate:
For use where a narrow top rail prevents the closer from being mounted directly to the door surface.

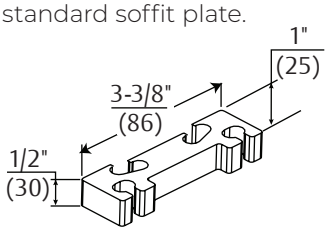
PARALLEL RIGID

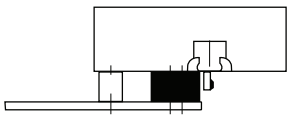
Brackets for Non-Hold Open Arms



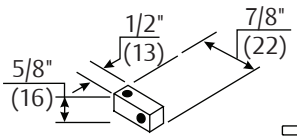


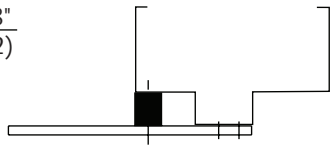
Flush Rabetted Transom - 2019L Angle Bracket:
For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the standard soffit plate.



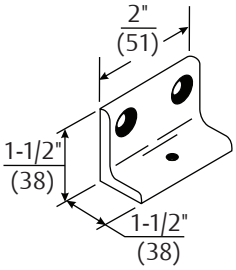


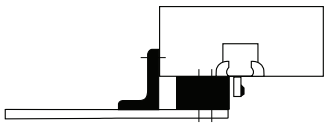
Clearance/Support Blade Stop - 6891 Spacer Block:
For use where the frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard spacer block to provide clearance of the blade stop.





Standard - 2019S Spacer Block:
For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all Parallel Rigid arm closers.





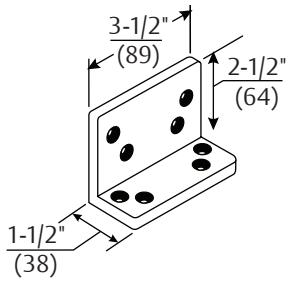
Narrow Frame - 6890 Support Bracket:
For use where the frame is narrow, and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 spacer block on blade stop frames to provide extra support and needed clearance of the blade stop.

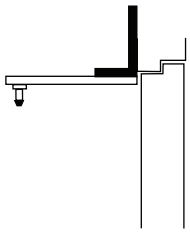
NORTON RIXSON
ASSA ABLOY

78-B/F
TRADITIONAL DOOR CLOSER

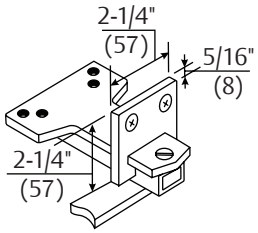
UNITROL® ARM

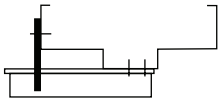
Brackets for Non-Hold Open Arms





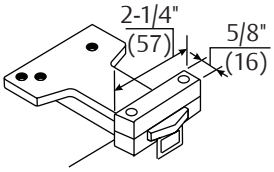
Flush Transom - 2022 Angle Bracket:
For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1618 soffit plate, or it may be used in combination with the 2018S soffit plate when it is necessary for the closer arm to clear a separate overhead door holder.

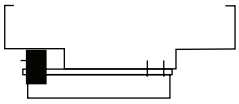


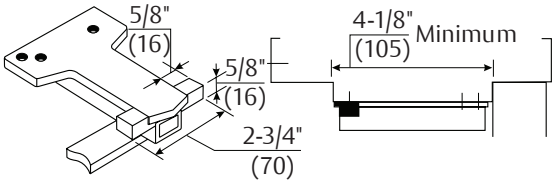


Additional Support - 6190 Reinforcing Bracket:
Standard for use with Unitrol parallel arms. Provides additional support to the soffit plate on installations with door frame reveals from 1-7/8" to 4-5/8" (48 to 117mm).

Reinforcing Kit

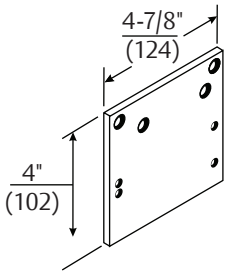


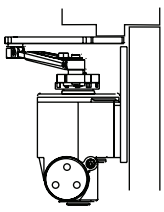




Wide Frame - 6191 Reinforcing Kit:
Optional for use with all Unitrol parallel arms. Used to support the soffit plate on installations with wide frames. Clamps may be used with or without the spacer block, depending on frame conditions.

Closer Mounting Plates



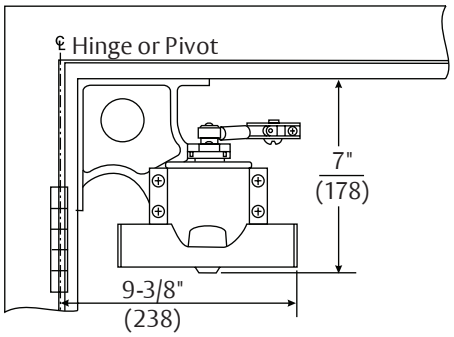


Narrow Top Rail - 88 Drop Plate:
For use where a narrow top rail prevents the closer from being mounted directly to the door surface.

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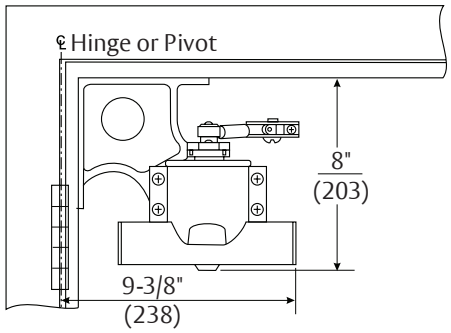
CORNER BRACKETS

All of the following frame-mounted brackets require the use of a regular arm door closer of the opposite hand from the hand of the door. Use the Parallel Arm Sizing Chart to select the correct size of closer to use when the closer is to be mounted on a corner bracket.



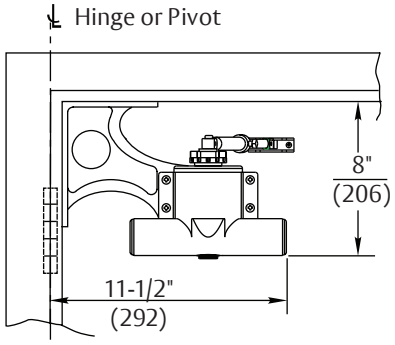
Corner Mounting, Standard Drop - 2-B/F Corner Bracket:

For use where door is required to open to 180°. Minimum soffit width 1-3/8" (35mm).



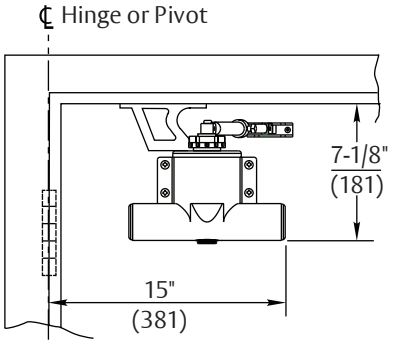
Corner Mounting, Extra Drop - 5-B/F Corner Bracket:

For use with a separate overhead door holder. Drops closer 1" (25mm) lower than 2-B/F standard drop corner bracket to permit mounting of an overhead holder. Permits door openings to 180° Minimum soffit width 1-3/8" (35mm).



Corner Mounting, Extra Drop and Extension- 8-B/F Combination Bracket:

Recommended for use instead of 2-B/F or 5-B/F corner brackets, whenever possible. Provides 1/2" (13mm) more clearance than 5-B/F corner bracket for an overhead door holder, and positions closer farther from hinge edge of door for best power advantage. Permits door openings to 140°.



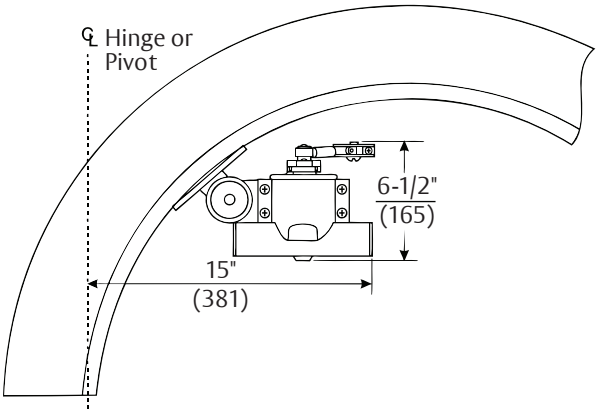
Soffit Mounting - 1-B/F Soffit Bracket:

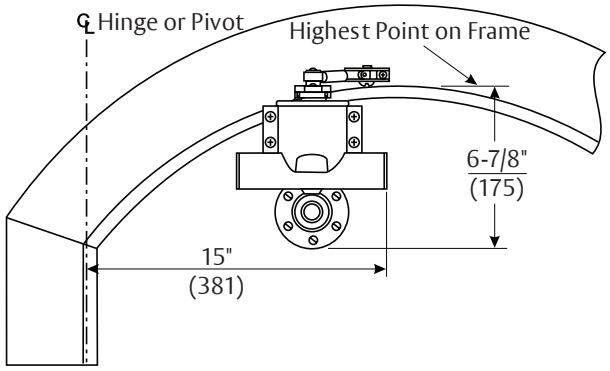
For use where frame conditions prevent mounting of a corner bracket. This bracket mounts to the overhead frame soffit. Permits door openings to 180°.

NORTON RIXSON
ASSA ABLOY

78-B/F
TRADITIONAL DOOR CLOSER

CORNER BRACKETS



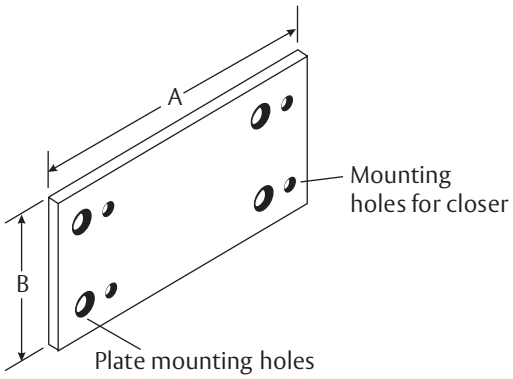


Arched or Circular Top Door - 6-B/F Adjustable Bracket:
For opposite hinge side application on arched or circular top doors. This frame-mounted bracket can be adjusted to accommodate virtually any radius of frame. Minimum soffit width 2-1/2" (64mm). This bracket requires the use of a regular arm door closer of the opposite hand from that of the door. Intended for 90° door swing.

Arched or Circular Top Door - 7-B/F Offset Adjustable Bracket:
For hinge side application on arched or circular top doors. This door-mounted bracket is adjustable to accommodate virtually any radius of frame. Base diameter 3-5/8" (92mm). Use in conjunction with a regular arm door closer. Intended for 90° door swing.

ADAPTER PLATES

Size Closer Being Replaced	Adapter Plate Catalog Number	Dimensions	
		A	B
B	9-B	4-7/8" (124)	2-1/4" (57)
B/C	9-B/C	5-1/2" (140)	2-5/8" (67)
D	None Required	—	—
E/F	9-E/F	5-1/2" (140)	2-5/8" (67)

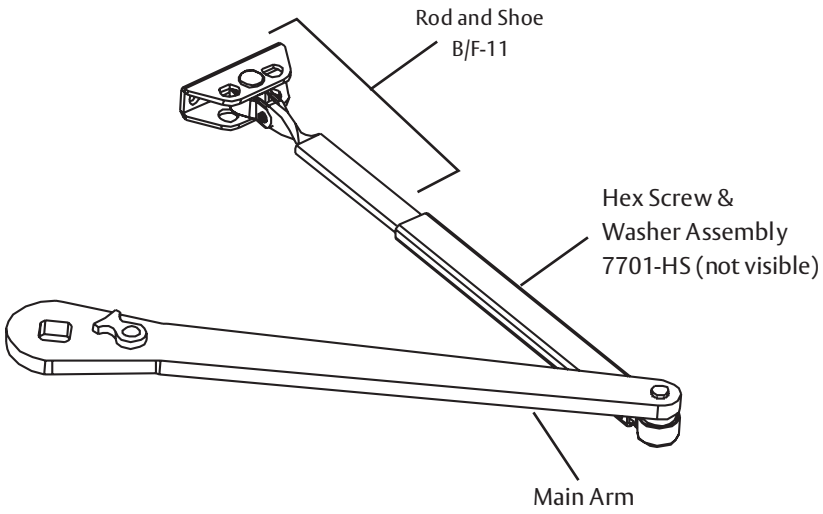


9 Adapter Plate
For use when replacing a discontinued old style traditional surface closer with a series 78-B/F Traditional Surface Closer. The plate selected will employ the existing holes in either door, corner bracket or soffit bracket. The Series 78-B/F will mount to the plate. These plates can be used to convert regular arm, parallel arm or bracket mount installations. Order by model number.

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REGULAR ARM

Non-Hold Open



Note: Mounting hardware included with all parts ordered

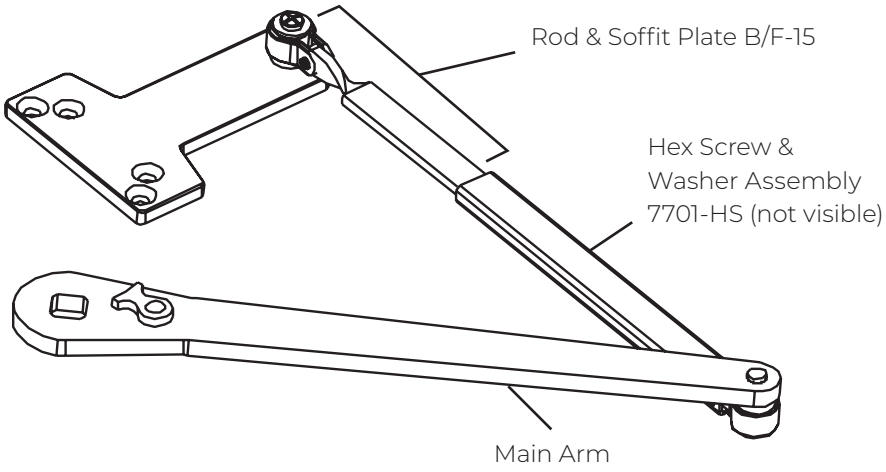
Arm Function	Complete Arm Assembly	Main Arm	Main Arm Less Rod & Shoe
Non-hold open	B/F-1	B/F-1M	B/F-1W

NORTON RIXSON
ASSA ABLOY

78-B/F
TRADITIONAL DOOR CLOSER

PARALLEL ARM

Non-Hold Open



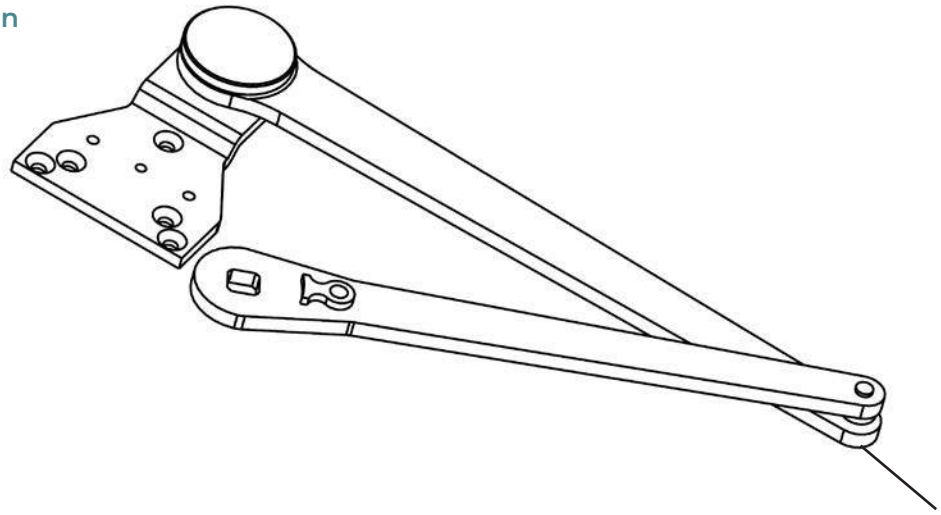
Note: Mounting hardware included with all parts ordered

Arm Function	Complete Arm Assembly	Main Arm	Main Arm Less Rod & Shoe
Non-hold open	B/F-5	B/F-1M	B/F-5W

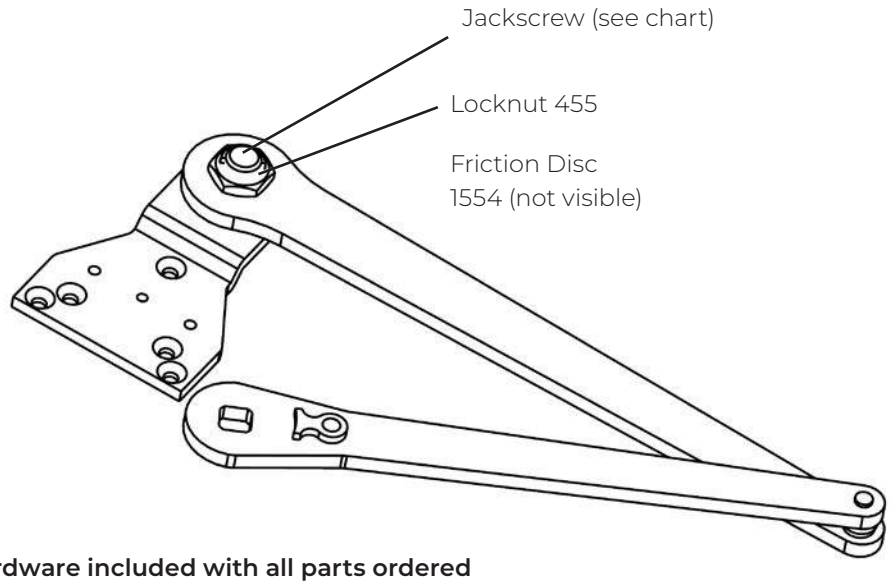
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PARALLEL ARM

Non-Hold Open



Hold Open



Note: Mounting hardware included with all parts ordered

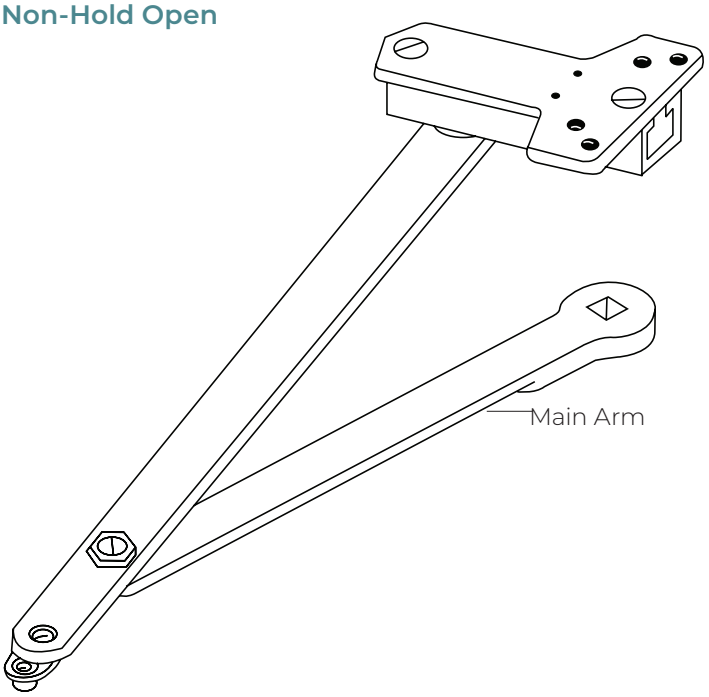
Arm Function	Complete Arm Assembly	Jackscrew
Non-hold open	78PRA-5	N/A
Hold open	78PRA-8R (right hand)	1543R
	78PRA-8L (left hand)	1543L

NORTON RIXSON
ASSA ABLOY

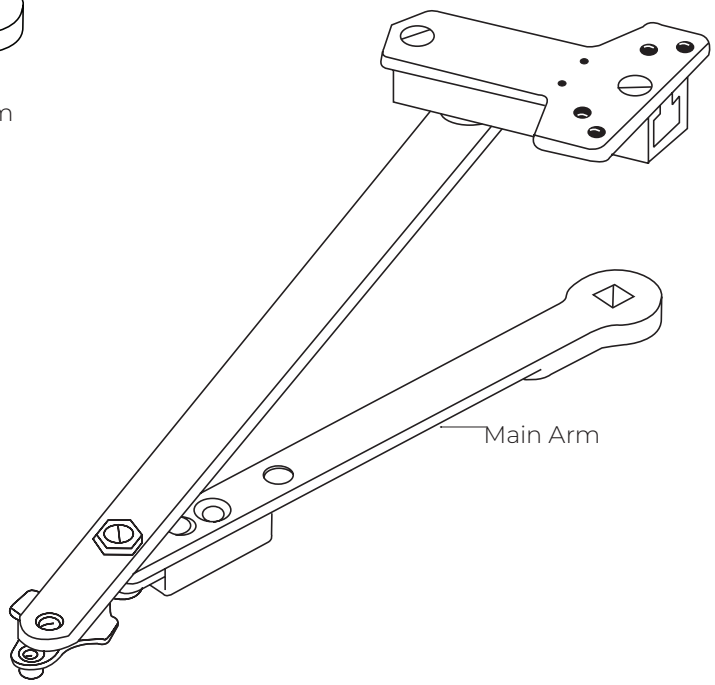
78-B/F
TRADITIONAL DOOR CLOSER

UNITROL® ARM ASSEMBLIES

Non-Hold Open



Hold Open



Note: Mounting hardware included with all parts ordered

Door Width (cm)	Main Arm Length (mm)	Complete Arm Assembly	
		Non-Hold Open	Hold Open
28"- 32" (71 - 81)	9-1/2" (241)	6130-17	6130-7
33"- 41" (84 - 104)	11" (279)	6130-18	6130-8
42"- 48" (107 - 122)	12-1/2" (318)	6130-19	6130-9

Only available in painted finishes.

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FASTENERS

Standard Fasteners	With Arms Specified Below		
	Regular Parallel	Parallel Rigid (PR)	Unitrol (UNI)
Door			
Self drilling self tapping	S	S	S
Machine screw	S	S	S
Sleeve nut/sex nut		S	S
Frame			
Self drilling self tapping	S	S	S
Machine screw	S	S	S

S = Standard
Fasteners are standard (included) with closer package.
Examples:
78B/D RA includes self drilling, self tapping and machine screws
78B/D PRA includes self drilling, self tapping, machine screws and sleeve nut/sex nuts

Optional Fasteners	Description	With Arms Specified Below		
		Regular Parallel	Parallel Rigid (PR)	Unitrol (UNI)
Door				
SN^	Sleeve nut/sex nut	O		
TBGN^	Thru bolts & grommet nuts	O	O	O

O = Optional
^ When SN or TBGN are ordered, standard screw packs are also furnished.
Examples:
78B/D RA x **SN** includes self drilling, self tapping, machine screws and sleeve/sex nuts

SN are for use on hollow metal doors and can also be used for thru bolting on wood doors. When selected, SNs are supplied for 1-3/4" (44mm) thick doors unless specified for 2-1/4" (57mm) thick doors

TBGN are an alternative to SN for wood doors. When selected an add-on option, TBGNs are supplied standard for 1-3/4" (44mm) thick doors. They can be specified for 1-3/8" (35mm) thick doors.

NORTON RIXSON
ASSA ABLOY

78-B/F
TRADITIONAL DOOR CLOSER

FINISHES

ANSI/BHMA (US)	Description
613E (US10BE)	Dark oxidized satin bronze - equiv.
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
691 (US10)	Light bronze, painted
693	Black, painted
694	Medium bronze, painted
696 (US4)	Gold , painted
BSP	Black suede powder coat
WSP	White suede powder coat
600^	Prime coat

All door closers are painted in water borne acrylics. All steel parts, arms, bracket and mounting plates are powder coated. The closers will withstand 100 hours of salt spray. ANSI requires 25 hours.

*600 is a special rust-inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat (ex: 78-B/D x 600 x 689).

MISCELLANEOUS PARTS

Springs	
Part Number	**Description**
24BD	B/D spring
56EF	E/F spring

Wrenches	
Part Number	**Description**
78-SW	Spanner wrench

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HOW TO ORDER

UNI	78	B/D	H	RH	689
Prefix	Closer series	Closer Size	Suffixes	Hand	Finish (See Page 196)

UNI – Unitrol® arm
(specify door width)

Multi-Size
B/D – Spring size 2 thru 4
E/F – Spring sizes 5 & 6

RA – Regular arm, non-hold open
PA – Parallel arm, non-hold open
PRA – Parallel Rigid arm, non-hold open
PRHA – Parallel Rigid arm, hold open
H – Hold open – Unitrol arm only
DA – Delayed action

NOTES:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

NORTON RIXSON
ASSA ABLOY

1700
LIGHT COMMERCIAL DOOR CLOSER

INTRODUCTION

1700 Series Door Closers offer a compact design that is ideal for interior door applications. This narrow-style closer has distinctive lines that harmonize with most decors. The 1700 Series offers an economical alternative for those installations where a more heavy-duty closer is not necessary.



STANDARD FEATURES

- Tri-Style® packaging: closer tri-packed for regular arm, top jamb or parallel arm installation
- Non-handed
- Size 3 or 4 depending on installation
- Door weight: 250 lbs.
- Aluminum alloy shell
- Rack & pinion operation
- Adjustable closing speed
- Adjustable latch speed
- Adjustable backcheck cushioning: independent regulating valve
- Non-hold open
- Slim line cover
- Auxiliary stop required (by others)
- Interior doors

OPTIONAL FEATURES

- Hold open

CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 3 BHMA CERTIFIED
- UL10C positive pressure up to 3 hours UL
- UL-cUL listed

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1700
LIGHT COMMERCIAL DOOR CLOSER

EXPLANATION OF FEATURES

Door Plates
For narrow top rails, narrow frame faces, and top jamb hold open installations. Specify finish when ordering separately.

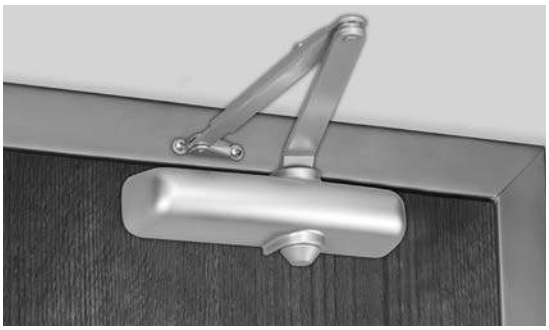
Molded Slim Line Cover
Molded of high-impact U.L. Listed material, cover encloses closer body and mounting screws.

SPECIFICATIONS
Closers for interior doors shall be full rack-and-pinion type with cast aluminum alloy shell. Closer shall be non-handed to permit installation on either hand of door. Closer to be supplied with brackets to allow regular arm, parallel arm or top jamb mounting. Closer to have noncritical valves to independently regulate sweep speed (and) latch speed (and backcheck cushioning.) (Closer shall be enclosed in a molded slim line cover.) Closer to be Norton Rixson 1700 Series.

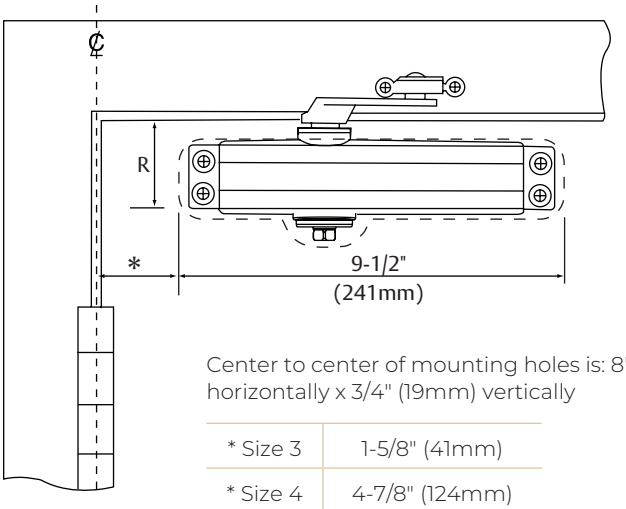
NORTON RIXSON
ASSA ABLOY

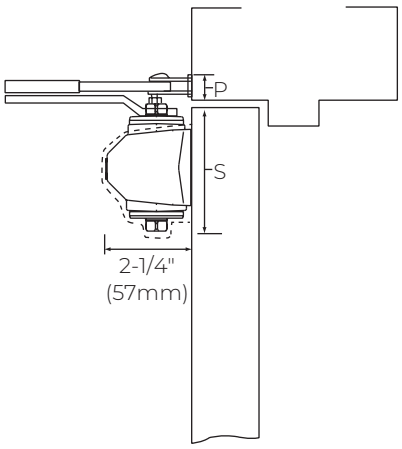
1700
LIGHT COMMERCIAL DOOR CLOSER

REGULAR ARM INSTALLATION



Closer mounts on door;
arm bracket on frame face.





Center to center of mounting holes is: 8" (203mm)
horizontally x 3/4" (19mm) vertically

* Size 3	1-5/8" (41mm)
* Size 4	4-7/8" (124mm)

R Minimum Top Rail				S Minimum Top Rail Clearance		P Minimum Ceiling Clearance Without Drop Plate	
Without Drop Plate		With N1756 Drop Plate					
Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
2" (51mm)		1-1/4" (32mm)		2-3/4" (70mm)		1" (25mm)	1-3/8" (35mm)

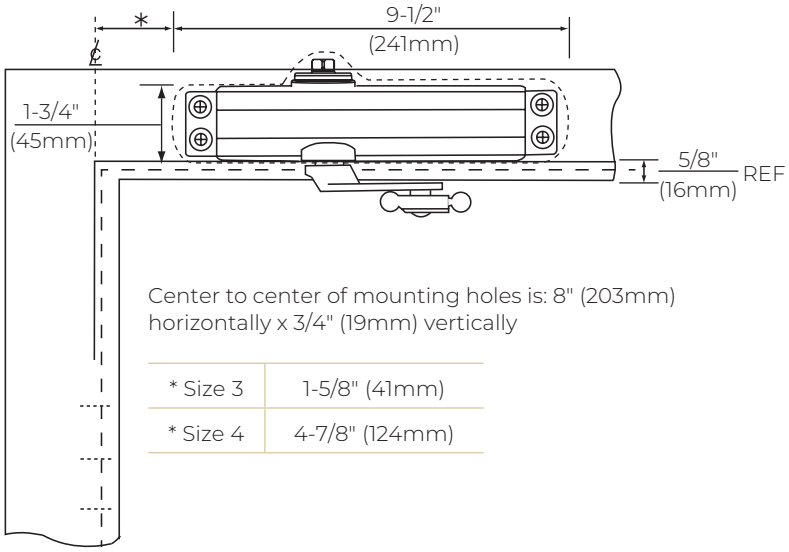
Maximum door swing = 180°

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TOP JAMB INSTALLATION

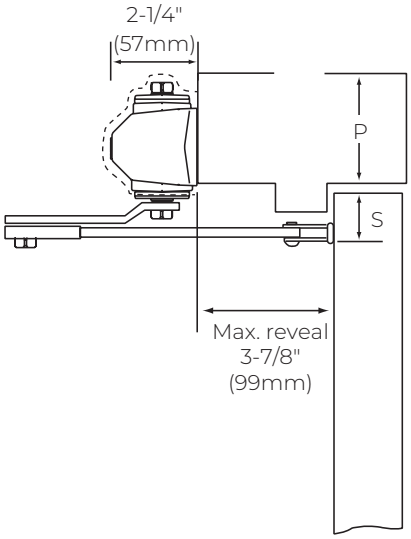


Closer mounts on push side of frame; arm shoe mounts to door.



Center to center of mounting holes is: 8" (203mm) horizontally x 3/4" (19mm) vertically

* Size 3	1-5/8" (41mm)
* Size 4	4-7/8" (124mm)



S Minimum Top Rail 5/8" (16mm) Frame Stop			P Minimum Ceiling Clearance			
Without Drop Plate	With N1757 Drop Plate		Without Drop Plate		With N1757 Drop Plate	
Non-Hold Open	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
1-5/16" (33mm)	2-1/4" (57mm)	2-5/8" (67mm)	2-1/2" (64mm)	Required*	1-3/4" (44mm)	

*Hold open (top jamb) application requires use of N1757 drop plate
Maximum door swing
Size 3 : 180°; reveals 0" to 3"
: 160°; reveals 3" to 3-7/8"
Size 4 : 140°; reveals 0" to 3-7/8"

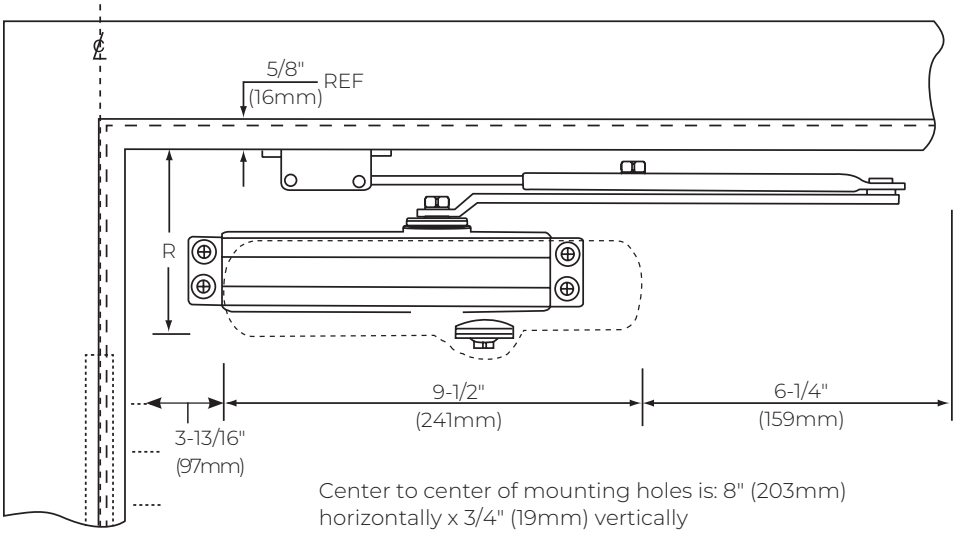
NORTON RIXSON
ASSA ABLOY

1700
LIGHT COMMERCIAL DOOR CLOSER

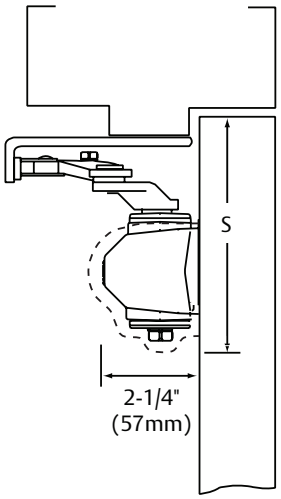
PARALLEL ARM INSTALLATION



Closer mounts on door;
bracket on frame soffit.



Center to center of mounting holes is: 8" (203mm)
horizontally x 3/4" (19mm) vertically



℟ Minimum Top Rail 5/8" (16mm) Frame Stop				S Minimum Top Rail Clearance	
Without Drop Plate		With N1758 Drop Plate			
Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
4-1/2" (114mm)		2-7/8" (73mm)		5" (127mm)	

Maximum door swing = 180°

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ACCESSORIES

Part Number	Description
N1756	Drop plate (regular arm)
N1757	Drop plate (top jamb)
N1758	Drop plate (parallel arm)

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1700
LIGHT COMMERCIAL DOOR CLOSER

HOW TO ORDER

1700
Defines closer series

H
Suffix

Blank - Non-hold open
H - Hold open

689
Finish

ANSI/BHMA (US)	Description
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted

NOTES:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

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210
LIGHT COMMERCIAL DOOR CLOSER

NORTON RIXSON
ASSA ABLOY



INTRODUCTION

The 210 Series is an adjustable door closer for light traffic commercial openings, including office and utility closet doors. It features an adjustable spring; tri-packed, non-hold open arms; and both independent and separate latch, sweep and backcheck intensity valves. The 210 is ideal for stocking distributors serving high-volume after-market segments.

FEATURES

- Adjustable spring size 1 through 6
- Door weight: 250 lbs.
- Non-handed
- Cast aluminum body
- Rack-and-pinion design
- Independent latch sweep and backcheck intensity valves
- Full plastic cover
- Non-hold open, hold open and heavy-duty arms
- Closer footprint: 3/4" x 12"
- Cover dimensions: 2-15/16" high x 2-1/8" deep x 13-1/16" long
- Sex nuts (SN-134) included
- 10 year limited warranty

CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1 BHMA CERTIFIED
- ANSI/BHMA A117.1
- Americans with Disabilities Act (ADA) Compliant
- UL10C positive pressure up to 3 hours
- UL-cUL listed

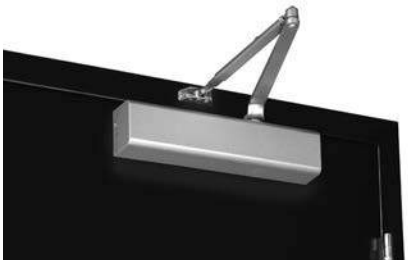
CAUTION: Door Closers for Low Opening Force Applications:
Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

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210
LIGHT COMMERCIAL DOOR CLOSER

APPLICATIONS

Standard Arms



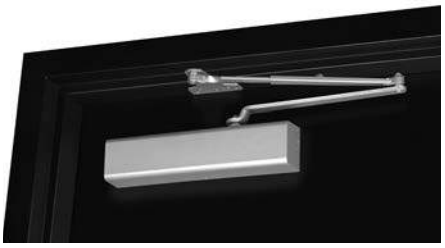
TPN arm shown (regular mounting)

- Pull-side application
- Closer mounted on the door



TPN arm shown (top jamb mounting)

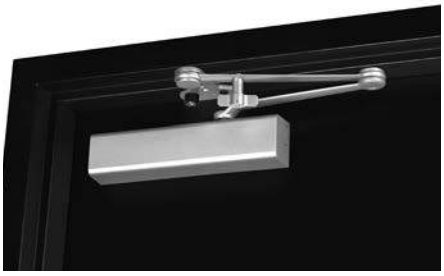
- Push-side application
- Closer mounted on the frame
- Minimum top rail = 2-1/4" (57mm)
- Maximum frame reveal = 2-3/4" (70mm)



TPN arm shown (parallel mounting)

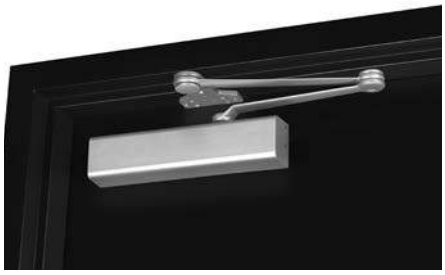
- Push-side application
- Closer mounted on the door

Heavy Duty Arms



HDH arm (with stop) shown

- Push-side application
- Stop is removable



HDN arm (without stop) shown

- Push-side application
- Stop is removable

NOTE: Arms are not interchangeable with Norton Rixson premium door closers.

ACCESSORIES

Part Number	Description
210P	Full plastic cover
SP210	Screw pack for TPN arm

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ASSA ABLOY

HOW TO ORDER

210 X **TPN** X **689**

210
Defines closer series

Includes full cover

TPN
Arm assemblies

- **TPN** – Tri-packed (regular, parallel, top jamb mounting), non-hold open
- **TPH** – Tri-packed (regular, parallel, top jamb mounting), hold open
- **HDN** – Heavy duty, non-hold open with removable stop
- **HDH** – Heavy duty, hold open thumbturn with removable stop

689
Finish

ANSI/BHMA (US)	Description
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
BSP	Black suede powder coat

NOTES:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

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160
LIGHT COMMERCIAL DOOR CLOSER

INTRODUCTION

The 160 Series door closer, is ideal for stocking distributors serving high volume after-market and storefront segments. The 160 Series features an adjustable spring, non-hold open arms and independent and separate latch, sweep and backcheck intensity valves. With easy installation and maintenance and dependable control, the 160 Series is perfect for office doors, utility doors and strip mall applications.



FEATURES

- Two models:
  - 161BF: adjustable spring size 1 through 4
  - 164: size 4 spring
- Door weight: 250 lbs.
- Non-handed
- Cast aluminum body
- Rack-and-pinion design
- Independent latch sweep and backcheck intensity valves
- Non-hold open arms: 161BF, 164
- Hold open arms: 161BF only
- Closer footprint: 3/4" x 9-1/16"
- Closer projection: 2-5/8"
- 5-year limited warranty

CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1
- Americans with Disabilities Act (ADA) Compliant
- UL10C positive pressure up to 3 hours
- UL-cUL listed

CAUTION: Door Closers for Low Opening Force Applications:
Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

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160
LIGHT COMMERCIAL DOOR CLOSER

APPLICATIONS



TPN arm shown (regular mounting)

- Pull-side application
- Closer mounted on the door



TPN arm shown
(top jamb mounting)

- Push-side application
- Closer mounted on the frame
- Minimum top rail = 2-1/4" (57mm)
- Maximum frame reveal = 2-3/4" (70mm)



TPN arm shown (parallel mounting)

- Push-side application
- Closer mounted on the door

NOTE: Arms are not interchangeable with Norton Rixson premium door closers.

COVER



To order cover only, specify 160P x finish. (Only available with model 161BF closer.)

NORTON RIXSON
ASSA ABLOY

HOW TO ORDER

16 Closer series x **1BF** Closer size x **TPN** Arm assemblies x **689** Finish

1BF – Adjustable 1-4
4 – Size 4

TPN – Tri-packed (regular, parallel, top jamb mounting), non-hold open
TPH – Tri-packed (regular, parallel, top jamb mounting), hold open

ANSI/BHMA (US)	Description
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
BSP	Black suede powder coat

Model #	Suffix	Non-Hold Open	Hold Open	Adjustable Spring 1-4	Size 4 Spring	Adjustable Slide Arm	Tri-Packed (RA, TJ, PA)	Sex Nuts Included
161BF	TPN	·		·		·	·	·
	TPH		·	·		·	·	·
164	TPN	·			·	·	·	·

Note: Specify 161BFxOP2 to order the 161BF closer packed with a cover.

NOTES:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

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9500
CAST IRON DOOR CLOSER

NORTON RIXSON
ASSA ABLOY

INTRODUCTION

Ideal for high use openings, the 9500 Series Cast Iron door closer offers the durability, flexibility and strength required to meet the needs of your facility. For interior or exterior doors, this ANSI/BHMA Grade 1 closer features a clean, modern cover aesthetic and durable cast iron body that can be used in a variety of institutional environments requiring ADA compliance.



FEATURES

- Cast iron closer body
- Non-handed
- Rack-and-pinion design
- Standard, separate and independent, latch, sweep and backcheck intensity valves
- Pressure relief valves for both opening and closing cycles protect the door and frame from damage and reduces maintenance costs
- Staked valves
- 2-1/4" (57mm) projection
- 1-1/2" (38mm) diameter piston
- 5/8" (16mm) diameter pinion journals
- Closer mounting plate for easy installation
- Tri-style® packaging: packed for regular, top jamb or parallel arm mounting
- Adjustable spring sizes 1-6
- Door weight: 250 lbs.
- Molded ABS plastic cover
- All standard arm applications allow doors to swing 180°, conditions permitting
- Heavy-duty arms: Regular Rigid, Parallel Rigid, CloserPlus®, Parallel Rigid Offset and Unitrol®
- Slide Tracks: push or pull side mounting
- 30-year limited warranty
- Exceeds 25 million cycles

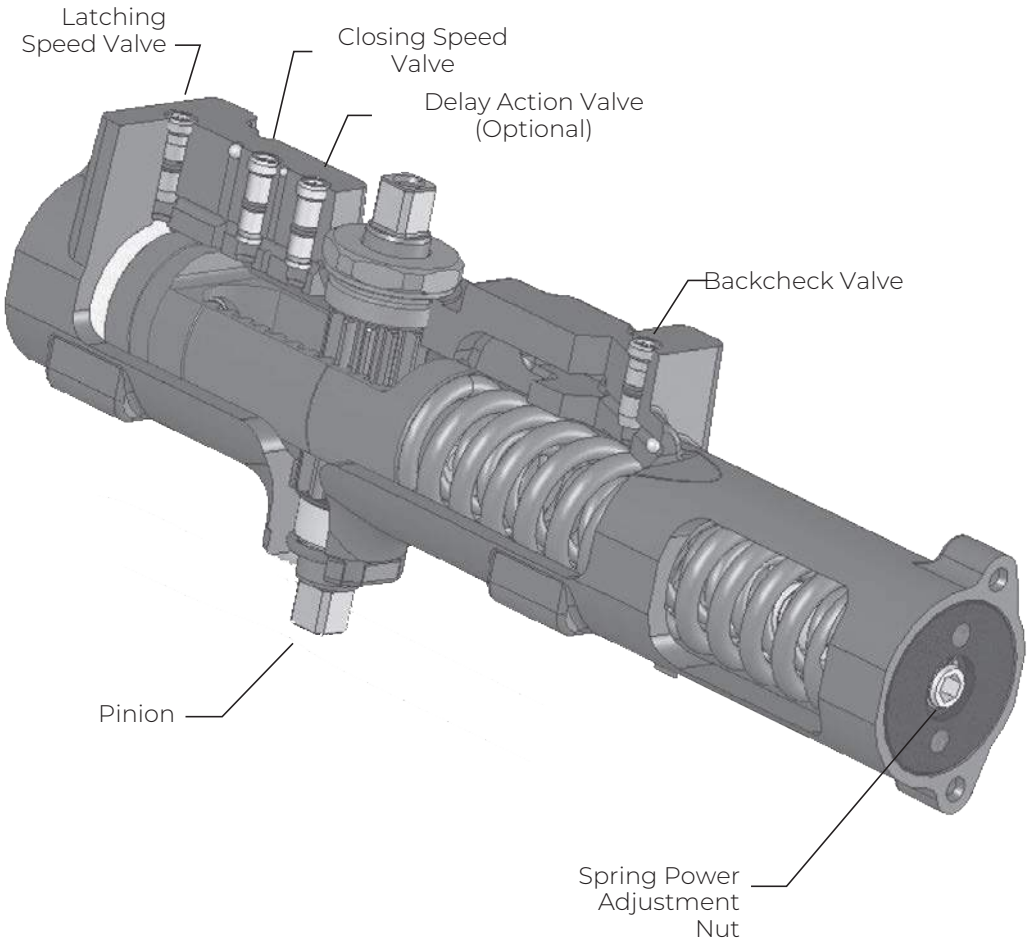
OPTIONAL FEATURES

- Metal cover
- Delayed action

NORTON RIXSON
ASSA ABLOY

9500
CAST IRON DOOR CLOSER

OVERVIEW



CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1
- ANSI/BHMA A117.1
- Americans with Disabilities Act (ADA) Compliant
- Environmental Product Declaration (EPD)
- GreenCircle certified environmental facts
- UL10C positive pressure up to 3 hours
- UL-cUL listed
- Manufactured in an ISO 9001, ISO 14001 facility

CAUTION: Door Closers for Low Opening Force Applications:
Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

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9500
CAST IRON DOOR CLOSER

SPECIFICATIONS

Door closers shall be of full rack and pinion construction with a cold headed heat-treated steel spindle and a forged steel piston precision machined and heat treated. The case shall be of cast iron. All closers for both interior and exterior doors shall be the product of one manufacturer.

Surface closers shall be adjustable to provide sizes 1 though 6 and comply with ADA. All sizes shall be accommodated in one closer body.

Closing shall be controlled by two valves — one to control closing speed and one to control latching speed. Valves shall be concealed against unauthorized adjustment and be non-critical with “O” ring seals. Delayed action shall be available and shall be accomplished with a separate valve.

All arms shall be finely finished with heavy duty forged steel main arm. All closers shall be suitable for regular arm, top jamb, and parallel arm mounting and track type applications when provided with proper brackets and arms. Hold open and heavy duty arms are available. Closers mounted regular arm, top jamb and parallel arm shall allow for full 180° door opening, trim permitting.

Closers shall be available with an adjustable backcheck intensity valve with a safety feature that automatically relieves internal pressure when backcheck has reached the desired adjustment level. Valves shall be accessible without removing the closer from the door.

Closers shall be available with a backcheck intensity valve. Backcheck begins at approximately 70° of door opening for all applications. This valve shall be operative on regular, top jamb, parallel arm, and track type mountings.

Closer covers shall be non-handed to meet a variety of door conditions and design requirements. Closer covers shall be of high impact plastic material of flame retardant grade, secured by machine screws. Projection of the closer body from the door shall not exceed 2-1/4". Closers shall be capable of mounting on 1-3/4" top rail or inverted mounting on 1-3/4" top jamb. Metal covers shall be available. All closers with metal covers shall be available in architectural finishes to match corresponding door hardware.

Closers without hold open shall be regularly furnished with power adjustment arm bracket capable of providing a 15% power adjustment.

A mounting bracket to attach the closer shall be regularly furnished.

Hydraulic fluid shall be of a type requiring no seasonal valve readjustment due to extreme temperature variations.

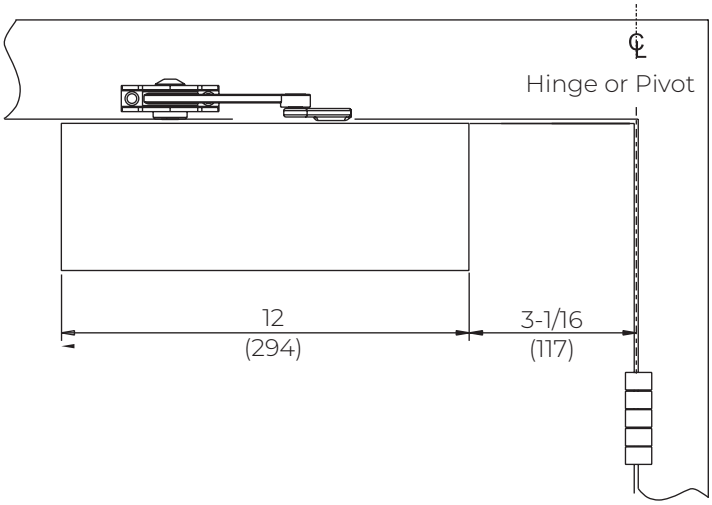
Closer shall have a 30-year limited warranty.

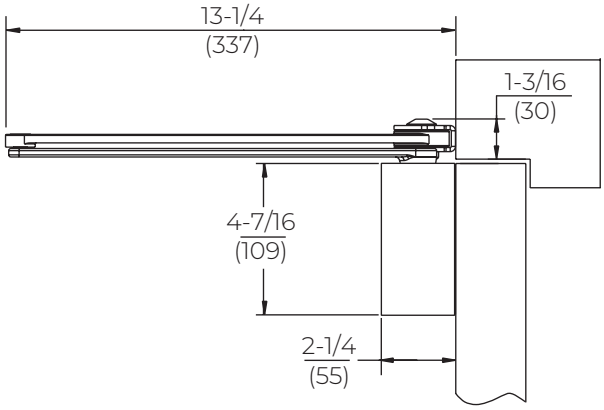
Closers with non-hold open arms shall be listed by Underwriters Laboratories.

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9500
CAST IRON DOOR CLOSER

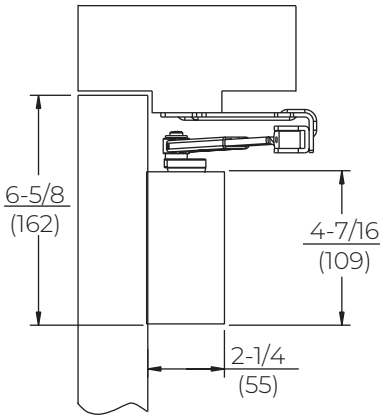
TECHNICAL DETAILS – REGULAR ARM

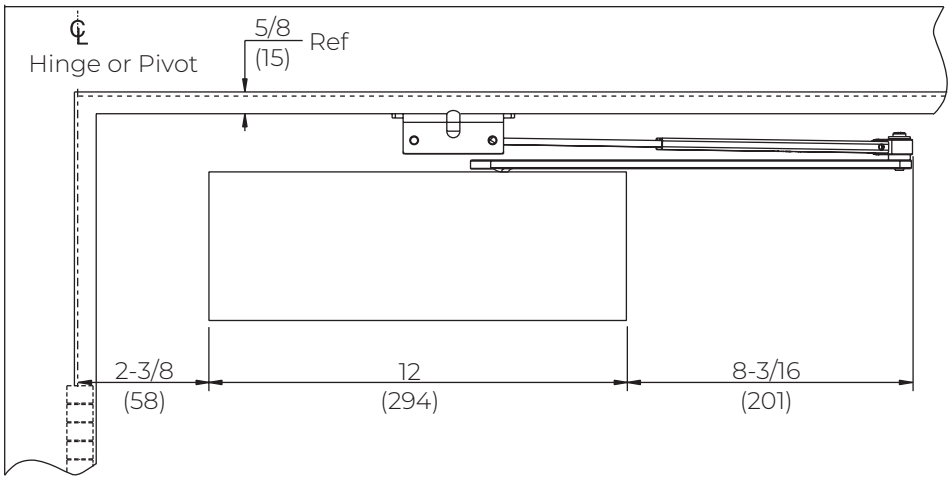




Arm Function	Minimum Header	Minimum Top Rail	Maximum Door Swing
Non-hold open	1-1/2" (38)	3" (76)	180° (trim permitting)
Hold open	1-11/16 (43)		90°-180°

TECHNICAL DETAILS – PARALLEL ARM





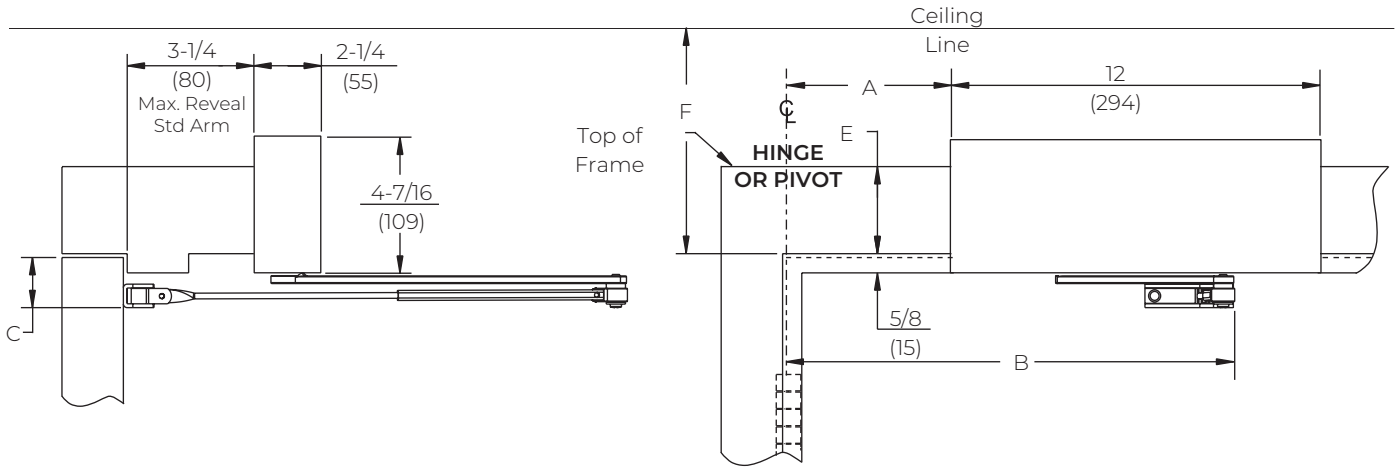
Arm Function	Minimum Top Rail
Non-hold open	5-1/4" (133)
Hold open	

NOTES:
- Mounting holes for mounting bracket are spaced 1" (25mm) x 10" (254mm).
- Closers are tri-packed for regular arm, parallel arm and top jamb mounting. Parallel arm bracket is included.

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CAST IRON DOOR CLOSER

TECHNICAL DETAILS – TOP JAMB



Maximum Opening	A	B	Hinge Condition
110°	7" (172)	16-1/16" (394)	Butts, Offset Pivots, and Swing Clear Hinges
140°	5-1/2" (135)	14-5/16" (351)	
180°	4" (98)	13-1/16" (320)	
140°	5-1/2" (135)	14-7/16" (354)	^Center Hung

Header Width	C Minimum Top Rail	E Header	F Ceiling Clearance
Standard	1-7/8" (48)	2-1/8" (54)	4" (102)
Narrow	2-1/4" (57)	2" (49)	3-5/8" (92)

Dimensions “A” and “B” are taken from centerline of hinge as shown and apply to pivot point of swing clear hinges. Offset and center hung pivots.

^Must be single-acting door.

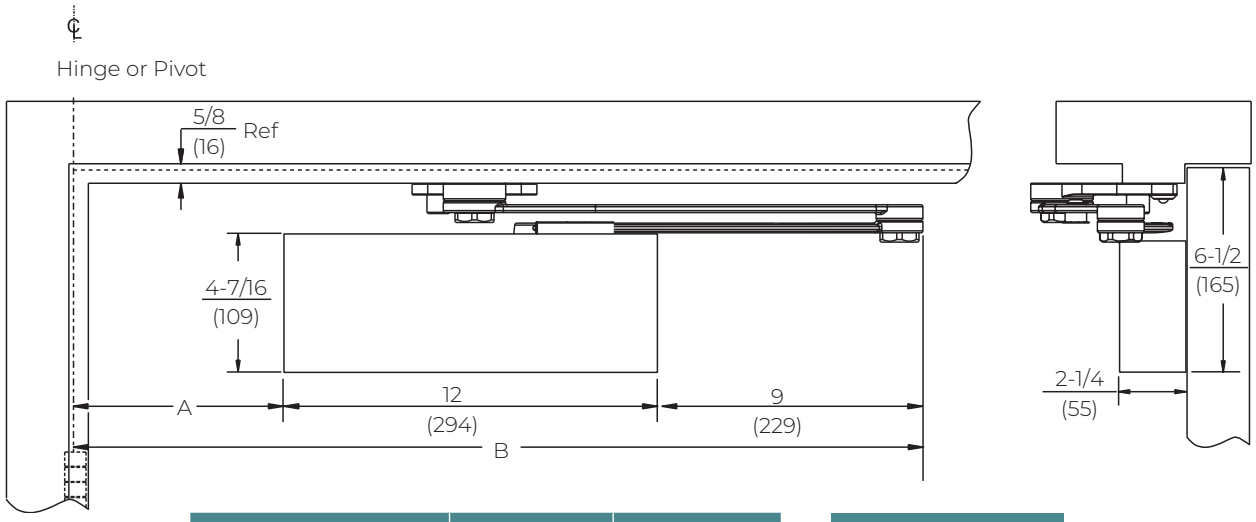
NOTES:

- Mounting holes for mounting bracket are spaced 1" (25mm) x 10" (254mm).
- Closers are tri-packed for regular arm, parallel arm and top jamb mounting. Parallel arm bracket is included.

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9500
CAST IRON DOOR CLOSER

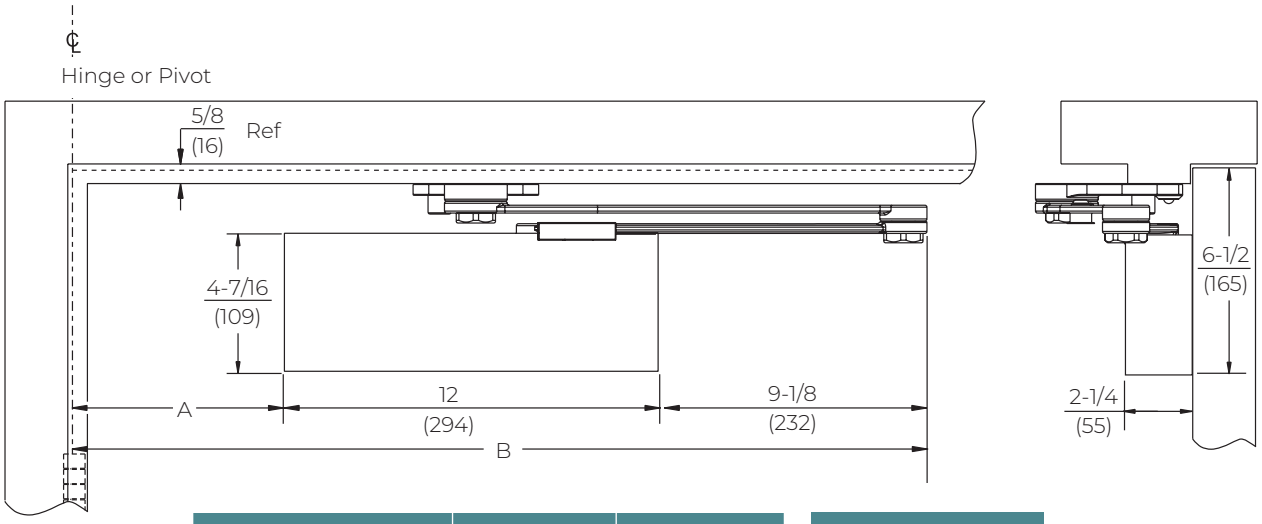
TECHNICAL DETAILS – PARALLEL RIGID ARM



Maximum Opening	A	B
90°	6-7/8" (175)	27-7/8" (708)
180°	2-7/8" (73)	23-7/8" (606)

Minimum Top Rail
5" (127)

TECHNICAL DETAILS – PARALLEL RIGID, FRICTION HOLD OPEN ARM



Maximum Opening	A	B
90°	6-1/2" (165)	27-5/8" (702)
180°	2-1/2" (64)	23-5/8" (600)

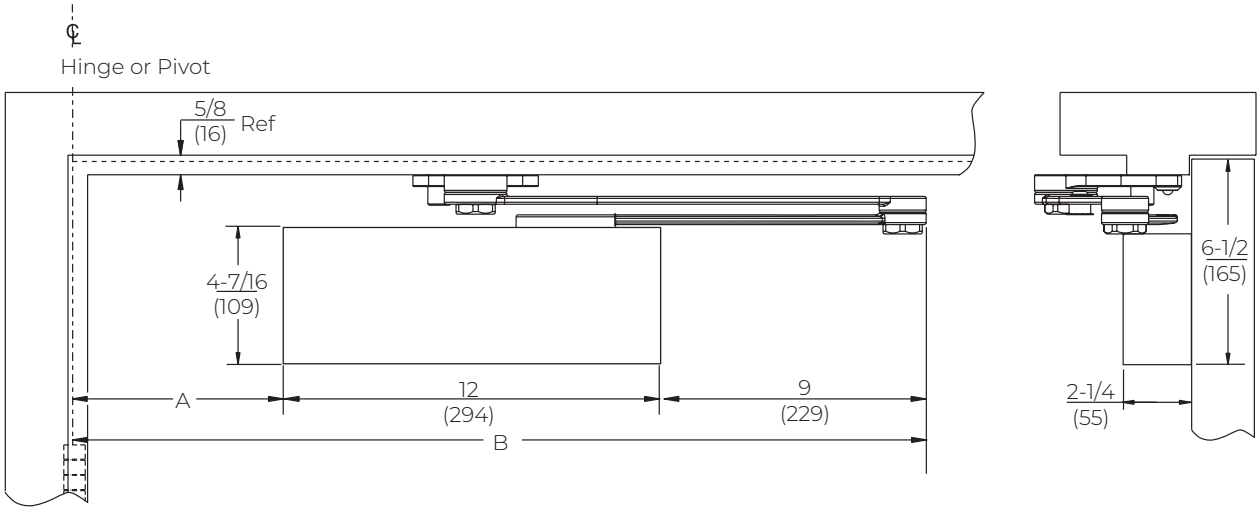
Minimum Top Rail
5" (127)

NOTE:
- Mounting holes for mounting bracket are spaced 1" (25mm) x 10" (254mm).

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9500
CAST IRON DOOR CLOSER

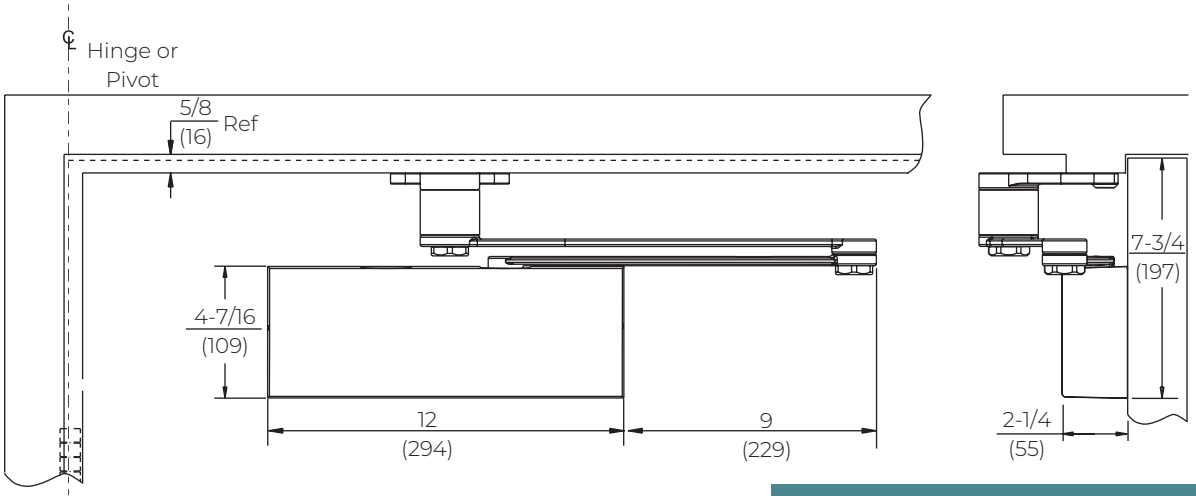
TECHNICAL DETAILS – CLOSER PLUS® ARM



Maximum Opening	A	B
85°	7-3/4" (197)	28-3/4" (730)
90°	6-3/4" (171)	27-3/4" (708)
100°	5-1/4" (133)	26-1/4" (667)
110°	3-7/8" (98)	24-7/8" (631)

Minimum Top Rail
5" (127)

TECHNICAL DETAILS – PARALLEL RIGID, FRICTION HOLD OPEN ARM



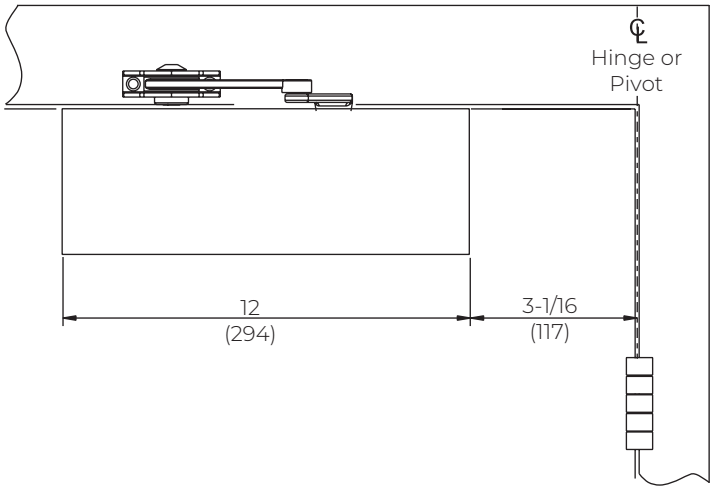
NOTE:
- Mounting holes for mounting bracket are spaced 1" (25mm) x 10" (254mm).

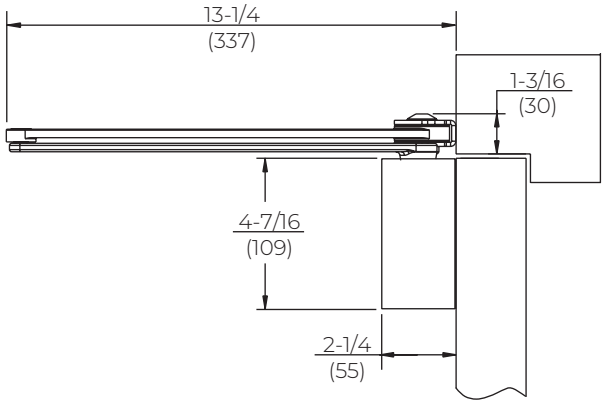
Minimum Top Rail of Door with 5/8" (16mm) Frame Stop	
Without 9500-1/2SP Spacer	With 9500-1/2SP Spacer
6-7/8" (175)	7-3/8" (187)

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9500
CAST IRON DOOR CLOSER

TECHNICAL DETAILS – REGULAR RIGID ARM





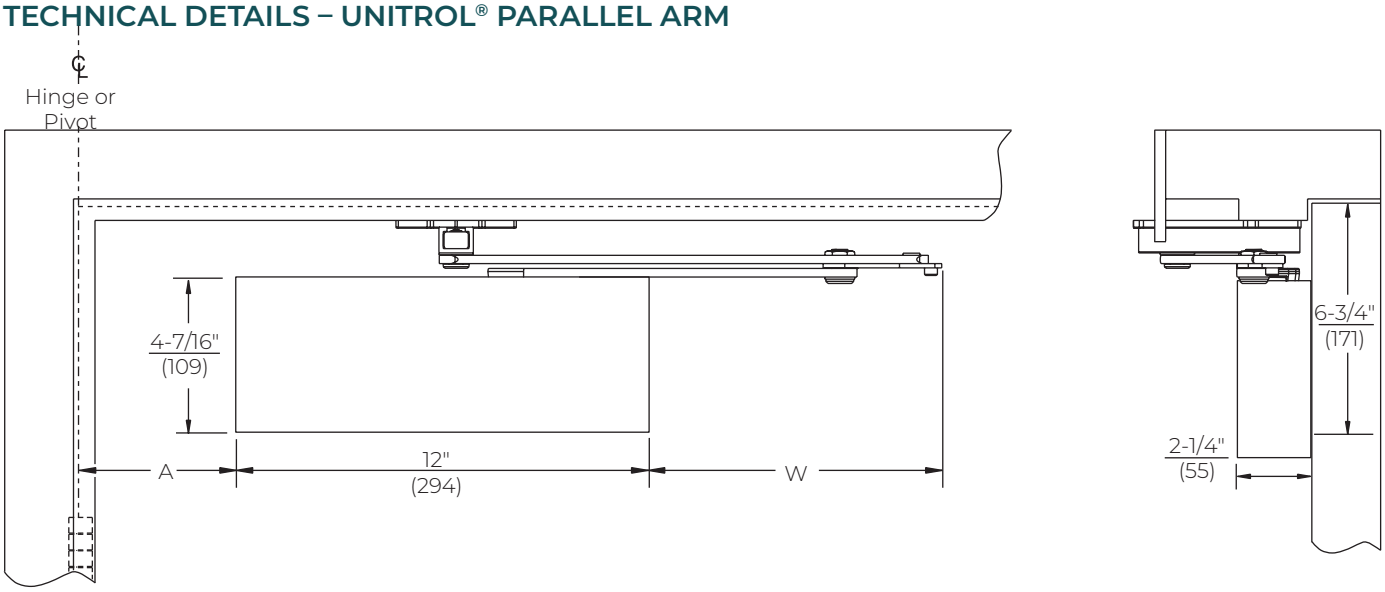
Minimum Header	Minimum Top Rail
1-5/8" (41)	3" (76)

NOTE:
- Mounting holes for mounting bracket are spaced 1" (25mm) x 10" (254mm).

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TECHNICAL DETAILS – UNITROL® PARALLEL ARM



Opening		Doors 28" - 32"		Doors 33" - 41"		Doors 42" - 48"	
Hold Open	Dead Stop	A	W	A	W	A	W
85°	90°	4-3/4" (121)	8-1/2" (216)	5-3/8" (137)	10" (254)	5-7/8" (149)	11-3/8" (289)
90°	95°	4-1/4" (108)		4-7/8" (124)		5-3/8" (137)	
95°	100°	3-3/4" (95)		4-3/8" (111)		4-7/8" (124)	
100°	105°	3-3/8" (86)		3-7/8" (98)		4-3/8" (111)	
105°	110°	3" (76)		3-1/2" (89)		4" (102)	
110°	115°	2-3/4" (70)		3-1/4" (82)		3-5/8" (92)	

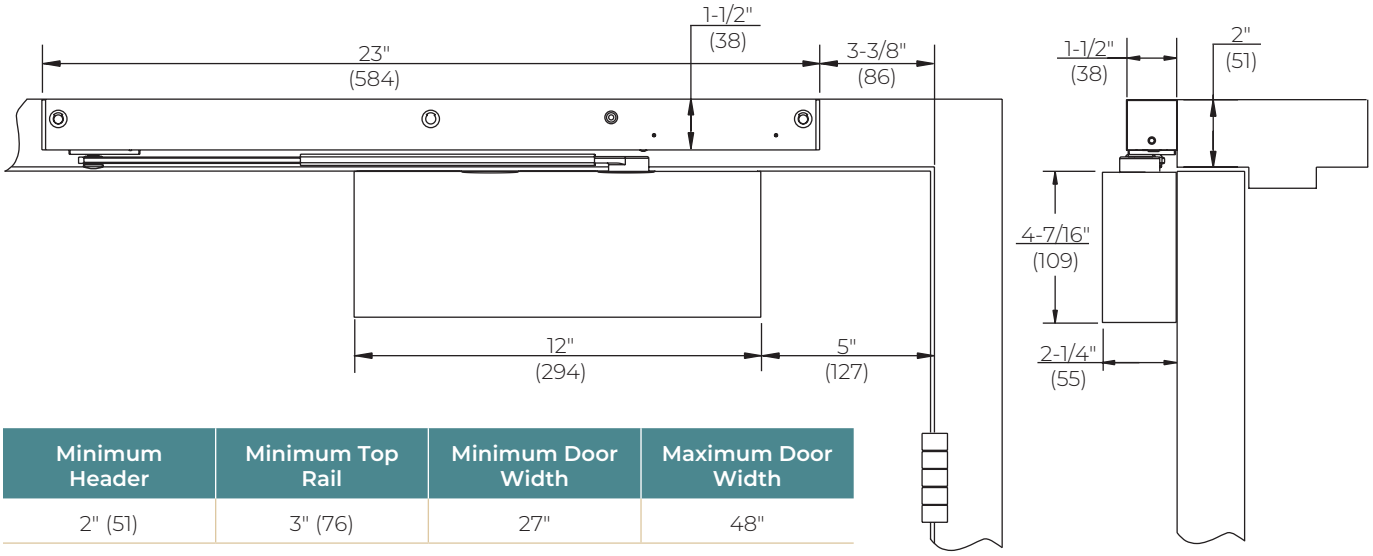
Minimum Top Rail
5" (127)

NOTE:
- Mounting holes for mounting bracket are spaced 1" (25mm) x 10" (254mm).

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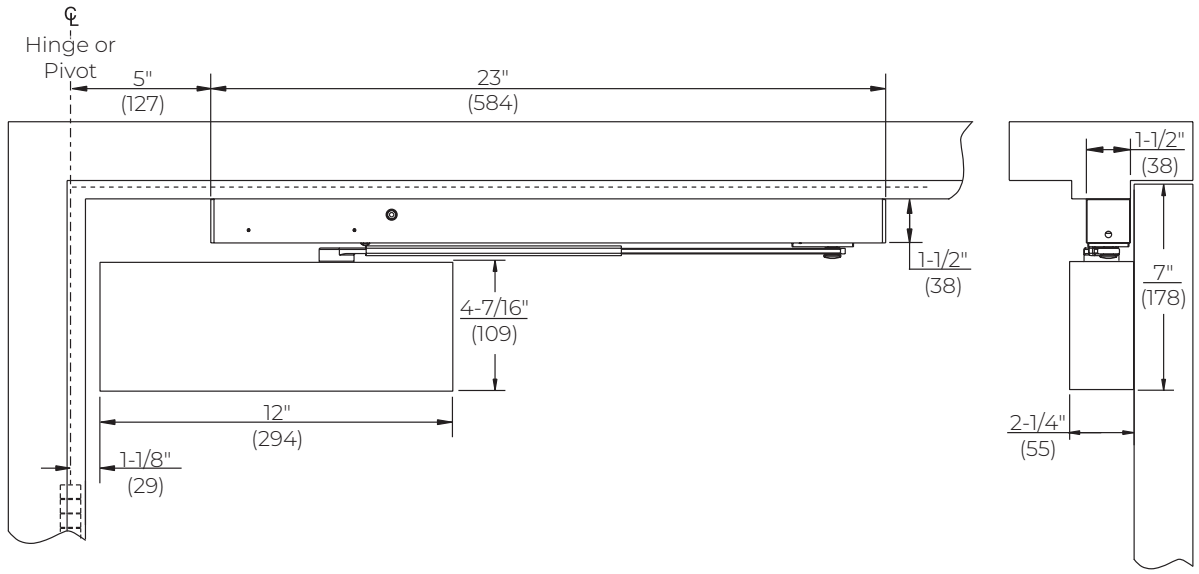
9500
CAST IRON DOOR CLOSER

TECHNICAL DETAILS – PULL SIDE MOUNTING



Minimum Header	Minimum Top Rail	Minimum Door Width	Maximum Door Width
2" (51)	3" (76)	27"	48"

TECHNICAL DETAILS – PUSH SIDE MOUNTING



Minimum Top Rail	Minimum Door Width
5-1/2" (140)	29"

NOTE:
- Mounting holes for mounting bracket are spaced 1" (25mm) x 10" (254mm).

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ARM OPTIONS

Regular Arm

9501-1
(Non-Hold Open)



9501-3
(Hold Open*)



- Used with regular arm mounting (pull side) and top jamb mounting (push side)
- Available in painted or plated finishes

	Part Number	Description
Non-Hold Open	9501-1W	Main arm & tube assembly
	9501-11	Rod & shoe assembly
	9500-HS	Hex screw package
Hold Open	9501-3W	Main arm & rod assembly
	9501-13	Hold open bracket assembly

Parallel Arm

9501-5
(Non-Hold Open)



9501-8
(Hold Open*)



- Mounted on push side
- Non-hold open arm – combines regular arm with parallel arm mounting bracket
- Hold open arm – combines regular hold open arm with parallel arm mounting bracket
- Available in painted or plated finishes

Top Jamb (Deep Reveal)



- Accommodates top jamb mounting for reveals from 3-3/8" (86mm) up to 7-1/4" (184mm), depending on door and frame conditions
- Mounted on push side
- Available in painted or plated finishes

	Part Number	Description
Non-Hold Open	**9501-1B**	**Arm Assembly**
	9501-2W	Main arm & arm tube assy
	9501-11B	Rod & shoe assembly
Hold Open	**9501-3B**	**Arm Assembly**
	9501-3WB	Main arm & rod assy
	9501-13	Hold open bracket assy

Specify finish when ordering arms.
*Not allowed by code on fire doors.

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CAST IRON DOOR CLOSER

ARM OPTIONS

Parallel Rigid Arm

PR9501-5
(Non-Hold Open)



- Recommended for high-use, high-abuse environments
- Tamper-resistant, solid forged steel riveted arm
- Mounted on push side
- Not available in plated finishes

Parallel Rigid - Friction Hold Open Arm*



- Recommended for high-use, high-abuse environment
- Requires auxiliary stop
- Allows door to swing 180°, conditions permitting
- Handed
- Mounted on push side
- Not available in plated finishes

Arm Assemblies	Handing
PR9501-8R	Right hand
PR9501-8L	Left hand

CloserPlus® Arm

9770-5
(Non-Hold Open)



9870T-8
(Hold Open)*



- Recommended for high-use, high-abuse environments
- Tamper-resistant, solid forged steel riveted arm (mounted on push side)
- Field-reversible steel lug restricts degree of opening to protect door, wall and hardware
- Requires both backcheck valves on closer
- Shipped standard as left hand. Handing can be reversed in the field
- Not available in plated finishes

Specify finish when ordering arms.
*Not allowed by code on fire doors.

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ARM OPTIONS

Parallel Rigid Offset Arm



Arm Assemblies	Arm Function
PRO9501-5	Non-hold open

- Recommended for high-use, high-abuse environments
- Provides additional vertical clearance
- Mounted on push side
- Not available in plated finishes

Standard Clearance	Blade Spacer Part Number	Total Clearance
1-3/4"	9500-1/2SP	2-1/4"
	9500-5/8SP	2-3/8"

Regular Rigid Arm

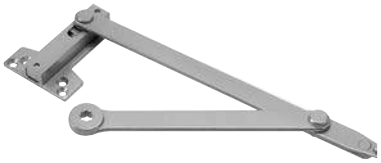
R9501-1
(Non-Hold Open)



- Recommended for high-use, high-abuse environments
- Tamper-resistant, solid forged steel riveted arm
- Mounted on pull side
- Not available in plated finishes

Unitrol® Parallel Arm

(Non-Hold Open)



(Hold Open)*



- Recommended for high-use, high-abuse environments
- Integrates a door closer, shock absorber and auxiliary heavyduty overhead stop
- Requires both backcheck valves on the closer
- Hold open*
  - Holder mechanism tension adjustable
  - Hold open can be engaged/disengaged with a 1/4 turn of the mechanism with a standard blade type screwdriver
- Not available in plated finishes

Door Width	Arm Assemblies	
	Non-Hold Open	Hold Open*
28" - 32" (71cm - 81cm)	**9100-11**	**9100-1**
33" - 41" (84cm - 104cm)	**9100-13**	**9100-3**
42" - 48" (107cm - 122cm)	**9100-14**	**9100-4**

Specify finish when ordering arms.
*Not allowed by code on fire doors.

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CAST IRON DOOR CLOSER

TRACK OPTIONS

Pull Side Track



- Provides a clean aesthetic look with maximum 100° door swing and a minimum door width of 28" (71cm)
- Mounted on pull side
- Hold open can be set for 85°, 90°, 95°, or 100°
- Not available in plated finishes

	Part Number	
Arm/Track Function	Track Only	Arm Only
Non-Hold Open	9501ST-1T	9501ST-1A
Hold Open	9501ST-3T	

Push Side Track



- Clean aesthetic look for doors opening a maximum of 100˚ and a minimum door width of 32" (81cm)
- Backcheck option recommended
- Mounted on push side
- Hold open*
  - From 85° to 100°
  - Turn knob offers the use the option of turning hold open on or off
- Not available in plated finishes

	Part Number	
Arm/Track Function	Track Only	Arm Only
Non-Hold Open	9501ST-5T	9501ST-1A
Hold Open	9501ST-8T	

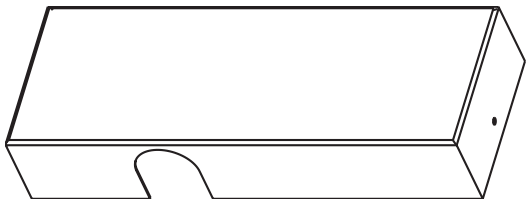
Specify finish when ordering arms.
*Not allowed by code on fire doors.

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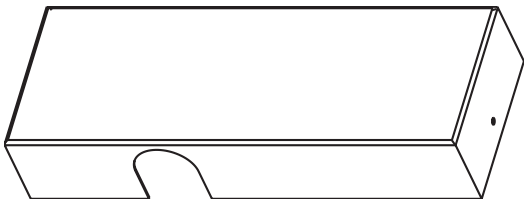
COVERS AND PLATES

Full Plastic Cover



9500P
- Completely covers closer body
- Non-handed
- Dimensions: 12" (294) x 4-7/16" (109) x 2-1/4" (55)
- Available in painted finishes only

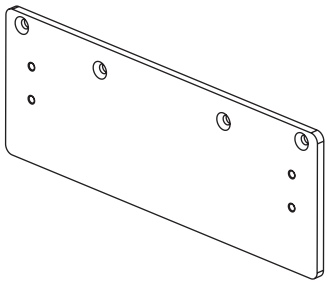
Full Metal Cover



- For use in high-abuse applications
- Specify hand; not field reversible
- Dimensions: 12" (294) x 4-7/16" (109) x 2-1/4" (55)
- Available in painted and plated finishes

Part Numbers	Handing
9500M-R	Right hand
9500M-L	Left hand

Drop Plate



- Permits parallel arm or top jamb mounting on door when top rail is too narrow to install closer in the regular manner
- Minimum 2" (51mm) top rail required
- To order separately, specify Part No. x Finish

Drop Plate	Used with:
9586	Regular arm or pull side track
9587	Top jamb
9588	Parallel arm or push side track

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BRACKETS

Mounting Bracket



9500-CMB
- Standard on all closers
- Reduces installation time
- Ensures correct mounting
- Bracket is first mounted to door or frame, then closer is attached
- Bracket size: 3-5/8" (92mm) x 11-1/2" (292mm)
- Hole spacing: 1" (25mm) x 10" (254mm)

Parallel Arm Hold Open Bracket



9528H
- Converts regular arm hold open to parallel arm hold open closer
- Standard with parallel arm hold open mounting

Mortise Arm Bracket for Regular Arm Mounting



9500-MAB
- For regular arm mounting where frame requires reinforcement, i.e., on frames with bull nose trim
- Not available in plated finishes

Parallel Arm Offset Bracket



9500-OB
- Required when parallel arm is used in conjunction with an overhead door holder

Parallel Arm Non-Hold Open Bracket



9518
- Converts regular arm to parallel arm closer
- Standard with parallel arm mounting

Parallel Arm Flush Transom Bracket



9500-PFTB
- Required when parallel arm mounting is used on a flush transom application
- Not available in plated finishes

Specify finish when ordering parts.

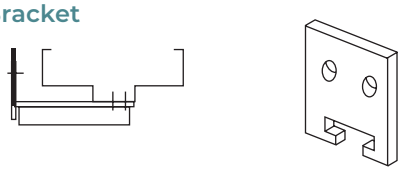
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BRACKETS

Reinforcing Bracket



9500-RB
- Supplied as standard for use with Unitrol® arms
- Provides additional support to the soffit plate on installations with door frame reveals from 1-7/8" to 4-5/8" (48 to 117mm)
- Not available in plated finishes

Flush Transom Bracket



9500-FTB
- Available separately for mounting Parallel Rigid and CloserPlus® arms rabbeted or flush transom conditions
- Not available in plated finishes

Deep Reveal Reinforcement Kit



9500-DRK
- For use with Unitrol® arms
- Used to support the soffit plate on installations with wide frames.
- Clamps may be used with or without the spacer block, depending on frame conditions
- Not available in plated finishes
- For frames deeper than 4-5/8" (117mm), specify closer x 9500-DRK

Blade Stop Spacer*



Spacer Size	Part Number
1/2"	**9500-1/2SP**
5/8"	**9500-5/8SP**

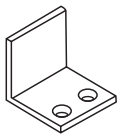
*Not for use with Unitrol arms

Flush Partition Bracket



9500-FPB
- For use with Unitrol® arms where rabbeted or flush transom conditions prevent installation of the soffit plate assembly
- Bracket fastens to the overhead transom to provide a mounting surface for the soffit plate assembly
- Specify closer x 9500-FP

Angle Support Bracket



9500-AB
- Available separately for mounting Parallel Rigid and CloserPlus® arms heavy-duty arms on narrow frame or soffit conditions
- Specify closer x 9500-AB

Power Adjustment Arm Bracket

Maximum Power



Normal Power



- Standard on all closers without hold open, except heavy-duty and track type
- In regular arm or top jamb mounting, bracket may be reversed to increase closing power 15%

Specify finish when ordering parts.

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9500
CAST IRON DOOR CLOSER

PARTS LIST

Door Closer Body Assemblies

Part Number	Description
9500LAP	Multi-size closer body

SCREW PACKS

SP9500	Standard screw package
SP9500SN	Standard screw pack (includes sex nuts)
SP9500SNB	Sex Nuts and Bolts (SNB) for 1-3/4" door
95ASW	Main arm screw & washer
SP9500COV	Cover screw pack
TBGN134-95	Through Bolts & Grommet Nuts

FASTENERS

Self drilling screws (for properly reinforced wood and metal doors) are supplied standard.

Sleeve nuts and bolts (SNB) are supplied standard with Parallel Rigid, CloserPlus® and Unitrol® arms and Slide Track (push and pull) closers. SNB's are optional for Tri-Style® packed closers (Regular, Top Jamb and Parallel arms). Torx® machine screws are optional for all 9500 series.

TORX® SCREW PACKS

Arm Type	Part Number
Regular, Top Jamb & Parallel	TX95
Parallel Rigid, CloserPlus®	PRTX95
Regular Rigid heavy-duty	RTX95
Unitrol®	UNITX95
Slide track	TXTK95
70TK	Torx® tool kit

FINISHES

Norton Rixson offers waterborne acrylic, polyster powder coat and plated finishes. Custom finishes are available on special order. A sample and approval is required.

Waterborne acrylic and polyester powder coat will withstand 100 hours of salt spray (ANSI requires 25 hours).

ANSI/BHMA (US)	Description
605 (US3)	Bright brass, clear coated
606 (US4)	Satin brass, clear coated
611 (US9)	Bright bronze, clear coated
612 (US10)	Satin bronze, clear coated
613E (US10BE)	Dark oxidized satin bronze - equiv.
619 (US15)	Satin nickel plated, clear coated
625 (US26)	Bright chrome plated over nickel
626 (US26D)	Satin chrome plated over nickel
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
691 (US10)	Light bronze, painted
693	Black, painted
694	Medium bronze, painted
696 (US4)	Gold , painted
BSP	Black suede powder coat
WSP	White suede powder coat
600^	Prime coat

^ 600 is a special rust-inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat.

* Closer bodies and plastic covers are available in waterborne acrylic finishes. Arms and metal covers are available in powder coat or plated finishes.

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CAST IRON DOOR CLOSER

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HOW TO ORDER

NOTE: For optimum protection of door and frame assemblies, always use auxiliary wall, floor, or overhead door stop.

PR	9500	H	689
Prefixes	**Closer Series**	**Suffixes**	**Finish** (see page 228)

No Prefix } 9500 series designates Tri-Style® packaging (regular arm, top jamb and parallel arm)
PR – Parallel Rigid arm (parallel arm only); specify hand for hold open functions.
PRO – Parallel Rigid arm with offset soffit plate (parallel arm only); specify hand for hold open applications.
PS – 9500ST for push side mounting only.
R – Rigid heavy-duty regular arm. (Torx® screws not included).
CLP – CloserPlus® arm (parallel arm only).
UNI – Unitrol® arm (parallel arm only - specify **door width**). Frame reveals 1-7/8" to 4-5/8" (48-117mm) standard.

None – Non-hold open arm function.
H – Hold open arm function (specify hand when "PR" prefix is ordered).
M – Metal cover.
DA – Optional delayed action feature.
ST – Slide track - single lever arm (auxiliary stop recommended). For push side - prefix PS.
T – Thumbturn hold open on CloserPlus® (CLP).

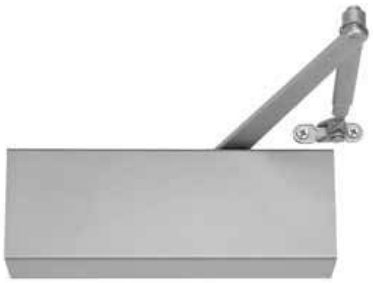
NOTE:
- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

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9540
CAST IRON DOOR CLOSER

INTRODUCTION

The 9540 Series are premium, cast iron door closers for moderate-to-high traffic applications with ANSI/BHMA Grade 1 certification for a long-life of reliability. A direct replacement for LCN 4040XP door closers, the 9540 Series is an ideal retrofit solution for retail, office, government and other commercial facilities.



FEATURES

- Cast iron closer body
- Retrofits LCN 4040XP
- Non-hold open
- Non-handed
- Rack-and-pinion design
- Standard, separate and independent, latch, sweep and backcheck intensity valves
- Pressure relief valves for both opening and closing cycles, protect the door and frame from damage, and reduces maintenance costs
- Staked valves
- 2-1/4" (57mm) projection
- 1-1/2" (38mm) diameter piston
- 5/8" (16mm) diameter pinion journals
- Mounting bracket
- Tri-style® packaging: packed for regular, top jamb or parallel arm mounting
- Adjustable spring sizes 1-6
- Door weight: 250 lbs.
- Molded ABS plastic cover
- 30-year limited warranty

OPTIONAL FEATURES

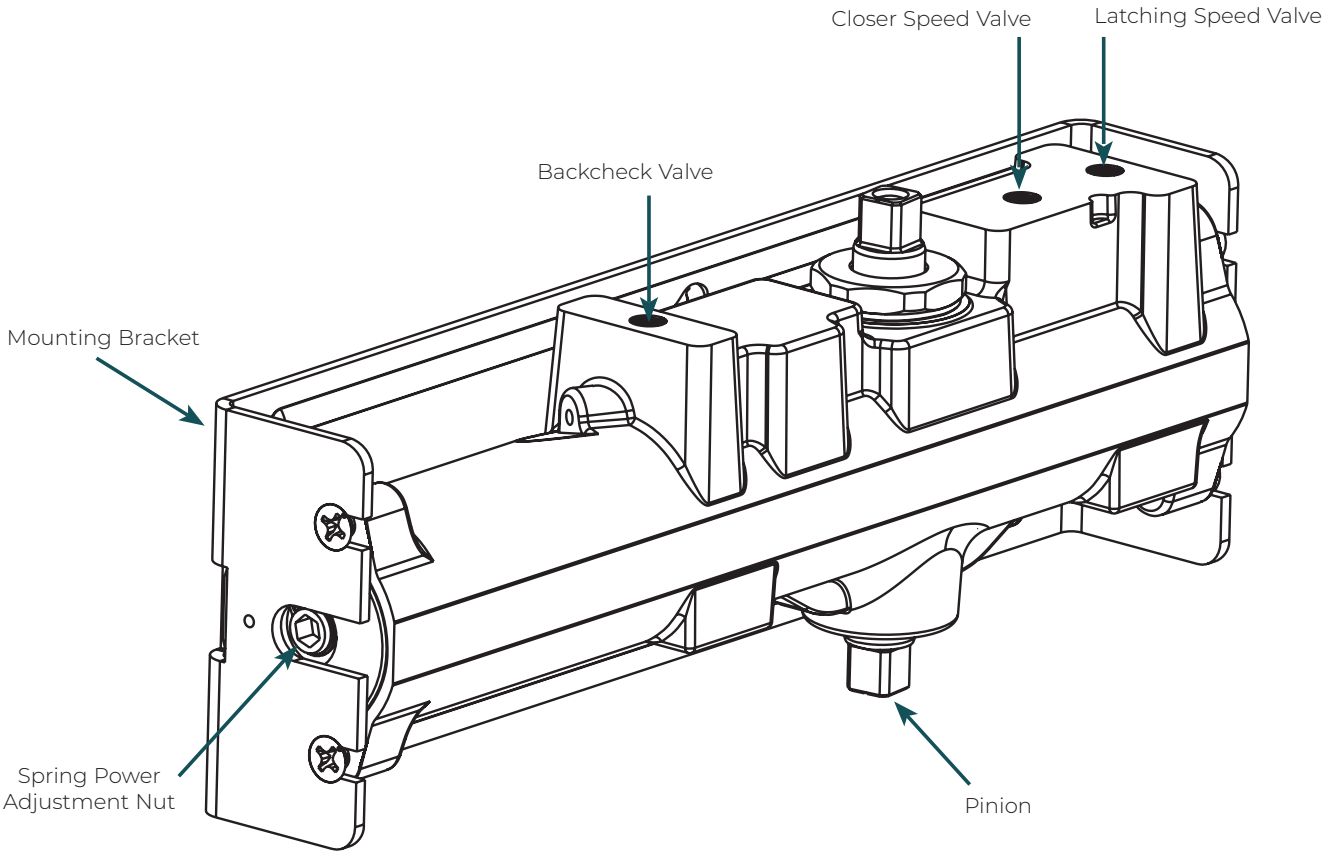
- Metal covers
- Delayed action

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CAST IRON DOOR CLOSER

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OVERVIEW



CERTIFICATIONS

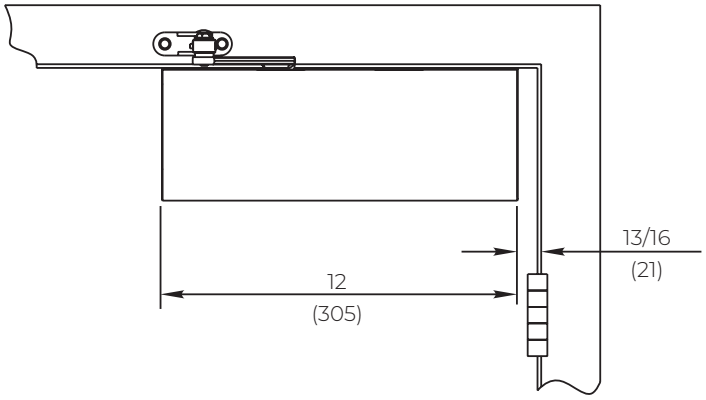
- ANSI/BHMA A156.4, Grade 1
- ANSI/BHMA A117.1
- Americans with Disabilities Act (ADA) Compliant
- UL10C positive pressure up to 3 hours
- UL-cUL listed
- Manufactured in a ISO 9001, ISO 14001 facility

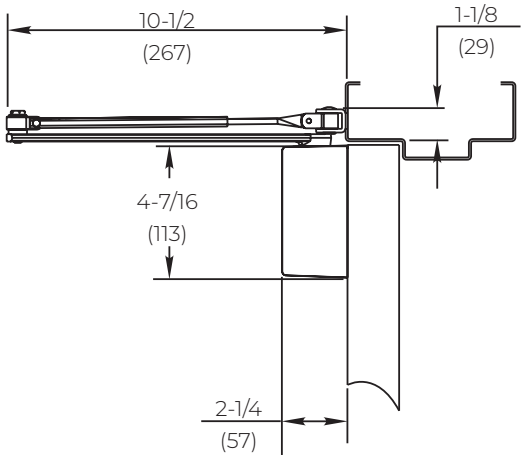
CAUTION: Door Closers for Low Opening Force Applications:
Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

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CAST IRON DOOR CLOSER

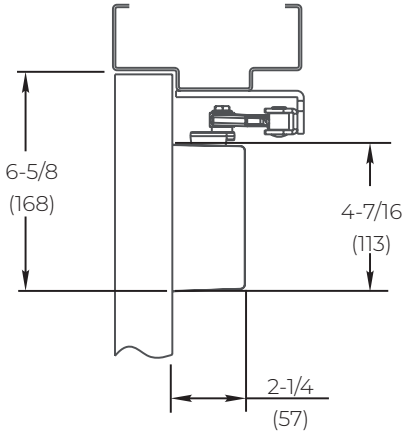
TECHNICAL DETAILS-REGULAR ARM

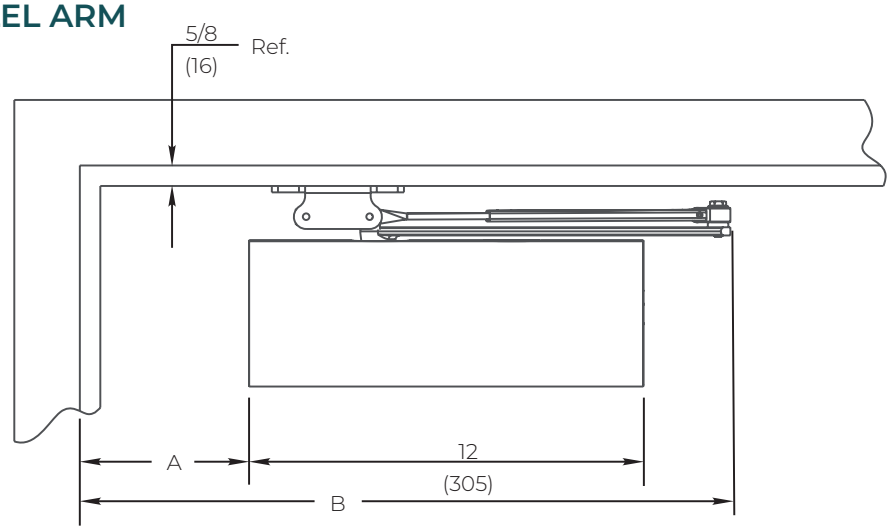




Maximum Door Swing: 120°

TECHNICAL DETAILS - PARALLEL ARM



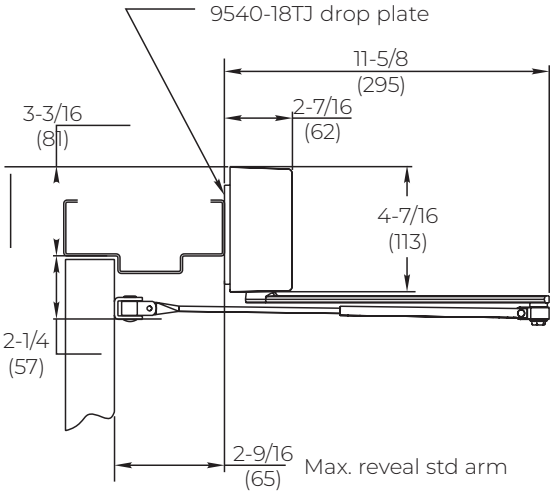


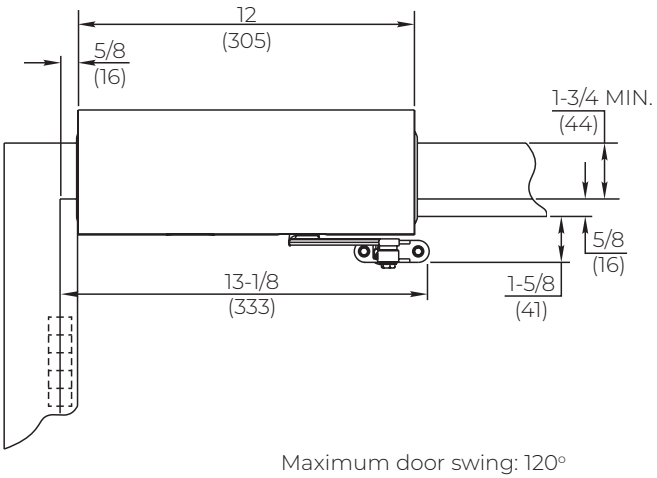
Door Swing	Dimension "A"	Dimension "B"
90°	8-3/16 (208)	22-7/8 (581)
120°	6-5/8 (168)	21-3/8 (543)
180°	5-3/16 (132)	19-7/8 (505)

Minimum top rail: 5-5/8" (143)

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TECHNICAL DETAILS - TOP JAMB





Maximum door swing: 120°

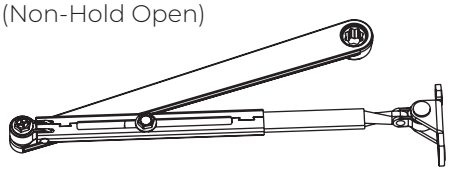
Note:
- Closers are tri-packed for regular arm, parallel arm and top jamb mounting. Parallel arm bracket is included.

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9540
CAST IRON DOOR CLOSER

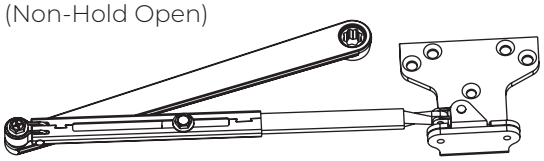
ARM OPTIONS

Regular & Top Jamb Arms
9541-1
(Non-Hold Open)



- Used with regular arm mounting (pull side) and top jamb mounting (push side)
- Top jamb arm will accommodate reveals up to 2-9/16" (65mm)
- Available in painted or plated finishes

Parallel Arm
9541-5
(Non-Hold Open)

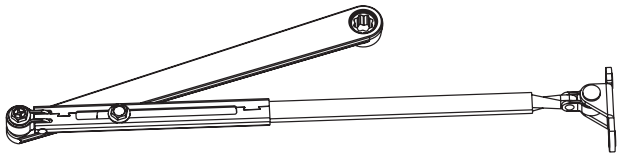


- Mounted on push side
- Non-hold open arm – combines regular arm with parallel arm mounting bracket
- Hold open arm – combines regular hold open arm with parallel arm mounting bracket
- Available in painted or plated finishes

Top Jamb (Deep Reveal)

(Non-Hold Open)

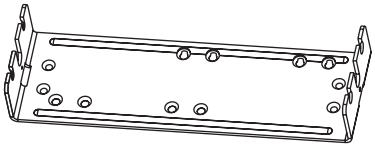
Arm Assembly	Reveal
9541-1A	2-9/16" – 4-13/16" (65-122mm)
9541-1B	4-13/16" – 8" (122-203mm)



- Mounted on push side
- Available in painted or plated finishes

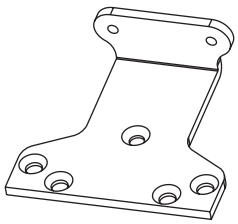
Mounting Bracket
9540-CMB

- Standard on all closers
- Reduces installation time
- Ensures correct mounting
- Bracket is first mounted to door or frame, then closer is attached
- Bracket size: 3-5/8" (92mm) x 11-1/2" (292mm)
- Hole spacing: 1" (25mm) x 10" (254mm)



Parallel Arm Non-Hold Open Bracket
9548

- Converts regular arm to parallel arm closer
- Standard with parallel arm mounting



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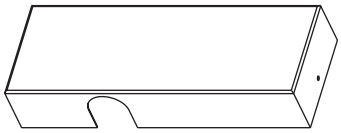
9540
CAST IRON DOOR CLOSER

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COVERS AND PLATES

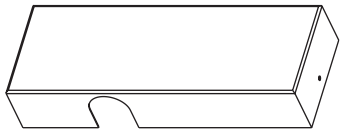
ABS Plastic Cover
9500P

- Completely covers closer body
- Non-handed
- Dimensions: 12" (294) x 4-7/16" (109) x 2-1/4" (55)
- Available in painted finishes only



Metal Cover

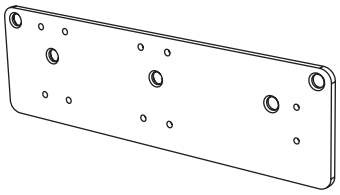
- For use in high-abuse applications
- Specify hand; not field reversible
- Dimensions: 12" (294) x 4-7/16" (109) x 2-1/4" (55)
- Available in painted and plated finishes



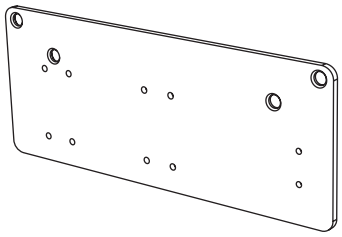
Part Numbers	Handing
9540M-1	Right hand application
9540M-2	Left hand application

DROP PLATES

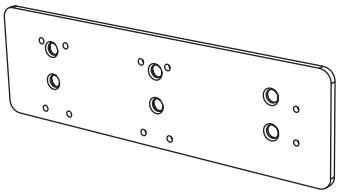
9540-18 Regular Arm



9540-18PA Parallel Arm



9540-18TJ Top Jamb



For top jamb mounting with low ceiling clearance, contact Technical Product Support Dept. at 877-974-2255 x 2

PARTS LIST

Door Closer Body Assemblies

Part Number	Description
9500LAP	Multi-size closer body

LAP = less all parts

SCREW PACKS

Part Number	Description
SP9540	Standard screw package
SP9540SNB	Sex nuts and bolts (SNB) for 1-3/4" door
95ASW	Main arm screw & washer
SP9500COV	Cover screw pack
TBGN134-95	Through Bolts & Grommet Nuts

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9540
CAST IRON DOOR CLOSER

HOW TO ORDER

NOTE: For optimum protection of door and frame assemblies, always use auxiliary wall, floor, or overhead door stop.

J	9540	M	689
Prefixes	Closer series	Suffixes	Finish

No Prefix – Tri-style® packaging includes 9548 parallel arm bracket
J – Top jamb installation reveals 2-9/16" - 4-13/16" (65-122mm)
JL – Top jamb installation reveals 4-13/16" - 8" (122-203mm)

None – Non-hold open arm function
M – Metal cover; specify handing
DA – Optional delayed action feature

Fasteners

Self drilling screws (for properly reinforced wood and metal doors) are supplied standard.

Sex nuts & bolts (SNB's) are optional for Tri-Style® packed closers (regular, top jamb and parallel arms).

Finishes

Norton Rixson offers waterborne acrylic, polyster powder coat and plated finishes. Custom finishes are available on special order. A sample and approval is required.

Waterborne acrylic and polyester powder coat will withstand 100 hours of salt spray (ANSI requires 25 hours).

ANSI/BHMA (US)	Description
605 (US3)	Bright brass, clear coated
606 (US4)	Satin brass, clear coated
611 (US9)	Bright bronze, clear coated
612 (US10)	Satin bronze, clear coated
613E (US10BE)	Dark oxidized satin bronze - equiv.
619 (US15)	Satin nickel plated, clear coated
625 (US26)	Bright chrome plated over nickel
626 (US26D)	Satin chrome plated over nickel
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
691 (US10)	Light bronze, painted
693	Black, painted
694	Medium bronze, painted
696 (US4)	Gold , painted
BSP	Black suede powder coat
WSP	White suede powder coat
600^	Prime coat

^ 600 is a special rust inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat.

- Closer bodies and plastic covers are available in waterborne acrylic finishes. Arms and metal covers are available in powder coat or plated finishes.
- When a plated finish is ordered, arm and cover will be plated unless "cover only" is specified.

Notes:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

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410
CAST IRON DOOR CLOSER

INTRODUCTION

The 410 Series cast iron door closers provide an attractive retrofit solution for retail, office, government and other commercial facilities. Heavy-duty and hold open arms, along with adjustable spring size, backcheck, closing and latch speed, provide a flexible and economical closer that you can trust. The 410 Series is certified to ANSI/BHMA Grade 1 requirements for long life and reliability, and offers a 10 year warranty.



FEATURES

- Adjustable spring sizes 1–6
- Door weight: 250 lbs.
- Cast iron closer body
- Standard and heavy-duty arms available as hold open or non-hold open
- Adjustments for backcheck, closing and latch speed
- Tri-packed for regular, parallel or top jamb installation
- Sleeve nuts and bolts provided with each closer
- Retrofit for LCN 4040XP
- Non-handed
- Plastic cover
- Delayed action (optional)
- 10 year warranty

CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1
- ANSI/BHMA A117.1
- Americans with Disabilities Act (ADA) Compliant
- UL10C positive pressure up to 3 hours

CAUTION: Door Closers for Low Opening Force Applications:

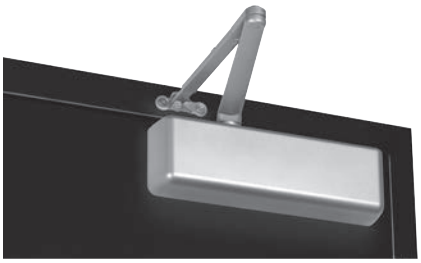
Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.

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410
CAST IRON DOOR CLOSER

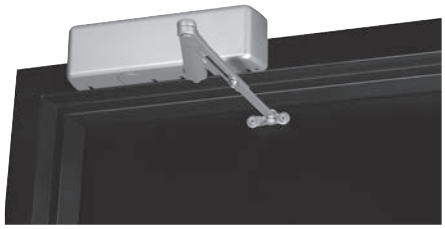
APPLICATIONS

Standard Arms



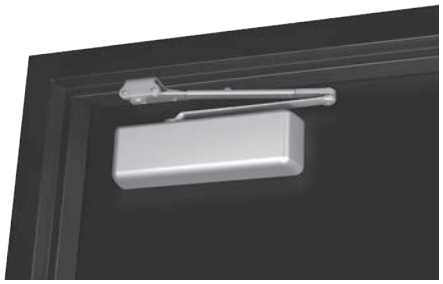
TPN arm shown (regular mounting)

- Pull-side application
- Closer mounted on the door



TPN arm shown (top jamb mounting)

- Push-side application
- Closer mounted on the frame
- Minimum top rail = 2-1/4" (57mm)
- Maximum frame reveal = 2-3/4" (70mm)



TPN arm shown (parallel mounting)

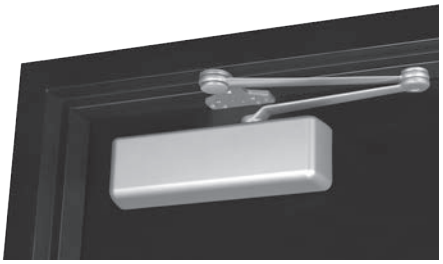
- Push-side application
- Closer mounted on the door

Heavy Duty Arms



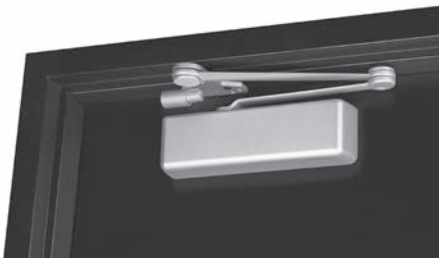
HDH arm (with stop) shown

- Push-side application
- Heavy-duty arm
- Stop is removable



HDN arm (without stop) shown

- Push-side application
- Heavy-duty arm
- Stop is removable



CPS arm shown

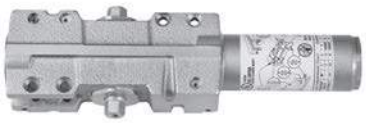
- Push-side application
- Heavy-duty arm
- Buffer spring provides greater protection at the end of door opening cycle
- Spring is removable

NOTE: Arms are not interchangeable with Norton Rixson premium door closers.

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MODEL/PART NUMBERS

Model #	Description
410xTPN	Non-hold open, tri-packed
410DAxTPN	Non-hold open, delayed action, tri-packed
410xTPH	Hold open, tri-packed
410xHDN	Heavy-duty, non-hold open with removable stop
410xHDH	Heavy-duty, hold open with removable stop
410xCPS	Heavy-duty, non-hold open with removable stop and spring buffer
410xCPST	Heavy-duty, hold open with removable stop and spring buffer



MISCELLANEOUS PARTS*

Part Number	Description
410COV	Cover
SP410	Screw pack
2730KIT	CPS kit

*Specify finish when ordering



CPS Kit

COVER DIMENSIONS

Cover Dimensions		
Width	Length	Projection
3-1/2" (89mm)	12-1/4" (311mm)	2-1/4" (57mm)



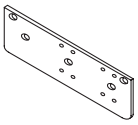
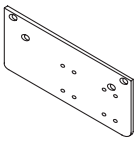
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OPTIONAL FASTENERS

Part Number	Description
SN-134	Sex nuts
TBGN134-47	Through-bolts & grommet nuts

Note: Sex nuts furnished standard with all models.

ACCESSORIES

Closer Mounting Plates	
	**410RDP** Narrow Frame Drop Plate (regular arm): Required for hinge side mount where top rail is less than 3-3/4" (95mm). Plate requires 2" (51mm) minimum top rail.
	**410PDP** Narrow Top Rail Drop Plate (parallel arm): Required for parallel arm mounting where top rail is less than 5-1/2" (140mm), measured from the stop. Plate requires 2" (51mm) minimum top rail.

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HOW TO ORDER

410
Defines closer series

- **410** – Standard
- **410DA** – Delayed action (only available with TPN arm)

X

TPN
Arm assemblies

- **TPN** – Tri-packed (regular, parallel, top jamb mounting), non-hold open
- **TPH** – Tri-packed (regular, parallel, top jamb mounting), hold open
- **HDN** – Heavy duty, non-hold open with removable stop
- **HDH** – Heavy duty, hold open with removable stop
- **CPS** – Heavy duty, non-hold open with removable stop and spring buffer
- **CPST** – Heavy duty, hold open with removable stop and spring buffer

X

689
Finish

ANSI/BHMA (US)	Description
689 (US28)	Aluminum, painted
690 (US20)	Dark bronze, painted
BSP	Black suede powder coat

Note:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7' standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).

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CLOSERS COMPARISON

CLOSERS COMPARISON

	CAST IRON			ALUMINUM							
CERTIFICATION & WARRANTY	**9500**	**9540**	**410**	**2800ST**	**7500**	**8000**	**1600**	**1700**	**78B/F**	**210**	**160**
ANSI/BHMA A156.4	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 3	—	Grade 1	Grade 1
UL & ULC Listed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Warranty	30 Year	30 Year	10 Year	10 Year	30 Year	30 Year	30 Year	5 Year	10 Year	10 Year	5 Year
Extended Cycle Testing	25 Million	Per Standard	Per Standard	N/A	25 Million	25 Million	25 Million	Per Standard	Per Standard	Per Standard	Per Standard
End of Life Recycling Program Available	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SIZE & CONSTRUCTION											
Construction (Body)	Cast Iron	Cast Iron	Cast Iron	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Mounting Hole Pattern	1" x 10"	2-1/4" x 5"*	2-1/4" x 5"*	1"x 11-1/8"	2-3/8" x 6-3/4"	3/4" x 12"	3/4" x 9-1/16"	3/4" x 8"	4-1/8" x 1-3/8"	3/4" x 12"	3/4" x 9-1/16"
Spring Size	Adjustable 1-6	Adjustable 1-6	Adjustable 1-6	Adjustable 1-6	Adjustable 1-6	Adjustable 1-6	Adjustable 1-6 Size 3, 4	Size 3, 4	Size 2-4; Size 5-6	Adjustable 1-6	Adjustable 1-4 Size 4
Closer Body (Handing)	Non-Handed	Non-Handed	Non-Handed	Non-Handed	Non-Handed	Non-Handed	Non-Handed	Non-Handed	Handed	Non-Handed	Non-Handed
Standard Backcheck	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OPTIONS											
Plastic Cover	Standard	Standard	Standard	Standard	Standard	Standard	Optional	Standard	No	Standard	Optional
Metal Cover Option	Optional	Optional	No	No	Optional	Optional	No	No	No	No	No
Slim Line Cover Option	No	No	No	No	No	Optional	No	No	No	No	No
Delayed Action Option	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No	No
Sex Nuts & Bolts (Tri-Style® pack)	Optional	Optional	Standard	Optional	Optional	Optional	Optional	Optional	Optional	Standard	Standard
Finishes	Multiple	Multiple	689, 690 only	Multiple	Multiple	Multiple	Multiple	689, 690 only	Multiple	689, 690 only	689, 690 only
APPLICATION / ARM TYPE AVAILABILITY											
Regular	•	•	•		•	•	•	•	•	•	•
Top Jamb	•	•	•		•	•	•	•		•	•
Parallel	•	•	•		•	•	•	•	•	•	•
Regular Rigid	•				•	•					
Parallel Rigid	•				•	•	•		•		
Heavy Duty: HDH/HDN			◦							◦	
CloserPlus	•				•	•	•				
CloserPlus Spring			◦		•	•	•				
CloserPlus Ramp					•	•					
Cushion Stop							•				
Unitrol	•				•	•	•		•		
Low Profile					•	•					
Slide Track	•			•	•	•					

* Retrofit LCN4040XP
◦ Specific to Individual Series

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Architectural Door Accessories

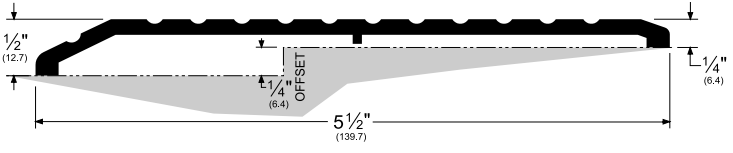
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Pemko Commercial Thresholds: Half Saddle/Offset Saddle Thresholds

The global leader in door opening solutions

158_

AVAILABLE FINISHES: **A, D, G**
WIDTH: **5-1/2" (139.7 mm)**
HEIGHT: **1/2" (12.7 mm)**



A (Mill Finish Aluminum)
D (Dark Bronze Anodized)
G (Gold Anodized)

TITLE:
PREPARED FOR:
PREPARED BY:
DATE:
COMMENTS:

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Architectural Door Accessories

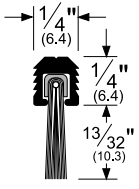
ASSA ABLOY

Pemko Brush Gasketing: Mortise Retainers

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5041_NB

AVAILABLE FINISHES: **A**
WIDTH: **1/4" (6.4 mm)**
PROFILE HEIGHT: **1/4" (6.4 mm)**
HEIGHT INCLUDING BRUSH: **21/32" (16.7 mm)**



A (Mill Finish Aluminum)

TITLE:
PREPARED FOR:
PREPARED BY:
DATE:
COMMENTS:

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Architectural Door Accessories

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Opening Solutions

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Rockwood 406 - Convex Wrought Wall Stop



Available Finishes:

- US3/605
- US4/606
- US10/612
- US10BE/613E
- US26/625
- US26D/626
- US32D/630
- BSP (Black Suede Powder Coat)

SIZE:
Ø 2 1/2"
Projection: 1"

WEIGHT:
1.25 lbs./10

ANSI A156.16:
L02101

Specifications:

MATERIAL:
Wrought Brass, Bronze, and Stainless Steel with Rubber Bumper

FASTENERS:
#8 x 1 1/4" Truss Head Sheet Metal Screw, Plastic Toggle

FEATURES:
Concealed mounting, convex bumper. Back plate prevents damage to wall.

BUMPER:
Convex

ASSA ABLOY Opening Solutions
Architectural Accessories Group
Rockwood, PA
P: 800.458.2424 • F: 800.922.9212
www.assaabloydooraccessories.us

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Architectural Door Accessories

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Opening Solutions

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Rockwood 440 - Low Dome Stop



Available Finishes:

- US3/605
- US4/606
- US10/612
- US10B/613
- US10BE/613E
- US15/619
- US26/625
- US26D/626

SIZE:
Base: Ø 1 7/8" x 1/4"h
Height: 1 1/8"

WEIGHT:
1.5 lbs./10

ANSI A156.16:
L02141

Specifications:

MATERIAL:
Solid Cast Brass with Rubber Bumper

FASTENER:
#12 x 1 1/4" Flat Head Wood Screw, Plastic Anchor

FEATURES:
For doors without thresholds (not undercut)

OPTIONS:
Exterior Pack screw packs; stainless steel plated to match - use EXP suffix (440 x EXP) when ordering

ASSA ABLOY Opening Solutions
Architectural Accessories Group
Rockwood, PA
Phone: (800) 458-2424 • Fax: (800) 922-9212
www.assaabloydooraccessories.us

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Architectural Door Accessories

ASSA ABLOY
Opening Solutions

Experience a safer
and more open world

Rockwood 472 - Door Stop with Keeper



Available Finishes:

- US3/605
- US4/606
- US10/612
- US10B/613
- US10BE/613E
- US26/625
- US26D/626

SIZE:
Base: Ø 2 1/2"
Height: 3 3/4"
Keeper: 1"w x 1 3/4"h

WEIGHT:
0.9 lbs.

ANSI A156.16:
L01361

Specifications:

MATERIAL:
Cast Brass with Rubber Bumper

FASTENERS:
Stop: 3 ea. #12 x 1 1/4" Flat Head Wood Screws; 3 ea. Plastic Anchors
Keeper: 2 ea. #12 x 1 1/4" Flat Head Wood Screws; 2 ea. Plastic Anchors

OPTIONS:
Exterior Pack screw packs; stainless steel plated to match — use EXP suffix (472 x EXP) when ordering

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CUT SHEET

Rockwood K1050
Metal Kick Plate
.050" Thick

ROCKWOOD
ASSA ABLOY

Experience a safer and more open world



SPECIFICATIONS:

MATERIAL:
.050" Aluminum, Brass, Bronze, Stainless Steel

FASTENERS:
#6 x 5/8" Oval Head Sheet Metal Screws

FEATURES:
- Push Side Plate Width - 2" less than door width.
- Pull Side Plate Width - 1 1/2" less than door width.
- All Edges come Beveled.

ORDERING:
Specify height x width x finish code. Add any options.

OPTIONS:
- SA - self-adhesive mounting
- TEK - self-drilling screws
- Heavy bevel available, specify HVBEV
- CSK - countersunk holes
- Cutouts for locks, louvers, or windows
- TORX - security torx screws

AVAILABLE FINISHES:

- US3/605
- US4/606
- US9/611
- US10/612
- US10B/613
- US10BE/613E
- US26/625
- US26D/626
- US28/628
- US32/629
- US32D/630
- US32D316
- US32DMS
- BSP (Black Suede Powder Coat)
- WSP (White Suede Powder Coat)
- Stock PC's

Weight: 8" x 34" = 4.0 lbs.

ANSI:
J101 - metal armor plate
J102 - metal kick plate
J103 - metal stretcher & mop plate

NFPA 80 STANDARDS - 2-4.5 Protection Plates: Factory-installed protection plates shall be installed in accordance with the listing of the door. Field-installed protection plates shall be labeled and installed in accordance with their listing.

Exception: Labeling is not required where the top of the protection plate is not more than 16 in. (406 mm) above the bottom of the door.

NOTE: Finishes US26/625 and US26D/626 are only available up to 24"H.

Rockwood Manufacturing Company
300 Main St.
Rockwood, PA 15557
www.rockwoodmfg.com
1 800 458 2424

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DIVISION 09

FINISHES

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SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Interior gypsum board.
2. Tile backing panels.

B. Related Requirements:

1. Section 092216 "Non-Structural Metal Framing" for non-structural steel framing and suspension systems that support gypsum board panels.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For the following products:

1. Reveal Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.4 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or

splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. American Gypsum.
    b. CertainTeed Corporation.
    c. Continental Building Products, LLC.
    d. Georgia-Pacific Gypsum LLC.
    e. National Gypsum Company.
    f. PABCO Gypsum.
    g. USG Corporation.

2. Thickness: 5/8 inch.
3. Long Edges: Tapered.

B. Gypsum Ceiling Board: ASTM C 1396/C 1396M.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. American Gypsum.
    b. CertainTeed Corporation.
    c. Continental Building Products, LLC.
    d. Georgia-Pacific Gypsum LLC.
    e. National Gypsum Company.
    f. PABCO Gypsum.
    g. USG Corporation.

2. Thickness: 1/2 inch.
3. Long Edges: Tapered.

C. Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-

resistant core and paper surfaces.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. American Gypsum.
   b. CertainTeed Corporation.
   c. Continental Building Products, LLC.
   d. Georgia-Pacific Gypsum LLC.
   e. National Gypsum Company.
   f. PABCO Gypsum.
   g. USG Corporation.

2. Core: 5/8 inch, Type X.
3. Long Edges: Tapered.
4. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.4 TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with manufacturer's standard edges.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. CertainTeed Corporation.
   b. Georgia-Pacific Gypsum LLC.
   c. National Gypsum Company.
   d. USG Corporation.

2. Core: 5/8 inch, Type X.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

B. Cementitious Backer Units: ANSI A118.9 and ASTM C 1288 or ASTM C 1325, with manufacturer's standard edges.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. C-Cure.
   b. CertainTeed Corporation.
   c. Custom Building Products.
   d. FinPan, Inc.
   e. James Hardie Building Products, Inc.
   f. National Gypsum Company.
   g. USG Corporation.

2. Thickness: 5/8 inch.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.5 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
2. Shapes:

    a. Cornerbead.
    b. LC-Bead: J-shaped; exposed long flange receives joint compound.
    c. Expansion (control) joint.

2.6 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping or drying-type, all-purpose compound.

    a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use setting-type, sandable topping or drying-type, all-purpose compound.
4. Finish Coat: For third coat, use setting-type, sandable topping or drying-type, all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound, drying-type, all-purpose compound, or high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.

D. Joint Compound for Tile Backing Panels:

1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
2. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.7 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.

1. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

C. Sound-Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Type X: Vertical surfaces unless otherwise indicated.
2. Ceiling Type: Ceiling and soffit surfaces.
3. Mold-Resistant Type: In “wet areas” as indicated on Drawings.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

3. On furring members and resilient channels, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Multilayer Application:

1. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance- rated assembly. Stagger joints on opposite sides of partitions.
2. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 APPLYING TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Panels: Comply with manufacturer's written installation instructions and install at locations indicated to receive tile. Install with 1/4- inch gap where panels abut other construction or penetrations.

B. Cementitious Backer Units: At Contractor’s option, ANSI A108.11, at locations indicated to receive tile.

C. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.5 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners.
2. LC-Bead: Use at exposed panel edges.

3.6 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Panels that are substrate for tile.
3. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

    a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

E. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.

F. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.7 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Ceramic tile.
2. Waterproof membrane.
3. Metal edge strips.

B. Related Requirements:

1. Section 079200 "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
2. Section 092900 "Gypsum Board" for cementitious backer units and glass-mat, water-resistant backer board.

1.3 DEFINITIONS

A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.

B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in its "Specifications for Installation of Ceramic Tile."

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

C. Samples for Verification:

1. Full-size units of each type and composition of tile and for each color and finish required. For ceramic mosaic tile in color blend patterns, provide full sheets of each color blend.
2. Metal edge strips in 6-inch lengths.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Certificates: For each type of product.

C. Product Test Reports: For tile-setting and -grouting products.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 2 percent of amount installed for each type, composition, color, pattern, and size indicated.
2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

1.7 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer employs at least one installer for Project that has completed the Advanced Certification for Tile Installers (ACT) certification for installation of membranes and shower receptors.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

D. Store liquid materials in unopened containers and protected from freezing.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Tile: Obtain tile from single source or producer.

1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.

1. Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.

C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer:

1. Waterproof membrane.
2. Metal edge strips.

2.2 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard grade requirements.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.

C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

1. Where tile is indicated for installation in wet areas, do not use back- or edge- mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in- service performance.

2.3 TILE PRODUCTS

A. Ceramic Tile: Factory-mounted glazed ceramic mosaic tile.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile; or comparable product by one of the following:

    a. American Olean; a division of Dal-Tile Corporation.
    b. Crossville, Inc.
    c. Interceramic.
    d. Seneca Tiles, Inc.
    e. Porcelanosa

2. Composition: Porcelain.
3. Certification: Porcelain tile certified by the Porcelain Tile Certification Agency.
4. Module Size: as indicated in finish schedule
5. Thickness: 5/16 inch.
6. Face: Pattern of design indicated, with cushion edges.
7. Finish: Mat, clear glaze.
8. Tile Color and Pattern: As indicated by manufacturer's designations on Drawings.
9. Grout Color: As selected by Architect from manufacturer's full range.
10. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:

    a. Base Cove: Cove, module size 2 by 1 inch.
    b. Wainscot Cap for Thinset Mortar Installations: Surface bullnose, module size 2 by 1 inch.
    c. External Corners: Surface bullnose, module size 2 by 1 inch.
    d. Internal Corners: Cove, module size 2 by 1 inch.

2.4 WATERPROOF MEMBRANE

A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

B. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and continuous fabric reinforcement.

1. Products: Subject to compliance with requirements, provide one of the following:

    a. Boiardi Products Corporation; a QEP company; Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane
    b. Bonsal American, an Oldcastle company; B 6000 Waterproof-Crack Isolation Membrane with B 6000 Mesh
    c. Bostik, Inc; Hydroment Blacktop 90210

d. Custom Building Products; Custom® 9240 Waterproofing and Anti-Fracture Membrane.
e. H.B. Fuller Construction Products Inc. / TEC; HydraFlex - Waterproofing Crack Isolation Membrane
f. LATICRETE SUPERCAP, LLC; Laticrete 9235 Waterproof Membrane
g. MAPEI Corporation; MAPEI Fiberglass Mesh
h. Merkrete; a Parex USA, Inc. brand; Hydro-Guard 2000.
i. Southern Grouts & Mortars, Inc; Southcrete 1100 Crack Suppression
j. Summitville Tiles, Inc.; S-9000

2.5 SETTING MATERIALS

A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.

1. Cleavage Membrane: Asphalt felt, ASTM D226/D226M, Type I (No. 15); or polyethylene sheeting, ASTM D4397, 4.0 mils thick.
2. Reinforcing Wire Fabric: Galvanized, welded-wire fabric, 2 by 2 inches by 0.062- inch diameter; comply with ASTM A185/A185M and ASTM A82/A82M, except for minimum wire size.

B. Modified Dry-Set Mortar (Thinset): ANSI A118.4.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. ARDEX Americas.
b. Boiardi Products Corporation; a QEP company.
c. Bonsal American, an Oldcastle company.
d. Bostik, Inc.
e. C-Cure.
f. Custom Building Products.
g. H.B. Fuller Construction Products Inc. / TEC.
h. Jamo Inc.
i. LATICRETE SUPERCAP, LLC.
j. MAPEI Corporation.
k. Merkrete; a Parex USA, Inc. brand.
l. Siena Products; Omega.
m. Southern Grouts & Mortars, Inc.
n. Summitville Tiles, Inc.

2. Provide prepackaged, dry-mortar mix combined with acrylic resin or styrene-butadiene-rubber liquid-latex additive at Project site.
3. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

C. Organic Adhesive: ANSI A136.1, Type I.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. ARDEX Americas; ARDEX D 14 Type 1 Premixed Tile Adhesive (Mastic).
b. Bonsal American, an Oldcastle company.
c. Bostik, Inc.
d. C-Cure.
e. Custom Building Products; AcrylPro Professional Tile Adhesive.
f. H.B. Fuller Construction Products Inc. / TEC; TEC Double Duty Ceramic Tile Adhesive TA 122
g. Jamo Inc.
h. LATICRETE SUPERCAP, LLC.
i. MAPEI Corporation; Ker 909
j. Siena Products; Omega; Siena Mastic.
k. Southern Grouts & Mortars, Inc.
l. Summitville Tiles, Inc.

2.6 GROUT MATERIALS

A. Water-Cleanable Epoxy Grout: ANSI A118.3.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Boiardi Products Corporation; a QEP company.
b. Bonsal American, an Oldcastle company.
c. Bostik, Inc.
d. C-Cure.
e. Custom Building Products.
f. H.B. Fuller Construction Products Inc. / TEC.
g. Jamo Inc.
h. LATICRETE SUPERCAP, LLC.
i. MAPEI Corporation.
j. Merkrete; a Parex USA, Inc. brand.
k. Siena Products; Omega.
l. Southern Grouts & Mortars, Inc.
m. Summitville Tiles, Inc.

2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F, respectively, and certified by manufacturer for intended use.

2.7 MISCELLANEOUS MATERIALS

A. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; stainless steel, ASTM A276/A276M or ASTM A666, 300 Series exposed-edge material.

1. Manufacturers: Subject to compliance with requirements, provide products by one of

the following:

a. Blanke Corporation.
b. Ceramic Tool Company, Inc.
c. Schluter Systems L.P.

B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

C. Floor Sealer: Manufacturer's standard product for sealing grout joints and that does not change color or appearance of grout.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Bonsal American, an Oldcastle company; Grout Sealer
b. Custom Building Products.
c. Jamo Inc; Grout and Tile Sealer
d. Southern Grouts & Mortars, Inc; Clear Penetrating Sealer & Grout Release
e. Summitville Tiles, Inc.; SL-15, Invisible Seal

2.8 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
2. Verify that concrete substrates for tile floors installed with **thinset mortar** comply with surface finish requirements in ANSI A108.01 for installations indicated.

a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
b. Verify that protrusions, bumps, and ridges have been removed by sanding or

grinding.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Where indicated, prepare substrates to receive waterproof membrane by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.

B. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION OF CERAMIC TILE

A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:
    a. Tile floors in wet areas.

B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built- in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.

E. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.

1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
3. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.

F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:

1. Ceramic Mosaic Tile: No greater than 1/16 inch.

G. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

H. Metal Edge Strips: Install where exposed edge of tile meets other finishes.

I. Floor Sealer: Apply floor sealer to grout joints in tile floors according to floor-sealer manufacturer's written instructions. As soon as floor sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

3.4 INSTALLATION OF WATERPROOF MEMBRANE

A. Install waterproof membrane to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.

B. Allow waterproof membrane to cure and verify by testing that it is watertight before installing tile or setting materials over it.

3.5 ADJUSTING AND CLEANING

A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.

B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove grout residue from tile as soon as possible.
2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3.6 PROTECTION

A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.

B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.7 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

A. Interior Wall Installations, Metal Studs:

1. Ceramic Tile Installation: TCNA W242; organic adhesive on gypsum board.

    a. Grout: Water-cleanable epoxy grout.

B. Shower Wall Installations:

1. Ceramic Tile Installation: TCNA B421; thinset mortar on waterproof membrane over solid backing.

    a. Thinset Mortar: Modified dry-set mortar.
    b. Grout: Water-cleanable epoxy grout.

C. Shower Receptor Installations:

1. Ceramic Tile Installation: TCNA B414 and ANSI A108.1C; cement mortar bed (thickset) over vapor-retarder membrane.

    a. Bond Coat for Wet-Set Method: Modified dry-set mortar.
    b. Bond Coat for Cured-Bed Method: Modified dry-set mortar.
    c. Grout: Water-cleanable epoxy grout.

END OF SECTION 093013

SECTION 096500 - RESILIENT FLOORING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Plank Vinyl Flooring
2. Sheet Vinyl Flooring (not used)
3. Resilient Base (not used)
4. PVC Thresholds (not used)
5. Solid Vinyl Transition Edges (not used)
6. Stair Nosings (not used)

B. Related Sections:

1. Section 09 30 00 (09310) - Tiling
2. Section 09 68 00 (09680) - Carpeting
3. Section 14 24 23 (14240) - Electric Traction Passenger Elevators

1.02 REFERENCES

A. American Concrete Institute (ACI):

1. ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials)

B. ASTM International (ASTM) Publications:

1. C241 “Standard Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic”
2. C503 “Standard Specification for Marble Dimension Stone (Exterior)”
3. D2047 “Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine”
4. D2240 “Standard Test Method for Rubber Property—Durometer Hardness”
5. D3389 “Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform, Double-Head Abrader)”
6. E648/NFPA 253 “Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source”
7. E662/NFPA 258 “Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials”
8. F710 “Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring”
9. F1066 “Standard Specification for Vinyl Composition Floor Tile”
10. F1303 “Standard Specification for Sheet Vinyl Floor Covering with Backing”
11. ASTM F1482, Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring.
12. F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes.
13. F 3010 Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings

C. Carpet & Rug Institute (CRI)

1. Standard for Installation of Commercial Carpet CRI 104, Current Edition

D. Code of Federal Regulations (CFR)

1. 40 CFR 763 - Asbestos: Appendix A - Transmission Electron Microscopy Analytical Methods

E. Occupational Safety & Health Administration (OSHA) Regulations:

1. OSHA Regulation 29 CFR Toxic and Hazardous Substances 1910-1200 Hazard Communication

1.03 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.

B. Submit "Letter of Conformance" in accordance with Section 01 03 30 (01330) and the following supporting data:

1. Submit manufacturer's product and maintenance data for each type of resilient flooring and accessory.

a. Certification by resilient flooring manufacturer that products supplied for flooring installation comply with local regulations controlling use of volatile organic compounds (VOCS).

b. Asbestos Content: Provide written certification that tile and adhesive materials contain no asbestos of any type of mixture of types occurring naturally as impurities as determined by polarized light microscopy test per Appendix A of 40 CFR 763 will be utilized on this Project.

2. Submit color selection in the form of actual sections of resilient flooring, including accessories, for each type of resilient flooring required showing full range of colors and patterns available.

3. Submit shop drawings, seaming plan, and coving details for flooring and accessories.

C. Installer Certificates: Signed by sheet vinyl flooring system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install sheet vinyl flooring system.

1.04 QUALITY ASSURANCE

A. Single-Source Responsibility for Flooring: Obtain each type, color and pattern of flooring from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.

B. Installer: A firm with not less than five years of successful experience in installation of sheet vinyl flooring systems with chemically welded seams similar to those required for this project and which is certified by manufacturer of the sheet vinyl materials.

C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Critical Radiant Flux: 0.45 W/sq. cm or greater when tested per ASTM E648.

2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E662.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver tiles and installation accessories to Project site in original manufacturer's unopened cartons and containers each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

B. Store flooring materials in dry spaces protected from the weather with ambient temperatures maintained between 65 degrees F. and 90 degrees F. Store tile flooring materials on flat surfaces. Move resilient flooring and installation accessories into spaces where they will be installed at least 48 hours in advance of installation.

C. Store sheet vinyl rolls upright. Move sheet vinyl floor coverings and installation accessories into spaces where they will be installed at least 48 hours before installation, unless longer conditioning periods are recommended in writing by manufacturer.

1.06 PROJECT CONDITIONS

A. Maintain a minimum temperature of 70 degrees F. in spaces to receive tiles for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 degrees F.

B. Do not install resilient flooring until they are at the same temperature as the space where they are to be installed. Close spaces to traffic during resilient flooring installation.

C. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances.

1.07 SEQUENCING AND SCHEDULING

A. Do not install resilient flooring materials over concrete slabs until the slabs have cured and are sufficiently dry to bond with adhesive as determined by tile manufacturer's recommended bond and moisture test.

1.08 EXTRA MATERIALS

A. Refer to Section 01 78 43 (01790)

PART 2 PRODUCTS

2.01 VINYL PLANK:

A. Manufactures:

1. Basis of Design: Mannington LVT

B. All material shall be of a single batch number.

C. ASTM F3261 Class I Type B Grade I Backing Class B

D. Install Method: Glue-Down

E. Size: 3” x varying lengths (up to 83”)

F. Field Color: Chatham Oak Nutmeg

1. Accent Color: Wild Walnut

G. Pattern: Longboard

2.02 INSTALLATION ACCESSORIES

A. Concrete Leveling and Patching compounds:

1. For areas up to 4 square feet:

a. Feather finish, use to smooth ridges, fill cracks, gouges and joints.

1) "SD-F"; Ardex (724-203-5000)

2) “Planiprep FF”; Mapei Corp. (800-426-2734)

3) “Versa Patch”; TEC Specialty Products, H.B. Fuller Construction Products, Inc. (800-832-9023)

4) “NXT Level Plus with NXT Primer”; Laticrete International Inc. (800-243-4788)

b. Trowelable underlayment patch for thickness from feather edge to 3 inch without aggregate

1) “Quickpatch”; Mapei Corp. (800-426-2734)

2) “Fast Set Deep Patch”; TEC Specialty Products, H.B. Fuller Construction Products, Inc. (800-832-9023)

3) “NXT Level Plus with NXT Primer”; Laticrete International Inc. (800-243-4788)

c. Trowelable underlayment patch for thickness up to ½ inch without aggregate; up to 1 inch with aggregate. Can be feather edged.

1) "SD-P/ Primer P-82"; Ardex (724-203-5000)

2. For areas exceeding 4 square feet:

a. Self-leveling, pourable or pumpable underlayment for thicknesses up to 5 inches. Can be feather edged.

1) "K-15/Primer P-51"; Ardex (724-203-5000)

2) “Novoplan 2/Primer”; Mapei Corp. (800-426-2734) (Note: Refer to product datasheet for specific requirements based on substrates)

3) “EZ Level TA-323/Multi Purpose Primer”; TEC Specialty Products, H.B. Fuller Construction Products, Inc. (800-832-9023)

4) “NXT Level with NXT Primer”; Laticrete International Inc. (800-243-4788)

B. Concrete Slab Primer:

1. Vinyl Composition Tiles

a. Non-staining type as recommended by flooring manufacturer.

2. Sheet Vinyl Flooring:

a. Preferred Manufactures:

1) "S-185 Latex Primer and Additive"; Armstrong World Industries, Inc. (800-442-4212 x 2)

b. Approved Manufacturers:

1) Approved Substitution

C. Trowelable Underlayments and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by manufacturer for applications indicated.

1. Sheet Vinyl Flooring:

a. Preferred Manufactures:

1) "S-184 Fast-Setting Cement-Based Patch and Skim Coat"; Armstrong World Industries, Inc. (800-442-4212 x 2)

b. Approved Manufacturers:

1) Approved Substitution

D. Sheet Vinyl Adhesives:

1. Preferred Manufactures:
    a. "S-599 Premium Vinyl-Back Flooring Adhesive"; Armstrong World Industries, Inc.
2. Approved Manufacturers:
    a. Approved Substitution

E. Sheet Vinyl Seam Sealing Adhesive:
1. Preferred Manufactures:
    a. "S-553 Seam Sealing Adhesive"; Armstrong World Industries, Inc.
2. Approved Manufacturers:
    a. Approved Substitution

F. Luxury Vinyl Tile Adhesives: Provide water-resistant type recommended by tile manufacturer to suit floor tile and substrate conditions indicated.
1. Approved Manufacturers:
    a. Mannington - ADHESIVE ULTRA SPREAD EZ 4GAL 200SF

G. Resilient Base Adhesives to be Non-Toxic, Low Odor, and Solvent Free with no alcohol, glycol, or ammonia. Adhesive shall be antimicrobial with no hazardous vapors and contain no carcinogenic materials, per OSHA Regulation 29 CFR 1910-1200. Provide product as recommended for intended installation, as approved by resilient base manufacturer.
1. Approved Manufacturers:
    a. “Ultrabond ECO 575”; Mapei Corp. (800-426-2734)
    b. Approved Substitution as approved by resilient base manufacturer.

H. Other materials, including edge strips not specifically described, but required for a complete and proper installation of resilient flooring, shall be only as recommended by the manufacturer of material to which it is applied.

PART 3 EXECUTION

3.01 INSPECTION

A. Installer must examine the areas and conditions under which resilient flooring and accessories are to be installed and notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.
1. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
2. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.02 CONCRETE SUBFLOORS OR GYPSUM CEMENT FLOOR UNDERLAYMENT

A. Verify that concrete slabs comply with ASTM F710 and the following:
1. Slab substrates are dry and free of curing compounds, sealers, hardeners, residual adhesives, adhesive removers, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by manufacturer.

2. Finishes of subfloors comply with tolerances and other requirements specified in Division 03 Section, "Cast-In-Place Concrete" for slabs receiving resilient flooring.

3. Subfloor Moisture Conditions: Before installing flooring Contractor shall verify that Moisture emission rate of not more than 3 lb/1000 sq. ft./24 hours when tested by calcium chloride moisture test in compliance with CRI 104, 6.2.1, with subfloor temperatures not less than 55 deg F, or as recommended by manufacturer.

4. Subfloor Alkalinity Conditions: Before installing flooring Contractor shall verify that a pH range of 5 to 9 when subfloor is wetted with potable water and pHydrion paper is applied

3.03 PREPARATION

A. General: Comply with manufacturer's installation specifications for preparing substrates to receive products indicated.

1. Comply with Armstrong Guaranteed Installation Manual F-5061, or equivalent by other listed manufacturers.

B. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

C. This Contractor to remove coatings, including curing compounds, adhesives, plastics, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush. Surface to receive new flooring shall be fully prepared, including removal of existing materials not acceptable for proper installation of new materials, as required by manufacturer. Do not use solvents.

1. Prep floor according to ASTM F710 criteria.

D. Slab Primers:

1. Gypsum Cement Floor Underlayment: Apply Armstrong "S-185 Latex Primer and Additive", or approved substitution, to gypsum subfloor liberally with a short nap paint roller or a coarse fiber brush. Avoid puddling. Use at full strength, DO NOT DILUTE.

2. Allow to dry thoroughly before skimming with floor patch

E. Underlayment or Leveling Compound: Use leveling compound as recommended by flooring manufacturer for filling small cracks and depressions in subfloors. All rough areas, projections, ridges, and bumps shall be removed.

1. Vinyl Composition Floor Tile: Apply underlayment or leveling compound in compliance with manufacturer's directions.

2. Sheet Vinyl Flooring: Skim coat the entire subfloor with Armstrong "S-184 Fast-Setting Cement-Based Patch and Skim Coat", or approved substitution, using a smooth-edge finishing trowel filling in the recessed areas to provide a smooth finished substrate to receive the sheet vinyl.

3. Vinyl Plank: Skim coat the entire subfloor with Armstrong "S-184 Fast-Setting Cement-Based Patch and Skim Coat", or approved substitution, using a smooth-edge finishing trowel filling in the recessed areas to provide a smooth finished substrate to receive the vinyl plank.

3.04 INSTALLATION - GENERAL

A. Install flooring after finishing operations, including painting, have been completed. Moisture content of concrete slabs, building air temperature, and relative humidity must be within limits recommended by flooring manufacturer's directions.

B. Patch and repair floors and walls to receive flooring for proper installation of flooring, stair accessories, and base.

C. Place flooring with adhesive cement in strict compliance with manufacturer's recommendations. Butt tightly to vertical surfaces and edgings. Scribe around obstructions and to produce neat joints, laid tight, even, and straight. Extend flooring into toe spaces.

D. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other non-permanent marking device.

E. Install flooring on covers for telephone and electrical ducts and other such items as occur within finished floor areas.

F. Maintain overall continuity of color and pattern with pieces of flooring installed in these covers. Tightly cement edges to perimeter of floor around covers and to covers.

G. Tightly cement flooring to subbase without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections.

3.05 INSTALLATION - VINYL COMPOSITION TILE FLOORS

A. Lay tile from center marks established from center of area so that tile at opposite edges of the area are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at edge perimeters. Lay tile square to room axis unless otherwise indicated.

B. Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged. Cut tile neatly in and around all fixtures. Broken, cracked, chipped, or deformed tiles are not acceptable. Lay tile with grain in tile running in same direction.

C. Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.

D. Extend tiles into toe spaces, door reveals, closets, and similar openings.

E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.

F. Adhere tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.06 INSTALLATION - SHEET VINYL FLOORING

A. General: Comply with sheet vinyl floor covering manufacturer's written installation instructions.

1. Install flooring in strict accordance with the latest edition of "Armstrong Guaranteed Installation System", F-5061, or equivalent by other listed manufacturers.

B. Unroll sheet vinyl floor coverings and allow them to stabilize before cutting and fitting, if recommended in writing by manufacturer.

C. Lay out sheet vinyl floor coverings to comply with the following requirements:

1. Maintain uniformity of sheet vinyl floor covering direction.

2. Arrange for a minimum number of seams and place them in inconspicuous and low-traffic areas, and not less than 6 inches away from parallel joints in flooring substrates.

3. Match edges of sheet vinyl floor coverings for color shading and pattern at sump according to manufacturer's written recommendations.

4. Avoid cross seams.

D. Install flooring wall-to-wall before the installation of floor-set cabinets, casework, furniture, equipment, moveable partitions and similar moveable objects.

E. Scribe, cut, and fit or flash cove to permanent fixtures, built-in furniture and cabinets, pipes and outlets, and permanent columns, walls, and partitions as shown on Drawings.

F. Extend sheet vinyl floor coverings into toe spaces, door reveals, closets, and similar openings.

G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other nonpermanent, nonstaining marking device.

H. Install sheet vinyl floor coverings on covers for telephone and electrical ducts, and similar items in finished floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed on covers. Tightly adhere edges to perimeter of floor around covers and to covers.

I. Adhere sheet vinyl floor coverings to flooring substrates to comply with floor covering manufacturer's written instructions, including those for trowel notching, adhesive mixing, and adhesive open and working times.

1. Produce completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

J. Chemically-Welded Seams: Chemically weld seams with Armstrong "S-553 Seam Sealer" into a seamless floor covering. Prepare, weld, and finish seams according to manufacturers written instructions and ASTM F1516 to produce surfaces flush with adjoining floor covering surfaces.

K. Hand roll sheet vinyl floor coverings directions with a 100 pound roller in both directions from center out to embed floor coverings in full spread of adhesive and eliminate trapped air. At walls, door casings, and other locations where access by roller is impractical, press floor coverings firmly in place with flat-bladed instrument.

L. Do not reverse pieces (TM edge to non-TM edge)., if a seam is needed, seams should be positioned so that the ends of the planks are offset 3” to 6”. Install with Full Spread of Armstrong "S-575" adhesive using a fine notched trowel 1/32” deep x 1/16” wide x 5/64” apart.

3.07 INSTALLATION – VINYL PLANK FLOORING

A. General: Comply with vinyl plank floor covering manufacturer's written installation instructions.

1. Install flooring in strict accordance with the latest edition of "Armstrong Guaranteed Installation System", F-5061, or equivalent by other listed manufacturers.

B. Unpackage and allow floor coverings them to stabilize before cutting and fitting, if recommended in writing by manufacturer.

C. Lay out sheet vinyl floor coverings to comply with the following requirements:

1. Maintain uniformity of sheet vinyl floor covering direction.

2. Arrange for a minimum number of seams and place them in inconspicuous and low-traffic areas, and not less than 6 inches away from parallel joints in flooring substrates.

3. Match edges of vinyl floor coverings for color shading and pattern at sump according to manufacturer's written recommendations.

4. Avoid cross seams.

D. Install flooring wall-to-wall before the installation of floor-set cabinets, casework, furniture, equipment, moveable partitions and similar moveable objects.

E. Scribe, cut, and fit or flash cove to permanent fixtures, built-in furniture and cabinets, pipes and outlets, and permanent columns, walls, and partitions as shown on Drawings.

F. Extend sheet vinyl floor coverings into toe spaces, door reveals, closets, and similar openings.

G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other nonpermanent, nonstaining marking device.

H. Install vinyl floor coverings on covers for telephone and electrical ducts, and similar items in finished floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed on covers. Tightly adhere edges to perimeter of floor around covers and to covers.

I. Adhere vinyl floor coverings to flooring substrates to comply with floor covering manufacturer's written instructions, including those for trowel notching, adhesive mixing, and adhesive open and working times.

1. Produce completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

J. Chemically-Welded Seams: Chemically weld seams with Armstrong "S-553 Seam Sealer" into a seamless floor covering. Prepare, weld, and finish seams according to manufacturers written instructions and ASTM F1516 to produce surfaces flush with adjoining floor covering surfaces.

K. Hand roll vinyl floor coverings directions with a 100 pound roller in both directions from center out to embed floor coverings in full spread of adhesive and eliminate trapped air. At walls, door casings, and other locations where access by roller is impractical, press floor coverings firmly in place with flat-bladed instrument.

L. Do not reverse pieces (TM edge to non-TM edge)., if a seam is needed, seams should be positioned so that the ends of the planks are offset 3” to 6”. Install with Full Spread of Armstrong "S-575" adhesive using a fine notched trowel 1/32” deep x 1/16” wide x 5/64” apart.

3.08 RESILIENT WALL BASE INSTALLATION

A. At areas where base is required, apply resilient base to walls, columns, pilasters, casework, and other permanent fixtures, as coordinated with type of flooring. Install base in as long lengths as practicable. Tightly bond base to backing throughout the length of each piece with continuous contact at horizontal and vertical surfaces. On irregular surfaces, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.

B. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.

2. Inside Corners: Use straight pieces of maximum lengths possible. Form by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

3.09 ACCESSORIES

A. Place resilient edge strips tightly butted to adjacent materials of type indicated and bond to substrates with adhesive. Install edging strips at all unprotected edges of flooring unless otherwise shown. Apply resilient accessories to stairs and risers as indicated and according to manufacturer's installation instructions.

B. Stair Nosings:

1. Use stair-tread-nose filler, according to resilient tread manufacturer's written instructions, to fill nosing substrates that do not conform to tread contours.

2. Apply resilient products to stairs as indicated and according to manufacturer's written installation instructions.

3.10 CLEANING AND PROTECTION

A. Perform the following operations immediately after installing resilient floor coverings:

1. Remove adhesive and other surface blemishes using cleaner recommended by floor covering manufacturer.

2. Sweep or vacuum floor thoroughly.

3. Do not wash floor covering until after time period recommended by floor covering manufacturer.

4. Damp-mop floor to remove marks and soil.

B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended by manufacturer of resilient product involved.

C. Cover sheet vinyl floor coverings with undyed, untreated building paper or the application of two coats of a high quality acrylic floor finish such as Ecolabs "Gemini Gemstar" or Armstrong "S-480 Commercial Floor Polish "can be applied to protect the floor during construction until inspection for Substantial Completion. [Do NOT apply floor polish to Amtico International flooring materials.]

D. Clean products specified in this Section not more than four days prior to dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products using method recommended by manufacturer. Strip protective floor polish that was applied after completing installation, prior to cleaning.

E. Do not move heavy and sharp objects directly over resilient floor coverings. Place plywood or hardboard panels over floor coverings and under objects while they are being moved. Slide or roll objects over panels without moving panels.

3.11 FINISHING

A. After completion of project and just prior to final inspection of work, thoroughly clean floors and accessories.

1. Vinyl Composition Tile: Apply wax and buff with type of wax, number of coats, and buffing procedures in compliance with flooring manufacturer's instructions.

2. For Amtico International flooring materials, follow strict instructions by manufacturer. Do NOT apply wax coating.

B. Sheet Vinyl Flooring: Apply two (2) coats of a high quality acrylic floor matte shine finish (high gloss is not permitted) such as "Taski's Ombra Matte Shine Floor Finish" by Lever Industrial (800-827-5487), or approved substitution by Ecolabs, as approved by flooring manufacturer.

END OF SECTION 096519

SECTION 099114 - EXTERIOR PAINTING (MPI STANDARDS)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Surface preparation and application of paint systems on the following exterior substrates:
      a. Concrete.
      b. Concrete masonry units (CMUs).
      c. Steel and iron.
      d. Galvanized metal.
      e. Cement board.

1.3 DEFINITIONS

A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.

B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.

D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.

E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.

F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include preparation requirements and application instructions.
   2. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
   3. Indicate VOC content.

B. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
   1. Submit Samples on rigid backing, 8 inches square.
   2. Apply coats on Samples in steps to show each coat required for system.
   3. Label each coat of each Sample.
   4. Label each Sample for location and application area.

C. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in the Exterior Painting Schedule to cross-

reference paint systems specified in this Section. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
   1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
      a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
      b. Other Items: Architect will designate items or areas required.
   2. Final approval of color selections will be based on mockups.
      a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
   3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
   4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design Product: Products: Subject to compliance with requirements, provide products by Sherwin-Williams Company, or equivalent products from one of the following:
   1. Benjamin Moore & Co.
   2. The Sherwin Williams Company

B. Source Limitations: Obtain paint from single source from single manufacturer.

2.2 PAINT PRODUCTS

A. MPI Standards: Provide products complying with MPI standards indicated and listed in its "MPI Approved Products List."

B. Material Compatibility:
   1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a paint system, provide products recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
   3. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.

C. Colors:
   1. Colors: to be selected by owner
      a. Colors to be selected
   2. Location: As shown or indicated on the drawings.

2.3 SOURCE QUALTIY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
   1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will b identified, sealed, and certified by testing agency.
   2. Testing agency will perform tests for compliance with product requirements.
   3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, an repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
   1. Concrete: 12 percent.
   2. Fiber-Cement Board: 12 percent.
   3. Masonry (Clay and CMUs): 12 percent.
   4. Portland Cement Plaster: 12 percent.
   5. Gypsum Board: 12 percent.

C. Portland Cement Plaster Substrates: Verify that plaster is fully cured.

D. Exterior Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

E. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

F. Proceed with coating application only after unsatisfactory conditions have been corrected.
   1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
   1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer[.] but not less than the following:
   1. SSPC-SP 3, “Power Tool Cleaning.”
   2. SSPC-SP 11, “Power Tool Cleaning of Bare Metal.”

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

I. Aluminum Substrates: Remove loose surface oxidation.

J. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 INSTALLATION

A. Apply paints in accordance with manufacturer's written instructions and recommendations in "MPI Manual."
   1. Use applicators and techniques suited for paint and substrate indicated.
   2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
   3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
   4. Paint entire exposed surface of window frames and sashes.
   5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   6. Primers specified in the Exterior Painting Schedule may be omitted on items that are factory primed or factory finished if compatible with intermediate and topcoat coatings and acceptable to intermediate and topcoat paint manufacturers.

B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

D. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
   1. Paint the following work where exposed to view, and within the limited areas of the painted graphics as depicted on the drawings:
      a. Equipment, including panelboards.
      b. Uninsulated metal piping.
      c. Uninsulated plastic piping.
      d. Pipe hangers and supports.
      e. Metal conduit.
      f. Plastic conduit.
      g. Metal ductwork and supports.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
   1. Contractor shall touch up and restore painted surfaces damaged by testing.
   2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
   1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm

drain systems, and ground.

2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
3. Allow empty paint cans to dry before disposal.
4. Collect waste paint by type and deliver to recycling or collection facility.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:
1. Latex System MPI EXT 3.1A:
   a. Block filler: Block filler, latex, interior/exterior, MPI #4.
   b. Prime Coat: Primer, alkali resistant, water based, MPI #3.
      1) Sherwin-Williams Loxon Concrete & Masonry Primer.
   c. Intermediate Coat: Latex, exterior, matching topcoat.
   d. Low-Sheen Topcoat: Latex, exterior, low sheen (MPI Gloss Level 4), MPI #15.

B. Cement Board Substrates:
1. Latex System MPI EXT 3.3J:
   a. Alkali-Resistant Prime Coat: Primer, alkali resistant, water based, MPI #3.
   b. Intermediate Coat: Latex, exterior, matching topcoat.
   c. Low-Sheen Topcoat: Latex, exterior, low sheen (MPI Gloss Level 4), MPI #15.
      1) Sherwin-Williams A-100 Exterior Latex Satin.

C. CMU Substrates:
1. Institutional Latex over Alkali-Resistant Primer System MPI EXT 4.2L:
   a. Block filler: Block filler, latex, interior/exterior, MPI #4.
   b. Prime Coat: Block filler, latex, interior/exterior, MPI #3.
      1) Sherwin-Williams Loxon Concrete & Masonry Primer.
   c. Intermediate Coat: Latex, exterior, matching topcoat.
   d. Low-Sheen Topcoat: Latex, exterior, low sheen (MPI Gloss Level 4), MPI #15.
      1) Sherwin-Williams A-100 Exterior Latex Satin.

D. Steel Substrates:
1. Institutional Alkyd System MPI EXT 5.1D:
   a. Alkyd Prime Coat: Primer, alkyd, anticorrosive, for metal, MPI #79.
      1) Sherwin-Williams Kem Kromik Universal Primer.
   b. Intermediate Coat: Exterior, alkyd enamel, matching topcoat.

c. Semigloss Topcoat: Alkyd, exterior, semigloss (MPI Gloss Level 5), MPI #94.
   1) Sherwin-Williams DTM Alkyd Semi-Gloss.

E. Aluminum Substrates:
   1. Aluminum Paint System MPI EXT 5.1K:
      a. Alkyd Prime Coat: Primer, alkyd, anti-corrosive, for metal, MPI #79.
      b. Intermediate Coat: Aluminum paint, matching topcoat.
      c. Topcoat: Aluminum paint, MPI #1.

F. Galvanized-Metal Substrates:
   1. Institutional Alkyd System MPI EXT 5.3B:
      a. Prime Coat: Primer, galvanized, cementitious, MPI #26.
      b. Intermediate Coat: Exterior, alkyd enamel, matching topcoat.
      c. Topcoat: Alkyd, exterior, semigloss (MPI Gloss Level 5), MPI #94.
      d. Sherwin-Williams DTM Alkyd Semi-Gloss.

G. Wood substruates
   1. Alkyd system
      a. Prime Coat: Primer
      b. Intermediate Coat: Exterior, alkyd enamel, matching topcoat.
      c. Topcoat: Alkyd, exterior, semigloss

END OF SECTION 099114

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SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Concrete.
2. Concrete masonry units (CMUs).
3. Steel and iron.
4. Galvanized metal.
5. Gypsum board.
6. Cotton or canvas insulation covering.
7. ASJ insulation covering.
8. Wood.

1.3 DEFINITIONS

A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
2. Indicate VOC content.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.

4. Label each Sample for location and application area.

D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Behr Paint Company; Behr Process Corporation.
2. Benjamin Moore & Co.
3. California Paints.
4. Coronado Paint; Benjamin Moore & Co.
5. Kelly-Moore Paint Company Inc.
6. PPG Paints.
7. Pratt & Lambert.
8. Sherwin-Williams Company (The).
9. Valspar Corporation (The).

2.2 PAINT, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its

"MPI Approved Products Lists."

B. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

C. Colors: If not indicated on Drawings, as selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMUs): 12 percent.
3. Gypsum Board: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

H. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

D. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed in occupied spaces:

a. Unfinished equipment, including panelboards.
b. Uninsulated metal piping.
c. Uninsulated plastic piping.
d. Pipe hangers and supports.

e. Metal conduit.
f. Plastic conduit.
g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
h. Other items as directed by Architect.

2. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System MPI INT 3.1E:

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior (MPI Gloss Level 3), MPI #52.

B. CMU Substrates:

1. Latex System MPI INT 4.2A:

a. Block Filler: Block filler, latex, interior/exterior, MPI #4.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, semi-gloss (MPI Gloss Level 5), MPI #54.

C. Steel Substrates:

1. Latex System, Alkyd Primer:

    a. Prime Coat: Primer, alkyd, quick dry, for metal, MPI #76.
    b. Intermediate Coat: Latex, interior, matching topcoat.
    c. Topcoat: Latex, interior, semi-gloss (MPI Gloss Level 5), MPI #54.

2. Alkyd Dry-Fall System MPI INT 5.1D:

    a. Prime Coat: Primer, alkyd, quick dry, for metal, MPI #76.
    b. Topcoat: Dry fall, alkyd (MPI Gloss Level 3), MPI #89.

D. Galvanized-Metal Substrates:

1. Latex System MPI INT 5.3A:

    a. Prime Coat: Primer, galvanized, cementitious, MPI #26.
    b. Intermediate Coat: Latex, interior, matching topcoat.
    c. Topcoat: Latex, interior, semi-gloss (MPI Gloss Level 5) [, MPI #54].

E. Gypsum Board Substrates:

1. Latex over Latex Sealer System MPI INT 9.2A:

    a. Prime Coat: Primer sealer, latex, interior, MPI #50.
    b. Intermediate Coat: Latex, interior, matching topcoat.
    c. Topcoat: Latex, interior (MPI Gloss Level 3), MPI #52.

F. Cotton or Canvas and ASJ Insulation-Covering Substrates: Including pipe and duct coverings.

1. Latex System MPI INT 10.1A:

    a. Prime Coat: Primer sealer, latex, interior, MPI #50.
    b. Topcoat: Latex, interior, flat (MPI Gloss Level 1), MPI #53.

G. Wood Substrates:

1. Latex System, Alkyd Primer:

    a. Prime Coat: Primer, alkyd, quick dry
    b. Intermediate Coat: Latex, interior, matching topcoat.
    c. Topcoat: Latex, interior, semi-gloss

END OF SECTION 099123

SECTION 099300 - STAINING AND TRANSPARENT FINISHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
   1. *Uniform General Conditions for Construction Contracts*, State of Texas, 2010 (UGC).
   2. The University of Houston's *Supplemental General Conditions and Special Conditions for Construction.*

1.2 SUMMARY

A. Section includes surface preparation and application of wood finishes[.]

   1. Exterior Substrates:
      a. Exposed wood panel products.

   2. Interior Substrates:
      a. Dressed lumber (finish carpentry).
      b. Exposed wood panel products.

B. Related Requirements:

   1. Section 09 91 13 "Exterior Painting" for standard paint systems on exterior substrates.
   2. Section 09 91 23 "Interior Painting" for stains and transparent finishes on concrete floors.
   3. Section 09 96 00 "High-Performance Coatings" for transparent high-performance coatings on concrete floors and clay masonry.

1.3 DEFINITIONS

A. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

1.4 Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include preparation requirements and application instructions.

B. LEED Submittals (Projects authorized for LEED certification only):

1. Product Data for Credit EQ 4.2: For interior stains and coatings, documentation including printed statement of VOC content.
2. Laboratory Test Reports for Credit EQ 4: For interior stains and coatings, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Samples for Initial Selection: For each type of product indicated.

D. Samples for Verification: For each type of finish system and in each color and gloss of finish indicated.

1. Submit Samples on representative samples of actual wood substrates, 8 inches square .
2. Label each Sample for location and application area.

E. Product List: For each product indicated, include the following:

1. Cross-reference to finish system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the product proposed for use highlighted.
3. VOC content.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Stains and Transparent Finishes: 5 percent, but not less than 1 gal. of each material and color applied.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

A. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply finishes when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

C. Do not apply exterior finishes in snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following :
   1. Pratt & Lambert.
   2. Substitutions: see section 01 25 00 – Substitution Procedures.

B. Products: Subject to compliance with requirements, provide product listed in other Part 2 articles for the category indicated.

2.2 MATERIALS, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

   1. Provide materials for use within each finish system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a finish system, provide products recommended in writing by manufacturers of topcoat for use in finish system and on substrate indicated.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior stains and finishes applied at project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

   1. Clear Wood Finishes, Varnishes: VOC not more than 350 g/L.
   2. Shellacs, Clear: VOC not more than 730 g/L.
   3. Stains: VOC not more than 250 g/L.
   4. Primers, Sealers, and Undercoaters: 200 g/L.

D. Low-Emitting Materials: Interior stains and finishes shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

E. Stain Colors: As selected by Architect from manufacturer's full range .

2.3 WOOD FILLERS

A. Wood Filler Paste: MPI #91.

2.4 PRIMERS AND SEALERS

A. Provide all primer, sealants, and coating products used in any individual system from the same manufacturer, no exceptions.

B. Primer, Latex for Exterior Wood: MPI #6.

2.5 STAINS

A. Provide all stain and varnish products used in any individual system from the same manufacturer, no exceptions.

B. Stain, Exterior, Water Based, Solid Hide: MPI #16.

C. Stain, for Exterior Wood Decks: MPI #33.

D. Stain, Semi-Transparent, for Interior Wood: MPI #90.

2.6 WATER-BASED VARNISHES

A. Varnish, Water Based, Clear, Satin (Gloss Level 4): MPI #128.

B. Varnish, Water Based, Clear, Semi-Gloss (Gloss Level 5): MPI #129.

C. Varnish, Water Based, Clear, Gloss (Gloss Level 6): MPI #130.

2.7 POLYURETHANE VARNISHES

A. Varnish, Polyurethane, Moisture-Cured, Gloss (Gloss Level 6): MPI #31.

B. Varnish, Aliphatic Polyurethane, Two-Component (Gloss Level 6 or 7): MPI #78.

2.8 OIL FINISH

2.9 SOURCE QUALITY CONTROL

A. Testing of Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample wood finishing materials. Contractor will be notified in advance and may be present when samples are taken. If materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying wood finishes if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying materials from Project site, pay for testing, and refinish surfaces finished with rejected materials. Contractor will be required to remove rejected materials from previously finished surfaces before refinishing with complying materials if the two finishes are incompatible or produce results that, in the opinion of the Architect, are aesthetically unacceptable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Exterior Wood Substrates: 15 percent, when measured with an electronic moisture meter.

C. Maximum Moisture Content of Interior Wood Substrates: 15 percent, when measured with an electronic moisture meter.

D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

E. Proceed with finish application only after unsatisfactory conditions have been corrected.

1. Beginning finish application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.

1. After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.
2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.

D. Exterior Wood Substrates:

1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
2. Prime edges, ends, faces, undersides, and backsides of wood.

a. For solid hide stained wood, stain edges and ends after priming.
b. For varnish coated stained wood, stain edges and ends and prime with varnish.

Prime undersides and backsides with varnish.

3. Countersink steel nails, if used, and fill with putty or plastic wood filler tinted to final color. Sand smooth when dried.

E. Interior Wood Substrates:

1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
2. Apply wood filler paste to open-grain woods, as defined in "MPI Architectural Painting Specification Manual," to produce smooth, glasslike finish.
3. Sand surfaces that will be exposed to view and dust off.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 APPLICATION

A. Apply finishes according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

1. Use applicators and techniques suited for finish and substrate indicated.
2. Finish surfaces behind movable equipment and furniture same as similar exposed surfaces.
3. Do not apply finishes over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing finish application, clean spattered surfaces. Remove spattered materials by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

3.5 EXTERIOR WOOD-FINISH-SYSTEM SCHEDULE

A. Wood substrates, nontraffic surfaces, including wood trim architectural woodwork doors wood-based panel products glued-laminated construction exposed joists exposed beams .

1. Solid Hide, Water-Based Stain System:
   a. Prime Coat: Primer, oil for exterior wood, MPI #7.
   b. Topcoat: Stain, exterior, water based, solid hide, MPI #16.

2. Solid Hide, Water-Based Stain System:

   a. Prime Coat: Primer, latex for exterior wood, MPI #6.
   b. Prime Coat: Primer, alkyd for exterior wood[**, MPI #5**].
   c. Prime Coat: Primer, oil for exterior wood[**, MPI #7**].
   d. Intermediate Coat: Stain, exterior, water based, solid hide, matching topcoat.
   e. Topcoat: Stain, exterior, water based, solid hide, MPI #16.

3. Semitransparent Stain System:

   a. Prime Coat: Stain, exterior, solvent based, semi-transparent, matching topcoat.
   b. Topcoat: Stain, exterior, solvent based, semi-transparent, MPI #13.

4. Varnish over Semitransparent Stain System:

   a. Stain Coat: Stain, exterior, solvent based, semi-transparent, MPI #13.
   b. First Intermediate Coat: Varnish matching topcoat.
   c. Second Intermediate Coat: Varnish matching topcoat.
   d. Topcoat: Varnish, with UV Inhibitor, Exterior, Semi-Gloss (Gloss Level 5), MPI #30.

5. Varnish System:

   a. Prime Coat: Varnish matching topcoat.
   b. First Intermediate Coat: Varnish matching topcoat.
   c. Second Intermediate Coat: Varnish matching topcoat.
   d. Topcoat: Varnish, with UV Inhibitor, Exterior, Semi-Gloss (Gloss Level 5), MPI #30.

6. Clear, Two-Component Polyurethane Varnish over Stain System:

   a. Stain Coat: Stain, exterior, solvent based, semi-transparent, MPI #13.
   b. First Intermediate Coat: Varnish, aliphatic polyurethane, two-component, matching topcoat.
   c. Second Intermediate Coat: Varnish, aliphatic polyurethane, two-component, matching topcoat.
   d. Topcoat: Varnish, aliphatic polyurethane, two-component (Gloss Level 6 or 7), MPI #78.

7. Clear, Two-Component Polyurethane Varnish System:

   a. Prime Coat: Varnish, aliphatic polyurethane, two-component, matching topcoat.
   b. Intermediate Coat: Varnish, aliphatic polyurethane, two-component, matching topcoat.
   c. Topcoat: Varnish, aliphatic polyurethane, two-component (Gloss Level 6 or 7), MPI #78.

B. Wood substrates, traffic surfaces, including wood decks and stairs.

1. Deck Stain over Wood Preservative System:

a. Preservative Coat: Preservative, for exterior wood, MPI #37.
b. Intermediate Coat: Stain, for exterior wood decks, matching topcoat.
c. Top coat: Stain, for exterior wood decks, MPI #33.

2. Deck Stain System:

a. Prime Coat: Stain, for exterior wood decks, matching topcoat.
b. Top coat: Stain, for exterior wood decks, MPI #33.

3.6 INTERIOR WOOD-FINISH-SYSTEM SCHEDULE

A. Wood substrates, nontraffic surfaces, including wood trim architectural woodwork doors windows wood-based panel products glued-laminated construction exposed joists exposed beams .

1. Solid-Color Latex Stain System:

a. Prime Coat: Primer, latex for exterior wood, MPI #6.
b. Intermediate Coat: Stain, exterior, water based, solid hide, matching topcoat.
c. Topcoat: Stain, exterior, water based, solid hide, MPI #16.

2. Solid-Color Latex Stain System:

a. Prime Coat: Primer, alkyd for exterior wood, MPI #5.
b. Prime Coat: Primer, oil for exterior wood, MPI #7.
c. Intermediate Coat: Stain, exterior, water based, solid hide, matching topcoat.
d. Topcoat: Stain, exterior, water based, solid hide, MPI #16.

3. Semitransparent Stain System:

a. Prime Coat: Stain, semi-transparent, matching topcoat.
b. Topcoat: Stain, semi-transparent, for interior wood, MPI #90.

4. Semitransparent Stain System:

a. Prime Coat: Stain, exterior, solvent based, semi-transparent, matching topcoat.
b. Topcoat: Stain, exterior, solvent based, semi-transparent, MPI #13.

5. Water-Based Varnish over Stain System:

a. Stain Coat: Stain, semi-transparent, for interior wood, MPI #90.
b. First Intermediate Coat: Water-based varnish matching topcoat.
c. Second Intermediate Coat: Water-based varnish matching topcoat.
d. Topcoat: Varnish, water based, clear, satin (Gloss Level 4), MPI #128.

6. Water-Based Varnish System:

    a. Prime Coat: Water-based varnish matching topcoat.
    b. Intermediate Coat: Water-based varnish matching topcoat.
    c. Topcoat: Varnish, water based, clear, satin (Gloss Level 4), MPI #128.

7. Polyurethane Varnish over Stain System:

    a. Stain Coat: Stain, semi-transparent, for interior wood, MPI #90.
    b. First Intermediate Coat: Polyurethane varnish matching topcoat.
    c. Second Intermediate Coat: Polyurethane varnish matching topcoat.
    d. Topcoat: Varnish, interior, polyurethane, oil-modified, satin (Gloss Level 4), MPI #57.

8. Polyurethane Varnish System:

    a. Prime Coat: Polyurethane varnish matching topcoat.
    b. Intermediate Coat: Polyurethane varnish matching topcoat.
    c. Topcoat: Varnish, interior, polyurethane, oil-modified, satin (Gloss Level 4), MPI #57.

9. Moisture-Cured Clear Polyurethane over Stain System:

    a. Stain Coat: Stain, semi-transparent, for interior wood, MPI #90.
    b. First Intermediate Coat: Moisture-cured polyurethane matching topcoat.
    c. Second Intermediate Coat: Moisture-cured polyurethane matching topcoat.
    d. Topcoat: Varnish, polyurethane, moisture-cured, gloss (Gloss Level 6), MPI #31.

10. Moisture-Cured Clear Polyurethane System:

    a. Prime Coat: Moisture-cured polyurethane matching topcoat.
    b. Intermediate Coat: Moisture-cured polyurethane matching topcoat.
    c. Topcoat: Varnish, polyurethane, moisture-cured, gloss (Gloss Level 6), MPI #31.

11. Clear, Two-Component Polyurethane System:

    a. Prime Coat: Two-component polyurethane matching topcoat.
    b. Intermediate Coat: Two-component polyurethane matching topcoat.
    c. Topcoat: Varnish, aliphatic polyurethane, two-component (Gloss Level 6 or Gloss Level 7), MPI #78.

12. Danish Oil System:

    a. Prime Coat: Danish oil, MPI #92.
    b. Topcoat: Danish oil, MPI #92.

END OF SECTION 099300

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DIVISION 09

FINISHES - ATTACHMENTS

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MANNINGTON CROWN COLLECTION

MANNINGTON COMMERCIAL



BLEACHED ELM
MCC101



LIMED WOOD NATURAL
MCC104



FEATURED OAK
MCC102



WARM CHERRY
MCC105



EXOTIC WALNUT
MCC109



NORDIC OAK
MCC106



WEATHERED OAK
MCC107



DUSKY WALNUT
MCC108



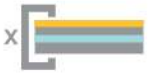
DRY CEDAR
MCC103



RUSTIC BARN WOOD
MCC110



7" X 48" planks



6 mm



Passes ASTM F1700
*With the exception of mandrel bend

Superior static load resistance, dimensional stability, and smoke density performance.



Limited 10 Year Commercial Warranty.
Limited 10 Year Quantum Guard® HP Warranty.
Limited 10 Year No Gap Warranty.

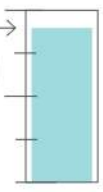


Quantum Guard® HP is the highest performance commercial urethane finish in the industry.

IIC Sound Rating

68: Rigid Core

LVT with Sound Abatement Pad
outperforms
competitive products



FLOOR ARMOR

A unique core innovation that delivers enhanced dimensional stability, ease of installation, superior acoustic properties and outstanding indentation resistance, combined with a product that is virtually waterproof.



Waterproof



Mannington Crown Collection®

Mannington COMMERCIAL



Cover: Dusky Walnut MCC108
Above: Dry Cedar MCC103,Exotic Walnut MCC109



Bleached Elm MCC101

QUANTUM GUARD® *elite*

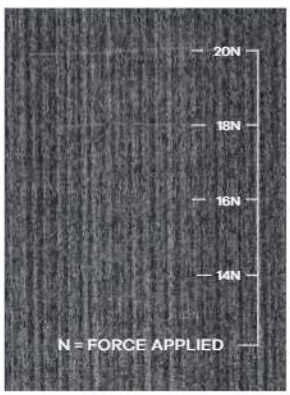
Success Is in Our Science

Introducing an advancement in our proven Quantum Guard technology: Quantum Guard Elite. This patent pending technology provides the ultimate solution for all aspects of LVT performance.

- Highest scratch resistance in the industry
- Engineered for best-in-class dimensional stability
- Superior impact resistance
- Cuts cleanly for highest quality installation
- Easy no-polish maintenance significantly reduces overall life cycle cost and total cost of ownership
- Advanced stain resistance

Outperforms in Scratch Resistance

Quantum Guard Elite



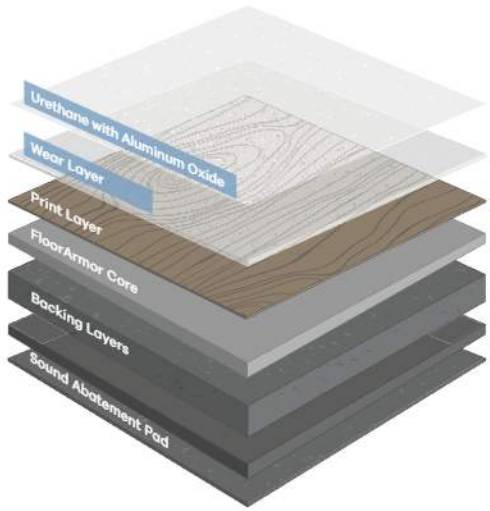
Leading Competitor



With an aluminum oxide infused top coat, Quantum Guard Elite offers superior scratch resistance vs. the leading competitor.

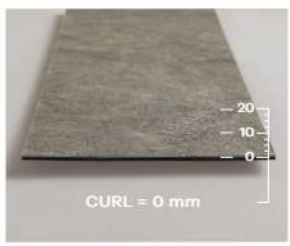
Complete Multi-Layered Protection

Quantum Guard Elite provides superior durability with the added protection of our proprietary aluminum oxide technology.

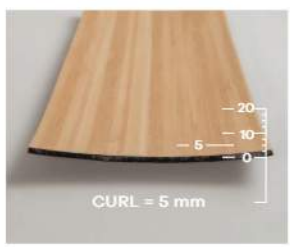


Best-in-Class Dimensional Stability

Quantum Guard Elite



Leading Competitor



LVT with Quantum Guard Elite is fully engineered to offer the perfect balance of hardness and flexibility, which helps prevent product failures in commercial environments. Products exposed to 80˚C for six hours.

Warranted to Work

Products with Quantum Guard Elite feature our Limited Quantum Guard Elite Wear Warranty and Limited Commercial Warranty.

Mannington COMMERCIAL

Mannington Crown Collection®

Style	Wood
Construction	Solid Core with FloorArmor® Core Non-ortho Phthalate
Classification	ASTM F3261 Class I, Type B, Backing Class B
Total Thickness	0.236" (6 mm) - Floor Armor® Core 0.197" (5 mm); Sound Abatement Pad 0.039" (1 mm)
Wear Layer Thickness	20 mil (0.51 mm)
Wear Layer	Quantum Guard Elite®
Edge Treatment	Micro-bevel
Sizes	7" x 48" (177.8 x 1,219.2 mm) (Nominal)
Colors	10
Packaging	6 pcs, 14.01 ft² (1.302 m²), 27.43 lbs (12.44 kg)
Installation Method	All arrows in the same direction. Planks should have end joints offset by at least 6" and staggered to create a random appearance.
Testing	
HUD/FHA	Passes
Flexibility (ASTM F137)	Passes - 1" Mandrel - No Crack/Break
Dimensional Stability (ASTM F2199)	Passes - Max 0.020 in/lin ft
Squareness (ASTM F2055)	Passes - Max 0.010"
Static Load (ASTM F970 mod.)	Passes - 2,000 PSI; Residual Indent ≤ 0.005"
Residual Indentation (ASTM F1914)	Passes - < 8% Avg / 10% Single Value
Flooring Radiant Panel (ASTM E648)	Passes - Class 1; ≥ 0.45 watts/cm²
Smoke Density (ASTM E662)	Passes - ≤ 450
Slip Resistance (ASTM C1028)	Passes - ≥ 0.5 Leather; 0.6 Rubber
Acoustic IIC (ASTM E492)	68 - 6" Concrete with Drop Ceiling
Acoustic STC (ASTM E90)	62 - 6" Concrete with Drop Ceiling
Resistance to Light (ASTM F1515)	Passes
Chemical Resistance (ASTM F925)	Passes
Resistance to Heat (ASTM F1514)	Passes
Environmental Data	
Indoor Air Quality	FloorScore Certified; CDPH v1.2-2017
Product Declarations	EPD
LEED	May contribute to LEED credits: Building Product Disclosure & Optimization - EPDs Building Product Disclosure & Optimization - Material Ingredients; IEQc2 - Low Emitting Materials
mindful MATERIALS	Visit mindfulmaterials.com for current transparency information
Manufacturing	China
Warranty	
	Limited 15-Year Commercial Warranty Limited 15-Year Quantum Guard Elite® Wear Warranty Limited 15-Year No Gap Warranty

Mannington COMMERCIAL

Mannington Crown Collection®

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Squareness (ASTM F2055)	Passes - Max 0.010"
Static Load (ASTM F970 mod.)	Passes - 2,000 PSI; Residual Indent ≤ 0.005"
Residual Indentation (ASTM F1914)	Passes - < 8% Avg / 10% Single Value
Flooring Radiant Panel (ASTM E648)	Passes - Class 1; ≥ 0.45 watts/cm²
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Acoustic STC (ASTM E90)	62 - 6" Concrete with Drop Ceiling
Resistance to Light (ASTM F1515)	Passes
Chemical Resistance (ASTM F925)	Passes
Resistance to Heat (ASTM F1514)	Passes

Environmental Data	
Indoor Air Quality	FloorScore Certified; CDPH v1.2-2017
Product Declarations	EPD
LEED	May contribute to LEED credits: Building Product Disclosure & Optimization - EPDs Building Product Disclosure & Optimization - Material Ingredients; IEQc2 - Low Emitting Materials
mindful MATERIALS	Visit mindfulmaterials.com for current transparency information
Manufacturing	China

Warranty	
	Limited 15-Year Commercial Warranty Limited 15-Year Quantum Guard Elite® Wear Warranty Limited 15-Year No Gap Warranty



Mannington Crown Collection

Style: Mannington Crown



Bleached Elm
MCC101



Dry Cedar
MCC103



Dusky Walnut
MCC108



Exotic Walnut
MCC109



Featured Oak
MCC102



Limed Wood Natural
MCC104



Nordic Oak
MCC106



Rustic Barn Wood
MCC110



Warm Cherry
MCC105



Weathered Oak
MCC107

Construction	Soild Core with Floor Armor® Core
Size	7" x 48"
Total Thickness	0.0236" (6 mm)
Wear Layer Thickness	20 mil (0.51 mm)
Wear Layer	Quantum Guard Elite®
Sustainability	EPD Verified, FloorScore, mindful MATERIALS
Warranty	Limited 15-Year Commercial, Limited 15-Year Quantum Guard Elite® Wear, Limited 15-Year No Gap
Price	$$$

DIVISION 10

SPECIALTIES

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SECTION 102800 - TOILET AND BATH ACCESSORIES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Toilet Accessories
2. Bath Accessories
3. Attachment hardware

B. Related Sections:

1. Section 05 50 00 (05500) - Metal Fabrications
2. Section 08 80 00 (08800) - Glazing
3. Section 09 30 00 (09310) - Tiling: Coordinate installation of accessories
4. Section 10 21 13 (10165) - Toilet Compartments: Coordinate installation of accessories
5. TownePlace Suites by Marriott Product Manual

1.02 REFERENCES

A. ASTM International Publications:

1. A167 - “Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip”
2. A666 “Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar”

B. American National Standards Institute (ANSI)

1. ICC/ANSI A117.1-2009 , “Accessible and Useable Buildings and Facilities”

C. Americans with Disabilities Act (ADA) II Public Accommodations

1.03 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.

B. Submit "Letter of Conformance" in accordance with Section 01 33 00 (01330) with the following supporting data:

1. Product Data: Mark each copy to identify applicable products, characteristics, models, options and other supplemental data to clearly communicate information specific to this project.

1.04 QUALITY ASSURANCE:

A. Provide products of the same manufacturer for each type of accessory unit and for units exposed in the same area.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver accessories to site until rooms in which they are to be installed are ready to receive them.

B. Store packages to prevent physical damage or wetting.

C. Pack accessories individually in a manner to protect accessory and its finish.

D. Maintain protective covers on all units until final clean-up.

E. Protection: Protect adjacent or adjoining finished surfaces and work from damage during installation of work of this Section.

1.06 WARRANTY

A. Work of this Section shall be jointly warrantied by the manufacturer and the installer for a period of one year after final payment. Any material or workmanship that is judged defective during this period shall be replaced at no cost to the Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

1. Refer to schedules shown in drawings for approved manufacturers and suppliers.

2.02 MATERIALS - TOILET ACCESSORIES

A. 18-8 (Type 302) stainless steel alloy of at least 22 gauge in all elements of cabinet work. Unless shown otherwise, all exposed stainless steel to have a #4 Satin finish or Satin chrome finish where applicable with all elements of a unit to have brushing in one direction.

B. Exposed surfaces to be protected with a factory applied PVC film to be left in place until final clean-up.

C. Mirrors to be 1/4" polished plate glass with 10-year guarantee against silver spoilage.

D. Stainless steel tubing: 18 ga., Type 304, seamless welded.

E. Fasteners, screws, and bolts: Hot dip galvanized. Expansion shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component substrate.

F. Adhesive: Epoxy type contact cement.

G. Refer to architectural drawings for required grab bar lengths, accessory types, locations, quantities, and mounting heights.

2.03 FINISHES

A. Employee and Public Toilet Rooms: Grab Bars shall have peened gripping surface with satin finish ends.

B. Exposed heads of fasteners shall match finish of accessory.

2.04 FABRICATION - TOILET ACCESSORIES

A. Provide steel anchor plates and anchor components for installation on building finishes.

B. Form surfaces flat without distortion. Maintain flat surface without scratches or dents.

C. Back paint components where contact is made with building finishes to prevent electrolysis.

D. Hot dip galvanize ferrous metal anchors and fastening devices.

E. Shop assemble components and package complete with anchors and fittings.

PART 3 EXECUTION

3.01 PREPARATION

A. Deliver inserts and rough-in frames to job site and in appropriate time for building-in. Provide templates and rough-in measurements as required.

B. Before starting work, notify Owner’s Representative in writing of any conflicts detrimental to installation or operation of units.

C. Verify with Owner’s Representative exact location of accessories.

3.02 INSTALLATION

A. Install fixtures, accessories, and items in accordance with manufacturer's printed instructions.

B. Use concealed fastenings wherever possible.

C. Install true, plumb, and level, securely and rigidly anchored to substrate in accordance with manufacturer's instructions for each item and each type of substrate construction.

1. Wood blocking shall be provided at grab bars and fold down shower seats, and as shown on Drawings.

2. Strap metal may be used for all other areas, as approved by Owner’s Representative, unless indicated otherwise.

D. Fasteners for all accessory mounting to be theft-resistant.

END OF SECTION 102800

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SECTION 104416 - FIRE EXTINGUISHERS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes portable, hand-carried fire extinguishers, and cabinets fire extinguishers.

B. Related Requirements:

1. Section 233813 "Commercial-Kitchen Hoods" for fire-extinguishing systems provided as part of commercial-kitchen exhaust hoods.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher.

B. Product Schedule: For fire extinguishers. Coordinate final fire-extinguisher schedule with fire-protection cabinet schedule to ensure proper fit and function.

1.4 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

1.6 COORDINATION

A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure of hydrostatic test according to NFPA 10 when testing interval required by NFPA 10 is within the warranty period.

b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Amerex Corporation.

b. Ansul Incorporated; Tyco International.

c. Babcock-Davis.

d. Badger Fire Protection.

e. Buckeye Fire Equipment Company.

f. Fire End & Croker Corporation.

g. Guardian Fire Equipment, Inc.

h. JL Industries, Inc.; a division of the Activar Construction Products Group.

i. Kidde Residential and Commercial Division.

j. Larsens Manufacturing Company.

k. MOON American.

l. Nystrom, Inc.

m. Oval Fire Products Corporation.

n. Potter Roemer LLC.

o. Pyro-Chem; Tyco Fire Suppression & Building Products.

p. Strike First Corporation of America (The).

2. Valves: Manufacturer's standard.

3. Handles and Levers: Manufacturer's standard.

4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B, and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.

B. Multipurpose Dry-Chemical Type in Aluminum Container: UL-rated 2-A:10-B:C, 5-lb (2.3-kg) nominal capacity, with monoammonium phosphate-based dry chemical in enameled-aluminum container.

1. Basis of Design: Larsen Model #: **MP5**

2.3 CABINETS

A. Cabinets: Architectural fire extinguisher cabinets fabricated from stainless steel, designed to enclose and secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with graphics as indicated

1. Source Limitations: Obtain cabinets and fire extinguishers from single source from single manufacturer.

B. Semi-recessed Cabinets:.

1. Basis of Design: Larsen Model #: **FS SS2409-R3**

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets: Top of fire extinguisher to be at 42 inches (1067 mm) above finished floor.

B. Cabinets: Fasten cabinets to surfaces, square and plumb, at locations indicated. Coordinate location with all other utilities, obstructions, and impedances. Coordinate location of cabinet with finishes including trim and other appurtenances. If a conflict is present, consult architect for final placement and location.

END OF SECTION 104416

DIVISION 10

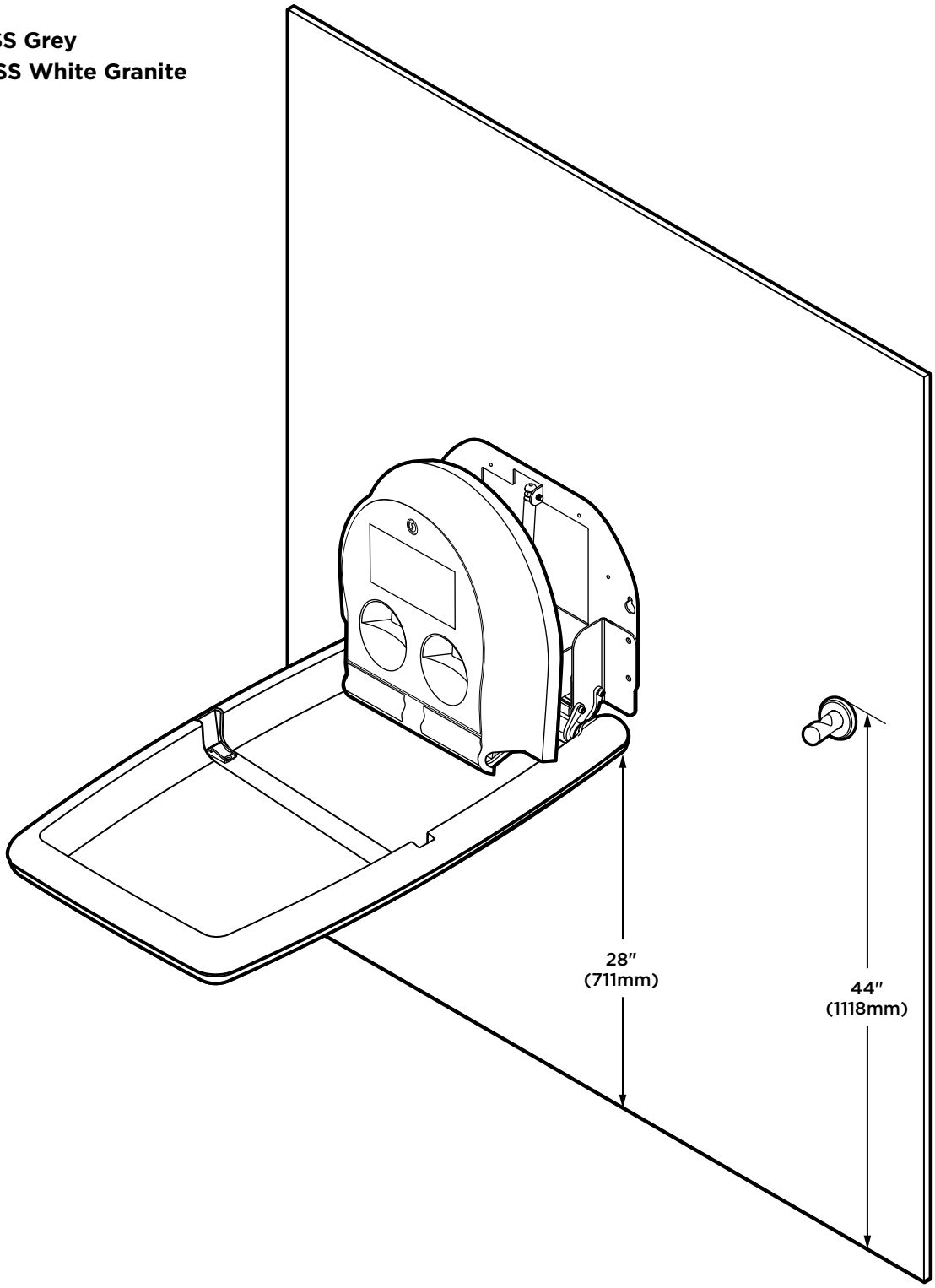
SPECIALTIES - ATTACHMENTS

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KB301-SS Baby Changing Station
Technical Data Sheet

Color

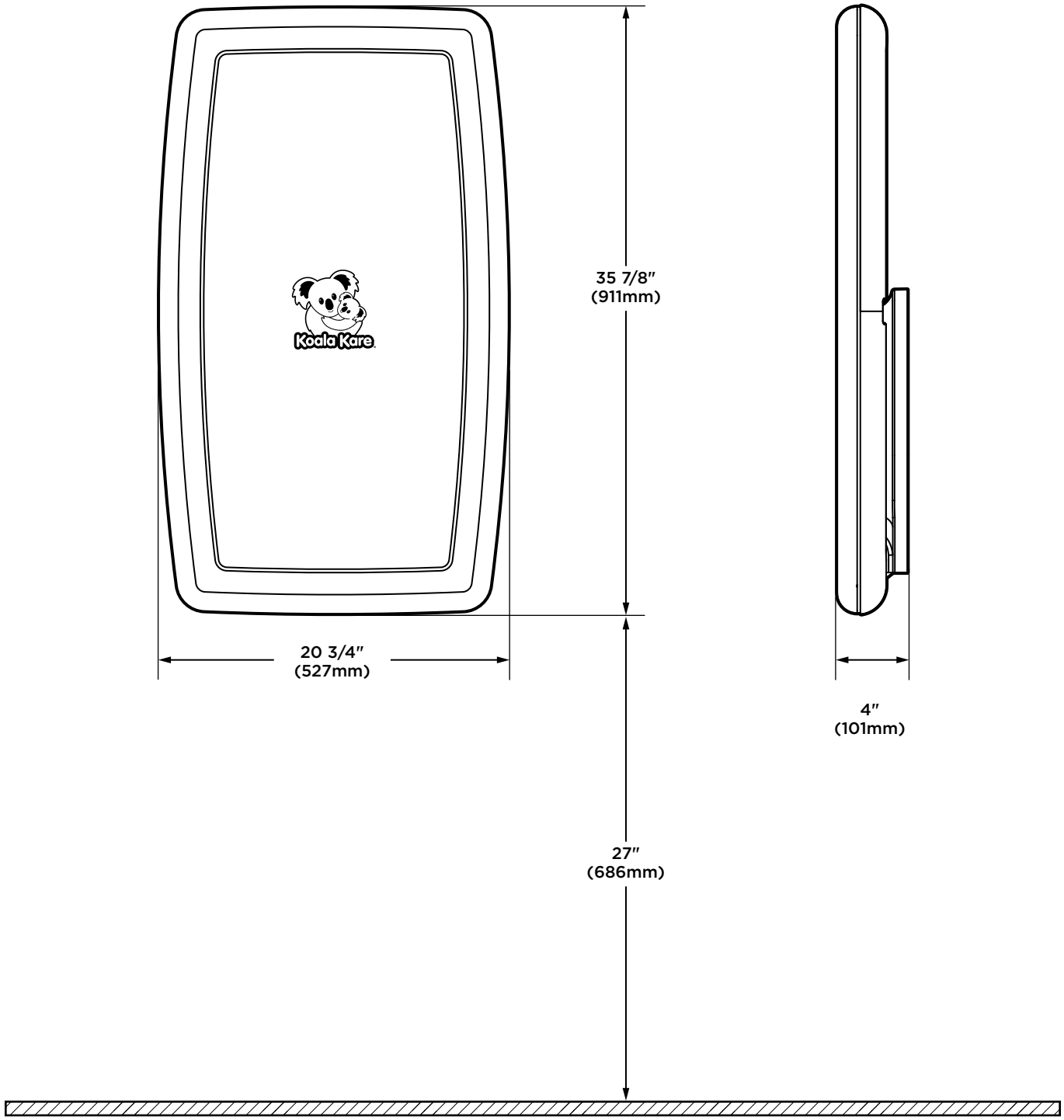
- **KB301-01SS Grey**
- **KB301-05SS White Granite**



*Diagrams are not to scale.

KB301-SS Baby Changing Station

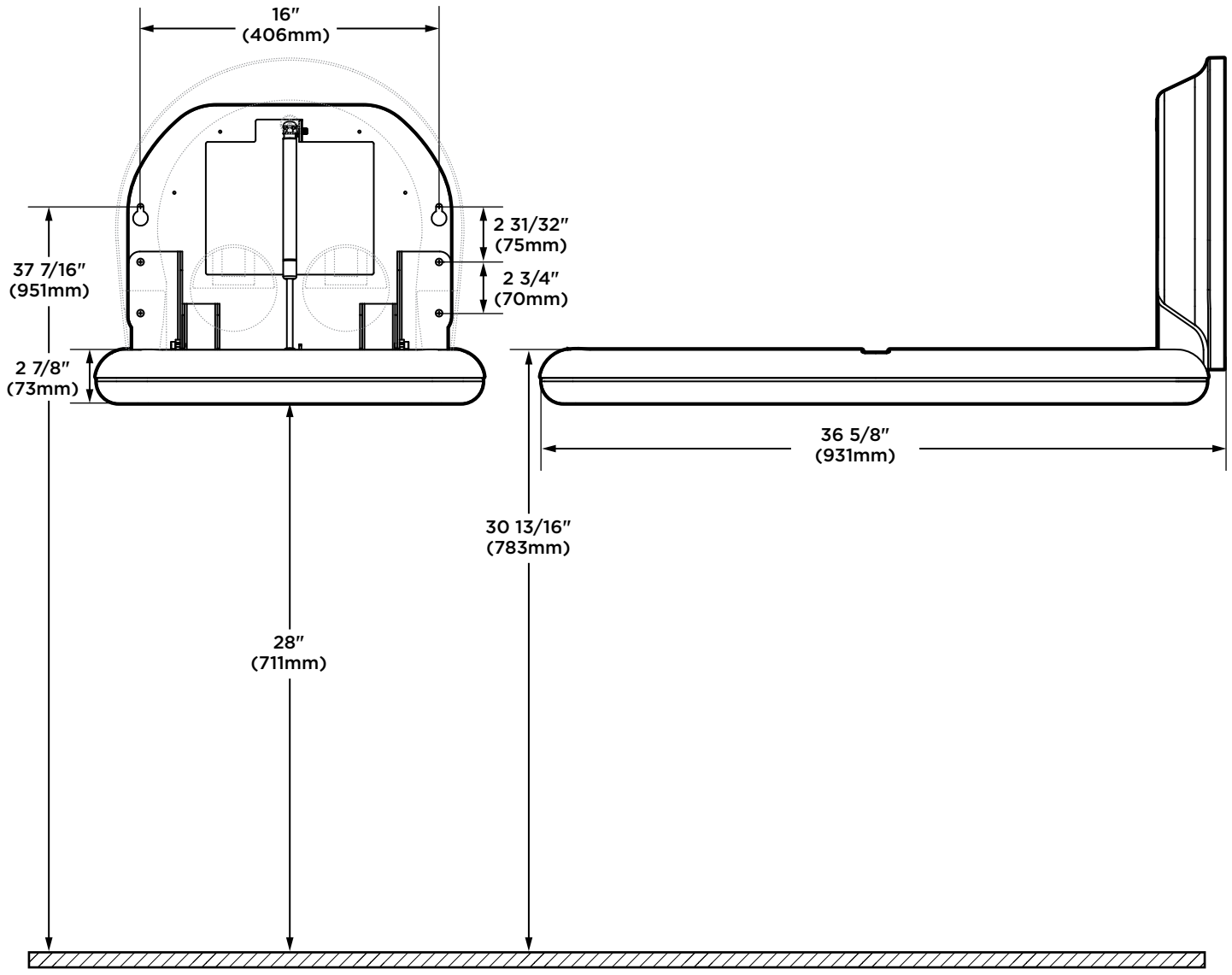
Closed Position



*Diagrams are not to scale.

KB301-SS Baby Changing Station

Open Position



*Diagrams are not to scale.

KB301-SS Baby Changing Station
Information

Material

Injection-molded polypropylene with Microban® antimicrobial additive embedded into the bed surface. Type 304 brushed stainless steel finish veneer. Reinforced steel-on-steel hinge mechanism and metal mounting chassis with mounting hardware included. Labeled usage instructions and safety messages in four languages. Optional Braille label available. Contoured changing surface area is 535 sq. in (3452 sq. cm) and comes complete with impervious TPU safety strap and solid stainless steel external bag hook. Dual cavity liner dispenser holds approximately 50 KB150-99 bed liners.

Note: For EN 12221:2008+A1:2013 compliant units a safety strap can not be provided with the unit. Should you require one, it can be ordered separately P/N 310-44-KIT.

Operation

Concealed pneumatic cylinder and metal mounting chassis provides controlled, slow opening and closing of bed. Polypropylene is easy to clean and resists odors and bacterial growth. Complies with ASTM static load performance requirements when properly installed. Internal liner dispenser with integrated spring tab dispensed one liner at a time.

Warning: To ensure that the unit supports the intended loads, baby changing stations must be properly installed according to the manufacturer's instructions.

Specification

Baby changing station body shall be durable, injection-molded polypropylene. Design of unit shall be surface-mounted. Front surface of unit shall have a 304 brushed stainless steel finish veneer. Unit shall be equipped with a pneumatic cylinder for controlled opening and closing of bed. Bed shall be secured to metal mounting chassis with a concealed steel-on-steel hinge. No hinge structure shall be exposed on interior or exterior surfaces. Unit shall have mounting hardware included. Unit shall have Microban® antimicrobial embedded into plastic material on the changing surface. Unit shall comply with ADA regulations when properly installed. Bed shall have smooth concave changing area with a safety strap and external stainless steel hook for bags or purse provided.

The design and manufacture of Koala products is intended to be compliant with the 2010 ADA Standards for Accessible Design and the 2009 ICC A117.1, Accessible and Usable Buildings and Facilities. Unit shall conform to ASTM F2285-04(16) Standard Safety Performance Specification for Diaper Changing Tables for Commercial Use, ANSI Z535.4 Product Safety Signs and Labels, EN 12221:2008+A1: 2013. Unit shall have a built-in Liner Dispenser for use with 3-ply chemical free biodegradable bed liners, instructional graphics and safety messages in 4 languages. Unit shall be backed by manufacturer's 5-year limited warranty on materials and workmanship and include a provision for replacement caused by vandalism.

Unit shall be manufactured in the U.S.A.

ADA Requirements

Additional information on how this product complies with ADA requirements can be found in the *KB300 & KB301 Baby Changing Stations Accessibility Compliance* document on **www.koalabear.com**.

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet. The manufacturer reserves the right to, and does from time to time, make changes and improvements in designs and dimensions without notice.

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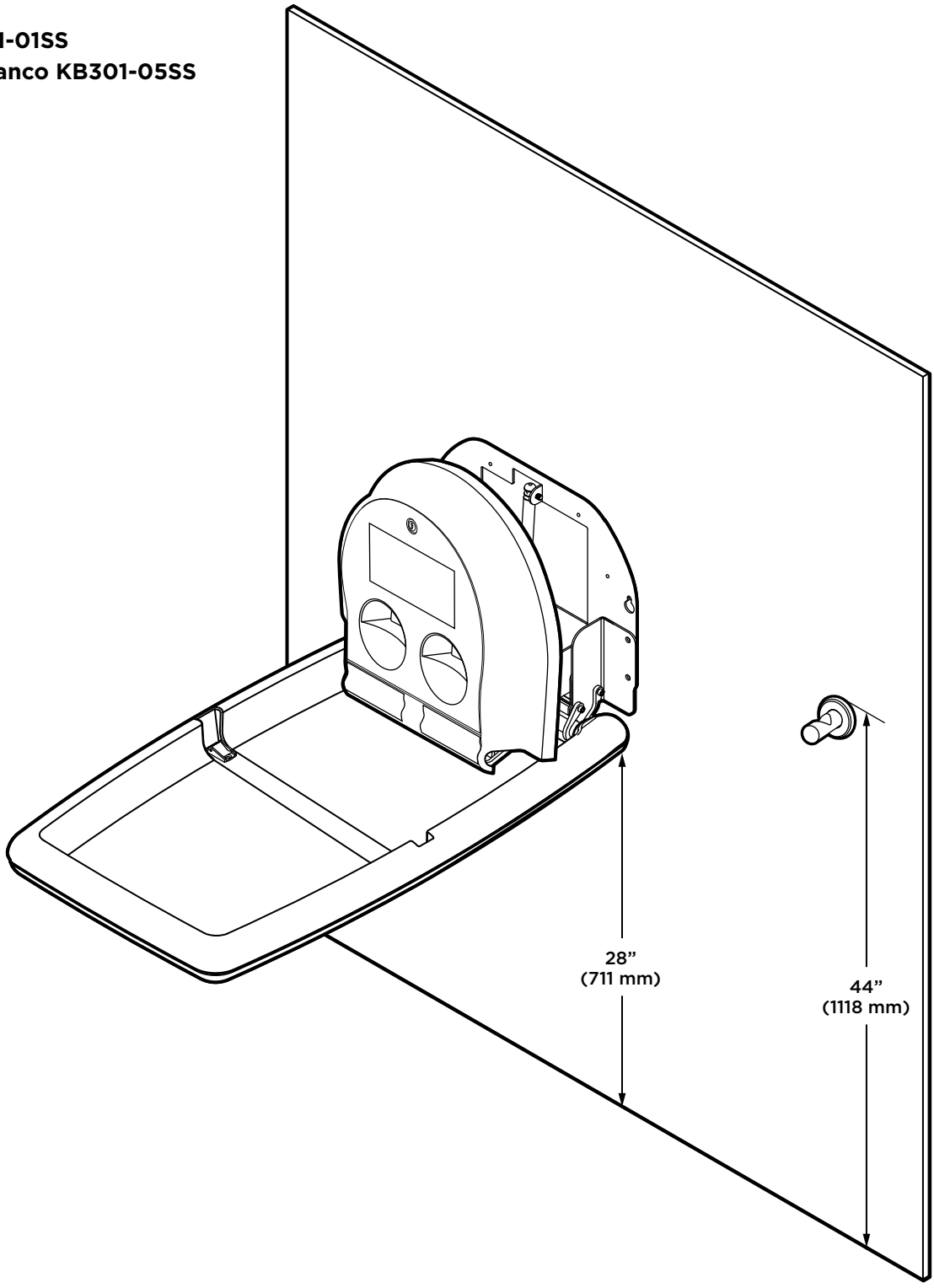
6982 South Quentin Street, Centennial, CO 80112-3945
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Website: koalabear.com **| Email:** customerservice@koalabear.com

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Cambiador para bebés KB301-SS
Ficha de datos técnicos

Color

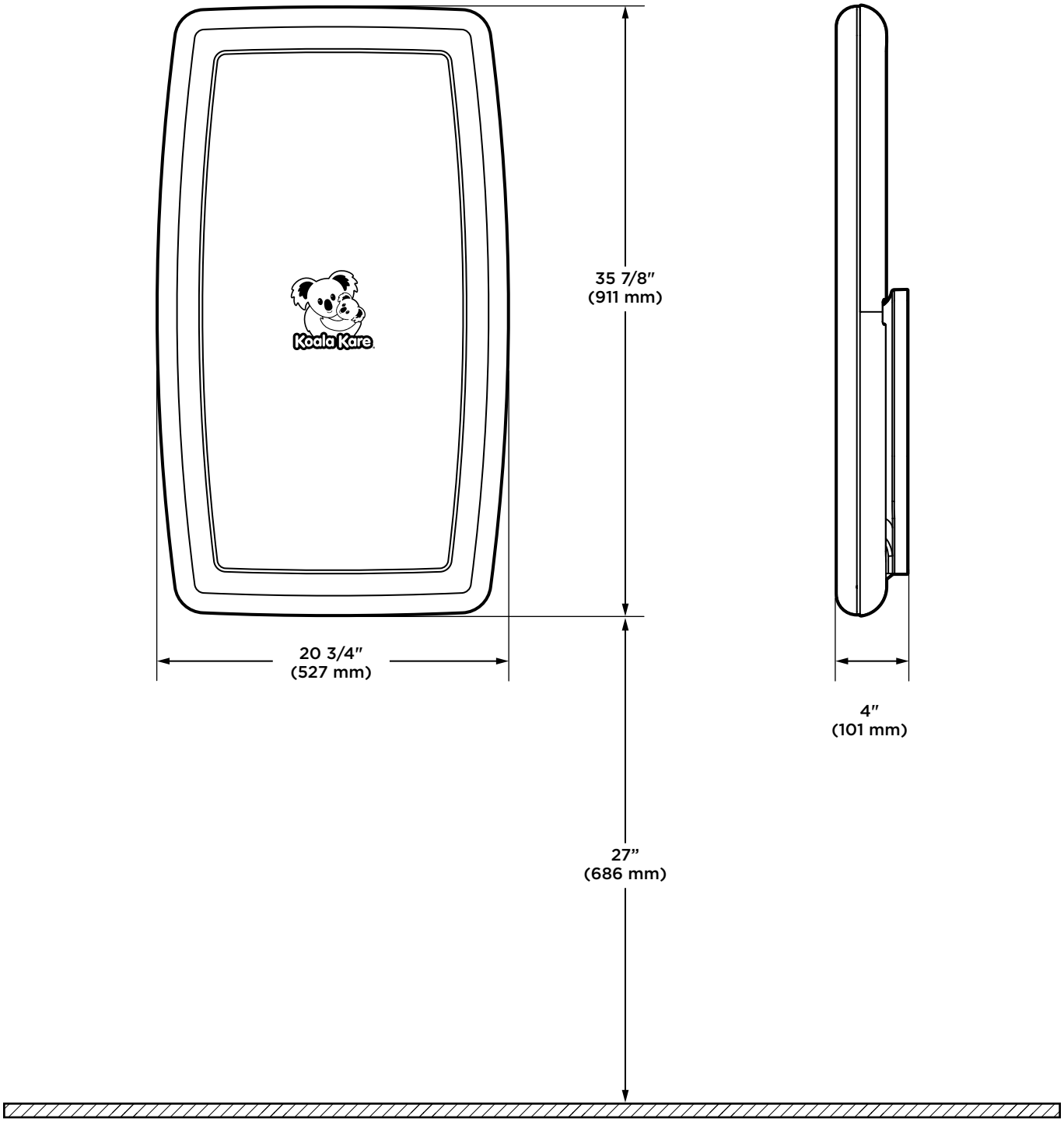
- **Gris KB301-01SS**
- **Granito blanco KB301-05SS**



*Los diagramas no están a escala.

Cambiador para bebés KB301-SS

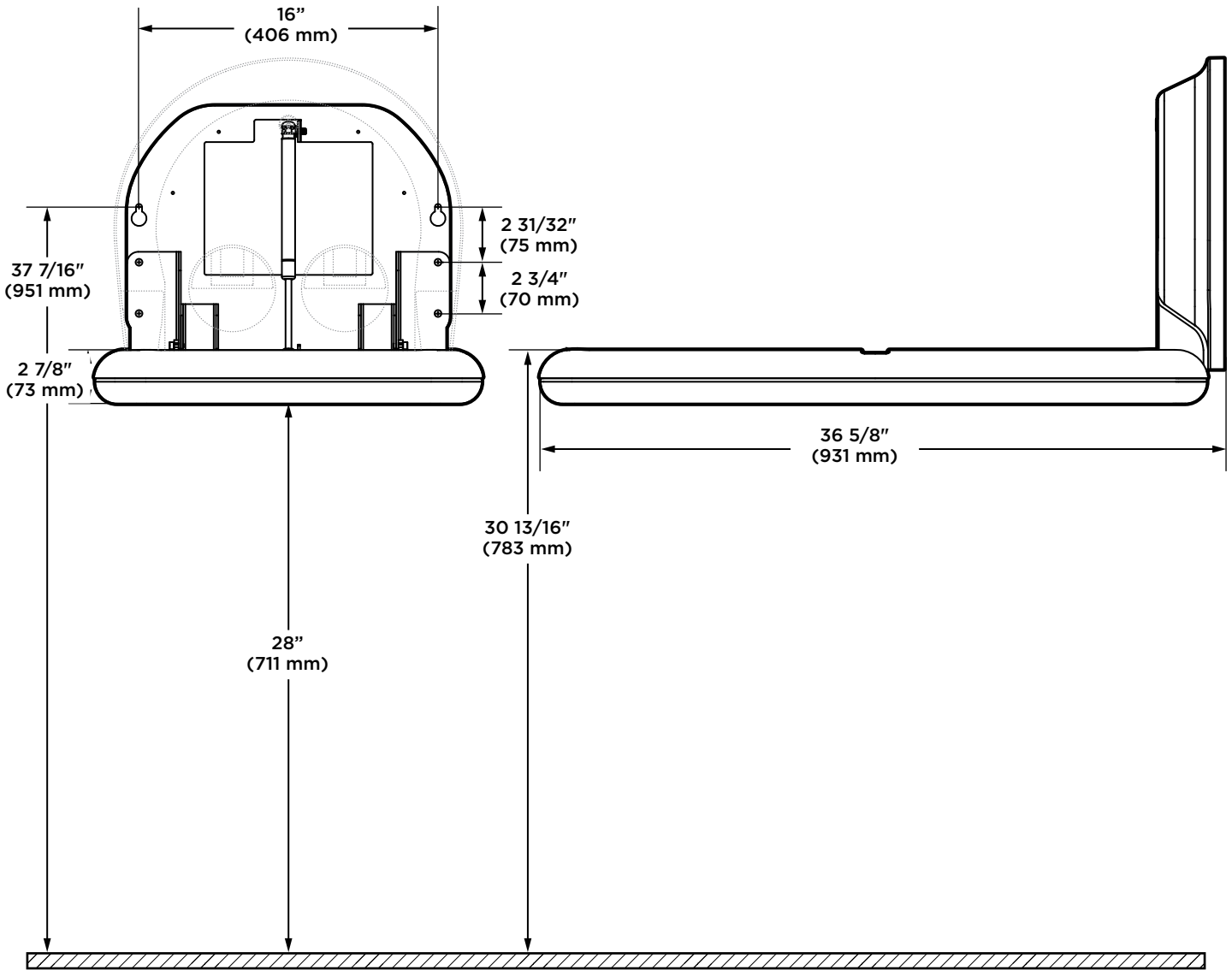
Posición cerrada



*Los diagramas no están a escala.

Cambiador para bebés KB301-SS

Posición abierta



*Los diagramas no están a escala.

Cambiador para bebés KB301-SS
Información

Material

Polipropileno moldeado a inyección con aditivo antimicrobiano Microban® incorporado en la superficie de la plataforma. Terminación de acero inoxidable tipo 304 bruñido. Mecanismo con bisagra de acero sobre acero y chasis de montaje metálico con tornillería de montaje. Instrucciones de uso etiquetadas y mensajes de seguridad en cuatro idiomas. Etiqueta opcional en Braille disponible. El área de la superficie para cambiar al bebé con contorno es de 535 in2 (3452 cm2) e incluye una correa de seguridad de TPU impermeable y un gancho externo macizo de acero inoxidable para el bolso. El dispensador de protectores de dos cavidades puede alojar hasta aproximadamente 50 protectores para la plataforma KB150-99.

Nota: Para las unidades que cumplen con EN 12221:2008+A1:2013, no se puede proporcionar una correa de seguridad con la unidad. Si necesita uno, se puede pedir por separado P/N 310-44-KIT.

Funcionamiento

El cilindro neumático oculto y el chasis de montaje metálico ofrecen una apertura y un cierre controlados y lentos de la plataforma. El polipropileno es fácil de limpiar y resiste olores y crecimiento bacteriano. Cumple los requisitos de desempeño para cargas estáticas de ASTM cuando está instalado correctamente. El dispensador de protectores interno con lengüeta a resorte integrada dispensa de a un protector por mes.

Advertencia: Para asegurar que la unidad sostenga las cargas previstas, los cambiadores deben instalarse correctamente según las instrucciones del fabricante.

Especificaciones

El cuerpo del cambiador para bebés es de polipropileno resistente moldeado a inyección. El diseño de la unidad es montado en superficie. La superficie frontal de la unidad tiene una terminación de acero inoxidable 304 bruñido. La unidad está equipada con un cilindro neumático para abrir y cerrar la plataforma de manera controlada. La plataforma está fija al chasis de montaje metálico con una bisagra de acero sobre acero oculta. No hay ninguna estructura de bisagra expuesta en las superficies interior ni exterior. La unidad incluye la tornillería de montaje. La unidad tiene el antimicrobiano Microban® incorporado en el material plástico de la superficie para cambiar al bebé. Cuando se instala correctamente, la unidad cumple las normas de la ley ADA. La plataforma tiene un área cóncava para cambiar al bebé con una correa de seguridad y un gancho de acero inoxidable externo para el bolso.

Está previsto que el diseño y la fabricación de los productos Koala cumplan las normas para el diseño accesible de 2010 de la ley ADA e ICC A117.1 Edificios e instalaciones accesibles y utilizables 2009. La unidad cumple la especificación de desempeño estándar en seguridad de ASTM para las mesa para cambiar pañales para uso comercial, F2285-04(16), y de letreros y etiquetas de advertencia de los productos ANSI Z535.4, EN 12221:2008+A1: 2013. La unidad tiene un dispensador de protectores incorporado para utilizarse con protectores biodegradables de 3 pliegues y sin químicos para la plataforma, gráficos instructivos y mensajes de seguridad en 4 idiomas. La unidad cuenta con el respaldo de la garantía limitada del fabricante durante 5 años para material y mano de obra e incluye una disposición para el reemplazo causado por el vandalismo.

La unidad se fabrica en los EE. UU.

Requisitos según la ADA

Hay información adicional sobre las maneras en que este producto cumple con la ADA en el documento titulado *KB300 & KB301 Baby Changing Stations Accessibility Compliance* (Cumplimiento de la accesibilidad de los cambiadores para bebés KB300 y KB301) en **www.koalabear.com**.

Las ilustraciones y las descripciones que se incluyen corresponden a la producción a la fecha de esta ficha de datos técnicos. El fabricante se reserva el derecho de hacer modificaciones y mejoras en los diseños y en las dimensiones sin previo aviso, algo que lleva a cabo de cuando en cuando.

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Una división de Bobrick

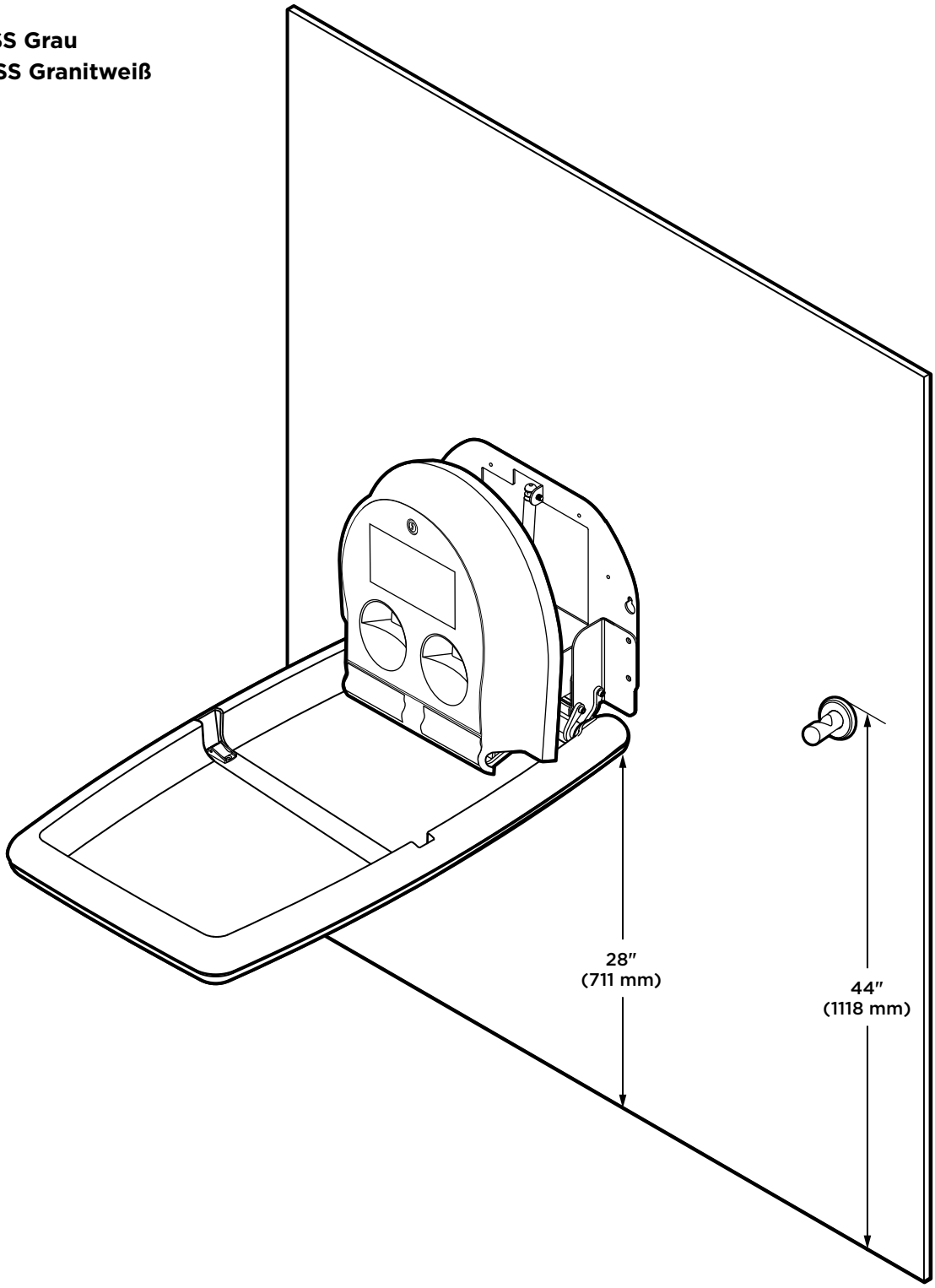
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Sitio web: koalabear.com **| Correo electrónico:** customerservice@koalabear.com

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KB301-SS Babywickeltisch
Technisches Datenblatt

Farbe

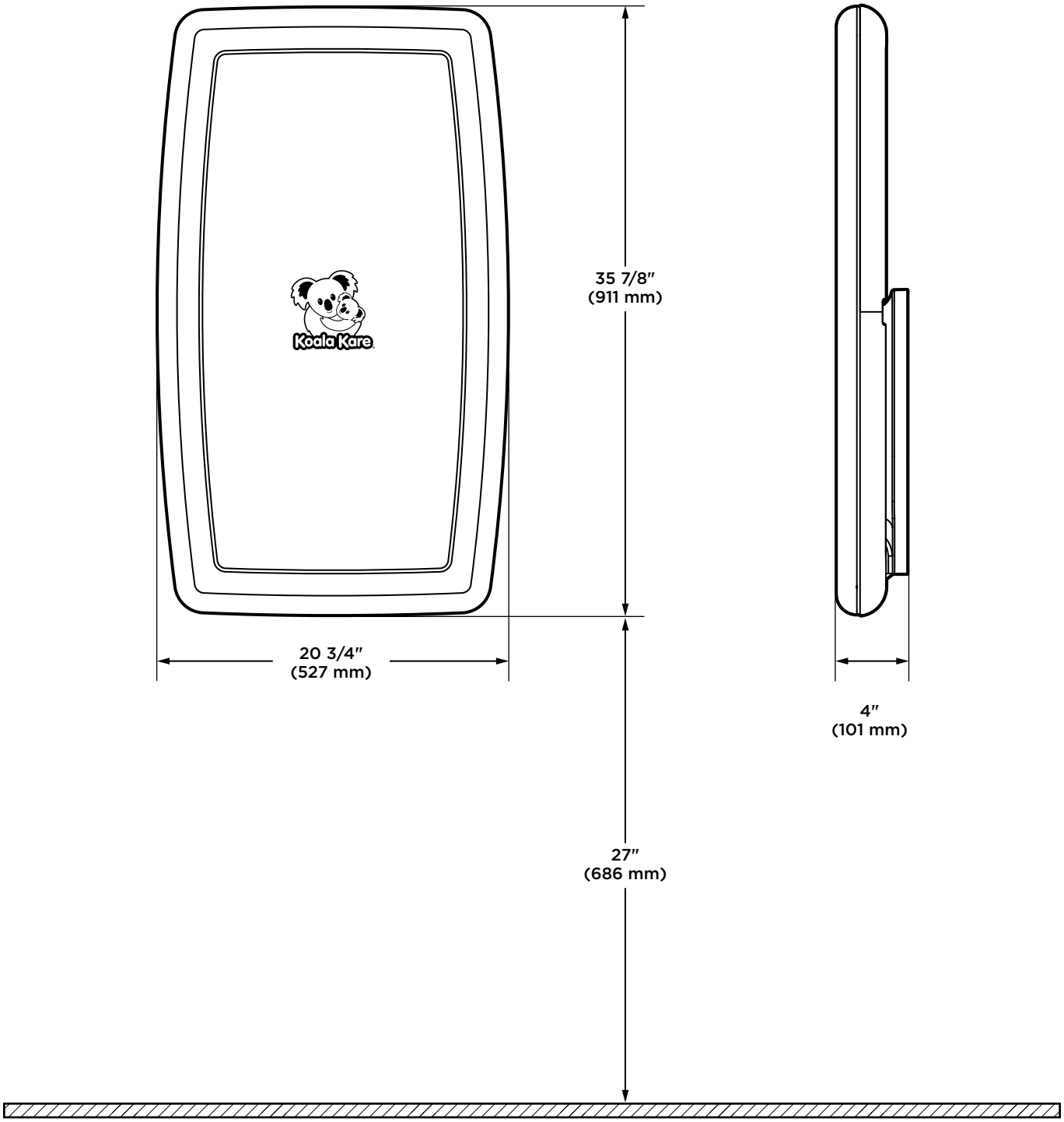
- **KB301-01SS Grau**
- **KB301-05SS Granitweiß**



*Abbildungen sind nicht maßstabsgetreu.

KB301-SS Babywickeltisch

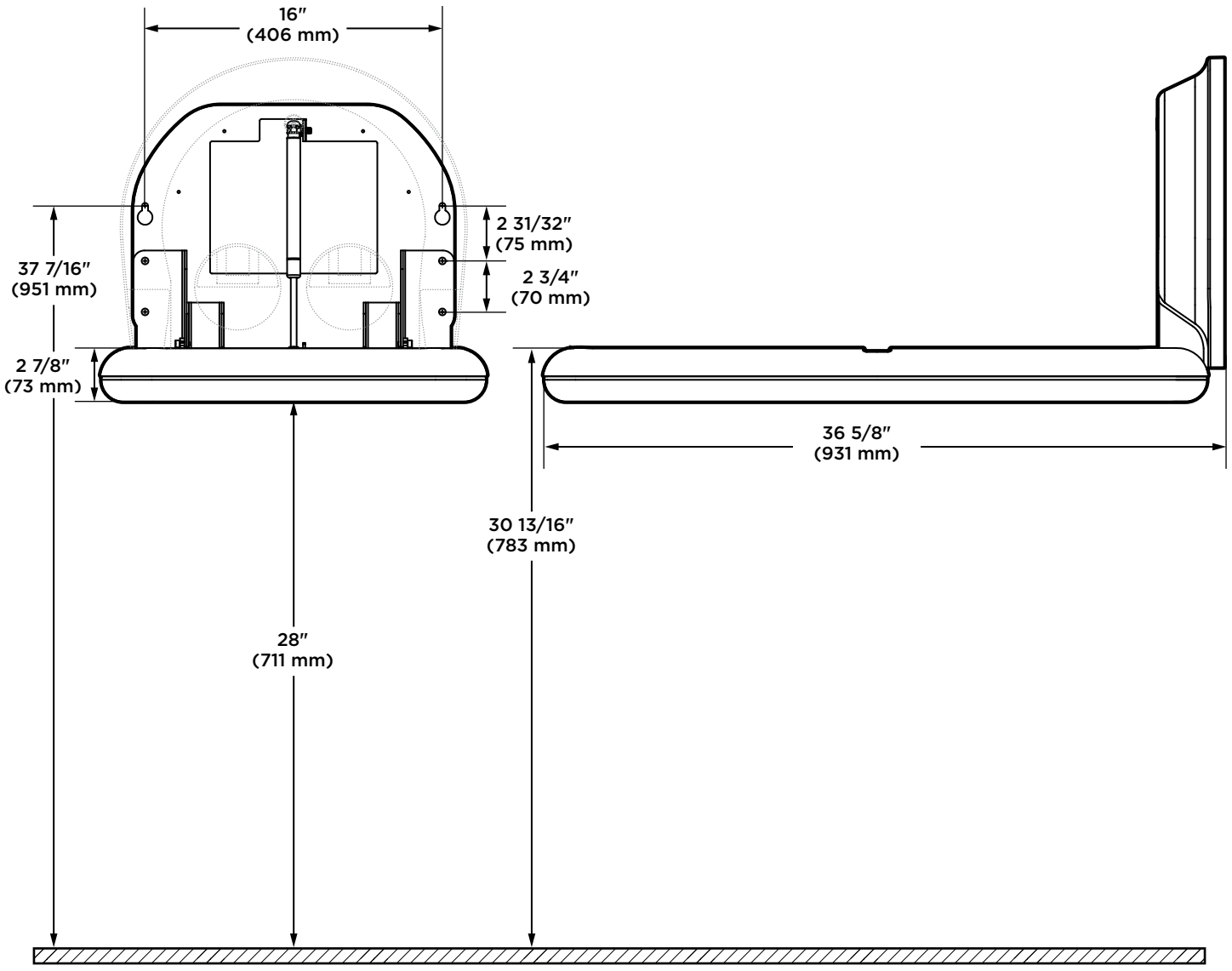
Geschlossene Position



*Abbildungen sind nicht maßstabsgetreu.

KB301-SS Babywickeltisch

Geöffnete Position



*Abbildungen sind nicht maßstabsgetreu.

KB301-SS Babywickeltisch
Informationen

Material

Spritzgegossenes Polypropylen mit Microban®-antimikrobiellen Zusatzstoffen in der Bettoberfläche. Blende aus gebürstetem Edelstahl CrNi18-8 (1.4310). Verstärkte Stahl-auf-Stahl-Scharniere und Metallchassis mit Befestigungsteilen enthalten. Mit Benutzeranweisungen und Sicherheitshinweisen in vier Sprachen. Optionale Kennzeichnung in Blindenschrift verfügbar. Konturierte Wickeloberfläche misst 3452 cm^2 und umfasst undurchlässigen TPU-Sicherheitsgurt und externen Beutelhaken aus Edelstahl. Integrierter Auflagenspender, der ca. 50 KB150-99 Hygieneauflagen fasst.

Hinweis: Für EN 12221:2008+A1:2013 konforme Geräte kann kein Sicherheitsgurt mit dem Gerät geliefert werden. Sollten Sie einen benötigen, kann dieser separat bestellt werden P/N 310-44-KIT.

Bedienung

Konstruktion mit verdecktem pneumatischem Zylinder und Metallchassis ermöglicht ein reguliertes, langsames Öffnen und Schließen des Betts. Polypropylen ist pflegeleicht und ist beständig gegen Geruch und Bakterienwachstum. Bei vorschriftsmäßiger Anbringung entspricht die Wickelstation den ASTM-Anforderungen für statische Belastung. Interner Überzugspender mit integrierter federbelasteter Raste spendet pro Betätigung einen Überzug.

Warnung: Um zu gewährleisten, dass die Einheit den beabsichtigten Belastungen standhält, müssen Babywickelstationen gemäß der Herstelleranleitung installiert werden.

Technische Beschreibung

Babywickelstation, robustes, spritzgegossenes Polypropylen. Die Einheit ist zur Aufputzmontage vorgesehen. Die Vorderseite der Einheit ist mit einer Blende aus gebürstetem Edelstahl 304 versehen. Die Einheit ist mit einem pneumatischen Zylinder zum geregelten Öffnen und Schließen des Betts ausgerüstet. Das Bett wird mit einem verdeckten Stahl-auf-Stahl-Scharnier am Metallchassis befestigt. Kein Teil der Scharnierkonstruktion liegt an inneren oder äußeren Oberflächen frei. Der Einheit liegen Befestigungsteile bei. Das Kunststoffmaterial auf der Wickeloberfläche ist mit antibakteriellem Microban®-Schutz ausgerüstet. Die Einheit entspricht bei vorschriftsmäßiger Installation den ADA-Bestimmungen. Das Bett hat einen glatten, konkaven Wickelbereich mit einem Sicherheitsgurt und einem externen Haken für Beutel oder Taschen.

Design und Herstellung der Koala-Produkte erfolgt gemäß den 2010 ADA Standards for Accessible Design und 2009 ICC A117.1, Accessible and Usable Buildings and Facilities. Die Einheit entspricht den folgenden Normen: ASTM F2285-04(16) Standard Safety Performance Specification for Diaper Changing Tables for Commercial Use, ANSI Z535.22 Product Safety Signs and Labels, EN 12221:2008+A1 2013. Die Einheit hat einen integrierten Auflagenspender zur Verwendung mit 3-lagigen, chemikalienfreien, biologisch abbaubaren Hygieneüberzügen, Anleitungsabbildungen und Sicherheitshinweise in 4 Sprachen. Für die Einheit wird eine 5-jährige beschränkte Herstellergarantie für Material- und Herstellungsfehler und eine 5-jährige Ersatzgarantie für Vandalismus gewährt.

Die Einheit wird in den USA hergestellt.

ADA-Anforderungen

Zusätzliche Informationen dazu, wie dieses Produkt die ADA-Anforderungen erfüllt, sind im Dokument *KB300 & KB301 Baby Changing Stations Accessibility Compliance* (KB300 & KB301 Babywickeltische – Erfüllung der Vorgaben für eine barrierefreie Bedienung) auf **www.koalabear.com** zu finden.

Die Abbildungen und Beschreibungen in diesem Datenblatt beziehen sich auf Produkte, wie sie zu dem in diesem technischen Datenblatt angegebenen Datum hergestellt wurden. Der Hersteller behält sich das Recht vor, von Zeit zu Zeit Änderungen und Verbesserungen an Konstruktion und an den Abmessungen vorzunehmen.

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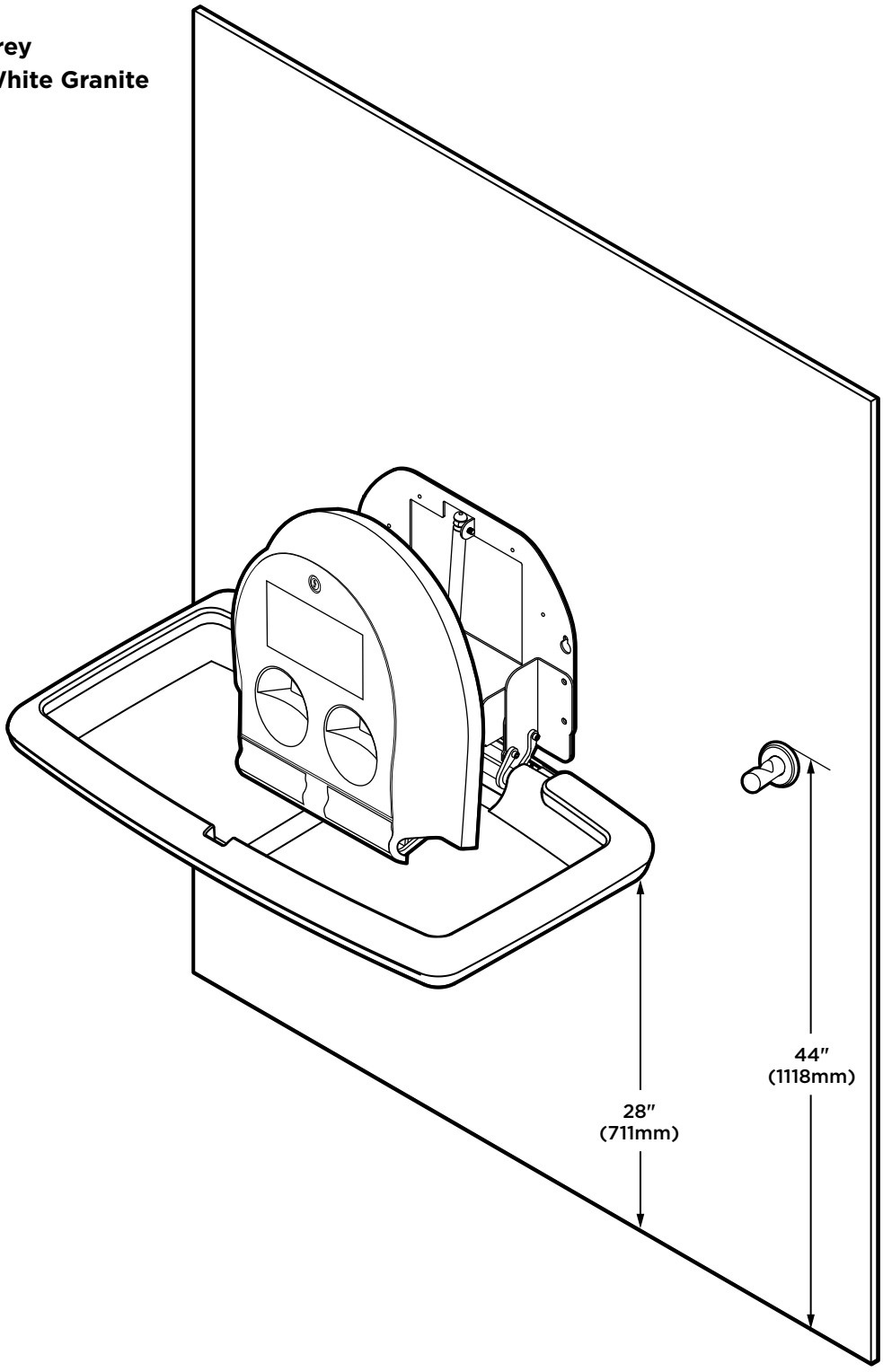
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KB300-SS Baby Changing Station
Technical Data Sheet

Color

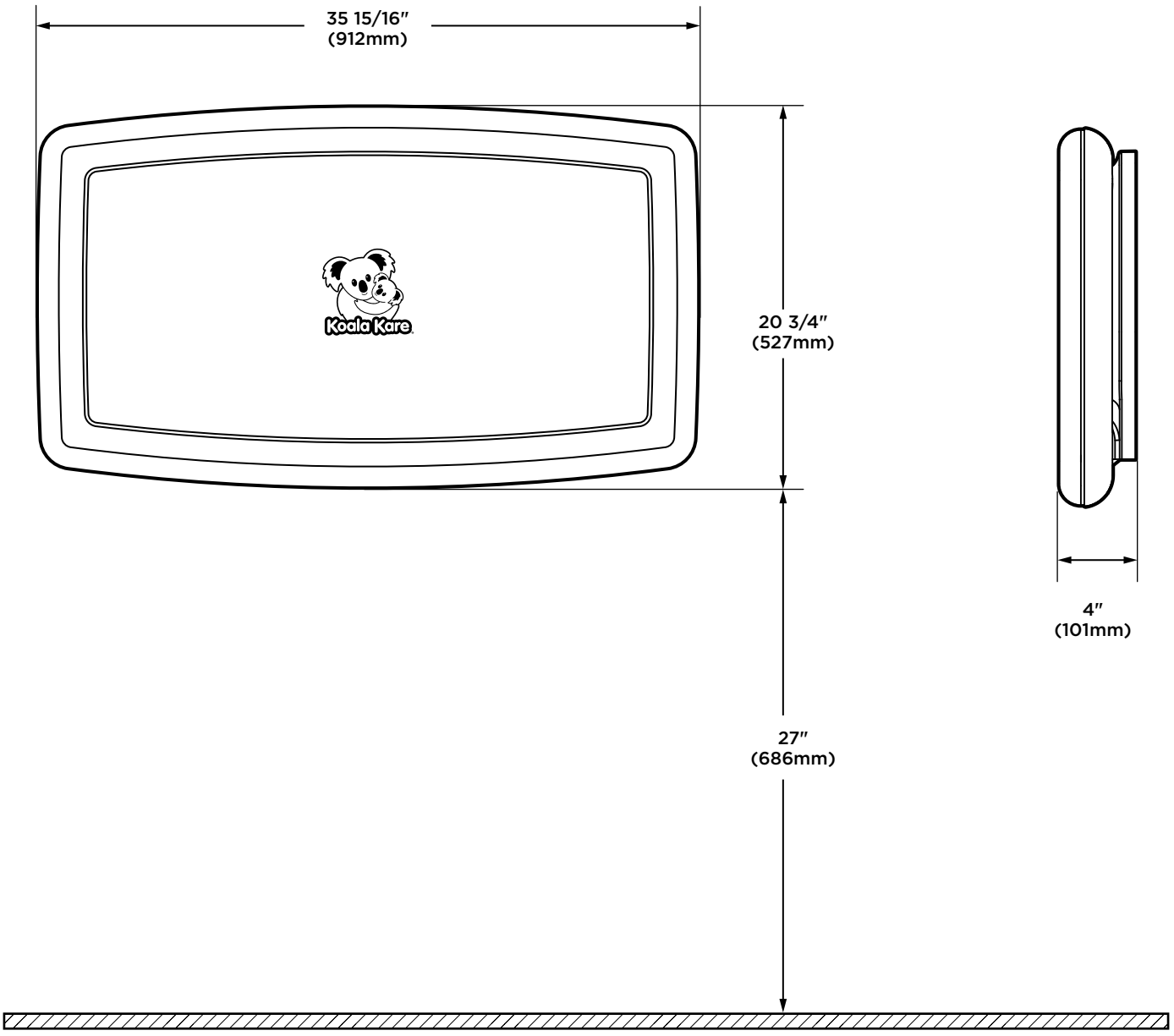
- **KB300-01SS Grey**
- **KB300-05SS White Granite**



*Diagrams are not to scale.

KB300-SS Baby Changing Station

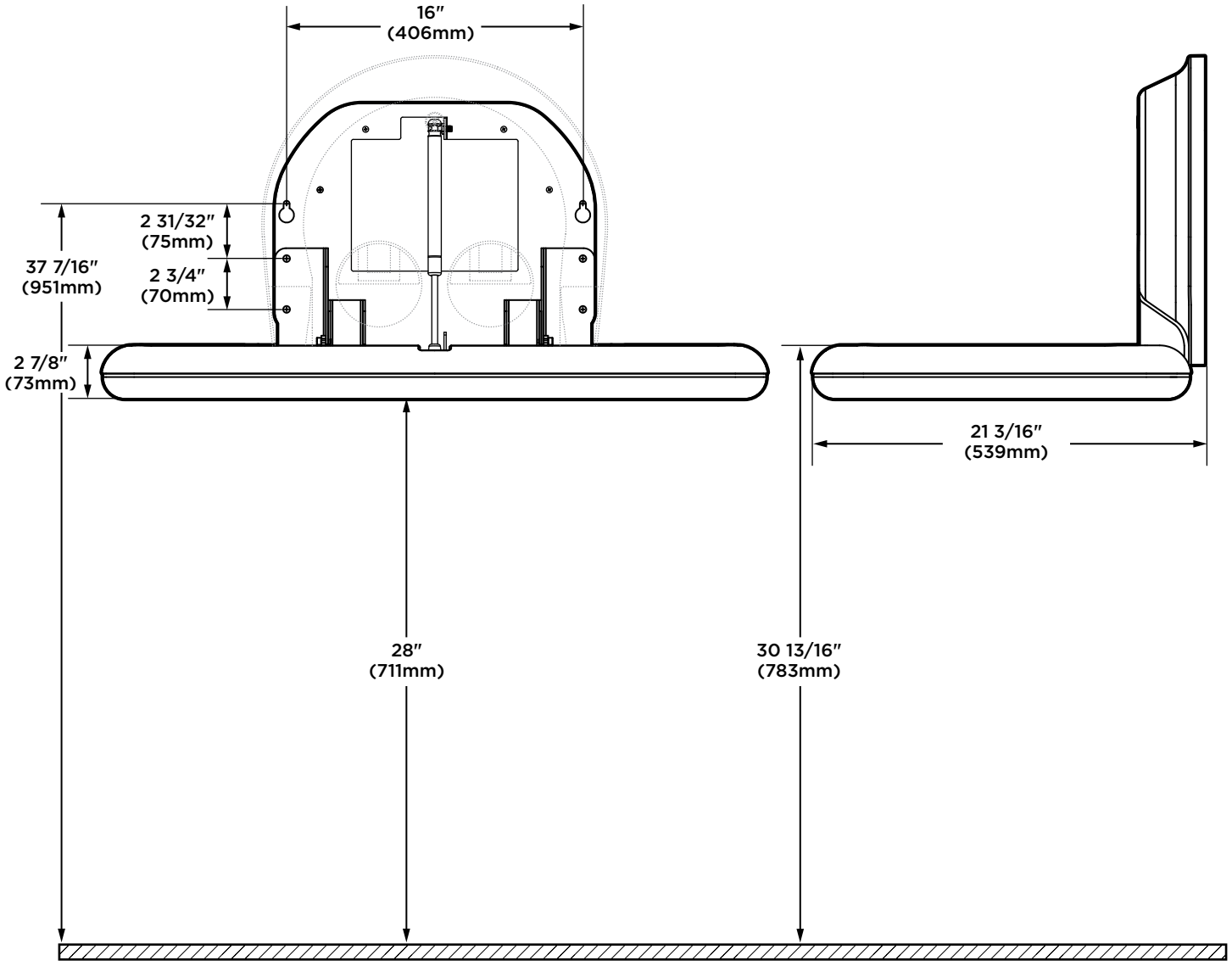
Closed Position



*Diagrams are not to scale.

KB300-SS Baby Changing Station

Open Position



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KB300-SS Baby Changing Station
Information

Material

Injection-molded polypropylene with Microban® antimicrobial additive embedded into the bed surface. Type 304 brushed stainless steel finish veneer. Reinforced steel-on-steel hinge mechanism and metal mounting chassis with mounting hardware included. Labeled usage instructions and safety messages in four languages. Optional Braille label available. Contoured changing surface area is 535 sq. in (3452 sq. cm) and comes complete with impervious TPU safety strap and solid stainless steel external bag hook. Dual cavity liner dispenser holds approximately 50 KB150-99 bed liners.

Note: For EN 12221:2008+A1:2013 compliant units a safety strap can not be provided with the unit. Should you require one, it can be ordered separately P/N 310-44-KIT.

Operation

Concealed pneumatic cylinder and metal mounting chassis provides controlled, slow opening and closing of bed. Polypropylene is easy to clean and resists odors and bacterial growth. Complies with ASTM static load performance requirements when properly installed. Internal liner dispenser with integrated spring tab dispensed one liner at a time.

Warning: To ensure that the unit supports the intended loads, baby changing stations must be properly installed according to the manufacturer's instructions.

Specification

Baby changing station body shall be durable, injection-molded polypropylene. Design of unit shall be surface-mounted. Front surface of unit shall have a 304 brushed stainless steel finish veneer. Unit shall be equipped with a pneumatic cylinder for controlled opening and closing of bed. Bed shall be secured to metal mounting chassis with a concealed steel-on-steel hinge. No hinge structure shall be exposed on interior or exterior surfaces. Unit shall have mounting hardware included. Unit shall have Microban® antimicrobial embedded into plastic material on the changing surface. Unit shall comply with ADA regulations when properly installed. Bed shall have smooth concave changing area with a safety strap and external stainless steel hook for bags or purse provided.

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Unit shall be manufactured in the U.S.A.

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Additional information on how this product complies with ADA requirements can be found in the *KB300 & KB301 Baby Changing Stations Accessibility Compliance* document on **www.koalabear.com**.

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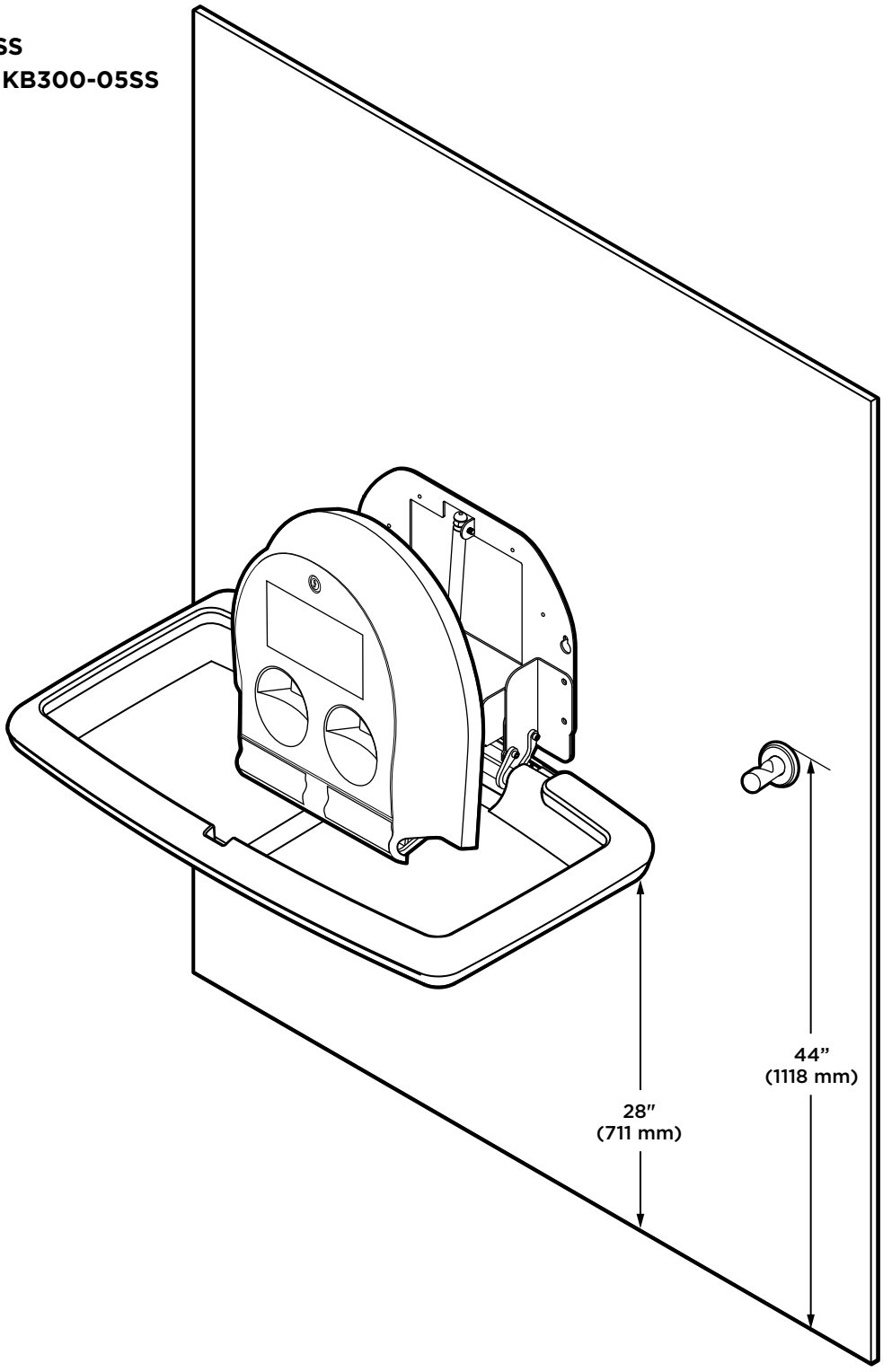
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Cambiador para bebés KB300-SS
Ficha de datos técnicos

Color

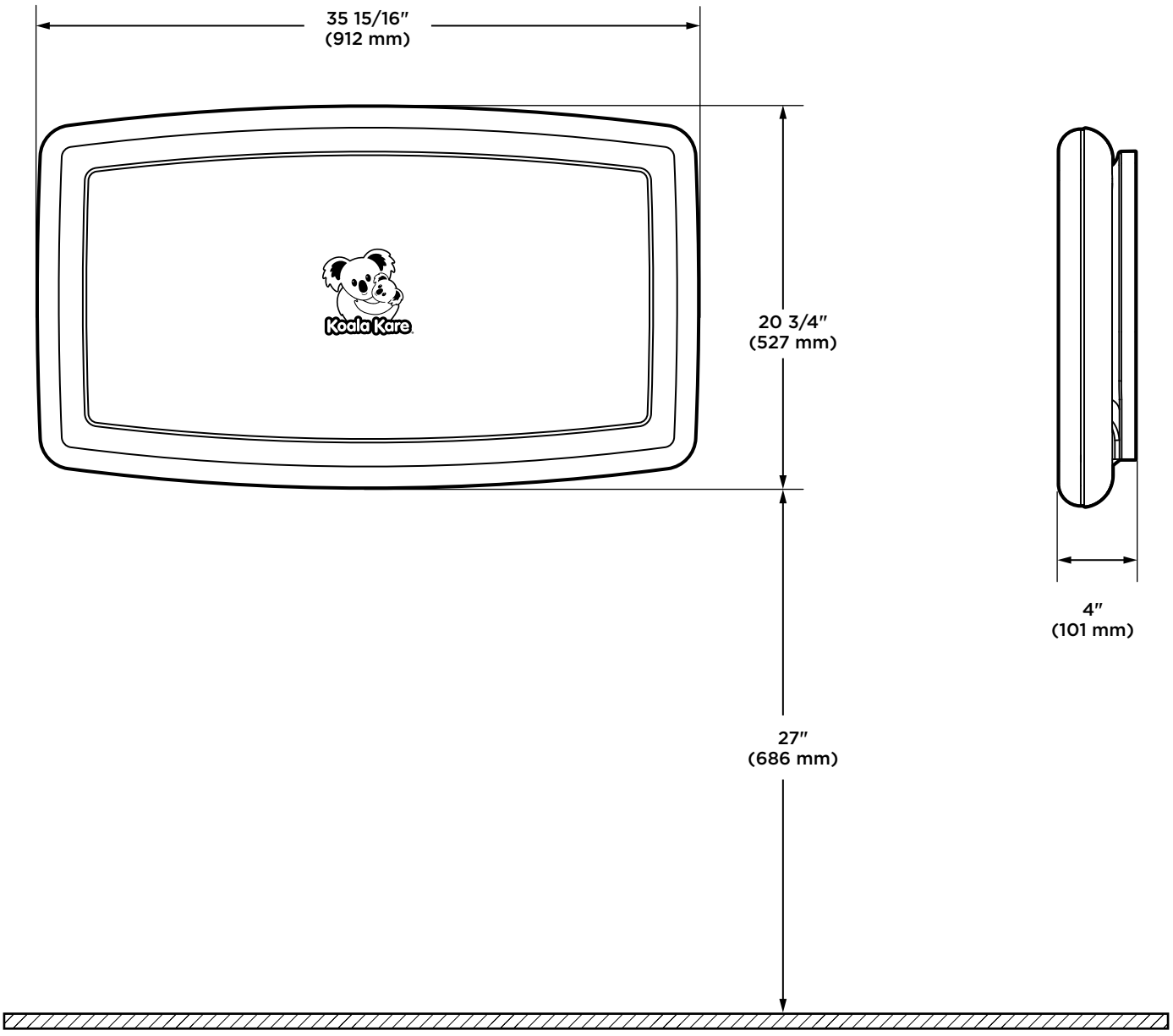
- **Gris KB300-01SS**
- **Granito blanco KB300-05SS**



*Los diagramas no están a escala.

Cambiador para bebés KB300-SS

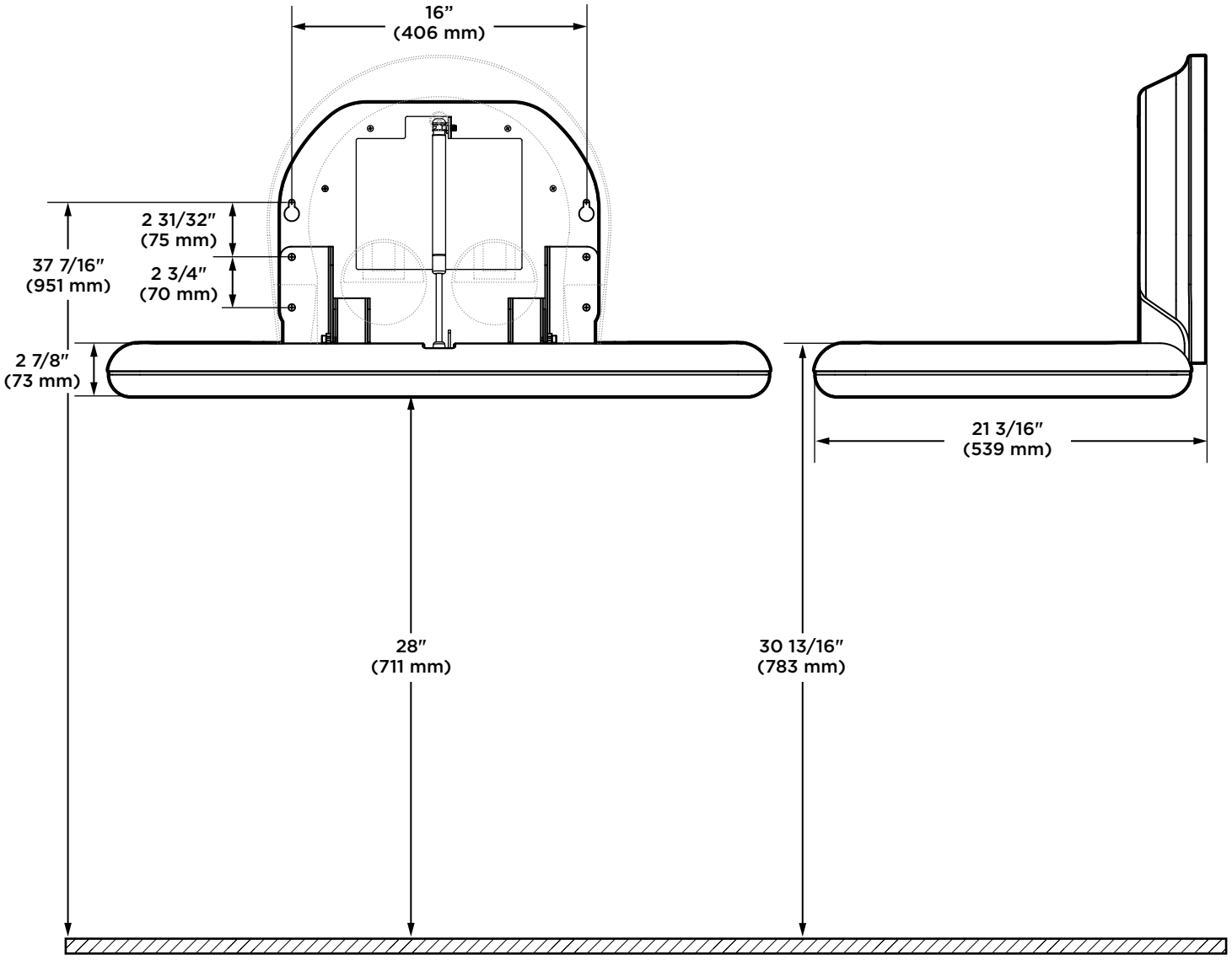
Posición cerrada



*Los diagramas no están a escala.

Cambiador para bebés KB300-SS

Posición abierta



*Los diagramas no están a escala.

Cambiador para bebés KB300-SS
Información

Material

Polipropileno moldeado a inyección con aditivo antimicrobiano Microban® incorporado en la superficie de la plataforma. Terminación de acero inoxidable tipo 304 bruñido. Mecanismo con bisagra de acero sobre acero y chasis de montaje metálico con tornillería de montaje. Instrucciones de uso etiquetadas y mensajes de seguridad en cuatro idiomas. Etiqueta opcional en Braille disponible. El área de la superficie para cambiar al bebé con contorno es de 535 in2 (3452 cm2) e incluye una correa de seguridad de TPU impermeable y un gancho externo macizo de acero inoxidable para el bolso. El dispensador de protectores de dos cavidades puede alojar hasta aproximadamente 50 protectores para la plataforma KB150-99.

Nota: Para las unidades que cumplen con EN 12221:2008+A1:2013, no se puede proporcionar una correa de seguridad con la unidad. Si necesita uno, se puede pedir por separado P/N 310-44-KIT.

Funcionamiento

El cilindro neumático oculto y el chasis de montaje metálico ofrecen una apertura y un cierre controlados y lentos de la plataforma. El polipropileno es fácil de limpiar y resiste olores y crecimiento bacteriano. Cumple los requisitos de desempeño para cargas estáticas de ASTM cuando está instalado correctamente. El dispensador de protectores interno con lengüeta a resorte integrada dispensa de a un protector por mes.

Advertencia: Para asegurar que la unidad sostenga las cargas previstas, los cambiadores deben instalarse correctamente según las instrucciones del fabricante.

Especificaciones

El cuerpo del cambiador para bebés es de polipropileno resistente moldeado a inyección. El diseño de la unidad es montado en superficie. La superficie frontal de la unidad tiene una terminación de acero inoxidable 304 bruñido. La unidad está equipada con un cilindro neumático para abrir y cerrar la plataforma de manera controlada. La plataforma está fija al chasis de montaje metálico con una bisagra de acero sobre acero oculta. No hay ninguna estructura de bisagra expuesta en las superficies interior ni exterior. La unidad incluye la tornillería de montaje. La unidad tiene el antimicrobiano Microban® incorporado en el material plástico de la superficie para cambiar al bebé. Cuando se instala correctamente, la unidad cumple las normas de la ley ADA. La plataforma tiene un área cóncava para cambiar al bebé con una correa de seguridad y un gancho de acero inoxidable externo para el bolso.

Está previsto que el diseño y la fabricación de los productos Koala cumplan las normas para el diseño accesible de 2010 de la ley ADA e ICC A117.1 Edificios e instalaciones accesibles y utilizables 2009. La unidad cumple la especificación de desempeño estándar en seguridad de ASTM para las mesa para cambiar pañales para uso comercial, F2285-04(16), y de letreros y etiquetas de advertencia de los productos ANSI Z535.4, EN 12221:2008+A1: 2013. La unidad tiene un dispensador de protectores incorporado para utilizarse con protectores biodegradables de 3 pliegues y sin químicos para la plataforma, gráficos instructivos y mensajes de seguridad en 4 idiomas. La unidad cuenta con el respaldo de la garantía limitada del fabricante durante 5 años para material y mano de obra e incluye una disposición para el reemplazo causado por el vandalismo.

La unidad se fabrica en los EE. UU.

Requisitos según la ADA

Hay información adicional sobre las maneras en que este producto cumple con la ADA en el documento titulado *KB300 & KB301 Baby Changing Stations Accessibility Compliance* (Cumplimiento de la accesibilidad de los cambiadores para bebés KB300 y KB301) en **www.koalabear.com**.

Las ilustraciones y las descripciones que se incluyen corresponden a la producción a la fecha de esta ficha de datos técnicos. El fabricante se reserva el derecho de hacer modificaciones y mejoras en los diseños y en las dimensiones sin previo aviso, algo que lleva a cabo de cuando en cuando.

Koala Kare Products
Una división de Bobrick

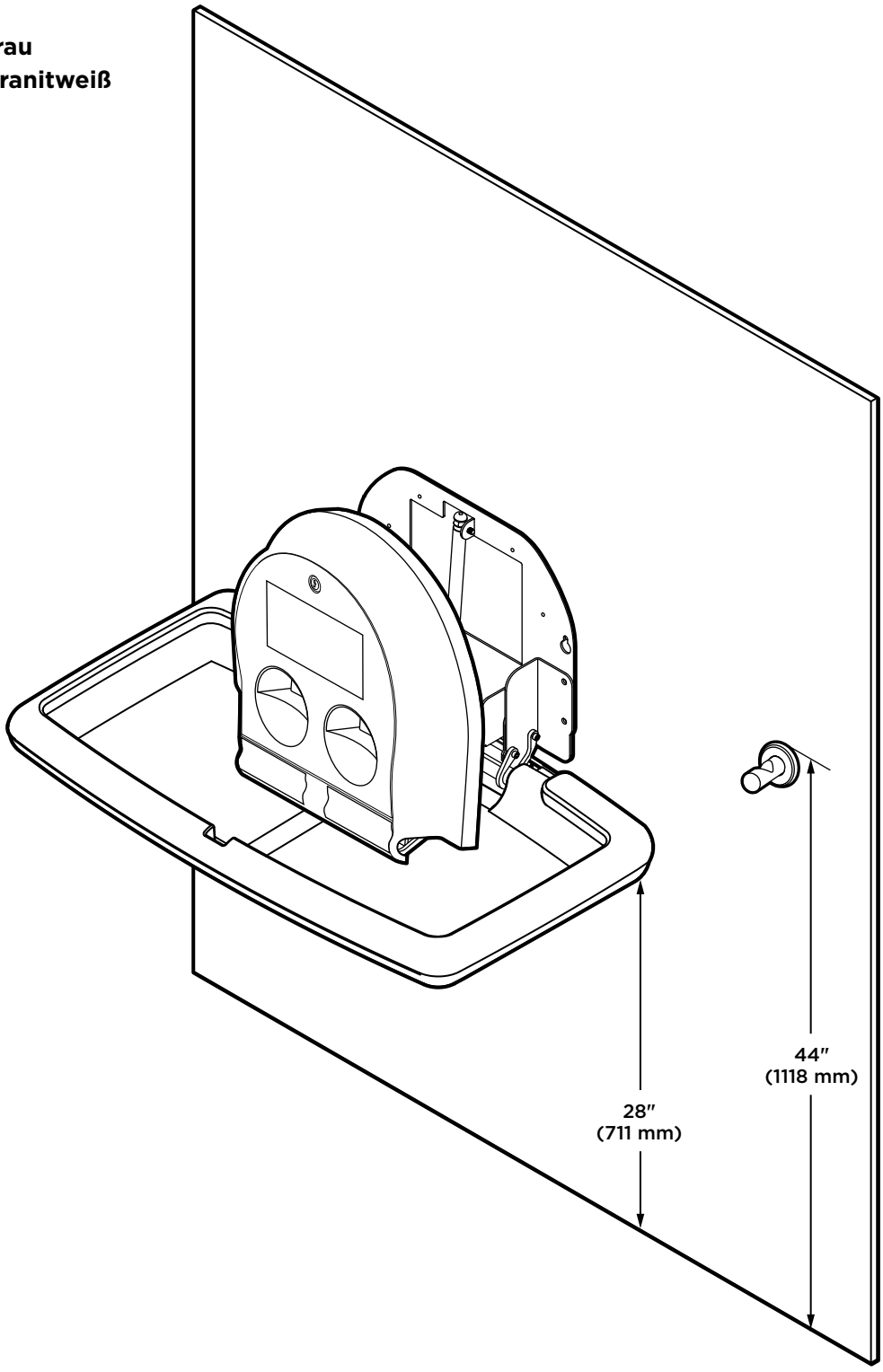
6982 South Quentin Street, Centennial, CO 80112-3945
Principal: 303.539.8300 **| Llamada gratuita:** 888.733.3456 **| Fax:** 303.539.8399
Sitio web: koalabear.com **| Correo electrónico:** customerservice@koalabear.com

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KB300-SS Babywickeltisch
Technisches Datenblatt

Farbe

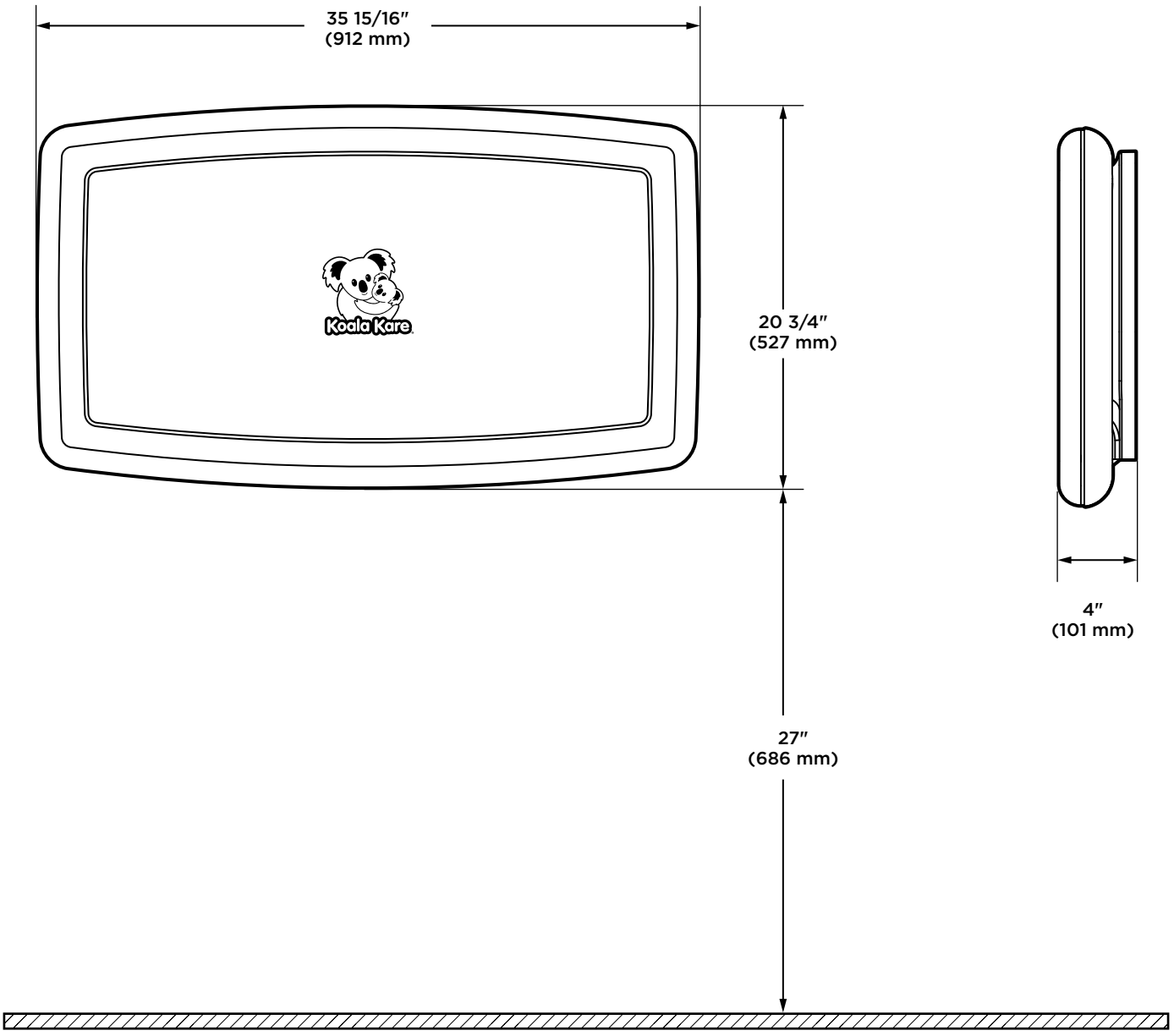
- **KB300-01SS Grau**
- **KB300-05SS Granitweiß**



*Abbildungen sind nicht maßstabsgetreu.

KB300-SS Babywickeltisch

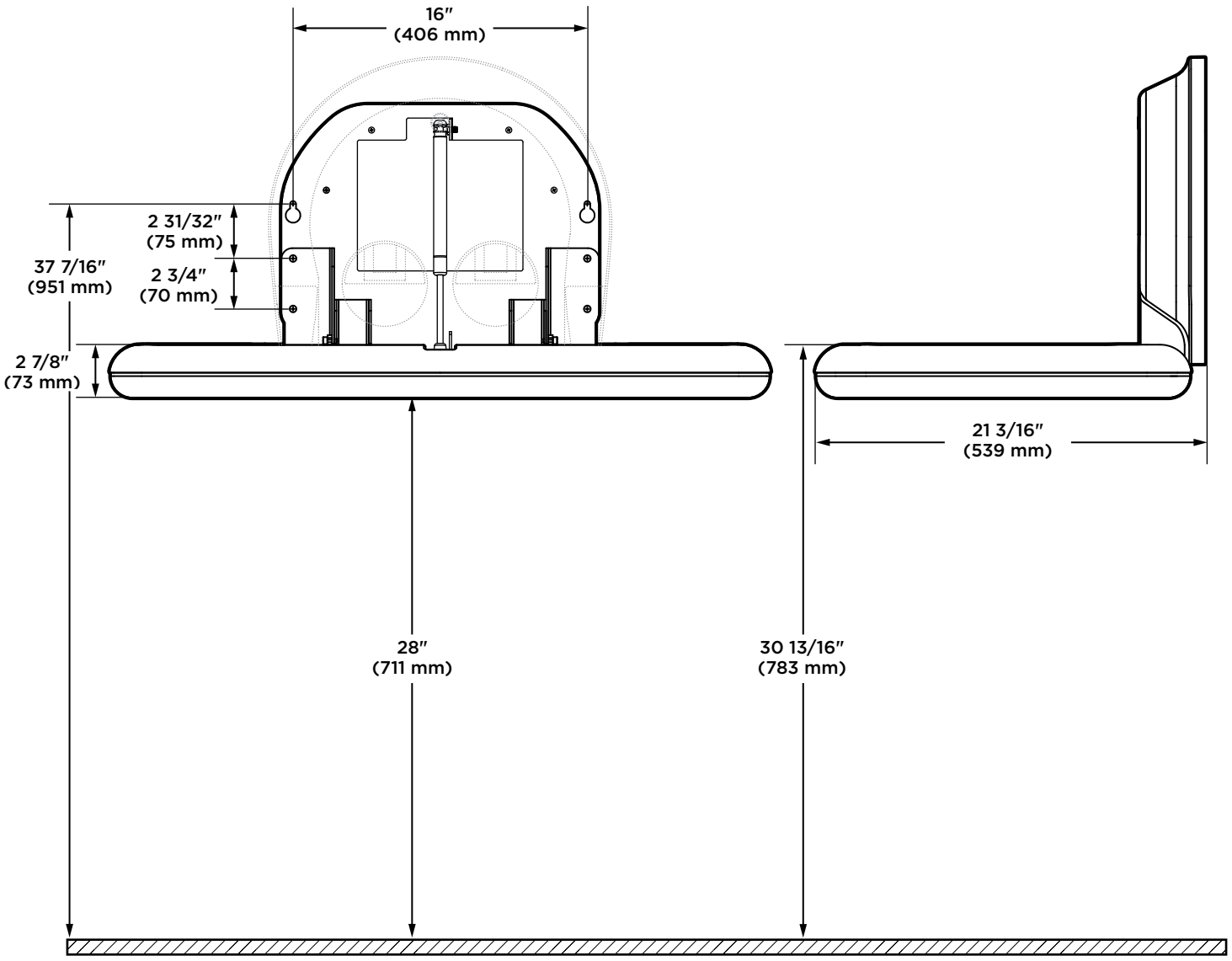
Geschlossene Position



*Abbildungen sind nicht maßstabsgetreu.

KB300-SS Babywickeltisch

Geöffnete Position



*Abbildungen sind nicht maßstabsgetreu.

KB300-SS Babywickeltisch
Informationen

Material

Spritzgegossenes Polypropylen mit Microban®-antimikrobiellen Zusatzstoffen in der Bettoberfläche. Blende aus gebürstetem Edelstahl CrNi18-8 (1.4310). Verstärkte Stahl-auf-Stahl-Scharniere und Metallchassis mit Befestigungsteilen enthalten. Mit Benutzeranweisungen und Sicherheitshinweisen in vier Sprachen. Optionale Kennzeichnung in Blindenschrift verfügbar. Konturierte Wickeloberfläche misst 3452 cm^2 und umfasst undurchlässigen TPU-Sicherheitsgurt und externen Beutelhaken aus Edelstahl. Integrierter Auflagenspender, der ca. 50 KB150-99 Hygieneauflagen fasst.

Hinweis: Für EN 12221:2008+A1:2013 konforme Geräte kann kein Sicherheitsgurt mit dem Gerät geliefert werden. Sollten Sie einen benötigen, kann dieser separat bestellt werden P/N 310-44-KIT.

Bedienung

Konstruktion mit verdecktem pneumatischem Zylinder und Metallchassis ermöglicht ein reguliertes, langsames Öffnen und Schließen des Betts. Polypropylen ist pflegeleicht und ist beständig gegen Geruch und Bakterienwachstum. Bei vorschriftsmäßiger Anbringung entspricht die Wickelstation den ASTM-Anforderungen für statische Belastung. Interner Überzugspender mit integrierter federbelasteter Raste spendet pro Betätigung einen Überzug.

Warnung: Um zu gewährleisten, dass die Einheit den beabsichtigten Belastungen standhält, müssen Babywickelstationen gemäß der Herstelleranleitung installiert werden.

Technische Beschreibung

Babywickelstation, robustes, spritzgegossenes Polypropylen. Die Einheit ist zur Aufputzmontage vorgesehen. Die Vorderseite der Einheit ist mit einer Blende aus gebürstetem Edelstahl 304 versehen. Die Einheit ist mit einem pneumatischen Zylinder zum geregelten Öffnen und Schließen des Betts ausgerüstet. Das Bett wird mit einem verdeckten Stahl-auf-Stahl-Scharnier am Metallchassis befestigt. Kein Teil der Scharnierkonstruktion liegt an inneren oder äußeren Oberflächen frei. Der Einheit liegen Befestigungsteile bei. Das Kunststoffmaterial auf der Wickeloberfläche ist mit antibakteriellem Microban®-Schutz ausgerüstet. Die Einheit entspricht bei vorschriftsmäßiger Installation den ADA-Bestimmungen. Das Bett hat einen glatten, konkaven Wickelbereich mit einem Sicherheitsgurt und einem externen Haken für Beutel oder Taschen.

Design und Herstellung der Koala-Produkte erfolgt gemäß den 2010 ADA Standards for Accessible Design und 2009 ICC A117.1, Accessible and Usable Buildings and Facilities. Die Einheit entspricht den folgenden Normen: ASTM F2285-04(16) Standard Safety Performance Specification for Diaper Changing Tables for Commercial Use, ANSI Z535.22 Product Safety Signs and Labels, EN 12221:2008+A1 2013. Die Einheit hat einen integrierten Auflagenspender zur Verwendung mit 3-lagigen, chemikalienfreien, biologisch abbaubaren Hygieneüberzügen, Anleitungsabbildungen und Sicherheitshinweise in 4 Sprachen. Für die Einheit wird eine 5-jährige beschränkte Herstellergarantie für Material- und Herstellungsfehler und eine 5-jährige Ersatzgarantie für Vandalismus gewährt.

Die Einheit wird in den USA hergestellt.

ADA-Anforderungen

Zusätzliche Informationen dazu, wie dieses Produkt die ADA-Anforderungen erfüllt, sind im Dokument *KB300 & KB301 Baby Changing Stations Accessibility Compliance* (KB300 & KB301 Babywickeltische – Erfüllung der Vorgaben für eine barrierefreie Bedienung) auf **www.koalabear.com** zu finden.

Die Abbildungen und Beschreibungen in diesem Datenblatt beziehen sich auf Produkte, wie sie zu dem in diesem technischen Datenblatt angegebenen Datum hergestellt wurden. Der Hersteller behält sich das Recht vor, von Zeit zu Zeit Änderungen und Verbesserungen an Konstruktion und an den Abmessungen vorzunehmen.

Koala Kare Products
A Division of Bobrick

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Website: koalabear.com **| E-Mail:** customerservice@koalabear.com

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BOBRICK

Technical Data

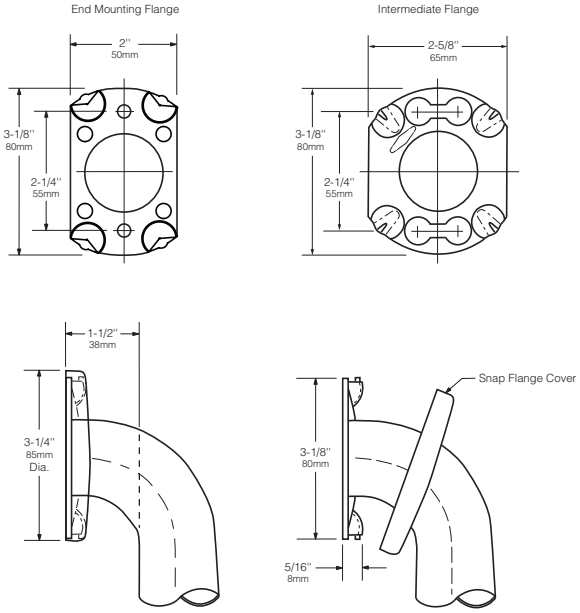
1½" (38mm) DIAMETER STAINLESS STEEL GRAB BARS WITH SNAP FLANGE

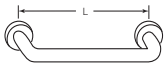
B-6806 SERIES

Specify Finish Required:

- ☐ Satin-finish, slip-resistant surface
- ☐ Peened surface; add suffix .99 to model number





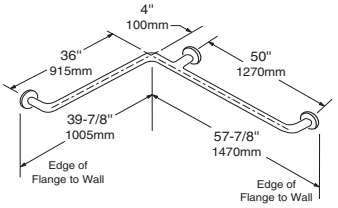


HORIZONTAL

B-6806 x 12, 18, 24, 30, 36, 42, 48

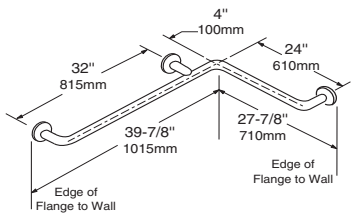


VERTICAL



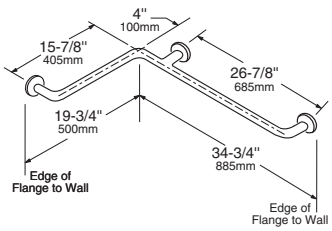
TWO-WALL WHEELCHAIR COMPARTMENT

B-68137



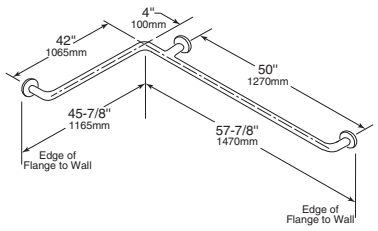
HORIZONTAL TUB / SHOWER COMPARTMENT BAR 24 x 36

B-68616



HORIZONTAL TWO-WALL BAR for Shower Stall

B-6861



TWO-WALL TOILET COMPARTMENT BAR 42 x 54

B-6897

continued . . .

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet.
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MATERIALS:

Grab Bar — 18-8 S, type-304, 18-gauge (1.2mm) stainless steel tubing with satin-finish, slip-resistant surface. 1-1/2" (38mm) outside diameter. Ends are heliarc welded to flanges. Clearance between the grab bar and wall is 1-1/2" (38mm).

Concealed Mounting Flanges — 18-8 S, type-304, 11-gauge (3.2mm) thick, stainless steel plate; end flanges 2" x 3-1/8" (50 x 80mm) with holes for attachment to wall. Intermediate flanges 2-5/8" x 3-1/8" (65 x 80mm) wide x 3-1/8" (80mm) diameter.

Snap Flange Covers — 18-8 S, type-304, 22-gauge (0.8mm) drawn stainless steel with satin-finish. 3-1/4" (85mm) diameter x 1/2" (13mm) deep. Each cover snaps over mounting flange to conceal mounting screws.

STRENGTH:

Bobrick grab bars that provide 1-1/2" (38mm) clearance from wall can support loads in excess of 900 pounds (408kg) if properly installed. Other grab bar configurations can support loads in excess of 250 pounds (113kg) if properly installed, complying with accessible design (including ADAAG in the U.S.A.) for structural strength

Safety Warning: Grab bars are no stronger than the anchors and walls to which they are attached and, therefore, must be firmly secured in order to support the loads for which they are intended. To avoid potential injury, the building owner or maintenance personnel should remove the grab bar from service if the grab bar is not adequately secured to wall or if there is any observed damage to the welds.

INSTALLATION:

Provide concealed anchor device or backing as specified or required in accordance with local building codes before wall is finished. Fasten concealed mounting flanges to anchor device or backing with at least two screws opposing each other in each flange. Snap flange covers over each mounting flange to conceal mounting screws. Concealed anchor devices and mounting screws are not included with Bobrick grab bars and must be specified as an accessory.

For Grab Bars with an Intermediate Flange(s), Pull Snap-Flange Covers away from mounting flanges. Place grab bar in desired mounting location. Use intermediate flange as a template to mark location of mounting screws at intermediate flange only. Mark screw locations at the center of the slot in the middle of the double-keyhole shaped mounting holes (2) in the intermediate flange. Remove grab bar from wall. Drive the intermediate flange mounting screws into wall at marked locations. **Note:** Make sure to leave a space of just over 1/8" (3.17mm) between the underside of the screw head and the wall. Install grab bar on the wall by placing the round ends of the intermediate flange double-keyhole shaped mounting holes over the mounting screws (2) are located in the middle of the flange slots. Install the mounting screws into the wall at the end flanges and secure tightly. Tighten the mounting screws at the intermediate flange. Press all snap-flange covers into place to conceal mounting flanges.

Note: Recommend use of 1/4" or #14 sheet metal or wood screws to install Intermediate Flange. #12 screws may also be used.

Important Notes:

1. **Mounting Kits —** Bobrick offers a mounting kit for installing grab bars; **one Bobrick mounting kit is required for each flange.**

Mounting Kit No.	Description
252-30	Consists of # (3) 14 x 2½" type-304 stainless steel, Phillips round-head, sheet-metal screws.

2. **Grab Bar Fastener —** Bobrick offers a grab bar fastening system that secures all Bobrick grab bar series; **one Bobrick fastener is required for each flange.** Install grab bar without backing in wall requires minimum 5/8" (16mm) thick painted or tiled drywall.

WingIt™ Fastener No.	Description
251-4	Consists of 10–32 x 5/16" round-head, Phillips 18/8 stainless steel screws. (1) WingIt grab bar fastener.

3. **Optional Anchor Device —** Bobrick grab bar anchor device includes stainless steel machine screws to be used for attaching grab bars to anchors. **one Bobrick concealed anchor device is required for each flange.**

Optional Anchor No.	Description
2583	Anchor for 3/4" to 1" (19-25mm) panel 1 anchor required for each flange.
2586	Anchor for 1/2" to 1" (13mm) panel 1 anchor required for each flange.

SPECIFICATION:

Grab bar shall be type-304 stainless steel with satin-finish, slip-resistant surface. Grab bar shall have 18-gauge (1.2mm) wall thickness and 1-1/2" (38mm) outside diameter. Clearance between the grab bar and wall shall be 1-1/2" (38mm). Concealed mounting flanges shall be 11-gauge (3.2mm) thick stainless steel plate, 2" x 3-1/8" (50 x 80mm), and equipped with at least two screw holes for attachment to wall. Flange covers shall be 22 gauge (0.8mm), 3-1/4" (85mm) diameter x 1/2" (13mm) deep, and shall snap over mounting flange to conceal mounting screws and/or WingIt fasteners. Ends of grab bar shall pass through concealed mounting flanges and be heliarc welded to form one structural unit. Grab bar shall comply with accessible design (including ADAAG in the U.S.A.) for structural strength.

Grab Bar shall be Model _____ (insert model number) of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet.
The manufacturer reserves the right to, and does from time to time, make changes and improvements in designs and dimensions.

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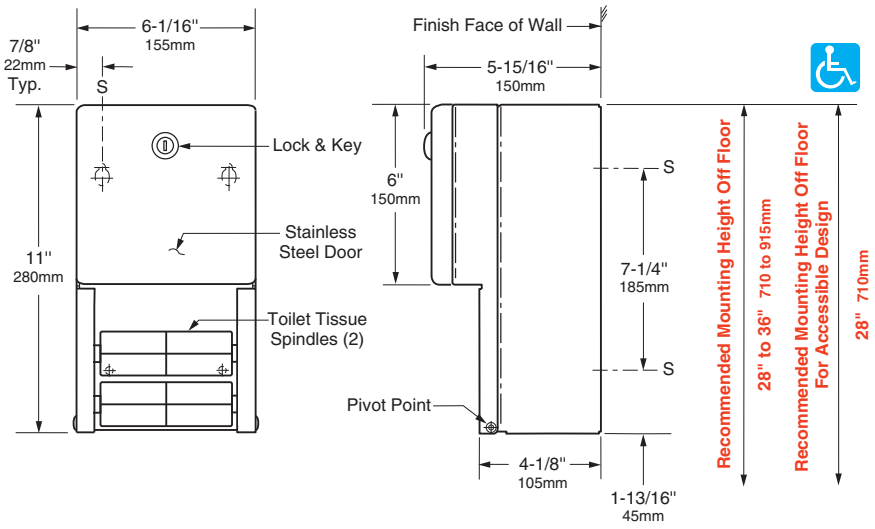
BOBRICK

Technical Data

SURFACE-MOUNTED MULTI-ROLL TOILET TISSUE DISPENSER

B-2888





MATERIALS:

Cabinet — 18-8, type-304, 22-gauge (0.8mm) stainless steel. All-welded construction. Exposed surfaces have satin finish.

Door — 18-8, type-304, 22-gauge (0.8mm) stainless steel with 18-gauge (1.2mm) stainless steel door frame. Exposed surfaces have satin finish. Front of door is drawn, one-piece, seamless construction. Secured to cabinet with two rivets. Equipped with a tumbler lock keyed like other Bobrick washroom accessories.

Dispensing Mechanism, Inner Housing and Cam — 18-8, type-304, 18-gauge (1.2mm) stainless steel.

Spindles (2) — Heavy-duty, one-piece, molded ABS. Theft-resistant. Retained in dispensing mechanism when door is locked.

OPERATION:

Unit holds two standard-core toilet tissue rolls up to 5-1/4" (133mm) diameter (1800 sheets). Tissue rolls are loaded and locked into dispensing mechanism. Extra roll automatically drops in place when bottom roll is depleted. Depleted rolls can only be removed after unlocking door.

INSTALLATION:

For partitions with particleboard or other solid core, secure with four #10 x 5/8" (4.8 x 16mm) sheet-metal screws (not furnished) at points indicated by an *S*, or provide through-bolts, nuts, and washers.

For hollow-core metal partitions, provide solid backing into which sheet-metal screws can be secured. If two units are installed back-to-back, then provide threaded sleeves and machine screws for the full thickness of partition.

For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with sheet-metal screws.

For other wall surfaces, provide fiber plugs or expansion shields for use with sheet-metal screws or provide 3/16" (5mm) toggle bolts or expansion bolts.

SPECIFICATION:

Surface-mounted multi-roll toilet tissue dispenser shall be type-304 stainless steel with all-welded construction, including dispensing mechanism, inner housing and cam; exposed surfaces shall have satin finish. Front of toilet tissue dispenser door shall be drawn, one-piece, seamless construction. Door shall be secured to cabinet with two rivets and equipped with a tumbler lock keyed like other Bobrick washroom accessories. Unit shall dispense two standard-core toilet tissue rolls up to 5-1/4" (133mm) diameter (1800 sheets). Extra roll shall automatically drop in place when bottom roll is depleted. Unit shall be equipped with two theft-resistant, heavy-duty, one-piece, molded ABS spindles.

Surface-Mounted Multi-Roll Toilet Tissue Dispenser shall be Model B-2888 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet.
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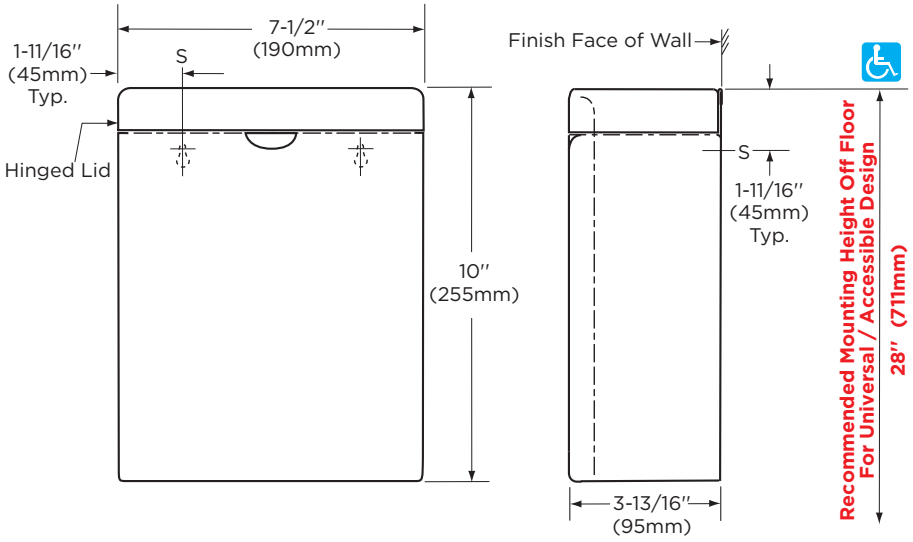
BOBRICK

Technical Data

ConturaSeries® SURFACE-MOUNTED SANITARY NAPKIN DISPOSAL

B-270





MATERIALS:

Container — 18-8, type-304, 22-gauge (0.8mm) stainless steel. All-welded construction. Exposed surfaces have satin finish. Integral finger depression for opening cover. Front of container has same degree of arc as front of cover and other Bobrick ConturaSeries washroom accessories. Radius on side edges of container match corners and edges of cover and other ConturaSeries accessories.

Cover — 18-8, type-304, 22-gauge (0.8mm) stainless steel with satin finish. Drawn, one-piece, seamless construction. Front of cover has same degree of arc as front of container and other Bobrick Contura Series washroom accessories. Radius on corners and edges of cover match side edges of container and other Contura Series accessories. Secured to container with a full-length stainless steel piano-hinge.

OPERATION:

Cover flips up for disposal of sanitary napkins and for servicing container.

INSTALLATION:

For partitions with particle-board or other solid core, secure with two #8 x 3/4" (4.2 x 19mm) sheet-metal screws (not furnished) at all points indicated by an *S*, or provide through-bolts, nuts, and washers.

For hollow-core metal partitions, provide solid backing into which sheet-metal screws can be secured. If two units are installed back-to-back, then provide threaded sleeves and machine screws for the full thickness of partition.

For masonry walls, provide fiber plugs or expansion shields for use with sheet-metal screws, or provide 3/16" (5mm) toggle bolts or expansion bolts.

For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with sheet-metal screws.

SPECIFICATION:

Surface-mounted sanitary napkin disposal shall be type-304 stainless steel with all-welded construction; exposed surfaces shall have satin finish. Front of sanitary napkin disposal shall have same degree of arc and match other Bobrick ConturaSeries accessories in the washroom. Radius on corners and edges of sanitary napkin disposal shall complement other Bobrick ConturaSeries washroom accessories. Cover shall be drawn, one-piece, seamless construction and secured to container with a full-length stainless steel piano-hinge. Container shall have integral finger depression for opening cover.

Surface-Mounted Sanitary Napkin Disposal shall be Model B-270 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

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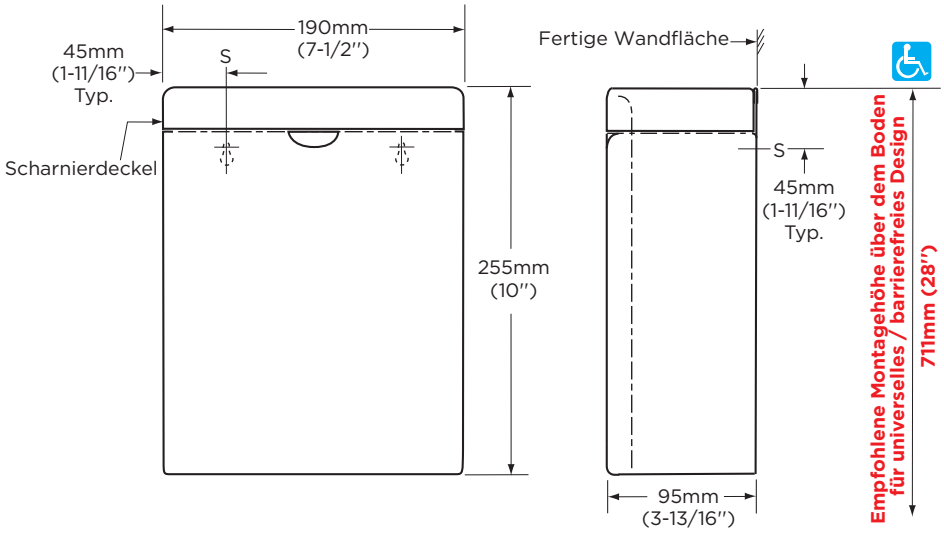
BOBRICK

Technische Daten

ConturaSeries® AUFPUTZ-HYGIENEBEHÄLTER

B-270





MATERIALIEN:

Behälter – 18-8, Typ 304, 22 Metalldicke (0,8mm) Edelstahl. Vollverschweißte Konstruktion. Sichtbare Oberflächen haben eine satinierte Oberfläche. Integrierte Metalldicke zum Öffnen des Deckels. Die Vorderseite des Behälters weist den gleichen Bogengrad auf wie die Vorderseite der Abdeckung und anderes Waschraumzubehör der Bobrick ConturaSeries. Der Radius an den Seitenkanten des Behälters entspricht den Ecken und Kanten der Abdeckung und anderem Zubehör der ConturaSerie.

Abdeckung - 18-8, Typ 304, 22 Metalldicke (0,8mm) Edelstahl mit Satin-Finish. Gezogene, einteilige, nahtlose Konstruktion. Die Vorderseite der Abdeckung weist den gleichen Bogengrad auf wie die Vorderseite des Behälters und anderes Washraumzubehör der Bobrick Contura-Serie. Der Radius an den Ecken und Kanten der Abdeckung entspricht den Seitenkanten des Behälters und anderem Zubehör der Contura-Serie. Mit einem durchgehenden Klavierscharnier aus Edelstahl am Schrank befestigt.

BETRIEB:

Zum Entsorgen von Damenbinden und zum Warten des Behälters lässt sich der Deckel hochklappen.

INSTALLATION:

Bei Trennwänden mit Spanplatte oder anderem Vollkernmaterial sind an allen mit einem "S" gekennzeichneten Stellen zwei Blechschrauben Nr. 8 x 3/4" (4,2 x 19 mm) (nicht im Lieferumfang enthalten) zu verwenden oder alternativ Schrauben mit Durchsteckmontage, Muttern und Unterlegscheiben bereitzustellen.

Sorgen Sie bei Hohlkerntrennwänden aus Metall für eine solide Unterlage, in die Blechschrauben eingedreht werden können. Wenn zwei Einheiten Rücken an Rücken installiert werden, müssen Gewindehülsen und Maschinenschrauben für die gesamte Dicke der Trennwand vorgesehen werden.

Stellen Sie für Mauerwerkswände Faserdübel oder Spreizdübel zur Verwendung mit Blechschrauben bereit oder stellen Sie Kippdübel oder Spreizdübel mit einem Durchmesser von 5mm (3/16") bereit.

Sorgen Sie bei Gips- oder Trockenbauwänden für eine verdeckte Rückwand, um die örtlichen Bauvorschriften einzuhalten, und befestigen Sie die Einheit anschließend mit Blechschrauben.

SPEZIFIKATION:

Der Aufputz-Hygienebehälter besteht aus Edelstahl Typ 304 und ist eine vollverschweißte Konstruktion; die freiliegenden Oberflächen sind matt geschliffen. Die Vorderseite des Hygieneabfallbehälters muss das abgerundete Design des Hygieneabfallbehälters ergänzt das Design des anderen ConturaSerie-Waschraumzubehörs im Waschraum. Weist den gleichen Bogengrad auf wie die das andere Zubehör in der Bobrick Contura serie im Waschraum. Der Deckel hat besteht aus einen gezogenen, einteiligen, nahtlosen Konstruktion und wird über die gesamte Länge mit einem Klavierscharnier aus Edelstahl am Behälter befestigt. Der Behälter verfügt über eine integrierte Fingermulde zum Öffnen des Deckels

Der Aufputz-Hygieneabfallbehälter ist das Modell B-270 von Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, Kalifornien; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australien; und Bobrick Washroom Equipment Limited, Vereinigtes Königreich sein.

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Technical Data

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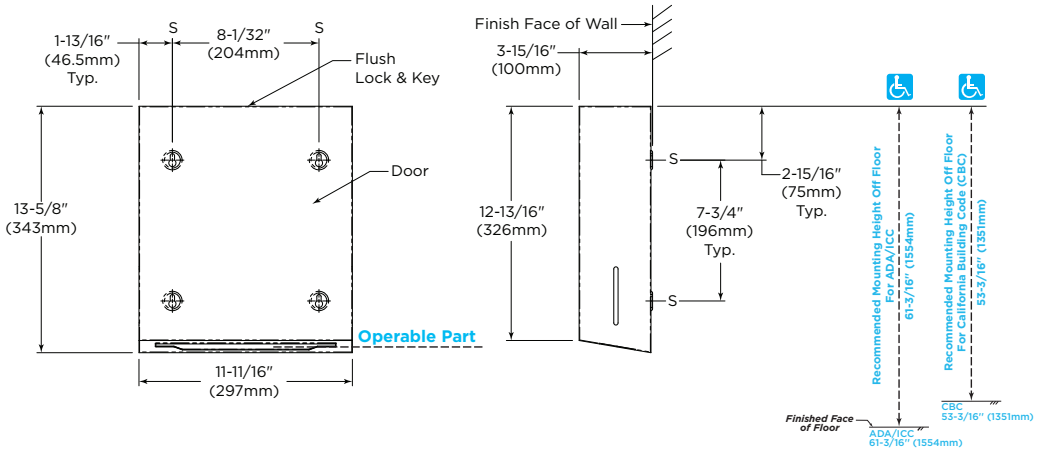
SURFACE-MOUNTED PAPER TOWEL DISPENSER

B-9262

Specify Finish Required

- ☐ Stainless Steel, Satin Finish
- ☐ Matte Black Finish, please use model no. B-9262.MBLK





ADA/CBC Installation Guidance

***Operable Part:** Paper towel dispenser opening on the bottom of the cabinet.

Maximum mounting height of Operable Part:

ADA/ICC: 48" (1220mm) above finished floor (AFF)
CBC: 40" (1015mm) above finished floor (AFF)

*For more information regarding operable parts, please refer to Bobrick Planning Guide for Accessible Restrooms, page 9.

MATERIALS:

Cabinet — Unit is of type 304 gauge, 18 gauge (1,2mm) stainless steel. All heliarc welded construction with well defined edges and corners. Cabinet is connected to backplate via a hinge at the unit's rear bottom, which prevents paper towels from falling out when opening. Cabinet-swing-limiter allows cabinet to open down to a horizontal position, which eases refill of paper towels and prevents cabinet from harming the wall when opening. Integrated TowelMate®. Equipped with a tumbler lock keyed like other Bobrick washroom accessories. Lock is on top of unit and flush with the surface - no protrusion. Unit shall be capable of dispensing 400 C-fold or 525 multifold paper towels 2-1/2" to 3-13/16" (64–97mm) deep.

Backplate — Has recessed key lock mounting holes to prevent mounting screw heads from snapping towels 18-8, type-304, 18 gauge (1.2mm).

TowelMate® — part no. 262-130. Module,Type 304, 24-gauge (0.6mm) stainless steel. Black, 3/8" (10mm) diameter Nylon 6/6 Rod fastened to Module with two stainless steel sheet metal screws.

OPERATION:

Unit dispenses C-fold or multifold paper towels 2-1/2" to 3-13/16" (64–97mm) deep without adjustment or use of adapters. After unlocking with key provided, cabinet swings down for loading paper towels into cabinet. Load paper onto the TowelMate within the cabinet, and then pull one sheet of paper towel over the TowelMate towel rod and out to conceal rod and start dispense. Slots in sides of cabinet indicate refill time. After unlocking with key provided, cabinet swings down for loading paper towels into cabinet.

5-Year Limited Warranty — In addition to Bobrick's one-year guarantee, Bobrick extends a limited 5-year warranty from the date of purchase on all parts for model B-9262. This warranty is limited to the repair or exchange of defective parts at the option of Bobrick and is only extended to the original owner of the installed unit against defects in factory workmanship or material under normal use and service.

INSTALLATION:

Mount unit on wall with four #10 x 1-1/4" sheet-metal mounting screws (not furnished) at points indicated by an S. For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with sheet-metal screws. For other wall surfaces, provide fiber plugs or expansion shields for use with sheet-metal screws, or provide 1/8" (3mm) toggle bolts or expansion bolts.

SPECIFICATION:

Unit is of type 304 gauge (1,2mm) stainless steel. All heliarc welded construction with well defined edges and corners. Cabinet is connected to backplate via a hinge at the unit's rear bottom, which prevents paper towels from falling out when opening. Door-limiter allows cabinet to open down to a horizontal position, which eases refill of paper towels and prevents cabinet from harming the wall when opening. Integrated TowelMate. Backplate has recessed key lock mounting holes to prevent mounting screw heads from snapping towels. Unit shall be capable of dispensing 400 C-fold or 525 multifold paper towels 2-1/2" to 3-13/16" (64–97mm) deep without adjustment or use of adapters.

Surface-Mounted Paper Towel Dispenser shall be Model B-9262 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

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Technical Data

GLASS MIRROR WITH STAINLESS STEEL ANGLE FRAME

B-290 SERIES



Specify Finish Required

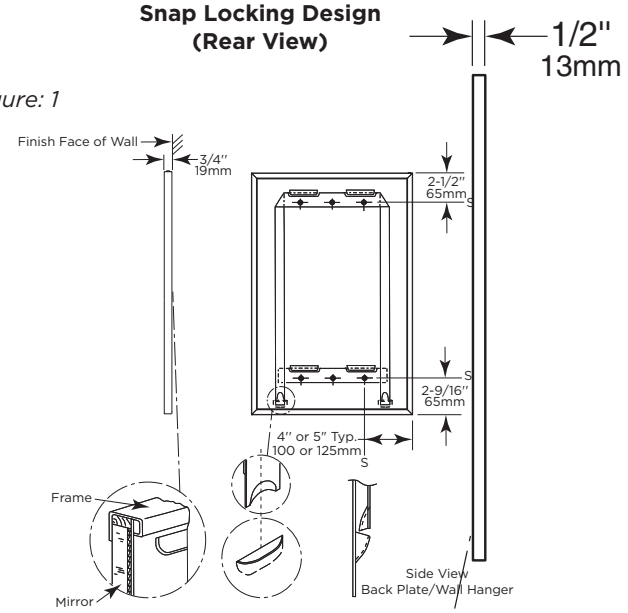
- ☐ Satin Finish
- ☐ Matte Black Finish, add suffix ".MBLK" to model number, see table below.

Designer's Notes:

1. Special-order sizes available on request.
2. Maximum size one-piece angle-frame mirror, 144" x 52" (366 x 132cm); minimum size, 12" x 12" (30 x 30cm).
3. All Bobrick framed mirrors are manufactured to overall width and height dimensions. EXAMPLE: A 24" x 36" (61 x 91cm) mirror will be furnished 24" x 36" (61 x 91cm) outside-of-frame to outside-of-frame.
4. To specify special sizes use Series Number followed by width then height in inches. EXAMPLE: B-290 2024.
5. Bobrick framed mirrors are manufactured to a tolerance ± 1/8" (3.2mm).
6. For sufficient space to lift mirror onto wall hanger(s), provide 3-1/4" (85mm) for Snap Locking Design; 5-3/8" (137mm) for "2S" Tab Design minimum clearance above center line of mounting screw holes.
7. Provide 1" (25mm) minimum clearance at bottom of mirror for unlocking mirror from wall and 1/2" (12.7mm) clearance on each side.

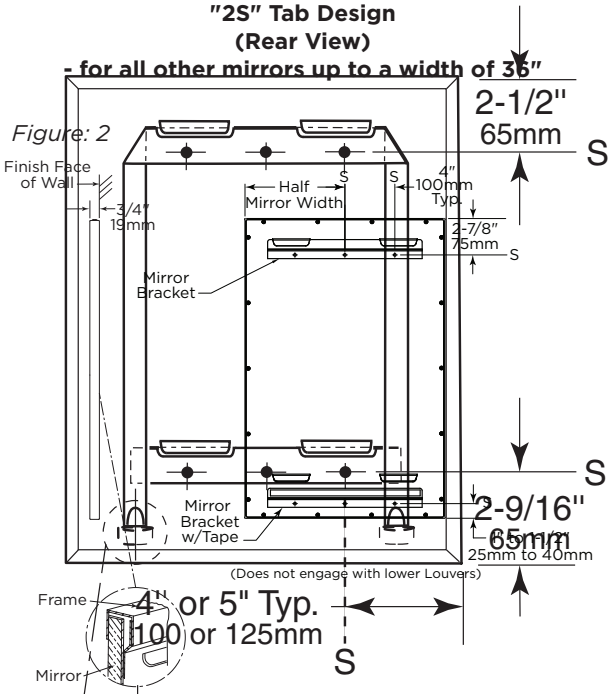
Snap Locking Design (Rear View)

Figure: 1



"2S" Tab Design (Rear View) - for all other mirrors up to a width of 36"

Figure: 2



Note: Mirrors greater than 36" in width will have multiple hanger brackets with a typical 8" off each edge.

STANDARD B-290 SERIES MIRRORS

SATIN FINSH MODEL NO.	MATTE BLACK FINISH MODEL NO.	OVERALL SIZE W	H
B-290 1830	B-290 1830.MBLK	18" (46cm)	30" (76cm)
B-290 1836	B-290 1836.MBLK	18" (46cm)	36" (91cm)
B-290 2430	B-290 2430.MBLK	24" (61cm)	30" (76cm)
B-290 2436	B-290 2436.MBLK	24" (61cm)	36" (91cm)
B-290 2448	B-290 2448.MBLK	24" (61cm)	48" (122cm)
B-290 2460	B-290 2460.MBLK	24" (61cm)	60" (152cm)
B-290 2472	B-290 2472.MBLK	24" (61cm)	72" (183cm)

MATERIALS:

Frame — 18-8, heavy-gauge stainless steel, 3/4" x 3/4" (19 x 19mm) angle with satin finish. One-piece, roll-formed construction forms continuous integral stiffener on all sides. Bevel design on front of angle holds frame tightly against mirror. Corners of mirror frame are heliarc welded, ground and polish smooth. Galvanized steel back is fastened to frame with concealed screws and equipped with integral horizontal hanging brackets near the top and bottom of the mirror for hanging the mirror and to prevent the mirror from pulling away from the wall.

continued . . .

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Rev. 3/9/22 R/B

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Mirror — No. 1 quality, 1/4" (6mm) select float glass (standard glass): selected for silvering, electrolytically copper-plated by the galvanic process, and guaranteed for 15 years against silver spoilage. All edges protected by plastic filler strips; back is protected by full-size, shock-absorbing, water-resistant, nonabrasive, 3/16" (5mm) thick polyethylene padding.

Concealed Wall Hanger — For snap locking design: Heavy gauge steel construction. Incorporates upper and lower members, which engage backplate louvers to keep mirror against the wall. For "2S"-Tab design: Incorporates upper bracket engaging in upper louver and double sided tape below the bottom louver securing mirror to concealed wall hanger.

INSTALLATION:

Mount wall hanger on wall with screws (not furnished) at points indicated by an S. For plaster or dry wall construction, provide backing to comply with local building codes, then secure wall hanger with screws (not furnished). When providing a concealed backing, allow backing to cover range of mounting hole locations shown on drawing. For other wall surfaces, provide fiber plugs or expansion shields for use with screws (not furnished), or provide 1/8" (3mm) toggle bolts or expansion bolts.

Snap Locking Design: Hang mirror on wall hanger with all four backplate louvers engaged behind horizontal wall hanger members. To do this, mirror must be centered in front of the wall hanger horizontally, pressed flat against the wall approximately 1" (25mm) above final position and then lowered into final position.

"2S" Tab Design: Comprises of two brackets, while the bottom one is furnished with double side tape. Bottom hanger bracket's mounting holes must be 1" - 1 1/2" above mirror's bottom edge. Note: Bottom hanger bracket is not supposed to engage with louvers of mirror's backplate. Hang mirror on wall top hanger bracket with the top two louvers engaged behind top wall hanger bracket.To do this, mirror must be centered in front of the wall hanger horizontally, pressed only at the top against the wall approx. 1" (25mm) above final position an then lowered into final position. When lowering, pull mirror's bottom edge off the wall by preventing bottom bracket from engaging. Once lowered, mirror must be pressed against wall to engage with double sided tape of lower wall hangar bracket.

Snap Locking Design — Locking devices automatically secure mirror to concealed wall hanger when it is lowered into final position (see figure 3). Locking devices may be unlocked by inserting two flat blade screwdrivers behind each side of mirror near the bottom or under the bottom of the mirror and pulling mirror bottom forward and then up.

"2S" Tab Design — Double-sided tape secures mirror to concealed wall hanger by pressing mirror against double sided tape of lower hanger once it is lowered into final position (see figure 4).

Snap Locking Design
(Front View)

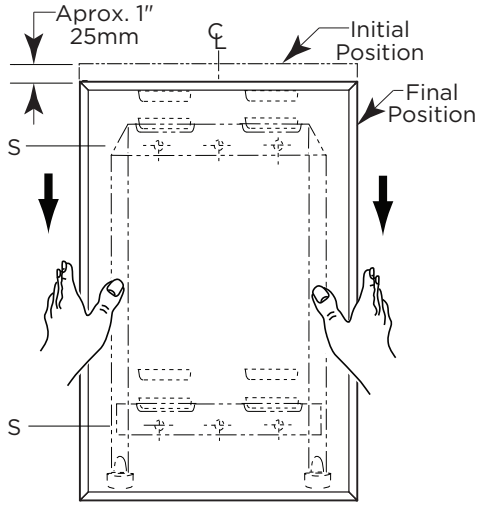


Figure: 3

"2S" Tab Design- Up to 36" Width
(Front View)

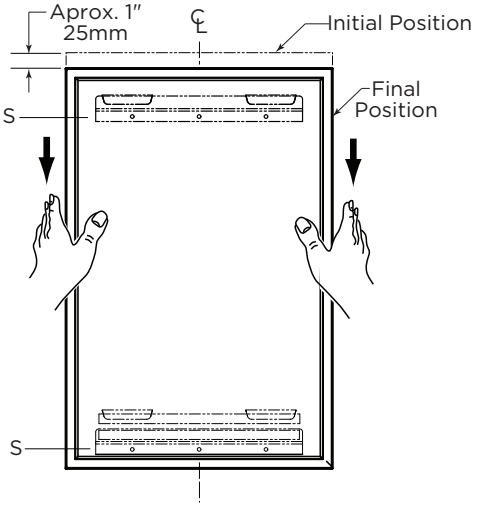


Figure: 4

SPECIFICATION:

Mirror shall have a one-piece, stainless steel angle frame, 3/4" x 3/4" (19 x 19mm) with continuous integral stiffener on all sides and beveled front to hold frame tightly against mirror; corners shall be heliarc welded, ground, and polished smooth; all exposed surfaces shall have satin finish. Reflective surfaces shall be guaranteed for 15 years against silver spoilage. All edges shall be protected by plastic filler strips and the back shall be protected by full-size, shock-absorbing, water-resistant, nonabrasive, 3/16" (5mm) thick polyethylene padding. Galvanized steel back shall have integral horizontal hanging brackets located at top and bottom for mounting on concealed wall hanger and to prevent the mirror from pulling away from the wall.

Framed Mirror shall be Model B-290 _____ (insert width and height) of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

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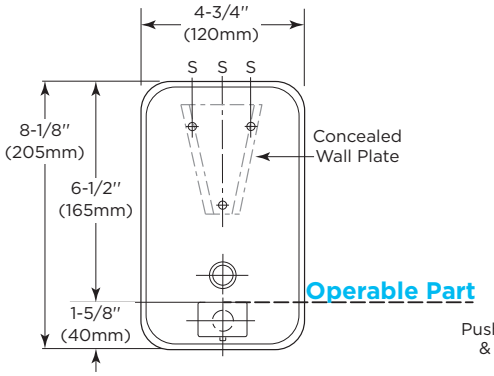
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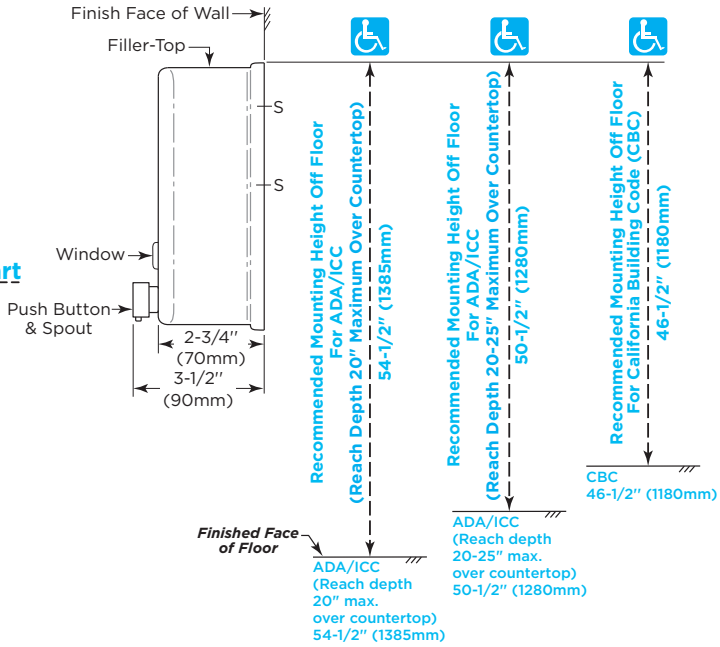
Technical Data

ClassicSeries® SURFACE-MOUNTED SOAP DISPENSER

B-2111







Installation Guidance

***Operable Part:** Top of pushbutton

Maximum mounting height of operable part:

ADA/ICC (Reach Depth 20" Maximum Over Countertop): 48" above finished floor (AFF)

ADA/ICC (Reach Depth, 20"-25" Maximum Over Countertop): 44" above finished floor (AFF)

CBC: 40" above finished floor (AFF)

*For more information regarding operable parts, please refer to Bobrick Planning Guide for Accessible Restrooms, page 9.

MATERIALS:

Container — 18-8, Type-304, 22-gauge (0.8mm) stainless steel with satin-finish. Body is drawn, one-piece, seamless construction. Back plate has mounting bracket attached. Furnished with concealed wall plate. Equipped with a clear acrylic refill-indicator window and a locked, hinged stainless steel lid for top filling. Capacity: 40-fl oz (1.2-L).

Valve — Black molded plastic push button and spout. Soap head-holding mushroom valve. Stainless steel spring. U-packing seal and duckbill. Antibacterial-soap-resistant plastic cylinder.

continued . . .

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet.
The manufacturer reserves the right to, and does from time to time, make changes and improvements in designs and dimensions.

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OPERATION:

Corrosion-resistant valve dispenses commercially marketed all-purpose hand soaps. To prevent corrosion of the tank, use only chloride-free pH-neutral liquid soaps. Valve is operable with one hand, without tight grasping, pinching, or twisting of the wrist, and with less than 5 pounds of force (22.2 N) to comply with accessible design guidelines (including ADAAG in the U.S.A.). Window indicates when refill is required. The locked, hinged lid opens for top filling only with special key provided. Concealed, vandal-resistant mounting.

INSTALLATION:

Secure wall plate to the wall with three sheet-metal screws, furnished by manufacturer, at points indicated by an *S*. Slide mounting bracket of container down onto wall plate and secure unit with furnished locking-screw. For plaster or dry wall construction, provide concealed backing to comply with local building codes and secure with sheet-metal screws furnished. For other wall surfaces, provide fiber plugs or expansion shields for use with sheet-metal screws furnished, or provide 1/8″ (3mm) toggle bolts or expansion bolts.

Note: Surface-mount the dispenser plumb and true with valve 6″ (150mm) to right or left of lavatory center. Provide 4″ (100mm) minimum clearance from the lid to the underside of any horizontal projection. Push buttons should be located 44″ (1120mm) maximum above the finish floor.

SPECIFICATION:

Surface-mounted soap dispenser shall be Type-304 stainless steel with satin-finish. Corrosion-resistant valve shall dispense commercially marketed all-purpose hand soaps, non-iodine based soaps and do not use alcohol based sanitizers. To prevent corrosion of the tank, use only chloride-free pH-neutral liquid soaps. Valve shall be operable with one hand and with less than 5 pounds of force (22.2 N) to comply with accessible design guidelines (including ADAAG in the U.S.A.). Container shall be equipped with a clear acrylic refill-indicator window; a locked, hinged stainless steel lid for top filling; and shall have a capacity of 40-fl oz (1.2-L). Unit shall have concealed, vandal-resistant mounting.

Surface-Mounted Soap Dispenser shall be Model B-2111 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

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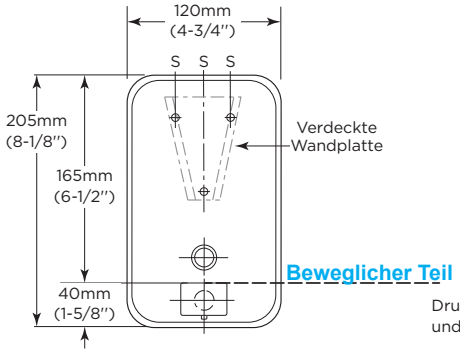
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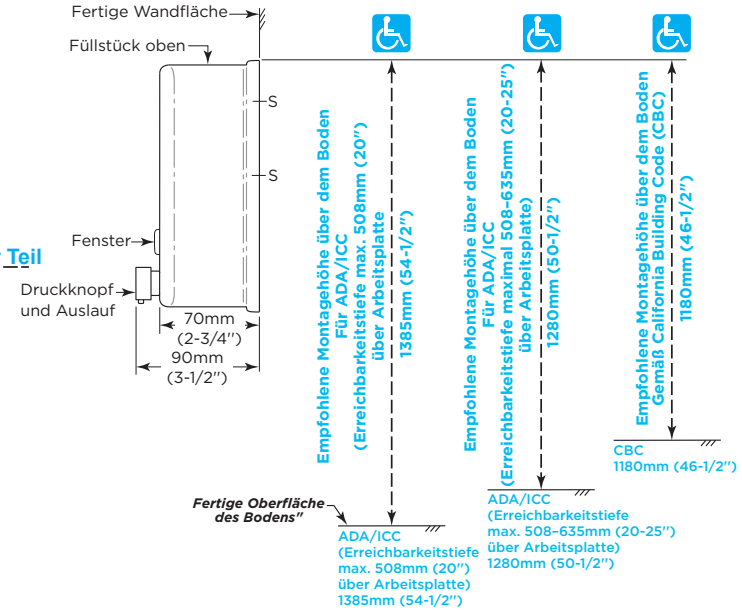
Technische Daten

ClassicSeries® AUFPUTZMONTAGE SEIFENSPENDER

B-2111







Installationsanleitung

***Beweglicher Teil:** Oberseite des druckknopf

Maximale Montagehöhe des beweglichen Teils:

ADA/ICC (Reichweite maximal 20" über der Arbeitsplatte): 48" über dem fertigen Boden (OKFF)

ADA/ICC (Reichweite, 20–25" maximal über der Arbeitsplatte): 44" über dem fertigen Boden (OKFF)

CBC: 40" über dem fertigen Boden (OKFF)

*Weitere Informationen zu beweglichen Teilen finden Sie im Bobrick-Planungshandbuch für barrierefreie Toiletten, Seite 9.

MATERIALIEN:

Behälter — 18-8, Typ 304, 22 Maßstab (0,8 mm) Edelstahl mit Satin-Finish. Der Körper ist gezogen, einteilig und nahtlos konstruiert. An der Rückplatte ist eine Montagehalterung angebracht. Ausgestattet mit verdeckter Wandplatte. Ausgestattet mit einem durchsichtigen Nachfüllanzeigefenster aus Acryl und einem verriegelbaren Edelstahldeckel mit Scharnier zum Befüllen von oben. Kapazität: 1,2 l (40 fl oz).

Ventil - Druckknopf und Ventil aus schwarzem geformtem Kunststoff. Pilzventil mit Seifenkopfhalterung. Feder aus Edelstahl. U-Dichtung und Auslauf. Antibakteriell-seifenbeständiger Kunststoffzylinder.

Fortsetzung folgt . . .

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Überarbeitet am 7/5/25
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BETRIEB:

Korrosionsbeständiges Ventil zur Abgabe handelsüblicher Allzweck-Handseifen. Um Korrosion des Tanks zu vermeiden, verwenden Sie nur chloridfreie, pH-neutrale Flüssigseifen. Das Ventil kann mit einer Hand bedient werden, ohne dass man es fest greifen, einklemmen oder das Handgelenk verdrehen muss, und mit einem Kraftaufwand von weniger als 5 Pfund (22,2 N), um den Richtlinien für barrierefreies Design (einschließlich ADAAG in den USA) zu entsprechen. Ein Fenster zeigt an, wann eine Nachfüllung erforderlich ist. Der verschlossene Klappdeckel lässt sich zum Befüllen von oben nur mit dem mitgelieferten Spezialschlüssel öffnen. Verdeckte, vandalismusgeschützte Montage.

INSTALLATION:

Befestigen Sie die Wandplatte mit drei Blechschrauben (vom Hersteller mitgeliefert) an den durch ein Symbol gekennzeichneten Punkten an der Wand. *S* . Schieben Sie die Montagehalterung des Behälters nach unten auf die Wandplatte und befestigen Sie die Einheit mit der mitgelieferten Feststellschraube. Sorgen Sie bei Gips- oder Trockenbauwänden für eine verdeckte Rückseite, um den örtlichen Bauvorschriften zu entsprechen. Für andere Wandoberflächen stellen Sie Faserdübel oder Spreizdübel zur Verwendung mit den mitgelieferten Blechschrauben bereit oder stellen Sie Kippdübel oder Spreizdübel mit einem Durchmesser von 3 mm (1/8″) bereit.

Hinweis: Montieren Sie den Spender lotrecht und waagerecht auf der Oberfläche, mit dem Ventil 150mm (6″) rechts oder links von der Mitte des Waschraums. Sorgen Sie für einen Mindestabstand von 100mm (4″) zwischen dem Deckel und der Unterseite aller horizontalen Vorsprünge. Druckknöpfe sollten sich maximal 1120mm (44″) über dem fertigen Boden befinden.

SPEZIFIKATION:

Der auf der Oberfläche montierte Seifenspender besteht aus Edelstahl Typ 304 und hat eine matt gebürstete Oberfläche. Das korrosionsbeständige Ventil ist für die Abgabe handelsüblicher Allzweck-Handseifen und Seifen ohne Jod geeignet. Verwenden Sie keine Desinfektionsmittel auf Alkoholbasis. Um Korrosion des Tanks zu vermeiden, verwenden Sie nur chloridfreie, pH-neutrale Flüssigseifen. Das Ventil ist mit einer Hand und mit weniger als 5 Pfund Kraft (22,2 N) bedienbar und entspricht den Richtlinien für barrierfreies Design (einschließlich ADAAG in den USA). Der Behälter ist mit einem durchsichtigen Nachfüllanzeigefenster aus Acryl und einem verschließbaren Edelstahldeckel mit Scharnier zum Befüllen von oben ausgestattet und hat ein Fassungsvermögen von 1.2 l (40 fl oz). Der Spender verfügt über eine verdeckte, vandalismusgeschützte Montage.

Der Aufputz-Seifenspender ist das Modell B-2111 von Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, Kalifornien; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australien; und Bobrick Washroom Equipment Limited, Vereinigtes Königreich sein.

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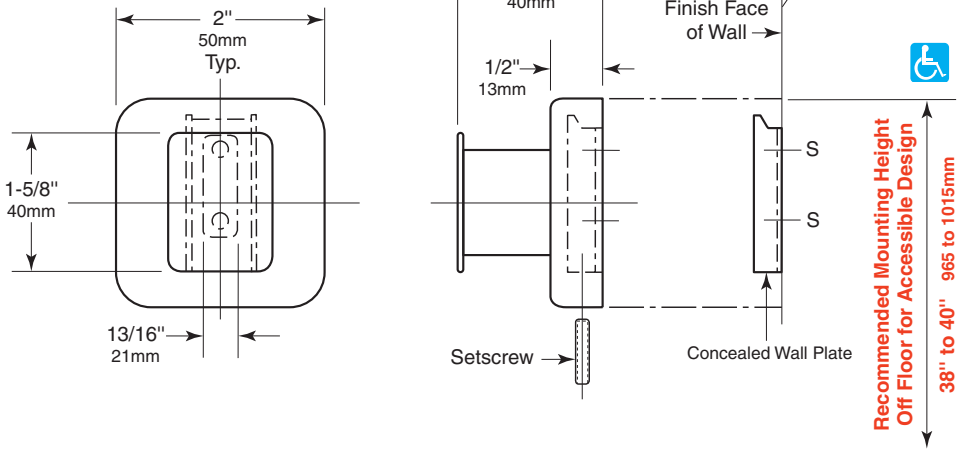
Technical Data

SURFACE-MOUNTED ROBE HOOK

B-7671
B-76717

Specify Model Required: ☐ Model B-7671 Bright polished stainless steel
☐ Model B-76717 Satin-finish stainless steel





MATERIALS:

Flange & Support Arm — 18-8, type-304, 22-gauge (0.8mm) stainless steel. Concealed, 18-gauge (1.2mm) stainless steel mounting bracket. All-welded construction. Secured to wall plate with a stainless steel setscrew.

Concealed Wall Plate — 18-8, type-304, 19-gauge (1.0mm) stainless steel.

Cap — 18-8, type-304, 14-gauge (2.0mm) stainless steel. Welded to the support arm.

INSTALLATION:

To remove concealed wall plate from back of flange and mounting bracket, loosen setscrew. Mount wall plate so prongs are at top; secure with two sheet-metal screws, furnished by manufacturer, at points indicated by an *S*. Engage mounting bracket onto prongs of wall plate, then secure unit into position by tightening setscrew at bottom of flange.

For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with sheet-metal screws furnished. For other wall surfaces, provide fiber plugs or expansion shields for use with screws furnished, or provide 1/8" (3mm) toggle bolts or expansion bolts.

For partitions with particle-board or other solid core, secure with sheet-metal screws furnished, or provide through-bolts, nuts, and washers. For hollow-core metal partitions, provide solid backing into which the furnished sheet-metal screws can be secured.

SPECIFICATION:

Surface-mounted robe hook shall be type-304 stainless steel with _____ (insert one: bright polished or satin) finish. Flange and support arm shall be 22 gauge (0.8mm) and equipped with a concealed, 18-gauge (1.2mm) mounting bracket that is secured to a concealed, 19-gauge (1.0mm) wall plate with a stainless steel setscrew. Cap shall be 14 gauge (2.0mm), welded to the support arm.

Surface-Mounted Robe Hook shall be Model _____ (insert model number) of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet.
The manufacturer reserves the right to, and does from time to time, make changes and improvements in designs and dimensions.

Revised 6/30/15 R/A Printed in U.S.A.
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BOBRICK

Technical Data

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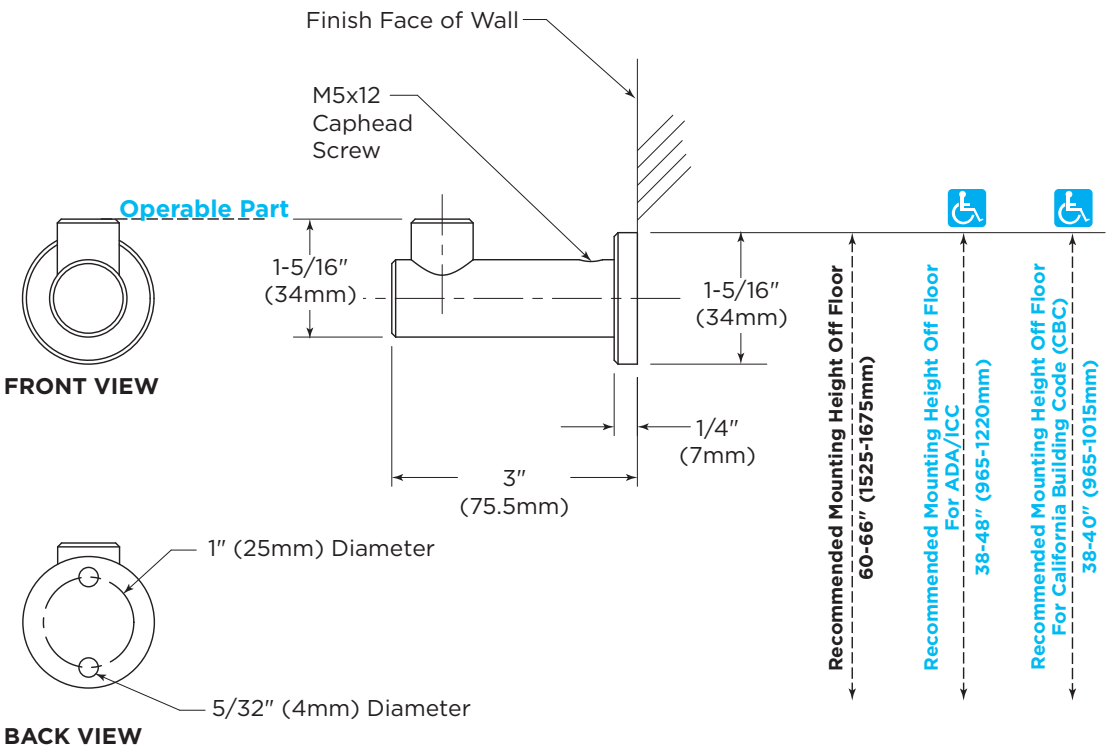
COAT HOOK

B-9542

Specify Finish Required

- ☐ Stainless Steel, Satin Finish
- ☐ Matte Black Finish, please use model no. B-9542.MBLK





ADA/CBC Installation Guidance

***Operable Part:** Top of hook pin.

Maximum mounting height of Operable Part:
ADA/ICC: 48" above finished floor (AFF)
CBC: 40" above finished floor (AFF)

*For more information regarding operable parts, please refer to Bobrick Planning Guide for Accessible Restrooms, page 9.

MATERIAL:

Post — Type 303, solid machined stainless steel in satin finish, 3/4" (20mm) diameter, 2-31/32" (76mm) long. Post is fastened to the flange via set screw, securing the flange cover.

Hook Pin — Type 303, solid machined stainless steel in satin finish, 5/8" (16mm) diameter integrated into the post.

Flange Cover — Type 303, solid machined stainless steel in satin finish, 1/16" (2mm) thick, 1-5/16" (34mm) diameter.

Concealed Mounting Flange — Type 303, solid machined stainless steel, 5/32" (4mm) thick, 1-5/16" (34mm) diameter, equipped with two mounting holes for attachment to wall.

STRENGTH:

Bobrick coat hook B-9542 can support loads of up to 150lbs. (68kg.) if properly installed.

continued . . .

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet.
The manufacturer reserves the right to, and does from time to time, make changes and improvements in designs and dimensions.

Revised 4/7/23
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5-Year Limited Warranty — In addition to Bobrick's one-year guarantee, Bobrick extends a limited 5-year warranty from the date of purchase on all parts for model B-9542. This warranty is limited to the repair or exchange of defective parts at the option of Bobrick and is only extended to the original owner of the installed unit against defects in factory workmanship or material under normal use and service.

SAFETY WARNING:

COAT HOOK IS NO STRONGER THAN THE ANCHORS AND WALLS TO WHICH THEY ARE ATTACHED AND, THEREFORE, MUST BE FIRMLY SECURED IN ORDER TO SUPPORT THE LOADS FOR WHICH THEY ARE INTENDED. TO AVOID POTENTIAL INJURY, THE BUILDING OWNER OR MAINTENANCE PERSONNEL SHOULD REMOVE THE COAT HOOK FROM SERVICE IF THE COAT HOOK IS NOT ADEQUATELY SECURED TO WALL.

INSTALLATION:

For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with sheet-metal screws (not furnished). For other wall surfaces, provide fiber plugs or expansion shields for use with sheet-metal screws (not furnished), or provide 1/8″ (3mm) toggle bolts or expansion bolts.

For partitions with particle-board or other solid core, secure with sheet-metal screws (not furnished), or provide through-bolts, nuts, and washers. For hollow-core metal partitions, provide solid backing into which the sheet-metal screws (not furnished) can be secured.

SPECIFICATION:

Coat Hook shall be type 303 machined solid stainless steel in satin finish or matte black, as specified. Coat Hook shall have 3/4″ (20mm) diameter post with integrated 16mm diameter Hook Pin. Concealed mounting flange shall be 5/32″ (4mm) thick machined solid stainless steel plate, 1-5/16″ (34mm) diameter and equipped with two screw holes for attachment. Machined solid flange cover shall be 1/16″ (2mm) thick stainless steel in satin finish or matte black, as specified, 1-5/16″ (34mm) diameter. Set screw shall fasten the post to the flange and secures the flange cover.

Coat Hook shall be Model B-9542 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

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DIVISION 22

PLUMBING

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SECTION 220000 – GENERAL PLUMBING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Plumbing General Notes

2. Submittal requirements

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product

1.4 PLUMBING GENERAL NOTES

1. CONTRACTOR SHALL PROVIDE A COMPLETE AND WORKING SYSTEM WITH ALL NECESSARY PERMITS AND APPROVALS FROM AUTHORITIES HAVING JURISDICTION

2. CONTRACTOR SHALL CONDUCT A SURVEY OF THE EXISTING CONDITIONS AND BASED ON THE SURVEY SHALL DETERMINE THE SCOPE OF WORK AND MATERIALS REQUIRED TO COMPLETE THE PROJECT.

3. THE SCOPE OF PLUMBING WORK INCLUDES ALL THE WORK NECESSARY BASED ON THE EXISTING CONDITIONS OF THE SITE TO PROVIDE THE NECESSARY CONNECTIONS TO THE PLUMBING FIXTURES AS SHOWN AND CONFIGURED ON THE ARCHITECTURAL DRAWINGS.

4. THE CONTRACTOR SHALL CREATE A RISER LINE DRAWING FOR INCLUSION IN THE PLUMBING PERMIT APPLICATION.

5. INSTALL ALL EQUIPMENT AND MATERIALS IN STRICT ACCORDANCE WITH THE 2018 INTERNATIONAL PLUMBING CODE, ALL PERTINENT CODES, LAWS, ORDINANCES, REGULATIONS, AND RESPECTIVE MANUFACTURER'S WRITTEN INSTRUCTIONS.

6. COORDINATE PLUMBING WORK WITH THE WORK OF ALL OTHER CONTRACTORS AND OWNER.

7. PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE PROPER INSTALLATION OF ALL MATERIALS AND EQUIPMENT REQUIRED FOR A

COMPLETE INSTALLATION WITHIN THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS.

8. THE PLUMBING CONTRACTOR SHALL ARRANGE THE PROGRESS OF HIS WORK SO AS TO CONFORM TO THE PROGRESS OF THE TRADES AND SHALL COMPLETE THE ENTIRE INSTALLATION AS SOON AS THE CONDITION OF THE PROJECT WILL PERMIT.

9. PROVIDE NECESSARY SUPPORTS, HANGERS, AND HARDWARE TO PROPERLY SECURE PIPING AND EQUIPMENT TO BUILDING STRUCTURE.

10. ALL SANITARY AND VENT AND RAIN WATER PIPING ABOVE AND BELOW THE GROUND SHALL BE SERVICE WEIGHT CAST IRON, NO HUB. MAKE ALL JOINTS WATERTIGHT AND GASTIGHT. WHEN ROUGHING WORK IS COMPLETED AND BEFORE CONNECTION OF FIXTURES OR DRAINS, THE SYSTEM SHALL BE SUBJECTED TO A WATER TEST BY PLUGGING UP ALL OPENINGS AND FILLING ALL OF THE LINES TO THE HIGHEST LEVEL OF WORK. ALL DEFECTES SHALL BE CORRECTED.

11. FURNISH AND INSTALL ACCESS PANELS WHERE REQUIRED FOR ACCESS TO ALL CONCEALED VALVES, TRAPS OR EQUIPMENT WHERE NO OTHER MEANS IS PROVIDED.

12. DO NOT INSTALL PIPING OR ANY OTHER PLUMBING EQUIPMENT OVER ELECTRICAL PANELS. MAINTAIN A MINIMUM OF 36” CLEAR IN FRONT OF ELECTRICAL PANELS.

13. INTERIOR COLD AND HOT WATER PIPING IN THE BUILDING SHALL BE TYPE ’L’ COPPER, ASTM SPEC, B-88-51 WITH A 150 PSI WORKING PRESSURE. EXTERIOR AND/OR UNDERGROUND PIPING SHALL BE TYPE ’K’ COPPER OR DUCTILE IRON. FITTINGS SHALL BE WROUGHT COPPER OF WEIGHT CORRESPONDING TO PIPE TO WHICH THEY ARE ATTACHED. JOINTS SHALL BE SOLDERED USING LEAD-FREE SOLDER. AFTER ALL PIPING HAS BEEN INSTALLED, BUT BEFORE ANY EQUIPMENT OF FIXTURES HAVE BEEN CONNECTED, THE SYSTEM SHALL BE FILLED WITH A MINIMUM PRESSURE OF 150 POUNDS PER SQUARE INCH. THE PRESSURE SHALL BE MAINTAINED FOR A PERIOD OF 60 MINUTES. AFTER SUCCESSFUL TESTING, FLUSH ALL PIPING TO REMOVE DIRT AND FOREIGN MATTER.

14. INSULATE ALL DOMESTIC HOT AND COLD WATER LINES, ALL RAIN WATER PIPING, ALL FITTINGS AND VALVES. PIPE INSULATION SHALL BE RIGID FIBERGLASS WITH WHITE KRAFT BONDED TO ALUMINUM FOIL, K=0.23 @ 75’ F., REINFORCED WITH FIBERGLASS YARN. SUITABLE FOR PAINTING, MANVILLE MICRO-LOK 650 WITH AP-T JACKET OR APPROVED EQUAL, FITTINGS AND VALVES SHALL BE INSULATED WITH MOLDED ONE-PIECE P.V.C. COVERS WITH FIBERGLASS INSULATION, MANVILLE ZESTON 25/50* OR EQUAL.

15. THE PLUMBING CONTRACTOR SHALL PROVIDE INSTRUCTIONS TO THE OWNER FOR EACH SYSTEM INSTALLED AND THE OPERATION OF ALL EQUIPMENT IN HIS CONTRACT.

16. PROVIDE SHOCK ABSORBING DEVICES WHICH WILL PROTECT WATER SUPPLY PIPING FROM WATER HAMMER. REFER TO PLUMBING EQUIPMENT SCHEDULE

FOR TYPES. LOCATE AT THE ENDS OF ALL BRANCH PIPING RUNS.

17. EXTERIOR BELOW GROUND PIPING SHALL BE BURIED BELOW THE LOCAL FROST LINE.

18. INTERIOR ABOVE GROUND DRAINAGE AND VENT PIPING SHALL BE CONCEALED IN WALLS AND ABOVE SUSPENDED CEILINGS WHERE POSSIBLE. VERTICAL STACKS SHALL BE PROVIDED WITH ACCESSIBLE CLEAN OUTS AT THEIR BASE.

19. THE CONTRACTOR SHALL MAINTAIN A CLEAN AND SAFE WORK AREA AT ALL TIMES. ALL SAFETY PROCEDURES AND ENFORCEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL CONFORM TO ALL OSHA STANDARDS.

20. BACK FLOW PREVENTERS AND/OR VACUUM BREAKERS SHALL BE INSTALLED WHERE REQUIRED TO PREVENT CONTAMINATION OF POTABLE WATER SYSTEM.

21. ALL ABOVE GROUND GAS PIPING SHALL BE ASTM A53 SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE IRON THREADED FITTINGS. INSTALL A SEDIMENT TRAP AT ALL POINTS WHERE CONDENSATION MAY COLLECT. ALL EXTERIOR EXPOSED PIPING SHALL RECEIVE (1) COAT OF PRIMER AND (2) COATS OF GRAY EPOXY PAINT. ALL BELOW GROUND PIPING SHALL BE ASTM D2513 POLYETHYLENE PIPE WITH ALL NECESSARY FITTINGS AND TRANSITIONS MANUFACTURED SPECIFICALLY FOR GAS SERVICE. ALL PIPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH 2015 INTERNATIONAL FUEL GAS CODE, NFPA, AND AGA.

22. EXCEPT WHERE OTHERWISE INDICATED, ALL CUTTING AND PATCHING REQUIRED FOR THE PLUMBING WORK SHALL BE BY THE PLUMBING CONTRACTOR. DO NOT CUT STRUCTURAL MEMBERS.

END OF SECTION 220000

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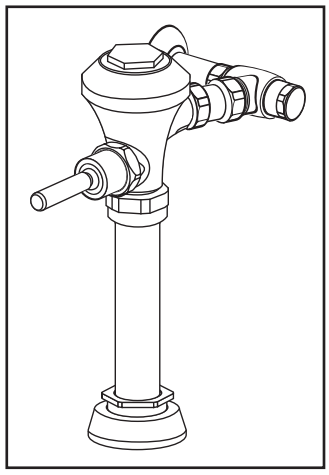
DIVISION 22

PLUMBING - ATTACHMENTS

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Ultima™ Manual Toilet Flush Valve Diaphragm-Type

1.28 GPF / 4.8 LPF



GENERAL DESCRIPTION:
Manual Diaphragm-Type Water Closet Flush Valve for floor-mounted or wall-hung 1-1/2" top spud bowls.

PRODUCT FEATURES:

- Patent-pending DynaClean™ wiper spring technology significantly reduces maintenance and downtime.
- Self-cleaning wiper spring cleans the refill orifice with every flush; prevents valve run-on from clogging
- Prevents costly excess water usage and potential flooding
- Premium EvoLast™ material is chlorine and chloramine resistant to prevent premature deterioration and failure
- Delivers consistent flushing performance and water savings over time
- Dezincification-resistant brass alloy withstands the most severe water conditions
- Non-hold open handle provides automatic shut-off
- High back pressure vacuum breaker prevents dripping
- Adjustable tailpiece for rough-in flexibility
- Can be installed left or right handed
- No external volume adjustment
- ADA compliant

MODEL NUMBER:

❑ **6147121.002** Flush Valve for 1-1/2" top spud bowl, 11-1/2" Supply C\L to top of bowl, 1.28 gpf/4.8 Lpf

❑ **6147122.002** Flush Valve for 1-1/2" top spud bowl, 27" Supply C\L to top of bowl, 1.28 gpf/4.8 Lpf

OPERATING PRESSURE:
25 psi (flowing)-80 psi (static)

FLOW REQUIREMENT:
25gpm (94.6 L/min.)

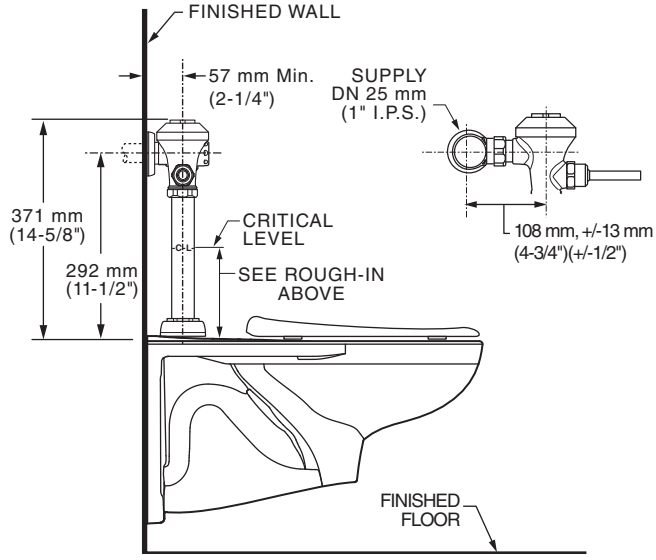
INCLUDES:

- 1" I.P.S. angle stop with back-flow prevention and vandal-resistant cap
- Sweat solder kit including cover tube and wall flange
- High back pressure vacuum breaker with down tube
- Spud coupling & flange for 1-1/2" top spud

ACCESSORIES:

- Split ring pipe supports (2-1/2" & 6" C-E)

TYPICAL WATER CLOSET INSTALLATION:
AFWALL™ TOILET SHOWN



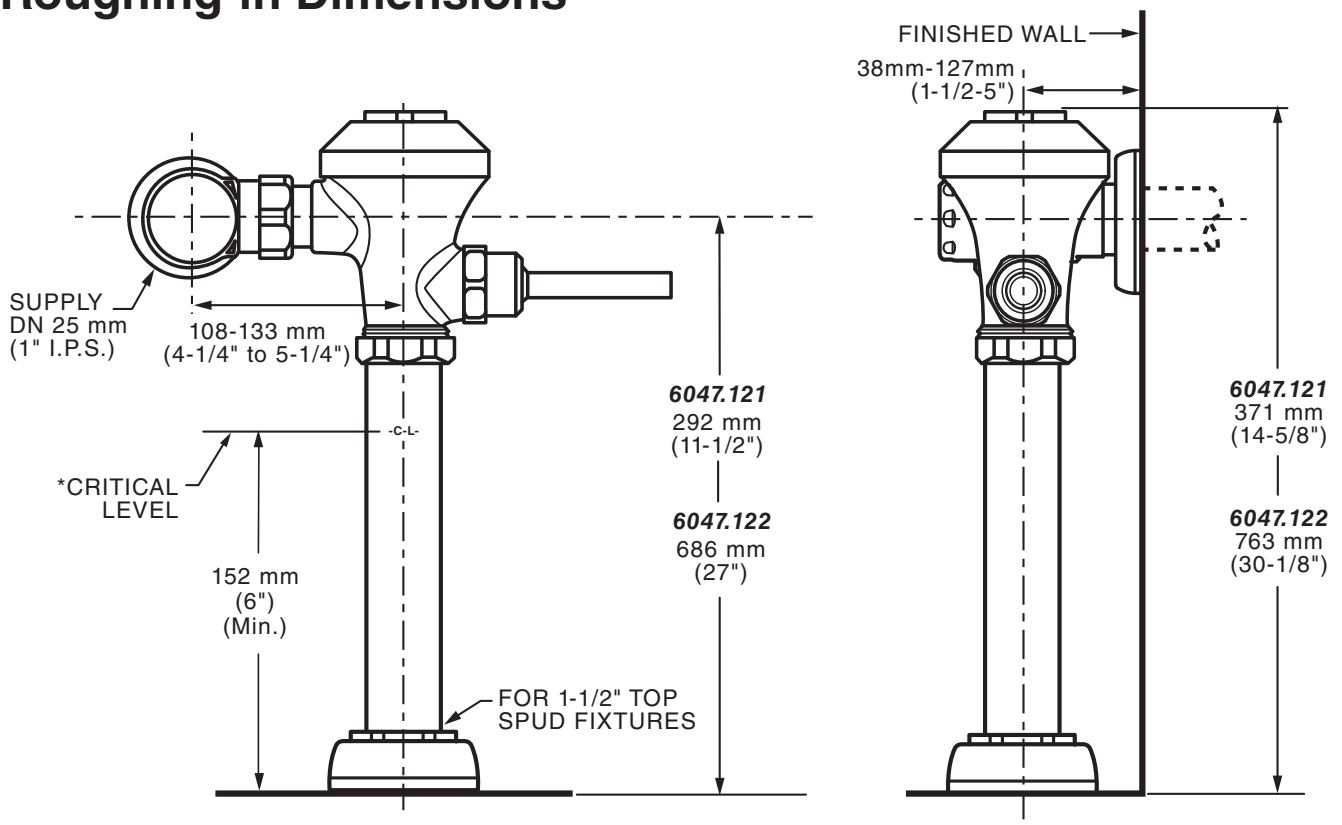
RECOMMENDED SPECIFICATION:
Manual toilet flush valve shall feature self-cleaning diaphragm valve with integral DynaClean wiper spring in bypass orifice to prevent clogging. Advanced EvoLast diaphragm provides superior chorine-resistance. Includes dezincification-resistant cast brass valve body with ch rome finish. Includes sweat solder kit with wall flange and cover tube. Angle stop with back-flow protection and vandal-resistant stop cap. High back pressure vacuum breaker included. 1.28 gpf / 4.8 Lpf Flush valve shall be American Standard Model # 6147.12_.002.

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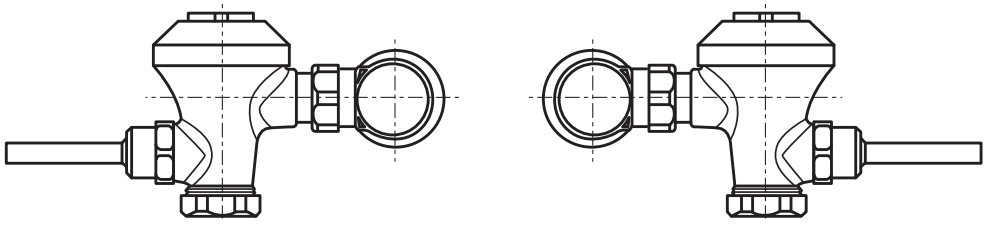
Ultima™ Manual Toilet Flush Valve
Diaphragm-Type
1.28 GPF / 4.8 LPF

LISTINGS:
- ASSE 1037
- ANSI/ASME A112.19.2
- ADA Compliant

Roughing-in Dimensions



*Note: The Critical Line (-C-L-) on Vacuum Breaker must typically be a minimum of 6" (152 mm) above fixture. Consult Codes for details.



Left or Right Hand Installation

ADA **MEETS THE AMERICANS WITH DISABILITIES ACT GUIDELINES AND ANSI A117.1 REQUIREMENTS FOR ACCESSIBLE AND USABLE BUILDING FACILITIES-CHECK LOCAL CODES**

PART OF LIXIL

© 2019 AS America Inc.

Afwall® Millennium™ FloWise® Elongated Flushometer Toilet

VITREOUS CHINA with EVERCLEAN®

BARRIER FREE

Afwall® Millenium™ FloWise® Elongated Flushometer Toilet with EverClean®

- Wall-mounted flushometer valve toilet
- Vitreous china
- High Efficiency, Low Consumption. Operates in the range of 1.1 gpf to 1.6 gpf (4.2 Lpf to 6.0 Lpf)
- Meets definition of HET (High Efficiency Toilet) when used with a high efficiency flush valve (1.1 gpf - 1.6 gpf or 1.28/1.1 gpf dual flush)
- Maximum Performance (MaP) score of 1,000 grams at 1.1 gpf - 1.6 gpf
- Permanent EverClean® antimicrobial surface inhibits the growth of stain- and odor-causing bacteria, mold, and mildew on the surface
- Condensation channel
- Concealed trapway design
- Elongated bowl
- Powerful direct-fed siphon jet action
- 1-1/2" inlet spud
- Fully-glazed 2-1/8" trapway
- 10" x 12" water surface area
- Tested to support static weight load of 1,000 lbs. (454 kg)

❏ **3351.101** Elongated bowl only, top spud
❏ **3352.101** Elongated bowl only, top spud with slotted rim for bedpan holding
❏ **3353.101** Elongated bowl only, back spud
❏ **3354.101** Elongated bowl only, back spud with slotted rim for bedpan holding

System MaP* Score:
- 1,000 grams of miso @ 1.1 gpf to 1.6 gpf when used with an American Standard flush valve

* Maximum Performance (MaP) testing performed by IAPMO R&T Lab. MaP report conducted by Gauley Associates Ltd. and Koeller and Company.

Component Parts:
❏ **047007-0070A** Inlet Spud (furnished with bowl)

Nominal Dimensions:
660 x 356 x 381mm
(26" x 14" x 15")

Recommended working pressure–between 25 psi at valve when flushing and 80 psi static

Fixture only, less seat, bolt caps, and flushometer valve

Compliance Certifications - Meets or Exceeds the Following Specifications:
- ASME A112.19.2/CSA B45.1 for Vitreous China Fixtures

* This product is not recommended for bariatric use.

MEETS THE AMERICANS WITH DISABILITIES ACT GUIDELINES AND ANSI A117.1 REQUIREMENTS FOR ACCESSIBLE AND USABLE BUILDING FACILITIES - CHECK LOCAL CODES.
- When installed so top of seat is 432 to 483mm (17" to 19") from the finished floor.



SEE REVERSE FOR ROUGHING-IN DIMENSIONS

To Be Specified:
❏ Color: ❏ White
❏ Seat:
- ❏ American Standard #5901.100 Heavy duty open front less cover
- ❏ American Standard #5905.100 Extra heavy duty open front less cover

❏ Flushometer Valve:
- ❏ 1.6 gpf:
  - ❏ Sensor-Operated: American Standard Selectronic® DC Power #6065.161.002 (Top Spud) AC Power #6067.161.002 (Top Spud)
  - ❏ Manual: American Standard #6047.161.002 (Top Spud)
- ❏ 1.28 gpf:
  - ❏ Sensor-Operated: American Standard Selectronic® DC Power #6065.121.002 (Top Spud) AC Power #6067.121.002 (Top Spud)
  - ❏ Manual: American Standard #6047.121.002 (Top Spud)
- ❏ 1.6 / 1.1 gpf Dual Flush:
  - ❏ Sensor-Operated: American Standard Selectronic® DC Power #6065.761.002 (Top Spud) AC Power #6067.761.002 (Top Spud)
- ❏ 1.28 / 1.1 gpf Dual Flush:
  - ❏ Sensor-Operated: American Standard Selectronic® DC Power #6065.721.002 (Top Spud) AC Power #6067.721.002 (Top Spud)

ENVIROMENTAL PRODUCT DECLARATION

When used with **1.1 or 1.28 gpf** toilet flush valves

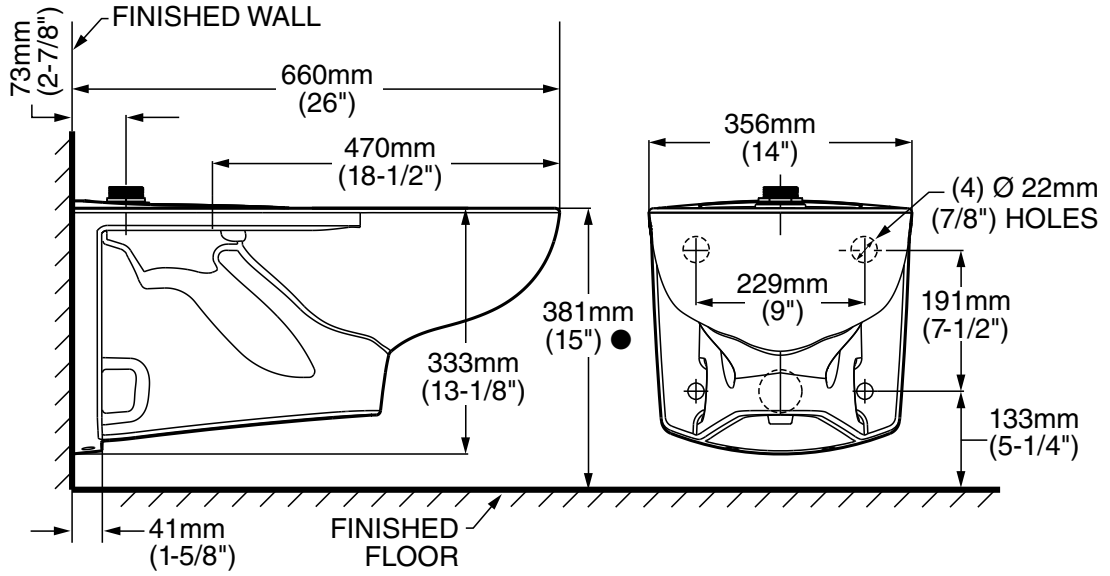
ADA COMPLIANT

EVERCLEAN

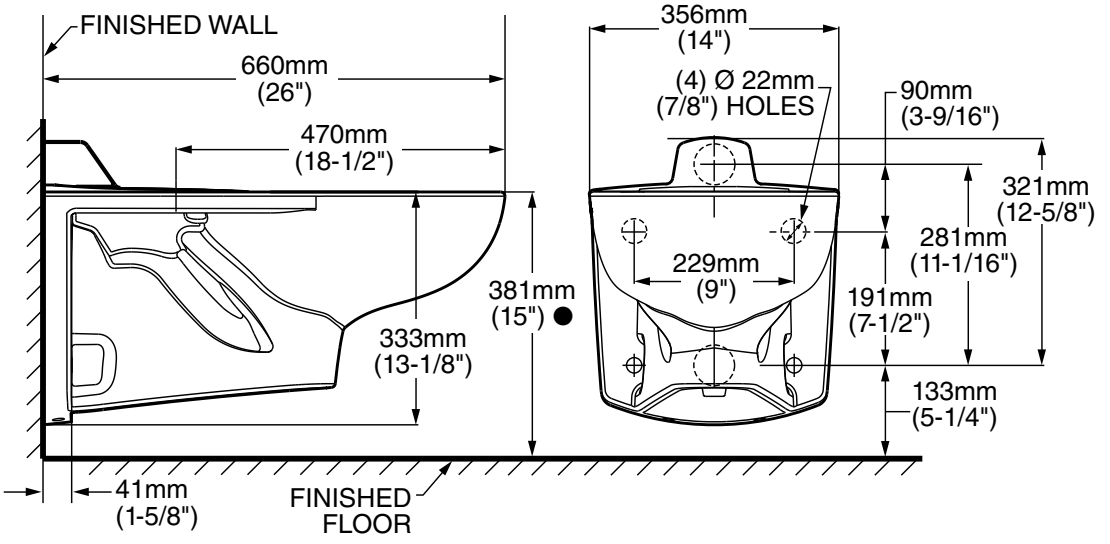
WATER EFFICIENT

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3351.101/3352.101



3353.101/3354.101



NOTES:

● Toilet designed to meet ADA accessibility standards when top of seat height set at 432 to 483mm (17" to 19") from finished floor.

PRODUCT 3351 AND 3353 SHOWN, 3352 AND 3354 SAME EXCEPT WITH SLOTTED RIM FOR BED PAN HOLDING.
WASTE OUTLET SEAL RING MUST BE NEOPRENE OR GRAPHITE-FELT (WAX RING NOT RECOMMENDED).
SUGGESTED 2mm (1/16) CLEARANCE BETWEEN FACE OF WALL AND BACK OF BOWL.
TO COMPLY WITH AREA CODE GOVERNING THE HEIGHT OF VACUUM BREAKER ON THE FLUSHOMETER VALVE, THE PLUMBER MUST VERIFY DIMENSIONS SHOWN FOR SUPPLY ROUGHING.
FLUSHOMETER VALVE NOT INCLUDED WITH FIXTURE AND MUST BE ORDERED SEPARATELY.
CARRIER FITTING AS REQUIRED TO BE FURNISHED BY OTHERS.
PROVIDE SUITABLE REINFORCEMENT FOR ALL WALL SUPPORT.

IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2. These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages

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COMMERCIAL TOILET SEATS

❑ **5901.100** Elongated Heavy Duty bowl open front seat less cover
❑ **5901.100SS** Same as 5901.100 with self-sustaining hinge and EverClean® Surface
❑ **5901.110T** Same as 5901.100 and EverClean® Surface

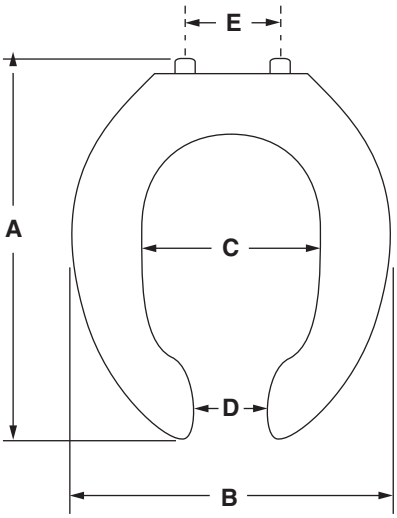
- Open front toilet seat less cover
- Injection molded solid polypropylene
- Fits elongated bowl
- Features large molded-in bumpers
- External check hinge with 304 Series stainless steel hinge posts stops seat 11° beyond vertical
- EverClean® silver-based surface permanently inhibits the growth of stain and odor causing bacteria, mold and mildew on the surface. EverClean® surface does not protect against disease causing bacteria.

To Be Specified:
❑ Color: ❑ White



5901

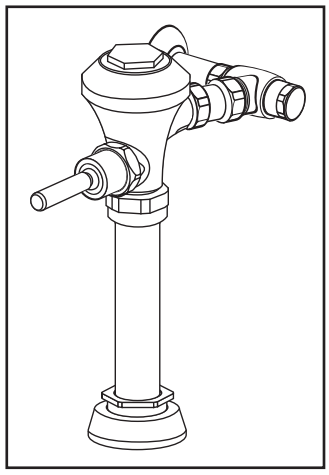
Model #	5901
A	18-9/16" (471mm)
B	14-3/8" (365mm)
C	7-7/8" (200mm)
D	3-1/2" (89mm)
E	5-1/2" (140mm)
Ring Thickness	7/8" (22mm)
Ring Thickness with Bumper	1" (25mm)



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Ultima™ Manual Toilet Flush Valve Diaphragm-Type

1.28 GPF / 4.8 LPF



GENERAL DESCRIPTION:
Manual Diaphragm-Type Water Closet Flush Valve for floor-mounted or wall-hung 1-1/2" top spud bowls.

PRODUCT FEATURES:

- Patent-pending DynaClean™ wiper spring technology significantly reduces maintenance and downtime.
- Self-cleaning wiper spring cleans the refill orifice with every flush; prevents valve run-on from clogging
- Prevents costly excess water usage and potential flooding
- Premium EvoLast™ material is chlorine and chloramine resistant to prevent premature deterioration and failure
- Delivers consistent flushing performance and water savings over time
- Dezincification-resistant brass alloy withstands the most severe water conditions
- Non-hold open handle provides automatic shut-off
- High back pressure vacuum breaker prevents dripping
- Adjustable tailpiece for rough-in flexibility
- Can be installed left or right handed
- No external volume adjustment
- ADA compliant

MODEL NUMBER:

❑ **6147121.002** Flush Valve for 1-1/2" top spud bowl, 11-1/2" Supply C\L to top of bowl, 1.28 gpf/4.8 Lpf

❑ **6147122.002** Flush Valve for 1-1/2" top spud bowl, 27" Supply C\L to top of bowl, 1.28 gpf/4.8 Lpf

OPERATING PRESSURE:
25 psi (flowing)-80 psi (static)

FLOW REQUIREMENT:
25gpm (94.6 L/min.)

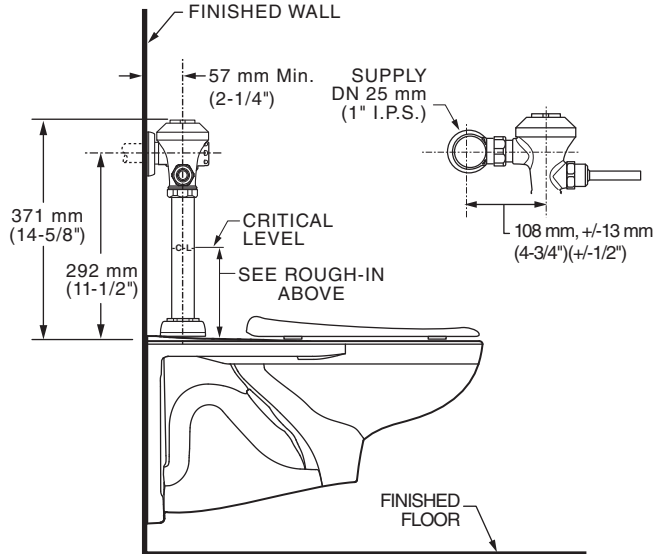
INCLUDES:

- 1" I.P.S. angle stop with back-flow prevention and vandal-resistant cap
- Sweat solder kit including cover tube and wall flange
- High back pressure vacuum breaker with down tube
- Spud coupling & flange for 1-1/2" top spud

ACCESSORIES:

- Split ring pipe supports (2-1/2" & 6" C-E)

TYPICAL WATER CLOSET INSTALLATION:
AFWALL™ TOILET SHOWN



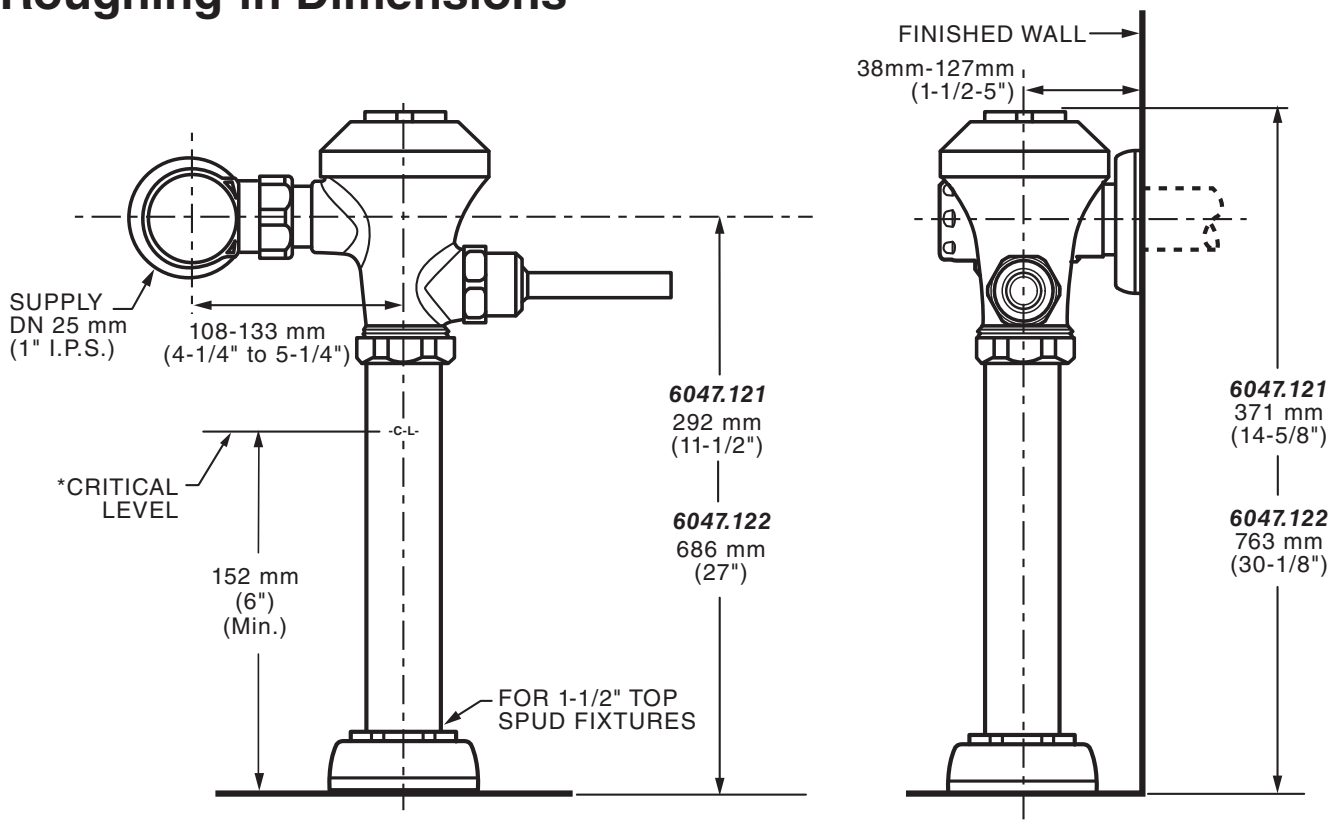
RECOMMENDED SPECIFICATION:
Manual toilet flush valve shall feature self-cleaning diaphragm valve with integral DynaClean wiper spring in bypass orifice to prevent clogging. Advanced EvoLast diaphragm provides superior chorine-resistance. Includes dezincification-resistant cast brass valve body with ch rome finish. Includes sweat solder kit with wall flange and cover tube. Angle stop with back-flow protection and vandal-resistant stop cap. High back pressure vacuum breaker included. 1.28 gpf / 4.8 Lpf Flush valve shall be American Standard Model # 6147.12_.002.

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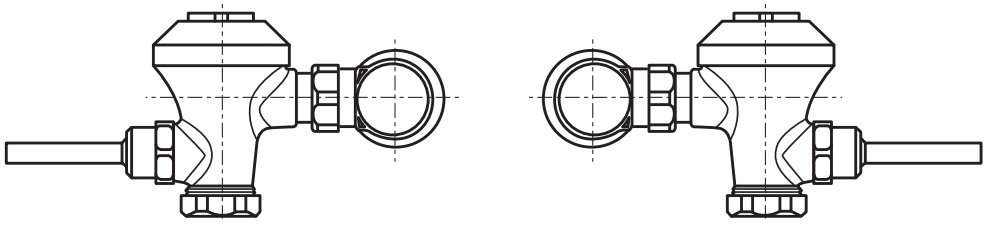
Ultima™ Manual Toilet Flush Valve
Diaphragm-Type
1.28 GPF / 4.8 LPF

LISTINGS:
- ASSE 1037
- ANSI/ASME A112.19.2
- ADA Compliant

Roughing-in Dimensions



*Note: The Critical Line (-C-L-) on Vacuum Breaker must typically be a minimum of 6" (152 mm) above fixture. Consult Codes for details.



Left or Right Hand Installation

ADA **MEETS THE AMERICANS WITH DISABILITIES ACT GUIDELINES AND ANSI A117.1 REQUIREMENTS FOR ACCESSIBLE AND USABLE BUILDING FACILITIES-CHECK LOCAL CODES**

PART OF LIXIL

© 2019 AS America Inc.

DECORUM® 20" x 18-1/4" WALL-HUNG LAVATORY WITH EVERCLEAN®

VITREOUS CHINA

BARRIER FREE

DECORUM® 20" x 18" WALL-HUNG LAVATORY WITH EVERCLEAN®

- 20" x 18" vitreous china lavatory with EverClean included
- Available with rear overflow or less overflow
- Recessed self-draining deck with minimal backsplash
- For concealed arm or wall support (wall hanger included)
- ADA and TAS compliant
- Shown with drain grid (sold separately)



9024.004EC shown

❏ **9024.000EC** No faucet holes
❏ **9024.001EC** Center hole only (CHO)
❏ **9024.021EC** CHO with left hand soap dispenser
❏ **9024.011EC** CHO with right hand soap dispenser
❏ **9024.901EC** CHO less overflow
❏ **9024.921EC** CHO with left hand soap dispenser less overflow
❏ **9024.911EC** CHO with right hand soap dispenser less overflow
❏ **9024.004EC** 4" centers
❏ **9024.024EC** 4" centers with left hand soap dispenser
❏ **9024.014EC** 4" centers with right hand soap dispenser
❏ **9024.904EC** 4" centers less overflow
❏ **9024.924EC** 4" centers with left hand soap dispenser less overflow
❏ **9024.914EC** 4" centers with right hand soap dispenser less overflow
❏ **9024.008EC** 8" centers
❏ **9024.908EC** 8" centers less overflow

Nominal Dimensions:
464mm (18-1/4") deep, 508mm (20") wide

Bowl sizes:
354mm (13-15/16") wide, 325mm (12-13/16") front to back, 127mm (5") deep

SEE NEXT PAGE FOR ROUGHING-IN DIMENSIONS

To Be Specified:
❏ Color: ❏ White
❏ Faucet:
❏ Faucet Finish:
❏ Supplies:
❏ 1-1/4" Trap:

* See faucet section for additional models available

Compliance Certifications -
Meets or Exceeds the Following Specifications:
• ASME A112.19.2 for Vitreous China Fixtures

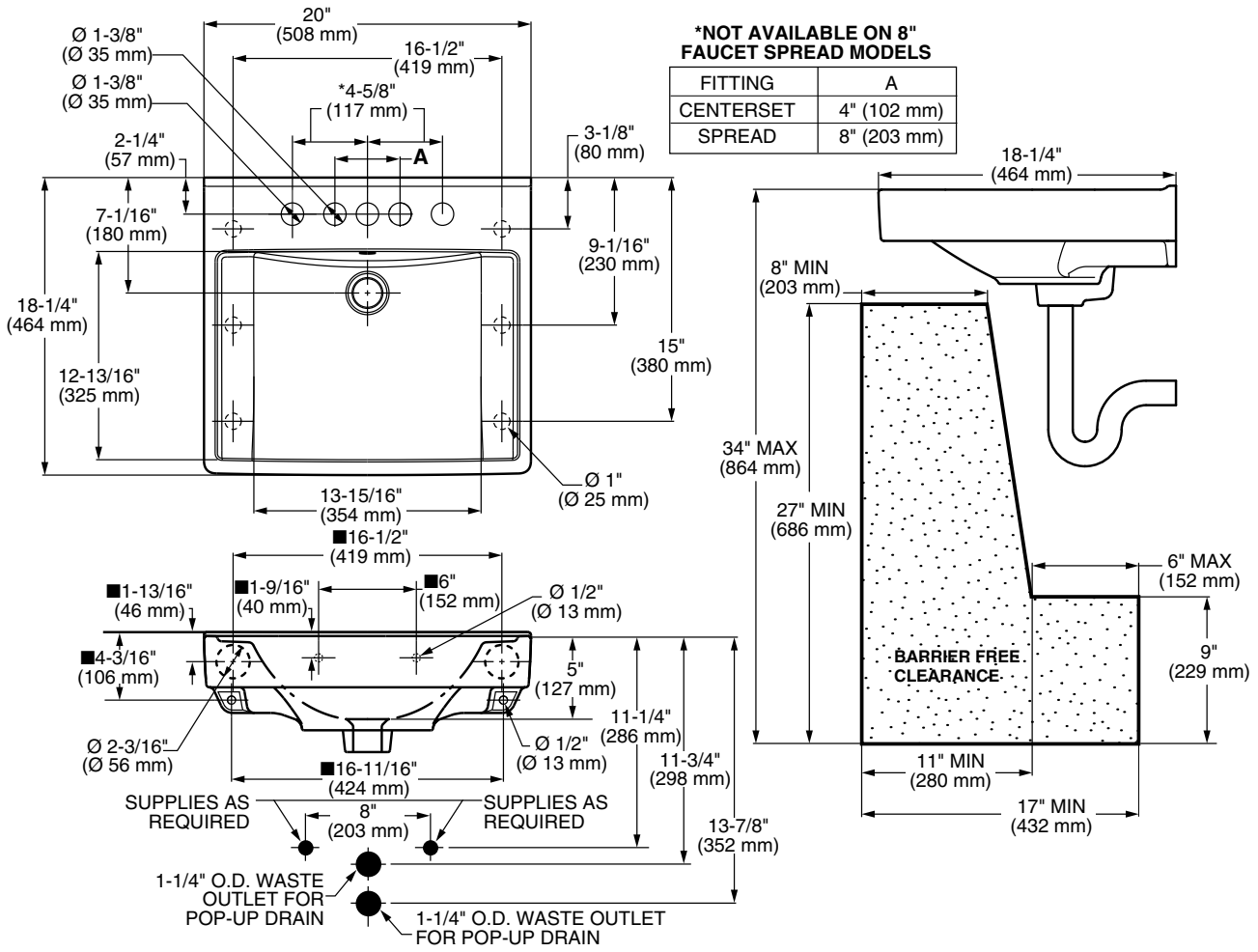
MEETS THE AMERICANS WITH DISABILITIES ACT GUIDELINES AND ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES - CHECK LOCAL CODES.
Top of front rim mounted 864mm (34") from finished floor.

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DECORUM® 20" x 18-1/4" WALL-HUNG LAVATORY WITH EVERCLEAN®

VITREOUS CHINA

BARRIER FREE



***NOT AVAILABLE ON 8" FAUCET SPREAD MODELS**

FITTING	A
CENTERSET	4" (102 mm)
SPREAD	8" (203 mm)

NOTES:
● LOOSE KEY ANGLE STOPS, LESS WALL ESCUTCHEONS. SUPPLIES REQUIRED.
DIMENSIONS SHOWN FOR LOCATION OF SUPPLIES AND "P" TRAP ARE SUGGESTED.
■ SUITABLE FOR REINFORCEMENT ONLY, ACTUAL DIMENSIONS MUST BE TAKEN FROM FIXTURE.
FITTINGS NOT INCLUDED AND MUST BE ORDERED SEPARATELY.
PROVIDE SUITABLE REINFORCEMENT FOR ALL WALL SUPPORTS.
INSTALLATION INSTRUCTIONS SUPPLIED WITH LAVATORY.
IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2. These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

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PART OF LIXIL

DECORUM® 20" x 18-1/4" WALL-HUNG LAVATORY WITH EVERCLEAN®

VITREOUS CHINA

BARRIER FREE



Model 9024.000EC
No Faucet Holes



Model 9024.001EC
Center Hole Only (CHO)



Model 9024.004EC
4" Centers



Model 9024.008EC
8" Centers



Model 9024.011EC
CHO With Right Hand Soap Dispenser



Model 9024.014EC
4" Centers With Right Hand Soap Dispenser



Model 9024.021EC
CHO With Left Hand Soap Dispenser



Model 9024.024EC
4" Centers With Left Hand Soap Dispenser



Model 9024.901EC
CHO Less Overflow



Model 9024.904EC
4" Centers Less Overflow



Model 9024.908EC
8" Centers Less Overflow



Model 9024.911EC
CHO With Right Hand Soap Dispenser
Less Overflow



Model 9024.914EC
4" Centers With Right Hand Soap Dispenser
Less Overflow



Model 9024.921EC
CHO With Left Hand Soap Dispenser
Less Overflow

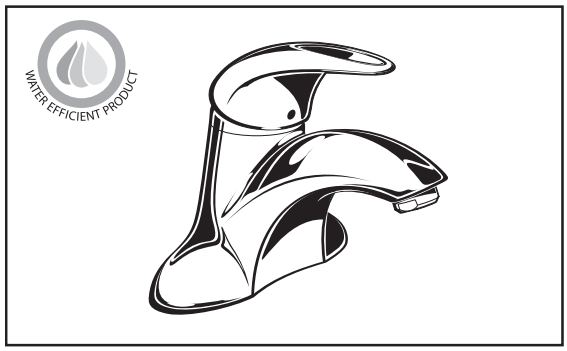


Model 9024.924EC
4" Centers With Left Hand Soap Dispenser
Less Overflow

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PART OF LIXIL

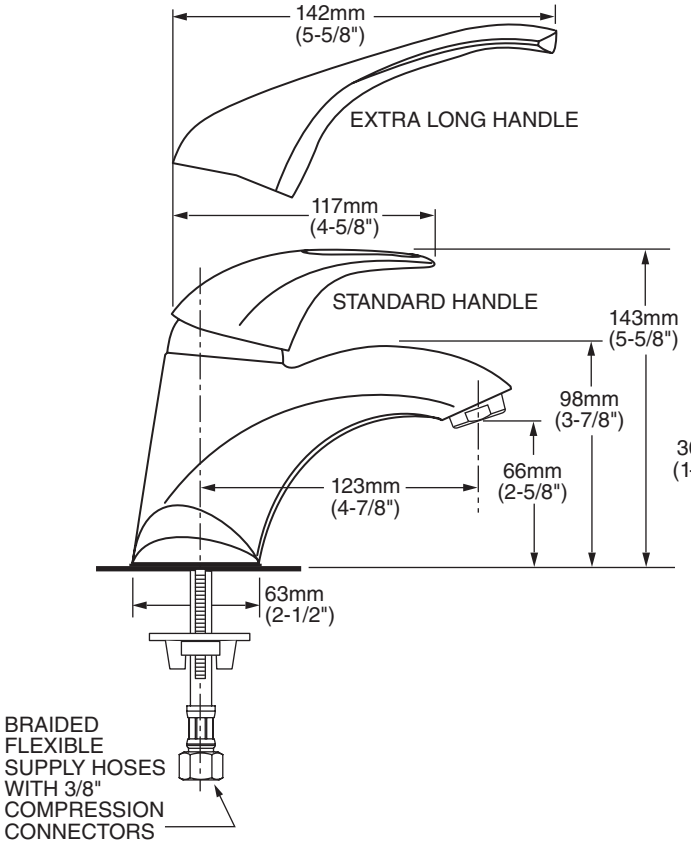
RELIANT® 3 0.5 GPM
SINGLE CONTROL LAVATORY FAUCET

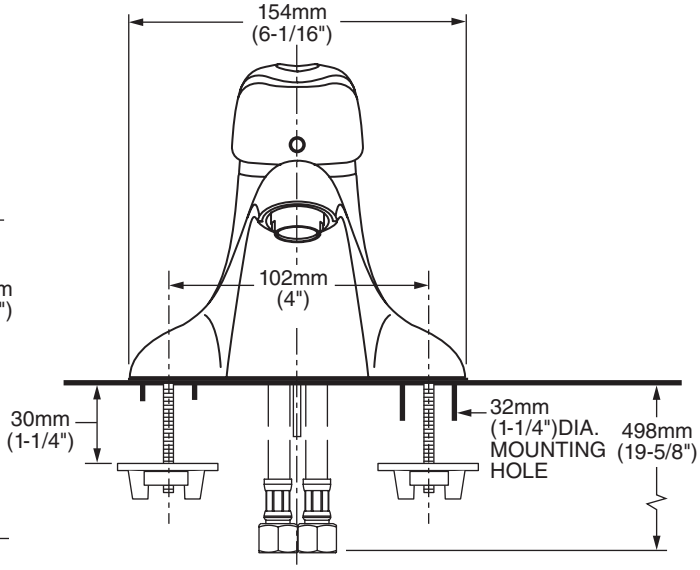


MODEL NUMBER:

❑ **7385.053 Reliant 3 Single Control Centerset**
Metal Lever Handle with grid drain LESS pop-up hole.
0.5 gpm Pressure Compensating Vandal Resistant Spray.

❑ **7385.050 Reliant 3 Single Control Centerset**
Indexed Metal Lever Handle LESS drain & pop-up hole.
0.5 gpm Pressure Compensating Vandal Resistant Spray.





GENERAL DESCRIPTION:

All metal body with Indexed Metal Lever Handle or optional Extra Long Lever Handle. Washerless 47mm ceramic disc valve cartridge with integral hot limit safety stop. Durable cast brass waterway. Braided flexible supply hoses with 3/8" compression connections. Pressure compensating vandal resistant spray with 0.5gpm/1.9L/min. maximum flow rate.

PRODUCT FEATURES:

Pressure Compensating Spray: Provides a constant water flow of 0.5 gpm throughout the pressure range.

Cast Brass Waterway with Flexible Supply Hoses: Strong and durable. Less potential for leaks.

Ceramic Disc Valve Cartridge: Assures smooth, precise valve control and a lifetime of drip-free, maintenance-free performance.

Adjustable Hot Limit Safety Stop: Limits the amount of hot water allowed to mix with cold. Reduces the risk of accidental scalding.

Lead Free: Faucet contains ≤ 0.25% total lead content by weighted average.

Simple One-Person Installation: Faucet drops in from top. Quick spin nuts secure faucet in place.

SUGGESTED SPECIFICATION

Single control lavatory fitting shall feature an all metal body with metal lever handle. Shall feature a cast brass waterway with flexible hose connections. Shall also feature a washerless ceramic disc valve cartridge with integral hot limit safety stop. Shall feature water conserving vandal resistant 0.5gpm/1.9L/min. pressure compensating spray. Fitting shall be American Standard Model # 7385.05__.___.

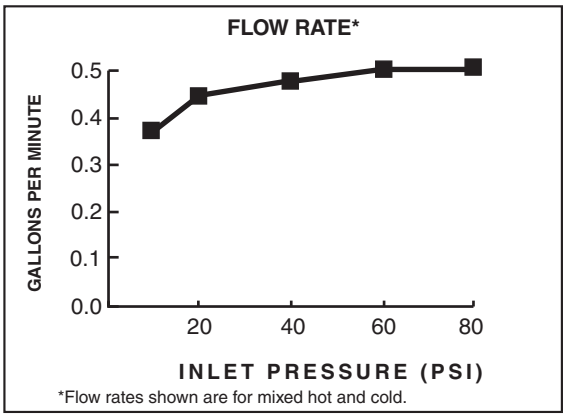
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RELIANT® 3 0.5 GPM
SINGLE CONTROL LAVATORY FAUCET

CODES AND STANDARDS

These products meet or exceed the following codes and standards:

ANSI A117.1
ASME A112.18.1
CSA B 125.1
NSF 61/Section 9 and Annex G



Product Number	Description	Finish Options	
		Polished Chrome	PVD Satin Nickel
		002	295
7385.053	Reliant 3 Single Control Centerset. Indexed (Red/Blue) Metal Lever Handle. with grid drain, LESS pop-up hole. Pressure compensating vandal resistant 0.5 gpm spray.		
7385.050	Reliant 3 Single Control Centerset. Indexed (Red/Blue) Metal Lever Handle. Less drain, less pop-up hole. Pressure compensating vandal resistant 0.5 gpm spray.		

Meets the American Disabilities Act Guidelines and **ANSI A117.1** Requirements for the physically challenged.

	Available Modifications*		Part Suffix
Handle Options		Extra Long Handle	**__LH**

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AMERICAN STANDARD 30 x 18 STAINLESS STEEL KITCHEN SINK

18 GAUGE STAINLESS STEEL

AMERICAN STANDARD 31 x 18
STAINLESS STEEL KITCHEN SINK



❑ **18SB.9301800T.075**

- Single bowl Stainless Steel kitchen sink
- 18 Gauge Stainless Steel
- Bottom Sound Deadening Pads with undercoating
- Undermount installation
- Includes 9028000.075 waste fitting
- 36" (914mm) cabinet required
- Cutout template and instructions included
- Limited Lifetime Warranty

Nominal Dimensions:
30" x 18" x 9"
(762 x 457 x 229mm)

Large Bowl Size:
28" (712mm) wide
15-15/16" (405mm) front to back
9" (229mm) deep

Compliance Certifications - Meets or Exceeds the Following Specifications:
• ASME A112.19.3

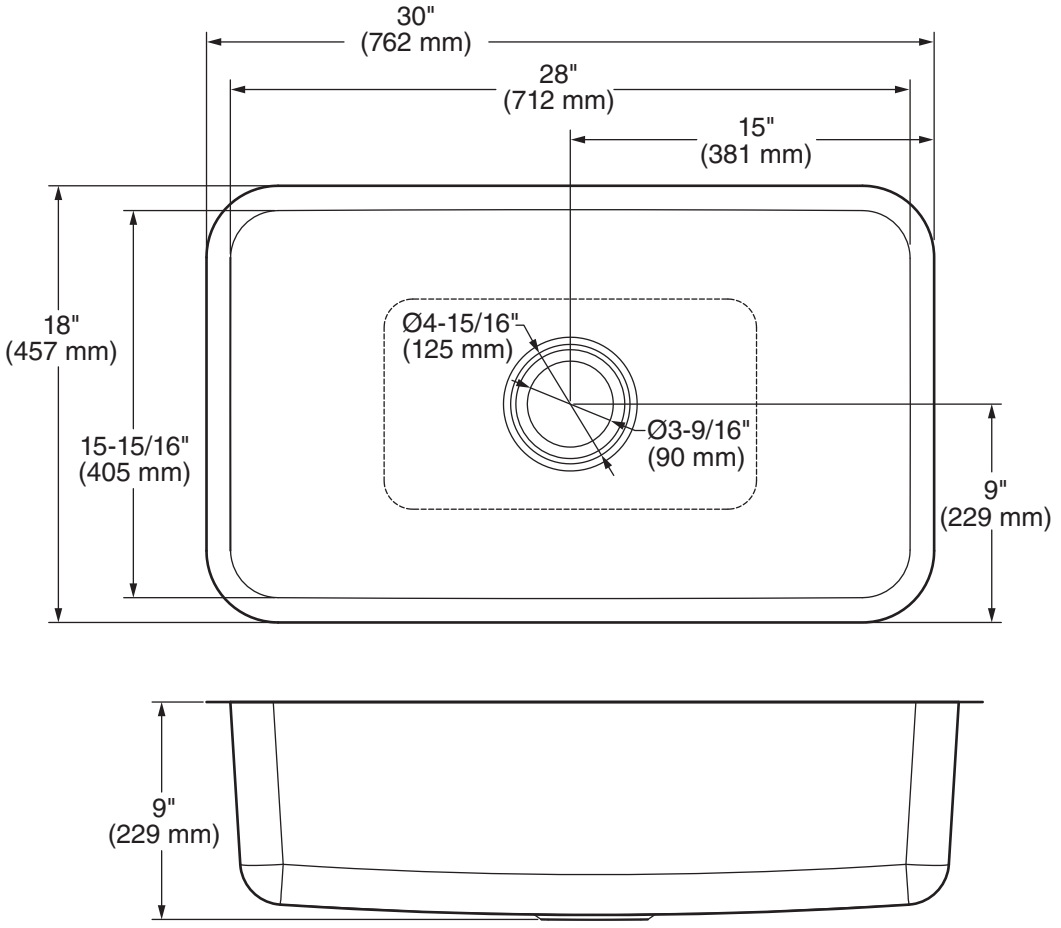
SEE REVERSE FOR ROUGHING-IN DIMENSIONS AND PRODUCT SPECIFICATIONS

To Be Specified:
❑ Color: Stainless Steel .075

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AMERICAN STANDARD 30 x 18 STAINLESS STEEL KITCHEN SINK

18 GAUGE STAINLESS STEEL



NOTES:
* DIMENSIONS SHOWN FOR LOCATION OF SUPPLIED AND “P" TRAP ARE SUGGESTED.
FITTINGS NOT INCLUDED WITH FIXTURE AND MUST BE ORDERED SEPARATELY.
SEALING COMPOUND SUPPLIED BY OTHERS.

IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.3. These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

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KOHLER. Faucets

Duostrainer®

Sink drain and strainer with tailpiece

K-8801

Features

- Removable basket strainer with open/close stopper
- Tailpiece included
- Quick-locking installation system
- For sink installations with 3-1/2" (89 mm) or 4" (102 mm) outlet

Material

- Solid-brass construction for durability and reliability

Recommended Products/Accessories

K-23726 Drain treatment
K-23723 Faucet cleaner



Codes/Standards

ASME A112.18.2/CSA B125.2
IAPMO Certification

KOHLER® One-Year Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

Color tiles intended for reference only.

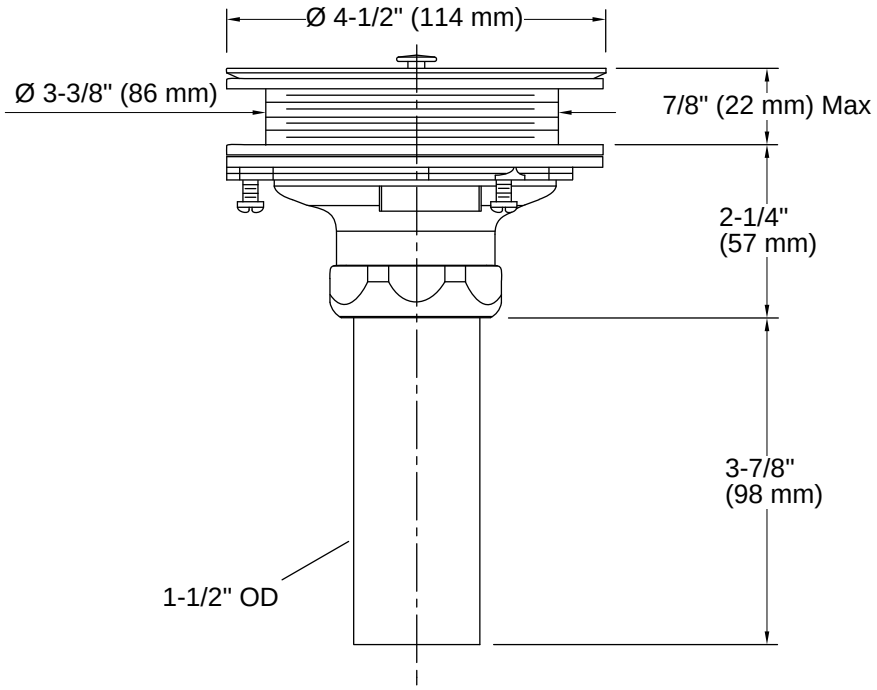
Color	Code	Description
	CP	Polished Chrome
	SN	Vibrant® Polished Nickel
	AF	Vibrant® French Gold
	PB	Vibrant® Polished Brass
	G	Brushed Chrome
	BN	Vibrant® Brushed Nickel
	VS	Vibrant® Stainless
	BV	Vibrant® Brushed Bronze
	2BZ	Oil-Rubbed Bronze
	BL	Matte Black
	2MB	Vibrant® Brushed Moderne Brass

KOHLER. Faucets

Duostrainer®

Sink drain and strainer with tailpiece

K-8801



Technical Information

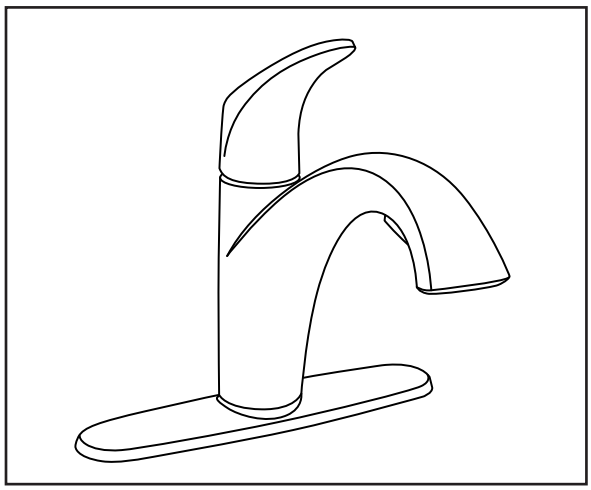
All product dimensions are nominal.

Drain included: Yes

Notes

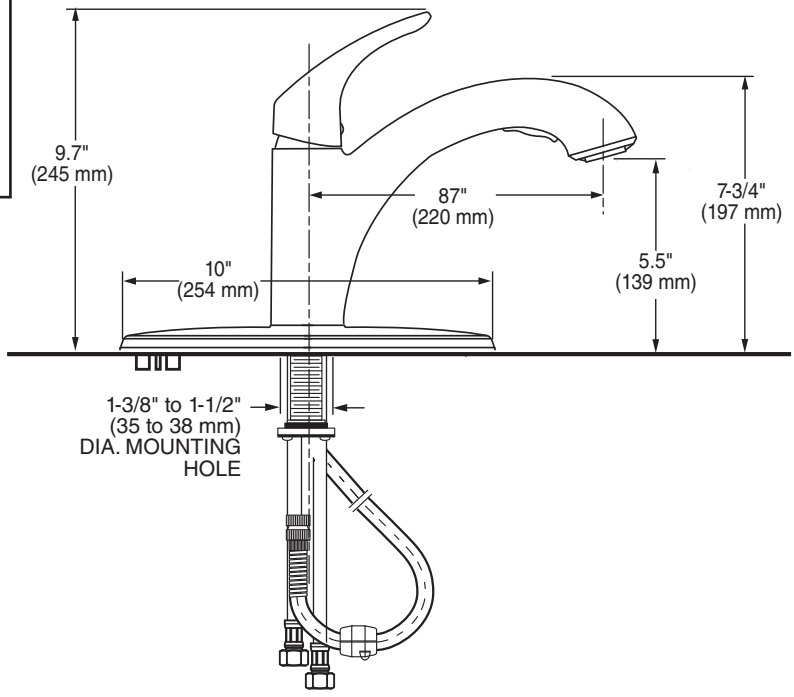
Install this product according to the installation guide.

COLONY® PRO
SINGLE CONTROL KITCHEN FAUCET
WITH PULL-OUT SPRAY



MODEL NUMBER:

❑ **7074.100 Kitchen Faucet with Pull-Out Spray**



GENERAL DESCRIPTION:

Metal swivel body, handle and deck plate. Pull- out sprayer features 2 spray functions. Nylon pull-out spray hose with 2 integral check valves. Washerless 40 mm ceramic disc valve cartridge with integral hot limit safety stop. 24" Braided flexible stainless steel supply hoses with 3/8" compression connections. Metal mounting shank with brass fixation ring. 1.5 gpm/5.7 L/min. maximum flow rate. Fitting can be mounted with or without supplied metal escutcheon plate.

PRODUCT FEATURES:

Ceramic Disc Valve Cartridge: Assures smooth, precise valve control and a lifetime of drip-free, maintenance-free performance.

Memory Position Valving: Allows user to turn valve on and off at preferred temperature setting without readjusting handle position each time.

Adjustable Hot Limit Safety Stop: Limits the amount of hot water allowed to mix with cold. Reduces the risk of accidental scalding.

Lead Free: Faucet contains ≤ 0.25% total lead content by weighted average.

Integral Check Valves: Prevents back flow.

Pull-out Spray Spout: Switches water flow from a stream to a spray.

SUGGESTED SPECIFICATION

Single control kitchen pull-out faucet shall feature a swivel pull-out sprayer with two check valves, metal escutcheon plate and handle. Shall also feature washerless ceramic disc valve cartridge with integral hot limit safety stop and flexible stainless steel supply hoses. Faucet shall be American Standard Model # 7074.100.____.

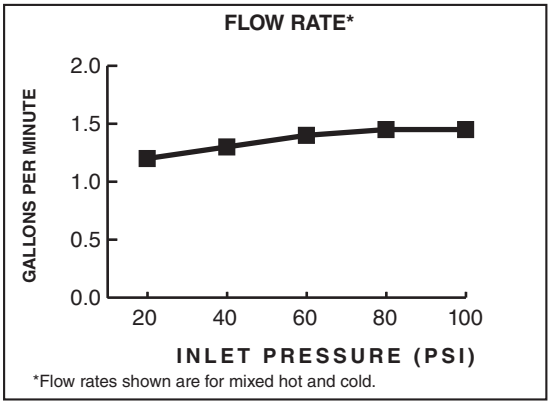
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COLONY® PRO
SINGLE CONTROL KITCHEN FAUCET
WITH PULL-OUT SPRAY

CODES AND STANDARDS

These products meet or exceed the following codes and standards:

ANSI A117.1
ASME A112.18.1
CSA B125.1
NSF 61/Section 9
NSF 372



1.5 gpm/5.7 L/min. FLOW RATE

Product Number	Description	Finish Options	
		Polished Chrome	PVD Stainless Steel
		002	075
7074.100	Pull-Out Kitchen Faucet		

Meets the American Disabilities Act Guidelines and **ANSI A117.1** Requirements for the physically challenged.

PART OF LIXIL

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DIVISION 26

ELECTRICAL

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SECTION 260000 – GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Electrical General Notes

2. Submittal requirements

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product

1.4 ELECTRICAL GENERAL NOTES

1. CONTRACTOR SHALL PROVIDE A COMPLETE AND WORKING SYSTEM WITH ALL NECESSARY PERMITS AND APPROVALS FROM AUTHORITIES HAVING JURISDICTION

2. CONTRACTOR SHALL CONDUCT A SURVEY OF THE EXISTING CONDITIONS AND BASED ON THE SURVEY SHALL DETERMINE THE SCOPE OF WORK AND MATERIALS REQUIRED TO COMPLETE THE PROJECT.

3. THE SCOPE OF ELECTRICAL WORK INCLUDES ALL THE WORK NECESSARY BASED ON THE EXISTING CONDITIONS OF THE SITE TO PROVIDE THE NECESSARY CONNECTIONS TO THE ELECTRICAL FIXTURES AS SHOWN AND CONFIGURED ON THE ARCHITECTURAL DRAWINGS.

4. THE CONTRACTOR SHALL CREATE A RISER LINE DRAWING AND PANEL SCHEDULE FOR INCLUSION IN THE ELECTRICAL PERMIT APPLICATION.

5. INSTALL ALL EQUIPMENT AND MATERIALS IN STRICT ACCORDANCE WITH THE 2017 PENNSYLVANIA ELECTRICAL CODE, BASED ON THE NATIONAL ELECTRICAL CODE NFPA 70 2017, ALL PERTINENT CODES, LAWS, ORDINANCES, REGULATIONS, AND RESPECTIVE MANUFACTURER'S WRITTEN INSTRUCTIONS.

6. CONTRACTOR SHALL PROVIDE BRANCH CIRCUIT WIRING TO ALL ITEMS WHICH REQUIRE ELECTRICAL CONNECTIONS. EXACT ROUTING OF CONDUITS AND WIRING SHALL BE DETERMINED BY THE CONTRACTOR IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND SPECIFICATIONS.

7. THE WIRING METHOD SHALL BE MC OR EMT CONDUIT. NM WIRING SHALL BE PROHIBITED.

8. A MAXIMUM OF 3 CIRCUITS SHALL BE RUN IN ONE CONDUIT, CIRCUITS MUST BE ON SEPARATE PHASES. CIRCUITS SHALL NOT SHARE A COMMON NEUTRAL.

9. THE ELECTRICAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE.

10. ALLOW CLEAR SPACE IN FRONT OF ALL PANELBOARDS, SWITCHBOARDS, ELECTRICAL EQUIPMENT, ETC., AS REQUIRED BY NATIONAL ELECTRICAL CODE.

11. ALL RECEPTACLE/DATA/PHONE DEVICE LOCATIONS TO BE COORDINATED WITH FURNITURE PLAN AND OWNER PRIOR TO ROUGH-IN. ALL DATA JACKS TO BE IMMEDIATELY ADJACENT TO RECEPTACLES.

12. DATA AND TELEPHONE CABLING ROUTED ABOVE SUSPENDED CEILING SHALL BE INSTALLED USING J-HOOKS. CABLE DROPS SHALL BE MADE IN CONDUIT.

13. PROVIDE CONDUIT, WIRING AND CONNECTIONS AS REQUIRED BY EQUIPMENT MANUFACTURER.

14. ALL RECEPTACLES CIRCUITS SHALL BE INSTALLED WITH FULL SIZE GROUND WIRE BACK TO PANEL.

15. INSTALL 1" CONDUIT FROM EACH DATA/TELEPHONE OUTLET TO ACCESSIBLE POINT WITHIN CEILING PLENUM OR BACK TO ELECTRICAL ROOM AND TERMINATE WITH BUSHING.

16. ELECTRICAL CONTRACTOR TO SUPPLY ALL GROUNDING & BONDING REQUIREMENTS PER THE NATIONAL ELECTRICAL CODE.

END OF SECTION 260000

SECTION 265000 – LIGHTING FIXTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Lighting Fixture cut sheets have been included here for reference.

2. See lighting fixture schedule on the drawings for specific info and model number

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product

1.4 LIST OF ATTACHMENTS

1. LT-01
2. LT-02
3. LT-03
4. LT-04
5. LT-05
6. LT-06
7. LT-07
8. EM-01
9. EM-02
10. EM-03

END OF SECTION 265000

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DIVISION 26

ELECTRICAL - ATTACHMENTS

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Suburban Wholesale LIGHTING
35 Industrial Boulevard Paoli, PA 19301
610-993-0470 Fax: 610-993-0473
www.suburbanwholesale.com
info@suburbanwholesale.com

6 41594 22079 7

LED Flush Mount

Comment: LT-1 ALTERNATE ROUND SHAPE



$231.50

Item ID: **885437**
MFG #: **50081LEDDLP-BRZ/OPL**
Manufacturer: **Access**
Finish: **Bronze**
Collection: **Conga**
Width: **19.00"**
Height: **5.25"**

Bulbs

Voltage: **120 V**

Qty.	Type	Base	Watt	Incl.	Source	LM.	CCT	CRI	Avg.Life	Dim	Beam
3	A19	E26	10.00 W	Yes	LED	2400.00 lm	3000 K	-	-	Yes	-

Details

Safety Listing: **Damp**
Safety Rating: **Damp**
Glass: **Opal**
UPC: **641594220797**

Please be advised that all prices and information shown here are subject to verification by showroom personnel. In the event of a discrepancy, we reserve the right to make any corrections necessary.

PROGRESS LIGHTING™

Project:

Fixture Type:

Location:

Contact:

Helm LED

Wall or Ceiling Mounted • Damp Location Listed PROGRESS LED

P3449-0930K9

Description:

Helm Collection Three-Light 18" LED Flush Mount

Specifications:

- White Acrylic Diffuser
- Dimmable to 10% brightness (See Dimming Notes)
- Back plate covers a standard 4" recessed outlet box: 17.5625 in W., 1.125 in ht., 17.5625 in depth
- Mounting strap for outlet box included
- 6 in of wire supplied
- Americans With Disabilities Act (ADA) compliant

Performance:

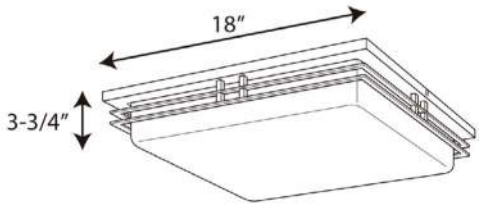
Number of Modules	3
Input Power	17 W
Input Voltage	120 V
Input Frequency	60 Hz
Lumens/LPW (Source)	1,211/71.2 (LM-82)
Lumens/LPW (Delivered)	1,995/39.4 (LM-79)
CCT	3000 K
CRI	90 CRI
Life (hours)	60000 (L70/TM-21)
EMI/RFI	Meets FCC Title 47, Part 15 Class B
Max. Operating Temp	30 °C
Warranty	5-year Limited Warranty
Labels	cCSAus Damp Location Listed



Dimensions:

Square: 18 in
Height: 3-3/4 in
H/CTR: 9 in

White Acrylic Diffuser
Width: 15-13/16 in
Height: 3-5/8 in



PROGRESS LIGHTING™

Helm LED

Wall or Ceiling Mounted • Damp Location Listed PROGRESS LED

P3449-0930K9

Dimming Notes:

P3449-0930K9 is designed to be compatible with many ELV/Reverse Phase controls.

The following is a partial list of known compatible dimmer controls.

Dimming Controls:

Lutron_Nova T NTELV-300
Lutron_Vierti VTELV-600
Lutron_Maestro MAELV-600
Lutron_spacer/system SPSELV-600

Dimming capabilities will vary depending on the dimmer control, load, and circuit installation.
Always refer to dimmer manufacturer instructions or a controls specialist for specific requirements.
Dimmer control brand names where identified above are trade names or registered trademarks of each respective company.

Suburban Wholesale LIGHTING
35 Industrial Boulevard Paoli, PA 19301
610-993-0470 Fax: 610-993-0473
www.suburbanwholesale.com
info@suburbanwholesale.com

6 41594 22102 2

LED Flush Mount

Comment: LT-1.1 ALTERNATE ROUND SHAPE



$179.50

Item ID: **885433**
MFG #: **50080LEDDLP-BRZ/OPL**
Manufacturer: **Access**
Finish: **Bronze**
Collection: **Conga**
Width: **16.00"**
Height: **4.50"**

Bulbs

Voltage: **120 V**

Qty.	Type	Base	Watt	Incl.	Source	LM.	CCT	CRI	Avg.Life	Dim	Beam
2	A19	E26	10.00 W	Yes	LED	1600.00 lm	3000 K	-	-	Yes	-

Details

Safety Listing: **Damp**
Safety Rating: **Damp**
Glass: **Opal**
UPC: **641594221022**

Please be advised that all prices and information shown here are subject to verification by showroom personnel. In the event of a discrepancy, we reserve the right to make any corrections necessary.

Suburban Wholesale LIGHTING
35 Industrial Boulevard Paoli, PA 19301
610-993-0470 Fax: 610-993-0473
www.suburbanwholesale.com
info@suburbanwholesale.com

LED Wall/Ceiling Mount

Comment: LT-1 HELM ANT. BRZ.



$257.00

Item ID: **710578**
MFG #: **P3447-2030K9**
Manufacturer: **Progress Lighting**
Finish: **Antique Bronze**
Collection: **Helm Led**
Width: **11.00"**
Height: **3.75"**
Length: **11.00"**

Helm is a uniquely styled series with design flexibility. This contemporary square fixture has an acrylic diffuser with architectural detail. Can mount to ceiling or wall. One-light 11" LED fixture in Antique Bronze. 3000K, 90+CRI 1,211 lumens 71.2 lumens/watt per module (source).

Bulbs

Voltage: **120 V**

Qty.	Type	Base	Watt	Incl.	Source	LM.	CCT	CRI	Avg.Life	Dim	Beam
1	Module	Integrated	17.00 W	Yes	LED	696.00 lm	3000 K	90 CRI	60000	-	-

Details

Safety Listing:	**cCSAus**	Extension:	**3.75"**
Safety Rating:	**Damp**	Weight:	**2.82 lb**
Glass:	**White**	Manufacturer Warranty:	**5-year Limited Warranty**
Canopy:	**13.625"x1.125"x13.625"**	UPC:	**785247188901**
Wire:	**6"**		
Top to outlet:	**5.50"**		

Please be advised that all prices and information shown here are subject to verification by showroom personnel. In the event of a discrepancy, we reserve the right to make any corrections necessary.

PROGRESS LIGHTING™

DATE: 5/13/26 TYPE: LT-1.2

NAME: Ceiling Flush Mount (Small)

PROJECT: 22041 - Thornbury Twp.



Incandescent

P3854-20

Clifton Heights

Distinctive, chiseled features and crisp, clean lines are key features in this flush mount. Inspired by a modern interpretation of Craftsman styling, a beautiful etched glass shade takes center stage in this design. The contrast of the antique bronze frame with the bright white shade delivers a dramatic, yet refined effect.

- Inspired by a modern interpretation of Craftsman styling, a beautiful etched glass shade takes center stage in this design.
- The contrast of the antique bronze frame with the bright white shade delivers a dramatic, yet refined effect.
- Distinctive, chiseled features and crisp, clean lines are key features in this flush mount.
- Ideal for any hall, foyer, stairway, or kitchen.
- Perfect for transitional or Craftsman settings.
- Measures 12-1/2-inch width by 6-1/8-inch height.
- Uses one medium base bulb that is sold separately (100w max - LED, CFL, halogen, or incandescent).
- Able to be fully dimmable with dimmable bulbs.
- Includes installation instructions and mounting hardware.
- Progress Lighting products are designed for exceptional quality, reliability, and functionality.

Square: 12-1/2"
Height: 6-1/8"

Glass
Width: 10-3/16"
Height: 3-3/8"

Category: Close-to-Ceiling
Finish: Antique Bronze (Painted)
Construction: Steel Construction
Glass/Shade: Etched Glass Pyramid

MOUNTING	ELECTRICAL	LAMPING	ADDITIONAL INFORMATION
Ceiling mounted Mounting Swivel Mounting Strap for outlet box included Ceiling Pan covers a standard 4" octagonal recessed outlet box Ceiling Pan: 12.5" W., 1" ht., 12.5" depth	Pre-wired 6" of wire supplied 120 V	Quantity: One 100w max. Medium Base or LED equivalent E26 base Porcelain socket	cCSAus Damp location listed 1-year Limited Warranty

PROGRESS LIGHTING™

DATE: 5/13/26 TYPE: LT-2

NAME: WALL SCONCE

PROJECT: 22041 Thornbury, Twp.



Incandescent

P300158-020

Clifton Heights

Distinctive chiseled features and clean lines are key features within the Clifton Heights collection. Inspired by an updated interpretation of Craftsman styling, careful attention to the details delivers a dramatic accent. An Antique Bronze finish complements elegant etched square glass shades. The Clifton Heights collection enhances a variety of home styles including Farmhouse, Craftsman and Transitional decor. One-Light bath & vanity fixture.

Width: 5-1/2"
Height: 8-3/8"
Depth: 7-1/8"
H/CTR: 4-5/8" (glass facing up)

Height: 6-1/2"

- Distinctive forms and clean lines are key features within the Clifton Heights collection
- Inspired by Craftsman styling, special attention to decorative details can be appreciated in each fixture
- Elegant etched glass shade
- 1-light wall bracket can be used in bathrooms or as a wall sconce in a hallway or dining room
- Uses 1, 100-watt max. medium base bulb including LED equivalent (sold separately)
- Ideal for Farmhouse and Transitional bathroom spaces
- Mount on wall on either side of mirror to eliminate shadows on face when getting ready in the morning
- Measures 5 1/2"W x 8 3/8" H
- Damp location listed
- Shop the complete Clifton Heights collection for a coordinated look throughout your entire home or mix and match with other complementary styles for a more curated decor

Category: Bath & Vanity

Finish: Antique Bronze (painted)

Construction: Steel construction

Glass/Shade: Etched Glass Shade

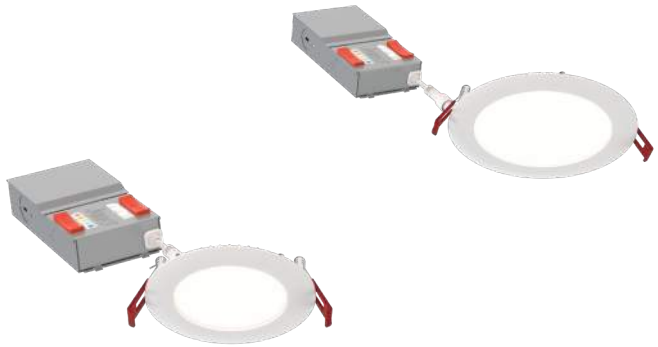
MOUNTING	ELECTRICAL	LAMPING	ADDITIONAL INFORMATION
Wall mounted Mounting strap for outlet box included Fixture can be installed with glass facing up or down Back plate covers a standard 4" octagonal recessed outlet box 5.5" W., 7.25" ht., 1" depth	Pre-wired 6" of wire supplied 120 V	Quantity: One 100w max. Medium Base E26 base Porcelain socket	cULus Damp location listed 1-year limited warranty

Catalog Number	
Notes	
Type	

Contractor Select™

WF4 & WF6 ALO + SWW5

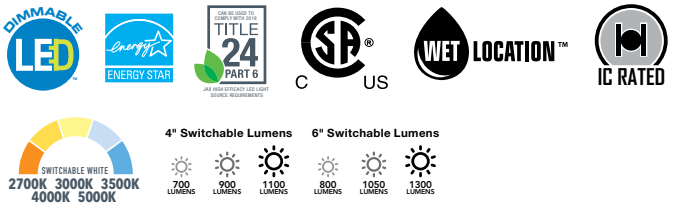
4" & 6" Flat LED Downlight



Featuring a smooth matte white finish, the 4" and 6" flat series of wafers offer both adjustable CCT and lumen output. This combination allows you to create the perfect look for your space with low/medium/high lumen outputs and a choice of 2700K, 3000k, 3500K, 4000K, 5000K CCT.

FEATURES:

- Low, Medium, and High lumen settings means you can mount these wafers at almost any ceiling height within a home.
- Standard wet location listing means our wafers can be mounted in bathrooms and covered outdoor spaces.
- With no can needed to install, time of installation is significantly lower than with traditional downlights
- Available matte black, satin nickel or oil rubbed bronze trim rings enable further customization to your space.



Catalog Number	UPC	Description	Replaces Up To	Lumens	Input Watts	CCT	CRI	Voltage	Finish	Dimming Protocal	Pallet qty.
WF4 ALO19 SWW5 90CRI MW M6	00197589041057	4" Smooth LED Downlight	65W Incandescent	700/900/1100	14.5W	2700K/3000K/3500K/ 4000K/5000k	90	120V	Matte White	Triac	540
WF6 ALO20 SWW5 90CRI MW M6	00197589041194	6" Smooth LED Downlight	75W Incandescent	800/1050/1300	16W	2700K/3000K/3500K/ 4000K/5000k	90	120V	Matte White	Triac	360

Accessories: *Order as separate catalog number.*

WF8643 PAN R6	Universal New Construction Pan, Retail Pack of 6
WF8643 PAN U	Universal New Construction Pan, unit pack
WF4 PAN R12	4" new construction pan, retail pack of 12
WF6 PAN R12	6" new construction pan, retail pack of 12
WF4GR MW	4" Wafer Goof Ring 4.2" ID x 6.2" OD
WF6GR MW JZ	6" Wafer Goof Ring 6" ID x 8" OD
WFJB U	Remodel Joist Bar
WFEXC6 SW3PIN FT4	3-Pin 6ft Cable
WFEXC10 SW3PIN FT4	3-Pin 10ft Cable
WFEXC20 SW3PIN FT4	3-Pin 20ft Cable

Goof rings are made of 22 gauge steel and painted white.



WF8643 Universal
New Construction Pan



WF4_WF6 PAN
New Construction Pan



Remodel Joist Bar



WFEXCx
FT4 3-Pin Cable

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Specifications

HOUSING:
Die cast aluminum mounting frame provides passive thermal cooling achieving L70 at 50,000 hours • FT4 3-pin plenum rated cable connector to connect from module to remote driver box • Steel spring clip for easy installation. 4" & 6" cut out templates are provided to ensure a correct sized hole is cut into ceiling for proper installation of the trim • Can be installed from 3/8" to 1 ½" ceiling thickness • Can be removed from below the ceiling for service or replacement.

LED LIGHT ENGINE:
LEDs are integrated to one piece high purity aluminum, thermally conductive housing to provide uninterrupted heat transfer to ensure long life of the LED Switchable white color temperature from 2700K, 3000K, 3500K, 4000K, 5000K • 90 CRI minimum • Color accuracy within 4 step McAdams Ellipse at the end CCT (2700K and 5000K), within 7 step McAdams Ellipse in the middle CCT (3000K, 3500K, and 4000K) • Dimming 100% to 10% with most standard incandescent dimmers (see list of approved dimmers).

DRIVER:
Connect directly to 120V Class-2 (CAN ICES-005 (B) / NMB-005 (B)) LED driver. 120V 60 Hz constant current driver provides noise free operation • IC rated driver with convenience of a switch to choose between three lumen output settings (Low/Medium/High) • The isolated driver integrated inside steel remote box with four 7/8" knockouts with slots for pryout. Suitable for pulling wires with the 12 cubic-inch wiring compartment to accommodate up to (6) 14 gauge insulated conductor or (4) 12 gauge insulated conductors; making the Wafer LED Downlights much easier to wire in 2in/2out (plus ground) daisy-chain applications and contractor friendly • 2" plenum space required for the installation of the WF6 driver box; 3"plenum space required for the installation of the WF4 driver box • Suitable for installation in t-grid and drop ceiling applications with universal new construction pan.

OPTICAL SYSTEM:
Edge-lit LED technology uses light guided plate to distribute light • Polycarbonate lens provides even illumination throughout the space • Efficient system that can produce over 1100 lumens while using 14.5W with the WF4 and over 1300 lumens while using 16W with the WF6 • Replaces 65W incandescent (WF4) and 75W incandescent (WF6).

LIFE:
Rated for 50,000 hours at 70% lumen maintenance.

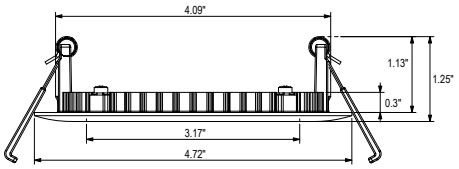
LABELS:
CSA certified to US and Canadian safety standards • ENERGY STAR® certified product • Suitable for wet location, covered ceiling • Air-Loc certified in accordance with ASTM E283-2004 • NOM Certified • Can be used to comply with California Title 24 Part 6 High Efficacy LED light Source Requirements • U.S. Patent No. 10,681,784.

TESTING:
All reports are based on published industry procedures; field performance may differ from laboratory performance.

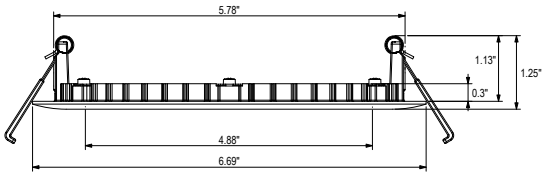
WARRANTY:
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

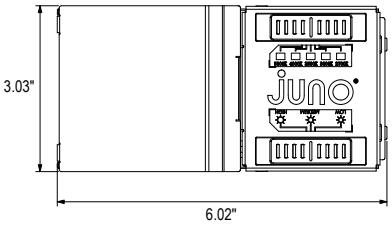
Dimensions

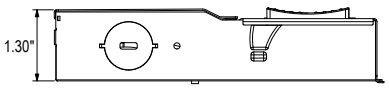


WF4



WF6





PERFORMANCE DATA

	WF4 ALO19 SWW5	WF6 ALO20 SWW5
Input Voltage	120V	120V
Input Power Typical	14.5W (+/-5%)	16W (+/-5%)
Frequency	60 Hz	60 Hz
EMI/RFI	FCC Title 47, Part 15 Class B (consumer)	FCC Title 47, Part 15 Class B (consumer)
Minimum Starting Temp	-40°F (-40°C)	-40°F (-40°C)

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C.

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DATE: TYPE:

NAME:

PROJECT:



Incandescent

P3549-09

Appeal

With an elevated style, the two-light fixture that appeals to current home decor trends. Soft contemporary design includes square etched opal glass. Damp location listed.

Square: 9”
Height: 3-3/4”

Glass: 9” sq.
Height: 3-1/8”

Category: Close-to-Ceiling
Finish: Brushed Nickel (plated)
Construction: Steel construction
Glass: Etched opal glass square diffuser

MOUNTING	ELECTRICAL	LAMPING	ADDITIONAL INFORMATION
Ceiling flush mounted Mounting swivel strap for outlet box included Ceiling pan covers a standard 4” hexagonal recessed outlet box 7-15/16” sq., 1-3/16”	Pre-wired 6” of wire supplied 120V	Quantity: 2 60W Medium Base Medium porcelain sockets	cCSAus Damp location listed 1 year warranty Companion Bath and Vanity, Close-to-ceiling, fixtures are available

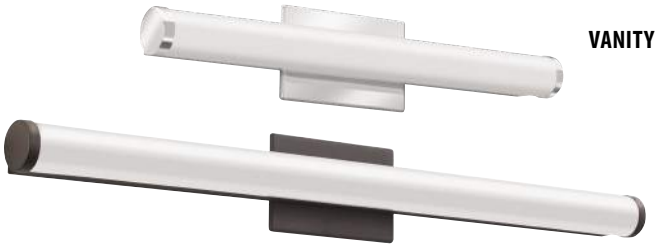
LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

Decorative Indoor

Contemporary Cylinder Vanity with Switchable White Color Temperature

VANITY LED



FEATURES & SPECIFICATIONS

INTENDED USE

Provides an LED lighting platform to deliver general or task lighting for residential and light commercial applications. Light engine delivers long life and excellent color to ensure a quality, low-maintenance light installation. Ideal for use in bathrooms, lavatories, hallways, corridors, stairways, utility areas and more.

CONSTRUCTION

The Contemporary Cylinder is constructed of an acrylic diffuser with housings available in four finishes including brushed nickel, chrome, bronze and matte black. When ordering the matte black finish, in addition to the pre-installed black end caps, sets of brushed gold and brushed nickel end caps are also included. The included canopy/junction box cover is removable for a more low-profile look (2'-4' lengths only). The white acrylic diffuser provides even illumination and softens the appearance of the LEDs for improved aesthetics.

OPTICS

The FMVCCLS Contemporary Cylinder Vanity has an integrated switch to select 3000K, 3500K or 4000K color temperature at the time of installation.

1' delivers 800 lumens, 2' delivers 1690 lumens, 3' delivers 2450 lumens, and 4' delivers 3100 lumens at 3000K CCT with 50,000 hours of life. See table below for delivered lumens at the different CCT color switch settings.

Extruded acrylic diffuser is of highly transmissive material to minimize LED image and provides high-angle brightness control.

ELECTRICAL

Long-life LEDs, coupled with a multivolt and dual dimmable capable driver, provide extended service life. Standard input = 9.5 watts, (1'); 18 watts, (2'); 27 watts, (3'); 36 watts, (4'). Fixture is rated to deliver L70 performance at 50,000 hours and operates at 120-277 volts.

This Fixture is dimmable by either triac or 0-10V dimming. Use with approved triac or 0-10V dimmer only.

LISTINGS

CSA Listed to US and Canadian safety standards. Listed for damp locations. ENERGY STAR® certified. Can be used to comply with California Title 24 Part 6 High Efficacy LED Light Source Requirements.

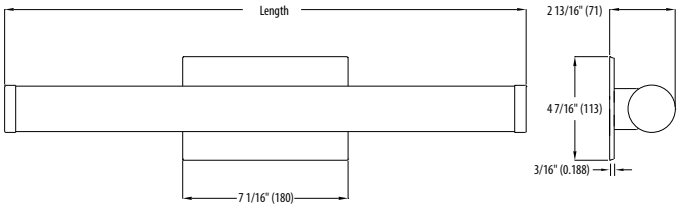
WARRANTY

5-year limited warranty. Complete warranty terms located at
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

NOTE: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

SPECIFICATIONS	1FT	2FT	3FT	4FT
Length	13-1/2 (343)	22-3/8 (568)	34-3/16 (868)	46 (1168)
Weight	1.5 (.68)	2.1 (.95)	2.5 (1.13)	3.1 (1.41)
3000K Lumens (LPW)	800 (84)	1690 (94)	2450 (93)	3100 (90)
3500K Lumens (LPW)	870 (92)	1800 (103)	2650 (104)	3500 (104)
4000K Lumens (LPW)	880 (92)	1850 (102)	2700 (102)	3550 (101)

All dimensions are inches (millimeters) unless otherwise indicated. Weights are pounds (kilograms).



ORDERING INFORMATION

Example: FMVCCLS 12IN MVOLT 30K35K40K 90CRI BN

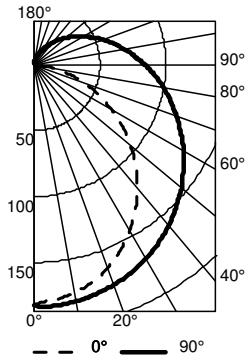
Series	Length	Voltage	Color temperature	CRI	Finish
FMVCCLS Contemporary Cylinder Vanity	**12IN** 1' Nominal **24IN** 2' Nominal **36IN** 3' Nominal **48IN** 4' Nominal	**MVOLT** MVOLT (120V-277V)	30K35K40K	**90CRI** >90	BN Brushed Nickel KR Chrome BZ Bronze MB Matte Black[1]

Notes
1 Matte Black finish includes interchangeable sets of Brushed Gold and Brushed Nickel decorative end caps.

PHOTOMETRICS

Distribution Curve | **Distribution Data** | **Output Data** | **Coefficient of Utilization** | **Illuminance Data at 30″ Above Floor for a Single Luminaire**

FMVCCLS 12IN, input watts 9.61 test no.ISF 37684



CP Summary

	0°	90
0°	183	183
5°	179	184
15°	171	180
25°	155	174
35°	134	165
45°	110	153
55°	82	138
65°	54	123
75°	27	107
85°	5	92
90	0	84

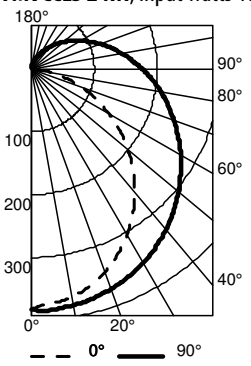
Coefficients of Utilization

pf		20%								
pc		80%			70%			50%		
pw		70%	50%	30%	50%	30%	10%	50%	30%	10%
RCR	0	115	115	115	110	110	110	101	101	101
	1	101	96	90	91	87	82	84	80	76
	2	91	82	74	78	71	65	72	66	61
	3	83	71	62	68	60	53	62	55	50
	4	75	62	53	60	51	44	55	47	42
	5	69	55	46	53	44	38	49	41	36
	6	63	50	40	48	39	33	44	36	31
	7	59	45	36	43	35	29	40	32	27
	8	54	41	32	39	31	25	36	29	24
	9	51	37	29	36	28	23	33	26	21
	10	48	34	26	33	25	20	31	24	19

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	144	17.4	17.4
0° - 40°	238	28.8	28.8
0° - 60°	443	53.4	53.4
0° - 90°	675	81.5	81.5
90° - 120°	113	13.7	13.7
90° - 130°	132	15.9	15.9
90° - 150°	150	18.0	18.0
90° - 180°	154	18.5	18.5
0° - 180°	829	100.0	100.0

FMVCCLS 24IN, input watts 18.12, test no. ISF 37684



CP Summary

	0°	90
0°	382	382
5°	375	384
15°	358	378
25°	325	365
35°	281	345
45°	229	320
55°	172	289
65°	113	258
75°	56	225
85°	10	193
90	1	176

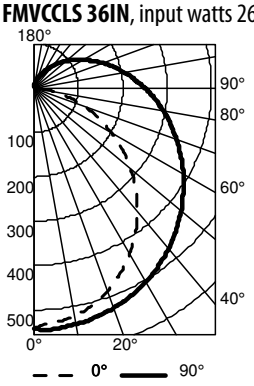
Coefficients of Utilization

pf		20%								
pc		80%			70%			50%		
pw		70%	50%	30%	50%	30%	10%	50%	30%	10%
RCR	0	115	115	115	110	110	110	101	101	101
	1	101	96	90	91	87	82	84	80	76
	2	91	82	74	78	71	65	72	66	61
	3	83	71	62	68	60	53	62	55	50
	4	75	62	53	60	51	44	55	47	42
	5	69	55	46	53	44	38	49	41	36
	6	63	50	40	48	39	33	44	36	31
	7	59	45	36	43	35	29	40	32	27
	8	54	41	32	39	31	25	36	29	24
	9	51	37	29	36	28	23	33	26	21
	10	48	34	26	33	25	20	31	24	19

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	301	17.4	17.4
0° - 40°	500	28.8	28.8
0° - 60°	927	53.4	53.4
0° - 90°	1415	81.5	81.5
90° - 120°	238	13.7	13.7
90° - 130°	276	15.9	15.9
90° - 150°	313	18.0	18.0
90° - 180°	322	18.5	18.5
0° - 180°	1737	100.0	100.0

FMVCCLS 36IN, input watts 26.39, test no. ISF 37684



CP Summary

	0°	90
0°	542	542
5°	531	544
15°	507	535
25°	461	517
35°	398	489
45°	325	453
55°	244	410
65°	160	365
75°	79	318
85°	14	273
90	1	250

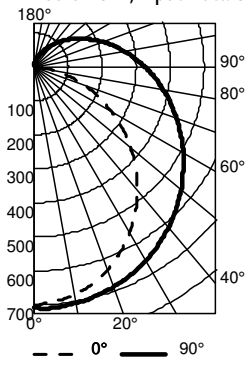
Coefficients of Utilization

pf		20%								
pc		80%			70%			50%		
pw		70%	50%	30%	50%	30%	10%	50%	30%	10%
RCR	0	115	115	115	110	110	110	101	101	101
	1	101	96	90	91	87	82	84	80	76
	2	91	82	74	78	71	65	72	66	61
	3	83	71	62	68	60	53	62	55	50
	4	75	62	53	60	51	44	55	47	42
	5	69	55	46	53	44	38	49	41	36
	6	63	50	40	48	39	33	44	36	31
	7	59	45	36	43	35	29	40	32	27
	8	54	41	32	39	31	25	36	29	24
	9	51	37	29	36	28	23	33	26	21
	10	48	34	26	33	25	20	31	24	19

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	427	17.4	17.4
0° - 40°	708	28.8	28.8
0° - 60°	1313	53.4	53.4
0° - 90°	2004	81.5	81.5
90° - 120°	336	13.7	13.7
90° - 130°	391	15.9	15.9
90° - 150°	444	18.0	18.0
90° - 180°	455	18.5	18.5
0° - 180°	2459	100.0	100.0

FMVCCLS 48IN, input watts 34.86, test no. ISF 37684



CP Summary

	0°	90
0°	706	706
5°	692	710
15°	662	697
25°	601	675
35°	519	638
45°	424	591
55°	318	535
65°	209	476
75°	103	415
85°	18	356
90	1	326

Coefficients of Utilization

pf		20%								
pc		80%			70%			50%		
pw		70%	50%	30%	50%	30%	10%	50%	30%	10%
RCR	0	115	115	115	110	110	110	101	101	101
	1	101	96	90	91	87	82	84	80	76
	2	91	82	74	78	71	65	72	66	61
	3	83	71	62	68	60	53	62	55	50
	4	75	62	53	60	51	44	55	47	42
	5	69	55	46	53	44	38	49	41	36
	6	63	50	40	48	39	33	44	36	31
	7	59	45	36	43	35	29	40	32	27
	8	54	41	32	39	31	25	36	29	24
	9	51	37	29	36	28	23	33	26	21
	10	48	34	26	33	25	20	31	24	19

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	557	17.4	17.4
0° - 40°	923	28.8	28.8
0° - 60°	1713	53.4	53.4
0° - 90°	2614	81.5	81.5
90° - 120°	439	13.7	13.7
90° - 130°	510	15.9	15.9
90° - 150°	579	18.0	18.0
90° - 180°	594	18.5	18.5
0° - 180°	3208	100.0	100.0

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COMPATIBLE DIMMERS	
The FMVCALS is designed to operate with most standard Triac Based dimmers and is not compatible with 0-10v dimming systems. The following is a list of dimmers tested and does not imply any guarantee or warranty of compatibility with a particular application. Unlisted dimmers do not imply non-compatibility.	
Manufacturer	**Part number(s)**
Lutron	DVELV-300P
	300P SELV
	NTELV-300P
	NLV-600
Leviton	6633-PA
	6615-P
Synergy/Leviton	ISD 400 ELV 120 / IPE04

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LIVEX
A 1STOPLighting Store



2141-07 - Montclair Mission - 1 Light Outdoor Pendant Lantern in Craftsman Style - 10 Inches wide by 13 Inches high by Livex Lighting

Specs

Family/Collection:	Montclair Mission
Length:	10"
Width/Diameter (in):	10"
Height:	13"
Canopy Thickness:	0.75"
Weight:	9 lbs
Wire Length:	120"
Chain Length:	36"
Installation Sheet:	https://images.belamiecommerce.com/supplier/livex-lighting/specsheets/2141-inst.pdf
# of Bulbs:	1
Standard Wattage:	100 Watts
Bulb Type:	Incandescent
Lamp Base Type:	E26 Medium
Finish:	Bronze
Glass:	Iridescent Tiffany
Design Style:	Craftsman, Traditional
Power Source:	Hardwire
Voltage Rating:	120 V
Material:	Brass
Made In:	China
Canopy Included:	Yes

Style and Option 1

Style:	
Item #:	2141-07
Price:	~~Reg. $~~ $395.96 On

How Can W...
Let's Chat



DUAL LITE®

LES Series

SURFACE-MOUNT EDGE-LIT LED EXIT SIGN

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

FEATURES

- Easy to install
- AC and Emergency operation
- Long-life LED lamps
- Ceiling, wall or end mounted models for surface installations
- Extruded aluminum construction
- Available in six color finishes: white, black, satin aluminum, satin brass, chrome, and dark bronze
- Molded acrylic plaque
- Clear acrylic plaque standard
- Optional: White plaque background
- Optional: Mirror plaque background
- Optional: Special Wording
- Temperature Range: 20°C - 30°C (68°F - 86°F)
- UL 924 Listed
- NFPA 101 (Life Safety Code)
- NFPA 70 (National Electrical Code)



Ceiling Mount



Ceiling Mount Emergency



Wall Mount



Wall Mount Emergency



End Mount



End Mount Emergency

UL924 | CEC T20 COMPLIANT | NFPA 70 | NFPA 101 | SPECTRON® Self-Testing/Self-Diagnostic Electronics System

SERVICE PROGRAMS

QS10

SPECIFICATIONS

APPLICATION

- The LES Series provides bright, even letter illumination in an energy-saving LED edge-lit exit sign configuration
- AC or Emergency operation with optional Spectron® Self-test/self-diagnostic circuitry
- Special Wording ("SW") option allows customizing the stencil field to convey important information

CONSTRUCTION

- Water-clear injection-molded acrylic EXIT plaque is available with clear, white or mirror backgrounds
- High strength extruded aluminum trim available in six finishes
- Exit face design in single or double face with red or green letters
- Custom printed directional chevron arrows
- Standard EXIT stencil with 6" letters and ¾" stroke

INSTALLATION

- Mounts to standard electrical boxes up to 4" square via universal adapter plate and mounting canopy assembly
- All mounting hardware is fully concealed

ILLUMINATION

- Exit face illumination is provided by energy saving, long life red or green LEDs
- Exceeds UL 924 requirements for brightness and uniformity

COMPLIANCES

- UL 924 Listed
- NFPA 70
- NFPA 101
- CEC T20 Compliant

WARRANTY

- 5 year warranty
- Battery: 2 years full, 8 years pro-rata

KEY DATA	
Wattage Range	2.2–5.0W
Reported Life (Hours)	60,000
Input Current Range	120/277VAC, 60 Hz

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DUAL LITE®

LES Series

SURFACE-MOUNT EDGE-LIT LED EXIT SIGN

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

Gray Shading = Service Program Limit of 50 Luminaries QS10

ORDERING GUIDE

Example: LESWDRDNA-W

CATALOG #

LES										
Model	**Mounting**	**Faces**	**Letter Color**	**Directional Arrows**	**Finish**	**Operation**	**Self-Diagnostic**	–	**Options**
LES Edge-lit Exit	**C** Ceiling Mount **W** Wall Mount **E** End Mount	**S** Single **D** Double* *Not for use with wall mounted models	**R** Red **G** Green	**X** No Arrows EXIT **R** Right Arrow* EXIT> **L** Left Arrow* <EXIT **D** Double Arrows <EXIT> **C** L/R Arrows** <Exit/Exit> * Not for use with double face models. Use "C" L/R arrow designator ** Double face models only. Provides reversible right or left arrow indicator	**N** Satin Aluminum **W** White **C** Chrome [1] **B** Black **S** Satin Brass **Z** Dark Bronze For White (W) and Satin Aluminum (N) finishes, the canopy color is White. For all other finishes, the canopy is Black	**A** AC Only **E** Emergency	**Blank** None **I** Spectron® self-testing/ self-diagnostic electronics [2]		**SW** See available special wording choices on page 4 [3,4] **W** White plaque background **M** Mirror-plaque background [5]

Notes:

1 Chrome available only with AC Only Operation (A).

2 For use with emergency models only

3 Specify special wording code from page 3 when ordering. Example: SW41

4 Some special wording signs not available with directional arrows.

5 Double face models standard with mirror background without selecting "M". For optional white background, select "W".

ELECTRONICS

Available with AC, emergency and Spectron® self-test/self-diagnostic electronics option. Emergency and self-diagnostic models equipped with isolation transformer and fully automatic constant current solid state charger with sealed maintenance-free nickel-cadmium battery. All emergency models with 90-minute run-time. All components mounted inside housing. Includes test switch and AC-on indicator. Transient/surge protection, low voltage disconnect and AC lock-out features included. Battery recharge within UL time standards. Includes pre-stripped AC input pigtail leads.

Power Factor, Average: .8 (lagging)
Battery Type: Maintenance-free sealed nickel cadmium battery
AC Input: 120/277VAC, 60 Hz.
Operating Temperature Range: 20°C to 30°C (68°F to 86°F)
Weight: 3.6 lbs (1.6 kg) (AC Only model)

POWER CONSUMPTION (120/277VAC)

Model	Single Face	Double Face
Red AC Only	2.2 watts	3.4 watts
Green AC Only	2.5 watts	4.0 watts
Red Emergency	3.3 watts	4.5 watts
Green Emergency	3.6 watts	5.0 watts

* Wattage figures include LED lamps, transformer and electronics power requirements.

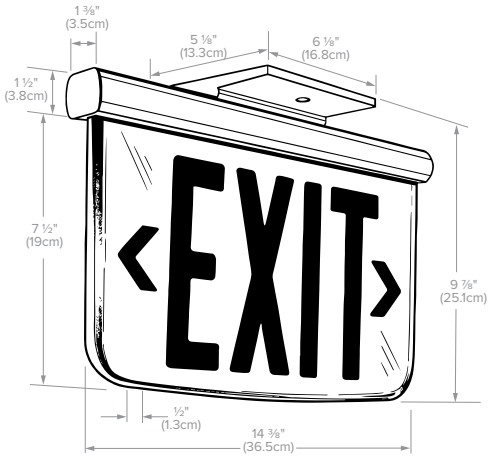
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DUAL LITE®

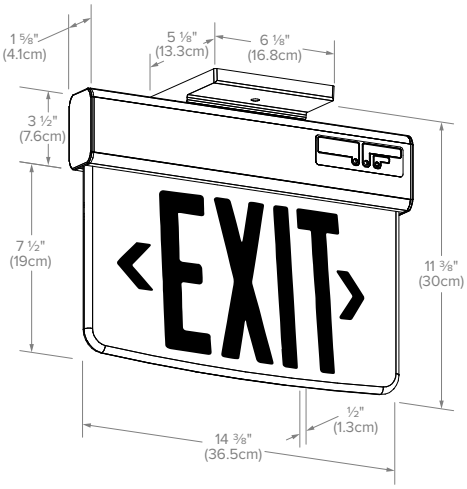
LES Series

SURFACE-MOUNT EDGE-LIT LED EXIT SIGN

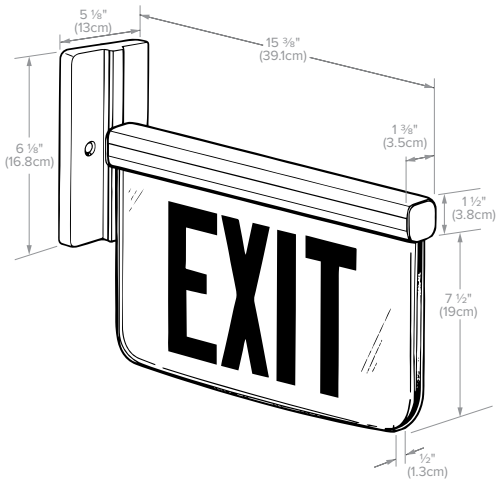
DIMENSIONS



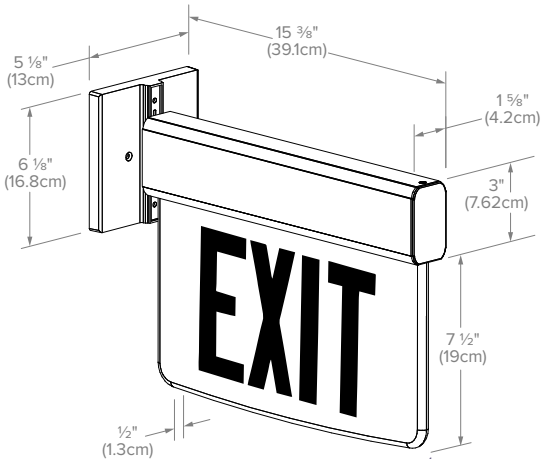
Ceiling Mount



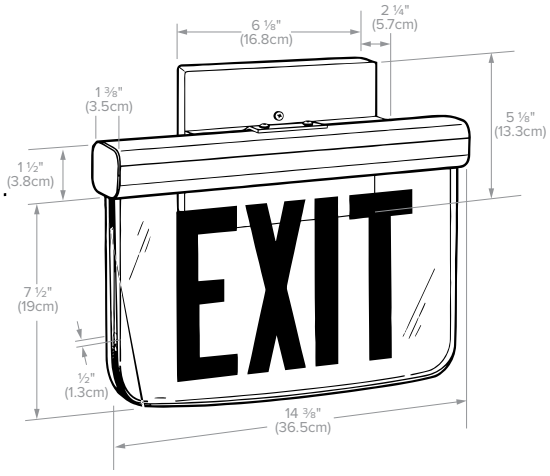
Emergency Ceiling Mount



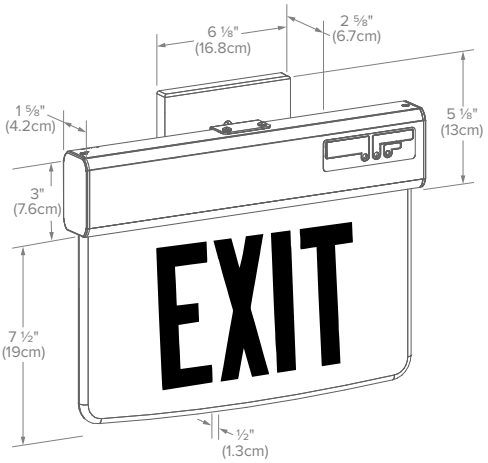
End Mount



Emergency End Mount



Wall Mount



Emergency Wall Mount

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LES Series

SURFACE-MOUNT EDGE-LIT LED EXIT SIGN

SPECIAL WORDING

LES Series architectural surface-mounted LED edge-lit exit signs feature an option for standard or custom special-wording. The images below represent standard special-worded signs available for the LES Series. The artwork and silk-screening for the standard signs shown below were previously developed therefore pricing for these special-worded signs do not incur a setup charge.

If your special-worded requirements do not appear on this page, please contact the factory to request your custom special-wording sign. Custom special wording signs incur a one time set-up charge for each development.

STANDARD SPECIAL WORDING SIGNS WITH DIRECTIONAL ARROWS



SW118



SW41 (Arabic/Exit)



SW13



SW10



SW69



SW11

STANDARD SPECIAL WORDING SIGNS WITHOUT DIRECTIONAL ARROWS



SW4



SW3



SW31



SW2

STANDARD SPECIAL WORDING SIGNS

Category	Special Wording Number		Description
EXIT	SW	2	NOT AN EXIT
	SW	142	EXIT (TEXT IS INVERTED)
	SW	144	EXIT (W/ WHEELCHAIR SYMBOL)
DO NOT ENTER	SW	3	IN USE
EVACUATION	SW	10	AREA OF REFUGE
	SW	11	AREA OF REFUGE WITH WHEELCHAIR SYMBOL
	SW	13	AREA OF RESCUE ASSISTANCE WITH WHEELCHAIR SYMBOL
	SW	48	STAIRS
	SW	117	TO AREA/OF REFUGE
	SW	149	AREA OF RESCUE
LABORATORY	SW	4	X-RAY IN USE
	SW	21	BEAM ON
	SW	28	MRI IN USE
	SW	31	LASER IN USE
	SW	62	RADIATION IN USE
	SW	57	CT IN USE
	SW	166	TESTING IN PROGRESS
RESTROOM/ FACILITIES	SW	30	ROOM IN USE
	SW	118	HANDICAPPED (SYMBOL ONLY)
	SW	167	RESTROOM OCCUPIED
	SW	168	ELEVATOR
	SW	169	MEN (NO ARROWS/CHEVRONS)
	SW	170	WOMEN (NO ARROWS/CHEVRONS)
INTERNATIONAL EXITS	SW	41	ARABIC/ EXIT
	SW	69	SALIDA
	SW	165	SALIDA (INVERTED TEXT)
AREA/ALERTS	SW	9	ON AIR
	SW	178	EMERGENCY CALL STATION

NOTE: Special worded signs do not meet letter size requirements of UL 924.



Special Wording Option example

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DUAL LITE®

EV Series

ARCHITECTURAL LED EMERGENCY LIGHT

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

EV LED FAMILY

FEATURES

- Standard EV model has 30' spacing on a 6' path
- Optional -02L model increases spacing to 52' on a 6' path
- High impact, flame rated and UV stable white thermoplastic housing
- Fully adjustable high output LED lamp-heads
- Environmentally friendly Nickel Metal Hydride (NiMH) battery
- Top mount conduit entry
- Remote capacity models have a minimum run-time of 120 minutes when no remotes are installed



UL924 | SPECTRON® Self-Testing/Self-Diagnostic Electronics System | CEC T20 COMPLIANT | NFPA 70 | NFPA 101

SERVICE PROGRAMS

STOCK

SPECIFICATIONS

APPLICATION

- The EV Series is a compact, architectural emergency lighting unit designed for fast wall or ceiling mount installation and reliable service
- The EV Series has a flame-rated, UV stable thermoplastic housing and a lightly textured white finish
- Integral LED based lamp-heads are fully adjustable
- Unit provides a full 90 minutes of emergency lighting
- Includes micro-controlled pulse charger and Nickel Metal Hydride (NiMH) battery
- The EV accepts 120/277VAC input at 60 Hz and optional 220-240VAC input at 50-60 Hz with Spectron® self-diagnostics option

CONSTRUCTION

- The EV Series housing and back-plate are made from durable injection molded thermoplastic
- Lamp-head front halves are made of die-cast aluminum for thermal dissipation
- Back half of lamp-head made of ABS thermoplastic
- LED lenses are made of acrylic.

INSTALLATION

- Universal mounting template molded in the back plate aids in quick installation
- Unit mounts to all single gang and standard 3 1/2" and 4" square or octagonal electrical boxes. Molded-in knockout at the top center permits surface conduit entry
- Pre-stripped AC input leads provided
- Unit may be ceiling or wall mounted

ILLUMINATION

- The EV Series provides bright and uniform illumination and increased spacing by using 2 high power LEDs which are mounted in a specially designed heat dissipation lamp-head
- Each lamp-head is fully adjustable and positioning is maintained by a friction fit design
- Photometrics are available for download on Dual-Lite website.

COMPLIANCES

- Listed to UL924 Standard, NFPA 101, NFPA 70
- Damp Location Listed Optional
- RoHS
- CEC T20 Compliant

WARRANTY

- LED Lifetime Warranty
- EV Full 3 year warranty
- EV with Spectron® Full 5 year warranty

KEY DATA	
Lamp Color	Cool White
Total Lamp Output	1W, 125 Lumens per LED 2W (optional), 205 Lumens per LED
System Efficacy (LPW)	125
Rated LED Lifecycle (Hours)	> 100,000

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DUAL LITE®

EV Series

ARCHITECTURAL LED EMERGENCY LIGHT

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

ORDERING GUIDE

Example: EV2DI-B

CATALOG # _____

EV							
Model		**Capacity**		**Rating**		**Self-Diagnostics**		**Options**	
EV	EV Series	**2**	1W LED Heads [2]	**Blank**	Standard Mode	**Blank**	No Self-Diagnostics	**B**	Black Finish
		4	1W LED with remote capacity [1]	**D**	Damp Location Listed	**I**	Spectron® Self-Test/ Self-Diagnostics	**24K**	220-240VAC 60Hz with Spectron® [3]
								02L	2 watt LED heads [4,5]
								0	No-head option to run external remotes only [6]

Notes:

1 Capacity to run 2 head remote (EVR2 or EVO)

2 EV2 without Options available with or without damp listing. All other configurations require Rating "D" for Damp Location

3 -24K option only available with damp plus Spectron®

4 Not capable of running remote heads

5 Can only be run from EV4 model

6 -0 No-head option only available with EV4D-02L, with or without Spectron®

NOTE: Remote Capacity Option will only power the EVR2 and EVO remotes

Note: Remote Capacity models have a minimum run-time of 120 minutes when no remotes are installed

Accessories

☐	**EVR2**	2 LED Indoor Remote	
☐	**EVR2B**	2 LED Remote with Black Finish	
☐	**EVO**	Outdoor Remote	
☐	**WGA1**	Wire Guard	
☐	**VRS**	Vandal Resistant Shield	

ELECTRONICS

Upon failure of normal utility power, a solid-state transfer switch automatically activates the emergency LED lamp-heads. Upon resumption of normal utility power, the battery is disconnected from the load and recharged through a microprocessor controlled pulse charger. The battery is a maintenance-free Nickel Metal Hydride (NiMH) type. The EV series accepts dual-voltage input of 120 or 277VAC at 60 Hz, or an optional 220-240VAC input at 50-60 Hz. A low voltage battery disconnect (LVD) feature protects the battery from severe damage during prolonged power failures. Manual testing is available at any time using the push-to-test button. Number of Lamps- 2 High Power LEDs at 1 watt each configured so that if 1 lamp malfunctions, the remaining lamp will continue to provide illumination. The -0 (no-head) option will power 1 double-head remote (EVR2 or EVODW) at 2 watts per lamp or it can power 2 double-head remotes at 1 watt per lamp. This option allows the battery to be located in a conditioned environment.

STANDARD FEATURES INCLUDE

- Intelligent 2-wire input connection
- External push-to-test switch and AC-on indicator
- Battery re-charge within 24 hours
- AC Lock-out circuit
- Low voltage disconnect
- Conduit entry knock-out located at the top center
- Microprocessor controlled pulse charger

OPTIONAL SPECTRON® FEATURE

- Self-diagnostics monitors LED status, LED load transfer circuit, battery capacity and charger function and displays any fault detection by means of a flashing code
- Self-Test feature automatically runs a 1 minute test once a month and an alternating 30 or 60 minute test once every 6 months. Multi-color LED indicator provides visible fault detection and charging status.
- User initiated 1 or 90-minute system test feature
- 15 minute re-transfer delay
- Automatic unit transfer in brown-out conditions (below 80% of nominal AC input voltage)

OPERATING TEMPERATURE RANGE

Standard: 68˚ to 86˚F (20˚ to 30˚C)

Damp Listed: 50˚ to 104˚F (10˚ to 40˚C)

WEIGHT

2.0 lbs

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DUAL LITE®

EV Series

ARCHITECTURAL LED EMERGENCY LIGHT

DATE: LOCATION:

TYPE: PROJECT:

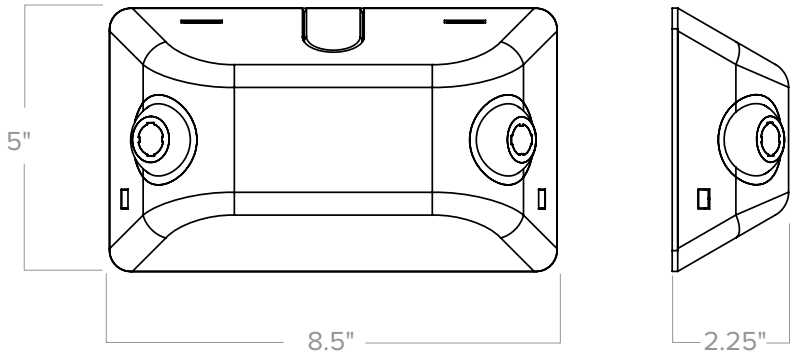
CATALOG #:

MAXIMUM POWER CONSUMPTION

	AC Voltage	Hz.	Amps.	Watts	Power Factor
EV2 EV2D	120	60	0.015	1.10	0.61
	240	60	0.009	1.43	0.62
	277	60	0.008	1.45	0.62
EV4D	120	60	0.022	2.00	0.73
	240	60	0.015	2.51	0.65
	277	60	0.014	2.75	0.63

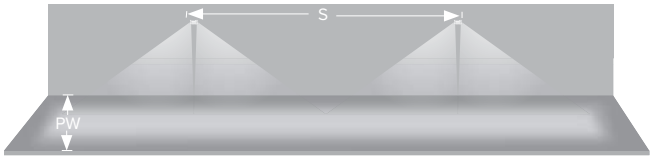
Maintenance mode power consumption less than 0.5 watts.

DIMENSIONS



APPLICATION INFORMATION

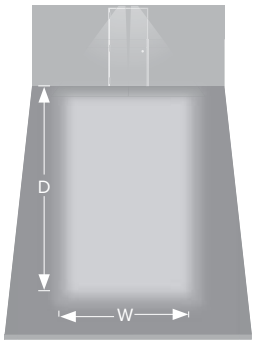
Multi-Unit Spacing



1 fc Average			1 fc Minimum		
	Using 1 Watt Heads	Using 2 Watt Heads		Using 1 Watt Heads	Using 2 Watt Heads
Path Width (PW)	Spacing (S)	Spacing (S)	Path Width (PW)	Spacing (S)	Spacing (S)
6'	30'	52'	6'	15'	18'

Notes:
Meets Life Safety Code minimum illuminance of 0.1 fc and average illuminance of 1.0 fc.
Assumes open space with no obstructions, mounting height of 7.5', ceiling height of 9' and reflectances of 80/50/20.
Photometry files available on the Dual-Lite web site.

Single Unit Coverage



1 fc Average	
Using 1 Watt Heads	
Depth (D)	Width (W)
15'	10'
Using 2 Watt Heads	
Depth (D)	Width (W)
25'	10'

1 fc Minimum	
Using 1 Watt Heads	
Depth (D)	Width (W)
15'	10'
Using 2 Watt Heads	
Depth (D)	Width (W)
16'	10'

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EVO Series
Outdoor LED Remote

Catalog Number	
Comments	Type

FEATURES

Application
The EVO outdoor LED remote is a single or double head LED based remote which accepts DC input from an EV emergency light with remote capacity(EV4 model). The EVO is best utilized as an over the door path of egress light for emergency operation. The EVO uses a single 3 watt rated LED per lamp-head and can be located up to 50' from the external power source. Available in white or black corrosion resistant finish. Lamp housing and mounting plate are made of durable die-cast aluminum.

Input Power Requirements
The EVO receives 4.8Vdc provided exclusively from the EV4D or EV4DI emergency light at 1W per head. The EVO can also be powered at 2W per head from the EV4D-02L-0 or EV4DI-02L-0 no-head emergency light.

Specific LED Information
Lamp Color: Cool White
Total Lamp Output:
88 lumens per head at 1W
145 lumens per head at 2W
System Efficacy: 80 Lumens per LED
Rated LED Lamplife: Greater than 100,000 hrs.
Note: When the EVO is driven from the EV4D-02L-0(no-head option), the lamp wattage is 2 watts per head, and lumen output is 145 lumens per head.

Warranty
LED Lifetime Warranty
EVO Full 3 year warranty

For more information on the EV Family please visit the EV-LED micro-site at:
www.dual-lite.com/resources/microsites/ev/

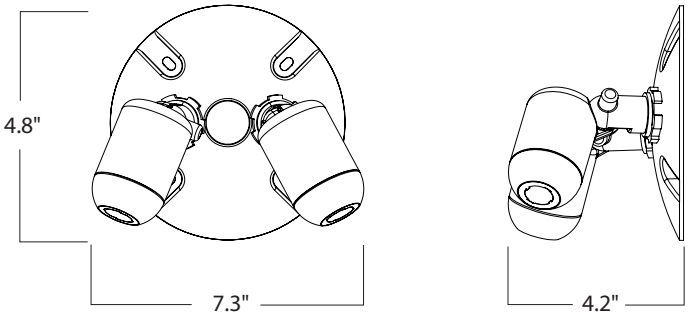


ORDERING GUIDE

EVO

Series	Heads	Finish
	S Single **D** Double	**B** Black **W** White

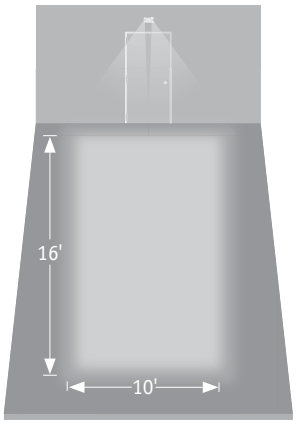
DIMENSIONS



APPLICATION INFORMATION

Caution: The EVO remote can only accept input power from the EV4D, EV4DI emergency light or EVC-D4 combo with remote capacity. The EVO will not work with any other emergency units.

Double Lamp Coverage



1 fc Average	
Depth (D)	Width (W)
16'	10'

1 fc Minimum	
Depth (D)	Width (W)
6'	10'

Meets Life Safety Code minimum illuminance of 0.1 fc and average illuminance of 1.0 fc. Assumes open space with no obstructions, mounting height of 7.5', ceiling height of 9' and reflectances of 80/50/20.
Photometry files available on the Dual-Lite web site (www.dual-lite.com).

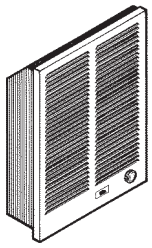
Web: **www.dual-lite.com** • Tech Support: **(866)-313-3909**
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0603528 B 01/18

BROAN®

SPECIFICATION SHEET

HIGH-CAPACITY WALL HEATERS MODELS 192, 194 & 198



Powerful and reliable for commercial uses yet good looking enough to blend with residential decors.

FEATURES

GRILLE:

- One-piece, heavy-duty 18 gauge steel with downflow louvers
- White, baked enamel
- Front-mounted thermostat
- Color coordinated thermostat knob
- Thermostat security cover – prohibits tampering

HEATER ASSEMBLY:

- Heating Element: Heavy-duty sheath element with steel-plate fins
- Thermostat: Snap-action heavy-duty disc-type
- Motor: Permanently lubricated (Models 192 & 194);
- Totally enclosed, permanently lubricated (Model 198)
- Thermal Overload: Manual reset protector
- Fan delay prevents cold air delivery as element heats up and provides warm air delivery as element cools down
- Operates on 240 VAC or 208 VAC
- Factory-wired wattages (easy field conversion to half-wattage): 2000W (Model 192); 3000W (Model 194); 4000W (Model 198).

HOUSING:

- Sturdy, 22 gauge steel construction finish with black, epoxy paint
- Mounts directly to wall studs in new or existing construction
- Furnished with a housing mask – prevents construction damage to roughed-in units
- Can be recess or surface mounted (surface mounting requires Model 85 Kit)

ACCESSORIES: (Purchase separately)

- Model 86W Line-Voltage Thermostat
- Model 85 Surface Mounting Kit
- Model 59W / 59V 60-Minute Timer (for use with Model 192 only)
- Model 61W / 61V 15-Minute Timer (for use with Model 192 only)

TYPICAL SPECIFICATION

Heater shall be Broan Model 192 (Model 194), (Model 198).

Unit shall have steel housing finished with black, epoxy paint. It will recess (surface) - mounted.

Heater to deliver 2000 watts (Model 192), 3000 watts (Model 194), 4000 watts (Model 198) of fan-forced heat. It must be field-convertible to operate at half-wattage. Heater shall include a manual reset thermal overload protector (and a fan delay). Motor to be permanently lubricated.

Grille will be White in color and made from 18 gauge steel. Unit to be controlled with front-mounted thermostat, Broan Model 86W. A security cover shall be provided so tamper-proof operation can be permitted.

Heater shall be U.L. Listed.

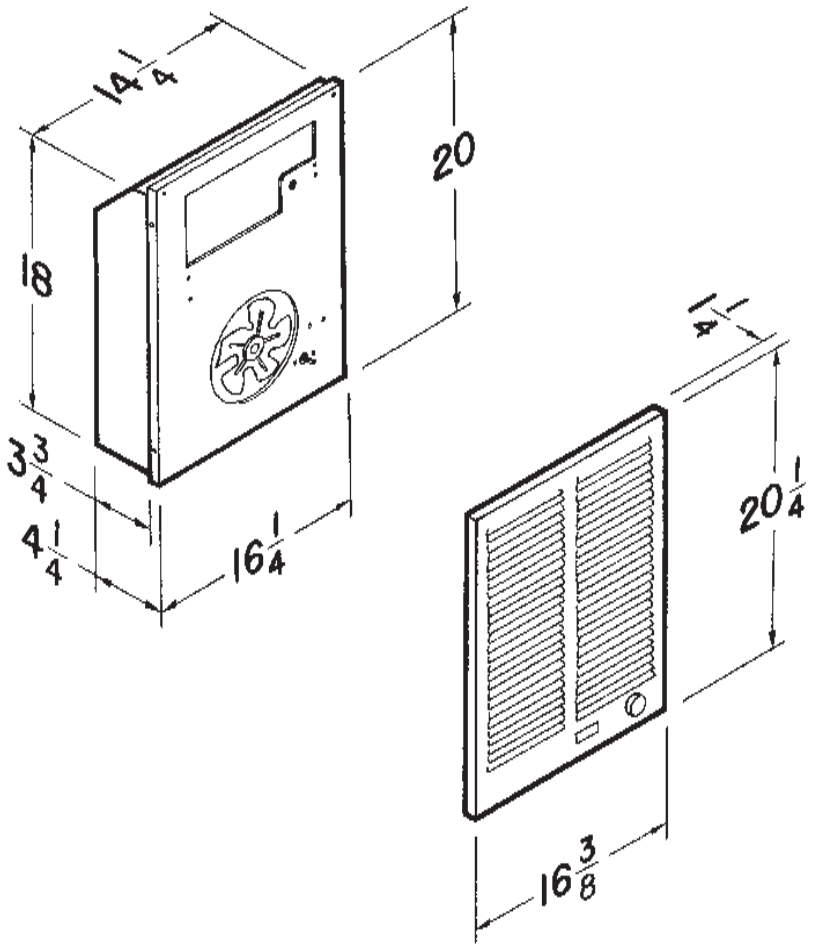
Broan-NuTone LLC Hartford, Wisconsin www.broan.com 800-558-1711

REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by Date

PERFORMANCE RATINGS – HIGH-CAPACITY WALL HEATERS

MODEL	WATTS	VOLTS	AMPS	BTU/HR	GRILLE	ELEMENT	FAN DELAY	SHIPPING WT. (lbs.)
192	**2000** / 1000 1500 / 750	**240** 208	**8.3** / 4.1 7.2 / 3.6	**6827** / 3413 5120 / 2560	White	Steel-Sheathed Plate Finned	Yes	23.0
194	**3000** / 1500 2250 / 1125	**240** 208	**12.5** / 6.2 10.8 / 5.4	**10240**/ 5120 7680 / 3840	White	Steel-Sheathed Plate Finned	Yes	23.0
198	**4000** / 2000 3000 / 1500	**240** 208	**16.7** / 8.3 14.4 / 7.2	**13653** / 6827 10240 / 5120	White	Steel-Sheathed Plate Finned	Yes	23.0

BOLD ratings are factory-wired



CWI SERIES
Commercial Wall Convector



The CWI is a space-saving convector that provides the quietness of natural convection heating. With its contemporary look, the CWI perfectly blends with any surrounding.

Standard

Special Colors

Applications

- Condominium/Loft
- Kitchen
- Living/Family Room
- Bedroom
- Basement
- Hotel
- Dormitory
- Commercial Applications

Standard Construction Features

Heating Elements – 2 Stainless steel elements with aluminum fins float on high temperature nylon bushings for quiet operation.

Outlet Grille – The CWI has a 20-gauge steel grille with rounded corners and a polyester powder paint finish available in standard white. The warm air outlet will direct the air to the center of the room.

Built-in Controls – Automatic reset thermal cutout and over temperature warning light (units under 250V). Heaters can be controlled by a remote thermostat (not included) or with optional (T8) built-in non-programmable electronic thermostat for heater 120V to 240V.

Installation Requirements – The minimum installation clearance is four inches to the floor and from an adjacent wall. Installing is made easy with the included wall mounting bracket. This heater is approved for residential use in the United States.

CWI SERIES

Commercial Wall Convector

Factory Built-in Options

Code	Description
R7	24V Triac Proportional Relay 277V, 15A
R8	24V Triac Proportional Relay with transformer, 277V, 15A
T8	Built-in Non Programmable Electronic Thermostat, 120V to 240V

Field-Installed Options

(shipped loose for field installation into heater)

Catalog Number	Description
942-309332	24V TRIAC Proportional Relay, 120V to 277V, 15A Max.
942-309333	24V TRIAC Proportional Relay with transformer, 208V to 277V, 15A

Heater Listing

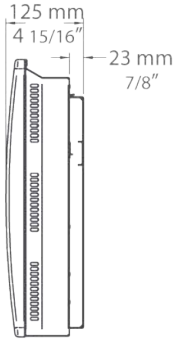
Watts	Volts (1 Phase)	Total Amps	Length In. (MM)	Weight lb (kg)	Catalog Number
500	120	4.2	18 (457)	13 (6)	942U00500B
	208	2.4	18 (457)	13 (6)	942U00500C
	277	1.8	18 (457)	13 (6)	942U00500N
500/375	240/208	2.1/1.8	18 (457)	13 (6)	942U00500V
1000	120	8.3	23.7 (598)	16.7 (7.6)	942U01000B
	208	4.8	23.7 (598)	16.7 (7.6)	942U01000C
	277	3.6	23.7 (598)	16.7 (7.6)	942U01000N
1000/750	240/208	4.2/3.6	23.7 (598)	16.7 (7.6)	942U01000V
1500	120	12.5	29.1 (739)	20 (9.12)	942U01500B
	208	7.2	29.1 (739)	20 (9.12)	942U01500C
	277	5.4	29.1 (739)	20 (9.12)	942U01500N
1500/1125	240/208	6.3/5.4	29.1 (739)	20 (9.12)	942U01500V
2000	208	9.6	35.6 (880)	24 (10.9)	942U02000C
	277	7.2	35.6 (880)	24 (10.9)	942U02000N
2000/1500	240/208	8.3/7.2	35.6 (880)	24 (10.9)	942U02000V

Standard color - Add W for white finish
Special or custom colors - See inside back cover for color codes to be added to the end of catalog number.

Watt	L	
	mm	in.
500W	457	18
1000W	598	23 9/16
1500W	739	29 1/16
2000W	880	34 5/8



Front View



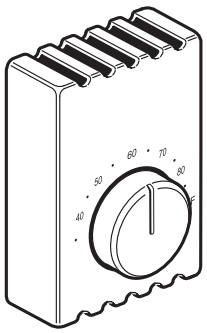
Side View

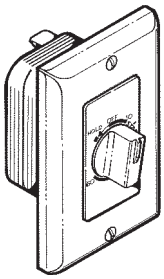

Top View

BROAN®

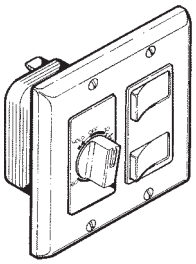
SPECIFICATION SHEET

HEATER ACCESSORIES

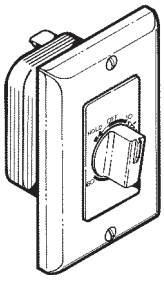




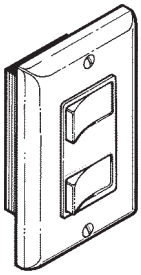
Model 59V(Ivory), 59W(White) 60-Minute Time Control
- Operates continuously or for any set period up to 60 minues
- Fits single-gang box
- 120V, 20 Amp or 240VAC, 10 Amp capacity
- For use with all Broan heaters and fans within Amp ratings



Model 63V(Ivory), 63W(White) 60-Minute Time Control with Rocker Switch
- Separate ON/OFF rocker switch
- Timer operates continuously or for any set period up to 60 minutes
- 120V, 20 Amp or 240VAC, 10 Amp capacity
- Fits two-gang box
- 120V, 20 Amp or 240VAC
- For use with all Broan heaters and fans within Amp ratings



Model 61V(Ivory), 61W(White) 15-Minute Time Control
- Operates for any set period up to 15 minues (no "continuous on" position)
- Fits single-gang box
- 120V, 20 Amp or 240VAC, 10 Amp capacity
- For use with all Broan heaters and fans within Amp ratings

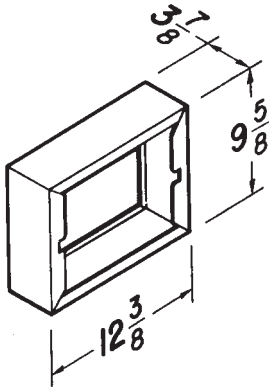


Model 68V(Ivory), 68W(White) Two-function Control
- Two, independent, 120 VAC, 15 Amp rocker switches 20 Amp total)
- Fits single-gang box
- For use with all Broan heaters and fans within Amp ratings

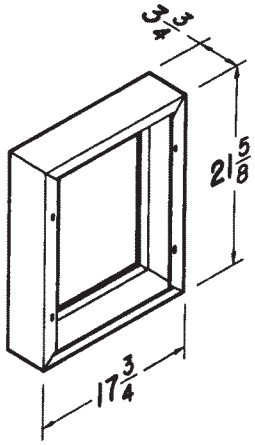
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REFERENCE	QTY.	REMARKS	Project
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			Architect
			Engineer
			Contractor
			Submitted by Date

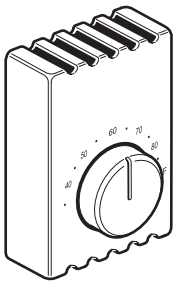
Model 83 Thermostat Kit (not shown)
- Snap-action, bimetallic
- 40°F to 125°F temperature range
- Includes knob and all mounting hardware to install a built-in thermostat into Broan Models 165F, 167F, 170F, 174F, and 178F



Model 84 Surface-Mounting Kit
- Heavy, 22-gauge steel
- White, baked enamel finish
- Includes all mounting hardware
- For use with Broan Models 170 thru 181



Model 85 Surface-Mounting Kit
- Heavy, 22-gauge steel
- White, baked enamel finish
- Includes all mounting hardware
- For use with Broan Vestibule Heaters - Models 192, 194 & 198



Model 87W Line-Voltage Thermostat
- 120 VAC / 240 VAC, 22A
- 277 VAC, 19A
- Snap-action, bimetal
- 40°F to 80°F temperature range
- Fits single-gang box
- For use with all Broan Heaters

Model 90 Thermostat Kit (not shown)
- Installs into Broan Model 114 Kickspace Heater
- Snap action, bi-metallic thermostat, knob and all mounting hardware included
- 120/240 VAC, 12.5 Amps
- 40°F to 130°F temperature range

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dayton® Electric Hydronic Baseboard Heaters and Thermostat Accessory

Description

Electric hydronic baseboards offer contemporary styling and the neutral color blends with any decor. Just three inches deep, the unit mounts flush to wall and flat on wood, tile or carpeted floor. Sheathed electric heating element is completely submerged in heat transfer fluid totally sealed in a copper tube spanning the length of the heater. Heat is transferred evenly across the entire length of heater. Even after the thermostat is turned off, soft warmth continues to radiate because of the maximum heat retention of the hydronic element.

Specifications

Model	Volts	Watts	Amps	Length	Ship Weight
3EMZ8	120	500	4.2	28”	10 lbs
3EMZ9	120	750	6.3	34	12
3ENA1	120	1000	8.3	46	15
3ENA2	120	1250	10.4	58	19
3ENA3	120	1500	12.5	70	22
3UG30D	240/208	500/375	2.1/1.8	28	10
3UG31D	240/208	750/563	3.1/2.7	34	12
3UG27D	240/208	1000/750	4.2/3.6	46	15
3ENA4	240/208	1250/938	5.2/4.5	58	19
3UG28D	240/208	1500/1125	6.3/5.8	70	22
3UG29D	240/208	2000/1500	8.3/7.2	94	30

General Safety Information

⚠WARNING ***Read Carefully - This instruction sheet contains vital information for the proper installation, use and efficient operation of the heater. Carefully read the manual before installation, operation, or cleaning of the heater. Failure to adhere to the instructions could result in fire, electric shock, death, serious personal injury or property damage. Save these instructions and review frequently for continuing safe operation and instructing future users.***

⚠WARNING ***Hazard of fire or electrical shock.***

1. Keep all electrical cords, foam filled articles, drapes, bedding and other household furnishings away from contact with heater. It is recommended all items be kept a minimum of six (6”) inches (152 mm) from heater.
2. Do not install baseboard heater below electrical convenience receptacles (outlets).
3. Do not install baseboard heater against vinyl wallpaper, paperboard or low density fiberboard surface. Do not install vinyl drapes or vinyl blinds above heater.
4. Do not recess heater in wall.
5. The installation must comply with applicable local, and National Electrical Code and utility requirements.
6. Do not remove or by-pass thermal cutout.
7. To reduce the risk of fire, do not store or use gasoline or other flammable vapors and liquids in the vicinity of the heater.
8. Personal injury or death could result from electric shock. Disconnect all power to heater at main panel before attempting to install or service this heater.
9. Supply voltage must be the same as heater voltage. Check heater nameplate and supply voltage before energizing.

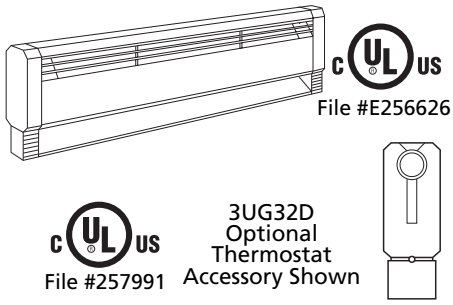


Figure 1

10. Supply wiring must be suitable for 90°C.
11. Do not install heater upside down or vertically. Install only as shown in these instructions.

SAVE THESE INSTRUCTIONS

⚠CAUTION ***Certain fabrics discolor in time from indirect sunlight and normal room temperature - mostly organic and synthetic material. They will discolor more rapidly when exposed to direct sunlight and warm currents. Hang drapes to provide minimum of 2 inches (51 mm) air space between heater front and nearest drape fold as shown on page 2 in example 1, Figure 2, or 6 inches (152 mm) air space between top of heater and bottom of drapes as shown in example 2, Figure 2. Allow minimum clearance of 1 inch (25 mm) from drapes to ceiling and to top of floor covering to permit air circulation.***

⚠CAUTION ***To prevent possible damage to internal heater wiring, all drilling of end caps for routing of power supply cable for multiple heaters installed end to end (pg 4), must be done with end caps removed from heater.***

CLEARANCES

Floors & carpeting: heaters may be mounted directly on any floor surface, including carpeting. Where wall-to-wall carpets are installed after the baseboard installation. Carpeting can be run up to the front and around the heater body.

ENGLISH

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5200-2705-002
PPD 11697

Dayton® Electric Hydronic Baseboard Heaters and Thermostat Accessory

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General Safety Information (Continued)

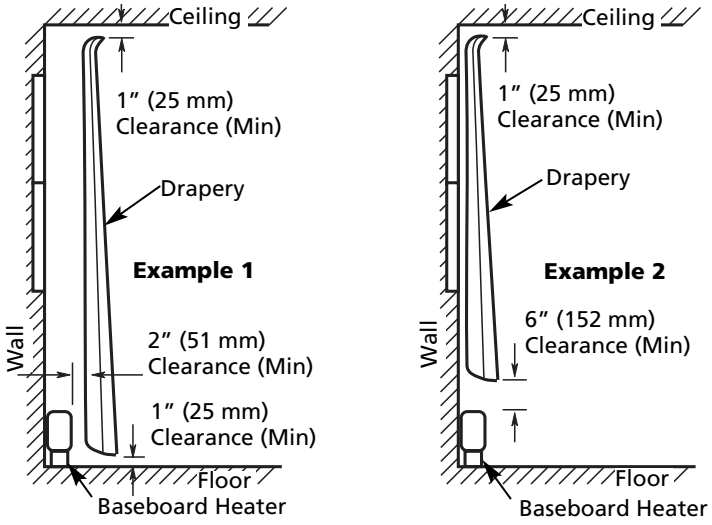


Figure 2 – Positioning Drapery Near Heater

Full length drapes: for the most satisfactory operation of heaters, the following clearances must be maintained:

1. Hang drapes so that, in use, they extend below the center line of the heater, but with at least 1" (25 mm) clearance from the top of the finished floor covering, such as carpet, tile, etc.
2. Hang drapes so there is at least 2" (51 mm) between the extreme front of the heater and the nearest fold of drapes, in the folded back position (open drape position).
3. Hang drapes so there is at least 1" (25 mm) between the top of the drapes and the ceiling.

Short drapes: hang drapes so there is at least 6" (152 mm) clearance above the top of the heater.

Furniture: do not place furniture against heater. It is recommended all items be kept a minimum of 6" (152 mm) from heater.

Installation

SINGLE UNIT

Liquid filled baseboard heaters are designed for installation in new or existing construction. In existing construction, baseboard molding should be removed and the heaters mounted flush against the wall surface. When replacing molding allow 1/8" (3 mm) clearance between molding and ends of heaters.

NOTE: This heater can be wired in either the right or left hand junction box. See Table 1 for wiring compartment volumes.

⚠CAUTION ***Heater may be installed above the floor such as atop a baseboard. However, the power supply must enter the heater through the knockout in the back of the heater if installed above the floor.***

1. Position the heater at the desired location on the wall as shown in Figure 3. For maximum heating comfort, position the heater under a window.

NOTE: Allow 1/8" (3 mm) minimum clearance at ends of heater for expansion and contraction.

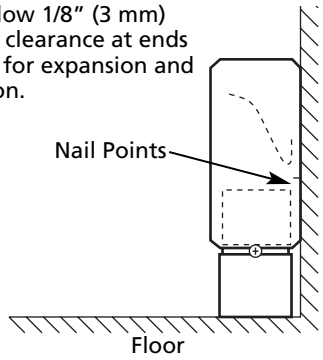


Figure 3 – Installation of Heater

2. Mark the location on the wall or floor for the power supply entry into the heater. Remove the heater from the wall and drill appropriate hole in the wall or floor.

Description	Est. Net Total Volume	
	cm^3	In^3
Heater Wiring Compartment (One End)	200	13.25
Heater Wiring Compartment with T1 or T2 Thermostat Accessory	175	11.25
Accessory Blank Section (No Controls) (Optional)	2400	145
AC Accessory Section (Optional)	2300	140
DR Accessory Section (Optional)	2300	140
CDS2 Accessory Section (Optional)	2300	140
LVR Accessory Section (Optional)	2100	130

Table 1 – Field Wiring Compartment Volumes

Models 3UG27D thru 3UG32D, 3ENA1 thru 3ENA4, 3EMZ8 and 3EMZ9

Installation (Continued)

3. Remove the left or right junction box end cap by removing the screw in the end of the heater and sliding the cap outward from the heater (Figure 4).

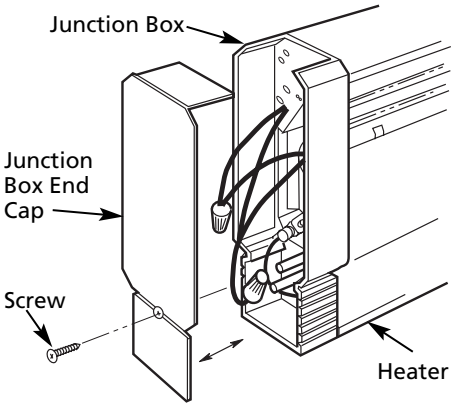


Figure 4 – Removal of End Cap

4. Remove the front cover of the heater by removing the screws in the lower corners. Pull the bottom of the cover outward and lift the top of the cover off the junction box. Repeat for the opposite end. Snap the top of the cover off the center bracket and off the intermediate supports. See Figure 5.

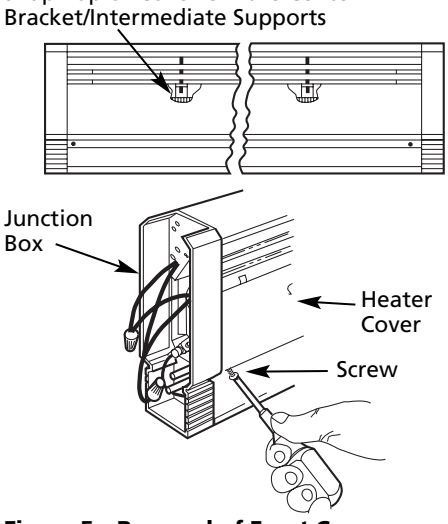


Figure 5 – Removal of Front Cover

5. Remove the appropriate electrical knockout from the back of the heater or accessory if necessary. Supply wiring may also enter the raceway through the floor or wall without using a knockout.

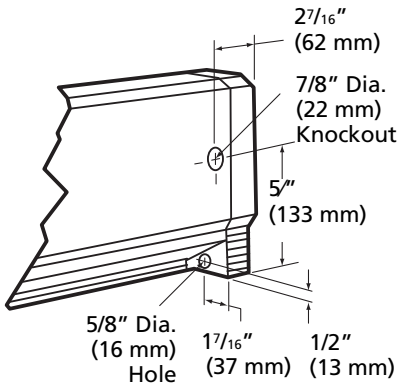


Figure 6 – Knockout Dimensions

6. If one or more heaters are connected to a single branch circuit, determine the total ampere load (see Name-plate), then determine the power supply wire size and the circuit breaker or fuse size required. (See Specifications on page 1 and Table 2).

Total Amps	Minimum AWG Wire Size* (Copper)	Circuit Breaker or Fuse Size
0 thru 12	#14	15 Amp
12.1 thru 16	#12	20 Amp
16.1 thru 24	#10	30 Amp

Table 2

(*) Refer to NEC (National Electrical Code) for max. run length to minimize voltage drop to 3% max. Circuit runs exceeding 100 ft may require larger conductor size.

7. Install the power supply wire to the heater location and thermostat location as determined by the thermostat option selected. If the power supply enters through the knockout in back of the heater, install a cable connector (not included) on the power supply wire and insert in knockout, leaving 6 (152 mm) to 8 inches (203 mm) of wire for heater connection.

8. If the power supply enters the heater through the hole in bottom portion of the junction box, a cable connector is not required.

⚠CAUTION ***Power supply cable must be routed as shown in Figure 7 to provide the necessary strain relief system.***

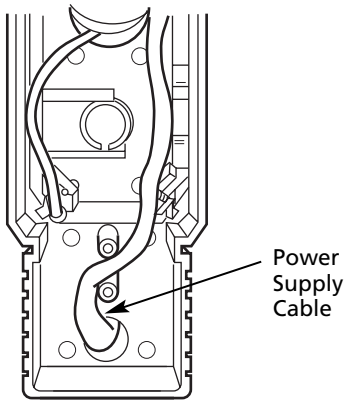


Figure 7 – Routing of Power Supply Cable

9. Position the heater on the wall and locate wall studs. Drill, punch, or use nail driver to put holes through the enclosure back (above the element) at stud locations.

NOTE: The heater enclosure is provided with nail point marks showing correct locations for mounting holes.

The following methods of mounting the heaters to common types of wall surfaces are suggested:

a. Plaster Walls: Use toggle or molly screw anchors.

b. Wall Studs: Use #12 round head screws penetrating at least 3/4" (19 mm) into stud.

Dayton® Electric Hydronic Baseboard Heaters and Thermostat Accessory

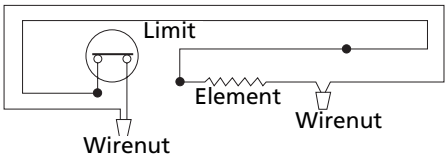
ENGLISH

Installation (Continued)

c. Masonry Walls: Use #12 round head screws into lead, plastic, or fiber expansion anchor.

Tighten all screws snugly, then back off 1/2-turn to allow the back panel to expand and contract.

10. Connect supply wiring to heater as described in Figure 8, or as shown in the wiring diagrams for remote thermostats or for the 3UG32D accessory (page 5) intended for use with this heater.



Connect power supply to either end of heater by removing wirenut and connecting heater leads individually to supply leads. Make sure all wire connections are tight.

Figure 8 – Heater Wiring Connections

⚠WARNING ***Risk of fire or permanent heater damage could occur if supply voltage exceeds heater voltage rating. Check heater nameplate and verify supply does not exceed the voltage rating before energizing.***

11. Secure the desired accessories to baseboard as shown in the accessory instructions, and use the wiring diagram supplied with the accessory.

NOTE: Baseboard heaters must be thermostatically controlled.

12. Replace the front cover by fitting the top lip of the cover onto the tabs on each junction box and top edge of the element support bracket(s). Rotate the cover downward, pushing the bottom corners inward. Install two screws (removed in Step 4) through the cover into the junction boxes. See that the bottom of the cover is engaged onto the bottom of each element support bracket. See Figure 9.

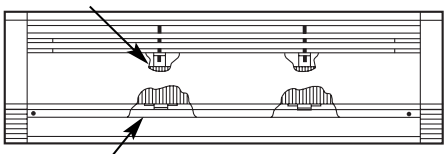
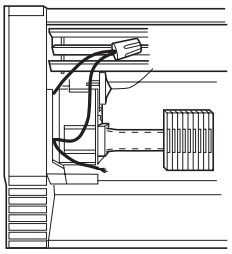


Figure 9 – Cover Attachment

13. Replace the end cap(s) by installing screw(s) (removed in Step 3).

MULTIPLE UNITS

1. With heaters mounted end-to-end, allow 1/8" (3 mm) of expansion space per heater between each heater.
2. For each heater to be installed, refer to and follow installation of "SINGLE UNIT", Steps 1 through 8.
3. If the power supply is to enter through the end of the heater series so that the end cap can be installed after the heaters are installed, continue installation of "SINGLE UNIT", Steps 9 through 12.
4. If the power supply is to feed heaters at the junction box that is adjacent to another heater, it is easier for the power supply connections to be made prior to the installation of the heater(s) to the wall. If this is not possible, connections may be made through the opening in the junction boxes when the front cover(s) is removed. See Figure 10.



After connecting power supply cable, tuck wiring back into the junction box making sure wire & wire nuts do not contact element.

Figure 10 – Wiring Through Junction Box Opening

5. Connecting power supply cables may be routed from heater to heater by drilling a 1/2-inch (13 mm) diameter hole in the end caps for the heaters that fit together. See Figure 11. To prevent possible damage to internal heater wiring, all drilling of end caps must be done with end caps removed from heater.

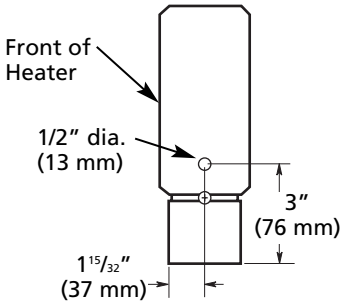


Figure 11 – End Cap Drill Pattern

6. Wire heaters as shown in Wiring Diagram, Figure 12.

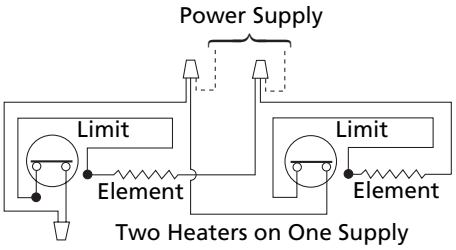


Figure 12 – Dual Heater Wiring Connections

Models 3UG27D thru 3UG32D, 3ENA1 thru 3ENA4, 3EMZ8 and 3EMZ9

Installation (Continued)

7. Replace the front covers and end caps according to installation of "SINGLE UNIT", Steps 12 and 13.

OPTIONAL THERMOSTAT ACCESSORY, MODEL 3UG32D (Sold Separately)

Double Pole Snap Action Thermostat Assembly

Rating - 25 Amps at 208 V through 240 VAC.

Optional double pole thermostat comes assembled to end cap.

⚠WARNING ***Be sure electric power is disconnected at main fuse or circuit breaker distribution panel before installation or servicing and allow heater to cool. The installation must comply with applicable local and national electric codes and utility requirements. Check accessory and heater nameplate to verify power requirements match power supply coming to heater and accessory. Make sure total power requirements do not exceed ratings of accessory.***

NOTE: It is recommended that no more than one thermostat be used in each room (area).

1. The thermostat can be installed in either end of the heater that the power wiring is brought into.
2. Remove selected junction box end cap (Figure 4, page 3) and discard; save screw.
3. If the thermostat is controlling more than one heater, the total of all heater amperage ratings (Specifications, page 1) cannot exceed 25 amps at 208 volts A.C. thru 240 volts A.C. Refer to Table 2 on page 3 for correct wire, circuit breaker, or fuse sizing.
4. Connect thermostat to baseboard heater and power wiring per wiring diagram (Figure 13) using properly sized listed wire nuts.

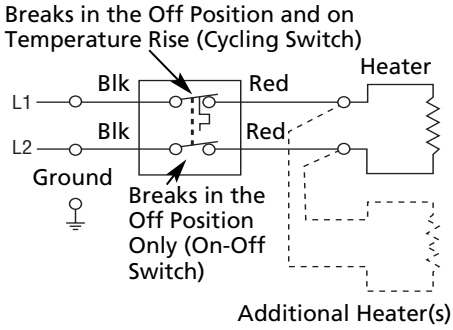


Figure 13 – 3UG32D Thermostat Wiring Connections

5. Fold wires back into wiring compartment and install the thermostat assembly in place of the discarded junction box end cap. Reuse the screw to hold the end cap in place.

⚠CAUTION ***Do not exceed amperage rating of thermostat when adding heaters.***

6. Reconnect power at main fuse or circuit breaker distribution panel.

Do locate thermostat

- A minimum of two feet (61 cm) from any outside wall.
- Approximately five feet (1,5 m) from the floor, preferably on an inside wall location.

Do not locate thermostat

- Above baseboard heaters.
- Near televisions or appliances that emit heat.
- Near drafts from an open doorway.
- Where it would be struck by direct rays of sunlight.

Operation

An integral (3UG32D) or remote wall thermostat is recommended for each room. In very large rooms it is recommended that a low voltage thermostat with double or multiple circuit relays be used to provide the most comfortable results.

OPERATION CHECK

1. After the baseboard system has been completely installed, all thermostats should be turned to LOW or NO HEAT setting. Then turn on breakers or install fuses. Wait 3 to 5 minutes and check to see that none of the heaters are operating. If operating, disconnect power and check wiring. If none are operating then turn the thermostats to highest setting and wait 3 to 5 minutes. Check to see that all heaters are operating. Should any not be operating, disconnect power and check wiring.
2. Allow entire system to operate steadily for 1/2-hour. For a period of time after the heaters are put into operation, the owner may notice a "new smell" coming from the heaters. This is expected on new installations. Bringing heaters to full operation will eliminate this condition in a short period of time.
3. Select the setting for comfort on all thermostats.
4. Your electric heating system has many advantages, one of which is zone or room by room control. If you desire to keep a seldom used room at a lower temperature this may be done by lowering the thermostat setting and closing the door. However, DO NOT try to control different rooms at different temperatures unless the doors are kept closed. This will tend to increase operating cost and decrease

Dayton® Electric Hydronic Baseboard Heaters and Thermostat Accessory

Operation (Continued)

comfort. It is advisable, if rooms are kept open, that all thermostats have the same setting. By following these instructions you will enjoy greater comfort.

Maintenance

TO CLEAN HEATER

Because of the convection heating principle which depends upon circulation of air through the finned element, dust particles will periodically be deposited between and around the fins and should be removed for maximum efficiency of the heater. Heater should be cleaned at the beginning of each heating season and as required to allow for unobstructed air flow. A vacuum cleaner with proper attachments can easily be worked along the top and bottom of the finned element to clear it of dust deposits.

NOTE: If vacuum cleaner does not work, it may be necessary to remove the front cover to gain access. If this is required, disconnect power to heater and follow the steps shown in Figure 5. Use care not to damage the heating element fins.

NOTE: The painted finish of the heater may be cleaned with a slightly damp cloth if desired. Do not use wax cleaners or polishes as these waxes may vaporize when the heater is in operation and cause discoloration.

For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide following information:
-Model number
-Serial number (if any)
-Part description and number as shown in parts list

Address parts correspondence to:
Grainger Parts
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

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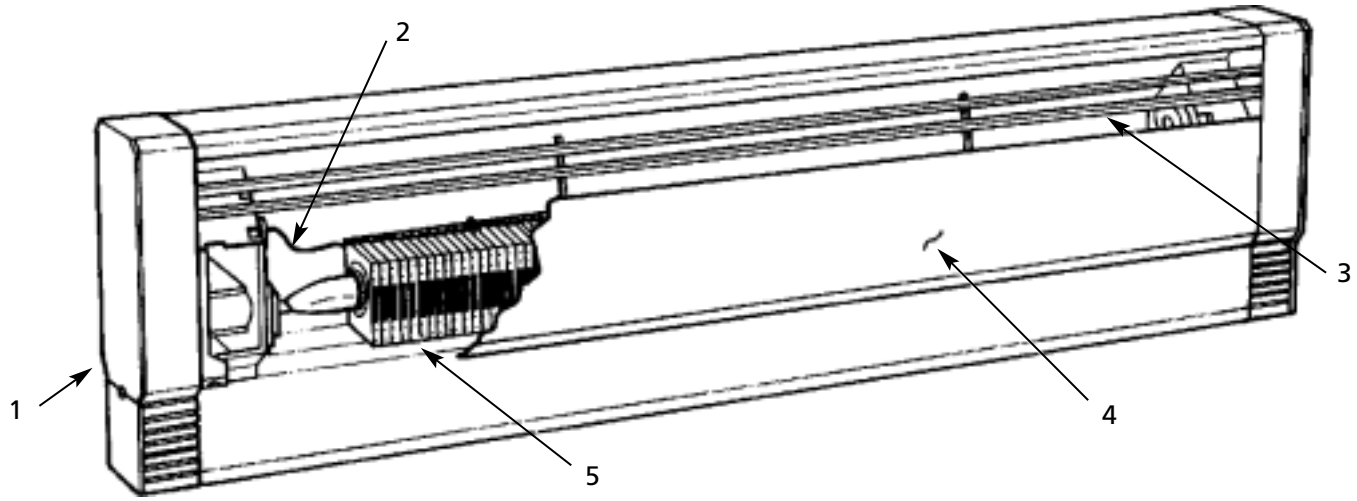


Figure 14 – Repair Parts Illustration for Electric Hydronic Baseboard Heaters

Repair Parts List for Electric Hydronic Baseboard Heaters

Ref. No.	Description	Part Number for Models: 3UG27D	3UG28D	3UG29D	3UG30D	3UG31D	3ENA4	Qty.
1	End Cap	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1
2	Linear Limit	410122004	410122006	410122008	410122002	410122003	410122005	1
3	Grille	2501-2012-008	2501-2012-010	2501-2012-011	2501-2012-012	2501-2012-007	2501-2012-015	1
4	Front Cover	1402-2066-002	1402-2066-004	1402-2066-005	1402-2066-000	1402-2066-001	1402-2066-003	1
5	Element	1802-2068-013	1802-2068-015	1802-2068-016	1802-2068-011	1802-2068-012	1402-2068-014	1

Ref. No.	Description	Part Number for Models: 3ENA1	3ENA2	3ENA3	3EMZ8	3EMZ9		Qty.
1	End Cap	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	–	1
2	Linear Limit	410122004	410122005	410122006	410022002	410022003	–	1
3	Grille	2501-2012-008	2501-2012-015	2501-2012-010	2501-2012-012	2501-2012-007	–	1
4	Front Cover	1402-2066-002	1402-2066-003	1402-2066-004	1402-2066-000	1402-2066-001	–	1
5	Element	1802-2068-002	1802-2068-003	1802-2068-004	1802-2068-000	1802-2068-001	–	1

Repair Parts List for Thermostat Accessory

Reference Number	Description	Part Number for Model: 3UG32D	Quantity
Δ	Thermostat, Double Pole	5813-2015-000	1
Δ	Knob, Thermostat	3301-2011-000	1

(Δ) Not Shown

Dayton® Electric Hydronic Baseboard Heaters and Thermostat Accessory

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LIMITED WARRANTY

DAYTON ONE-YEAR LIMITED WARRANTY. *Dayton® Electric Hydronic Baseboard Heaters and Thermostat Accessory, Models covered in this manual, are warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined to be defective in material or workmanship and returned to an authorized service location, as Dayton designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Dayton's option. For limited warranty claim procedures, see PROMPT DISPOSITION below. This limited warranty gives purchasers specific legal rights which vary from jurisdiction to jurisdiction.*

LIMITATION OF LIABILITY. *To the extent allowable under applicable law, Dayton's liability for consequential and incidental damages is expressly disclaimed. Dayton's liability in all events is limited to and shall not exceed the purchase price paid.*

WARRANTY DISCLAIMER. *Dayton has made a diligent effort to provide product information and illustrate the products in this literature accurately; however, such information and illustrations are for the sole purpose of identification, and do not express or imply a warranty that the products are MERCHANTABLE, or FIT FOR A PARTICULAR PURPOSE, or that the products will necessarily conform to the illustrations or descriptions. Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in the "LIMITED WARRANTY" above is made or authorized by Dayton.*

PRODUCT SUITABILITY. *Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Dayton attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the product applications, and all applicable national and local codes and regulations, and be sure that the product, installation, and use will comply with them.*

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some jurisdictions do not allow a limitation on how long an implied warranty lasts, consequentially the above limitation may not apply to you; and (c) by law, during the period of this Limited Warranty, any implied warranties of implied merchant-ability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

PROMPT DISPOSITION. *Dayton will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date, and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.*

Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714 U.S.A.

Por favor lea y guarde estas instrucciones. Léalas cuidadosamente antes de tratar de montar, instalar, operar o dar mantenimiento al producto aquí descrito. Protéjase usted mismo y a los demás observando toda la información de seguridad. ¡El no cumplir con las instrucciones puede ocasionar daños, tanto personales como a la propiedad! Guarde estas instrucciones para referencia en el futuro.

Calentadores Eléctricos Hidrónicos de Zócalo y Termostato Auxiliar Dayton®

Descripción

Los calentadores eléctricos hidrónicos de zócalo brindan un estilo contemporáneo y las combinaciones de colores neutrales con cualquier decoración. Tan solo de tres pulgadas de profundidad, la unidad se monta al ras con la pared y plana en pisos de madera, loza o alfombrados. El elemento eléctrico revestido de calefacción está completamente sumergido en fluido de transferencia térmica totalmente sellado en un tubo de cobre con una longitud igual a la longitud del calentador. El calor es transferido en forma pareja a través y a lo largo de toda la longitud del calentador. Aun después de desactivarse el termostato, la unidad continúa radiando un calor agradable debido a la máxima retención de calor del elemento hidrónico.

Especificaciones

Modelo	Voltios	Vatios	Amperios	Longitud	Peso de Embarque
3EMZ8	120	500	4.2	71.1 cm	4.5 kg
3EMZ9	120	750	6.3	86.4	5.4
3ENA1	120	1000	8.3	116.8	6.8
3ENA2	120	1250	10.4	147.3	8.6
3ENA3	120	1500	12.5	177.8	10.0
3UG30D	240/208	500/375	2.1/1.8	71.1	4.5
3UG31D	240/208	750/563	3.1/2.7	86.4	5.4
3UG27D	240/208	1000/750	4.2/3.6	116.8	6.8
3ENA4	240/208	1250/938	5.2/4.5	147.3	8.6
3UG28D	240/208	1500/1125	6.3/5.8	177.8	10.0
3UG29D	240/208	2000/1500	8.3/7.2	238.8	13.6

Información de Seguridad General

⚠ ADVERTENCIA ***Lea cuidadosamente - Esta hoja de instrucciones contiene información vital para la instalación y uso correctos, y el funcionamiento eficaz del calentador. Lea cuidadosamente el manual antes de instalar, operar o limpiar el calentador. El incumplimiento con las instrucciones puede resultar en incendio, choque eléctrico, la muerte, lesiones personales graves o daños a la propiedad. Guarde estas instrucciones y léalas frecuentemente para un uso seguro continuado del calentador y para instruir a los usuarios futuros.***

⚠ ADVERTENCIA ***Riesgo de incendio o electrochoque.***

1. Mantenga todos los cordones eléctricos, artículos rellenados con espuma, cortinas, ropa de cama y otros enseres domésticos lejos de todo posible contacto con el calentador. Se recomienda que todos los artículos se mantengan a una distancia mínima de 152 mm (6 pulg.) del calentador.
2. No instale el calentador de zócalo por debajo de los receptáculos eléctricos (tomacorrientes).
3. No instale el calentador de zócalo topado contra una pared recubierta con papel de vinilo, cartón o una superficie de panel de fibra de baja densidad. No instale cortinas de vinilo ni persianas de vinilo encima del calentador.
4. No empotre el calentador en la pared.
5. La instalación deberá cumplir con los códigos eléctricos nacionales y locales, y con los requisitos de las empresas de servicio público.
6. No retire ni sobrepase la función de protección térmica.
7. Para disminuir el riesgo de incendio, no almacene ni utilice gasolina u otros líquidos o vapores inflamables cerca del calentador.
8. Los electrochoques pueden causar lesiones personales o la muerte. Desconecte toda la alimentación eléctrica para el calentador en el panel principal antes de intentar instalar o darle servicio a este calentador.

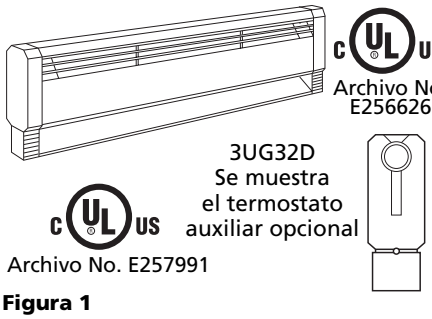


Figura 1

9. El voltaje de alimentación debe ser igual que el voltaje del calentador. Compruebe que el voltaje de alimentación y el voltaje indicado en la placa de identificación del calentador sean iguales antes de energizar el calentador.
10. El cableado de suministro eléctrico deberá ser adecuado para 90°C.
11. No instale el calentador en posición invertida ni vertical. Instálelo solamente como se indica en estas instrucciones.

CONSERVE ESTAS INSTRUCCIONES

⚠ PRECAUCION ***Algunas telas se descoloran con el paso del tiempo por la simple exposición a la luz solar indirecta y a las temperaturas ambiente normales; especialmente los materiales orgánicos y sintéticos. Éstas tienden a descolorarse más rápidamente cuando están expuestas a la luz solar directa y a corrientes tibias. Cuelgue las cortinas en forma que deje un espacio de aire mínimo de 51 mm (2 pulg.) entre el frente del calentador y el pliego más cercano de la cortina, como se muestra en la página 2 en el ejemplo 1, Figura 2, o un espacio de aire de 152 mm (6 pulg.) entre la parte superior del calentador y la parte inferior de las cortinas como se muestra en el ejemplo 2 en la Figura 2. Deje un espacio libre mínimo de 25 mm (1 pulg.) desde las cortinas hasta el cielo raso y hasta la cubierta superior del piso para permitir la circulación del aire.***

ESPAÑOL

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Calentadores Eléctricos Hidrónicos de Zócalo y Termostato Auxiliar Dayton®

Información de Seguridad General (Continuación)

⚠ PRECAUCION ***Para evitar la posibilidad de causarle daño al cableado interno del calentador, todas las perforaciones en las tapas extremas para encaminar el cable de suministro eléctrico a varios calentadores instalados de extremo a extremo (página 4) deben hacerse con las tapas extremas desmontadas del calentador.***

ESPACIOS LIBRES

Pisos y alfombras: Los calentadores pueden montarse directamente en cualquier superficie de piso, incluyendo los pisos alfombrados. En donde se instalen alfombras de pared a pared después de instalar el zócalo. La alfombra puede tenderse hasta la parte delantera del calentador y alrededor del cuerpo del mismo.

Cortinas de plena longitud: Para el uso más satisfactorio de los calentadores, será necesario mantener los siguientes espacios libres:

1. Cuelgue las cortinas de manera que, cuando se utilicen, éstas se extiendan por debajo de la línea central del calentador, pero con un mínimo de 25 mm (1 pulg.) de espacio libre desde la parte superior de la cubierta acabada del piso, como por ejemplo: una alfombra, loza, etc.
2. Cuelgue las cortinas de manera que haya al menos 51 mm (2 pulg.) de espacio entre la parte delantera extrema del calentador y el pliego más cercano de las cortinas, en su posición abierta (posición de cortinas abiertas).
3. Cuelgue las cortinas de manera que haya al menos 25 mm (1 pulg.) de espacio entre la parte superior de las cortinas y el cielo raso.

Cortinas cortas: cuelgue las cortinas de manera que haya al menos 152 mm (6 pulg.) de espacio libre por encima de la parte superior del calentador.

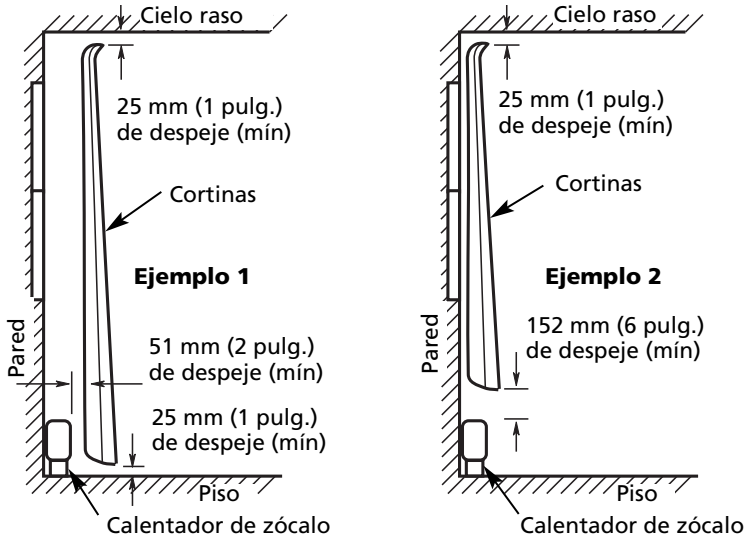


Figura 2 – Colocación de las Cortinas Cerca del Calentador

Muebles: no coloque los muebles topados contra el calentador. Se recomienda que todos los artículos se mantengan a una distancia mínima de 152 mm (6 pulg.) del calentador.

Instalación

UNA UNIDAD

Los calentadores de zócalo rellenados con líquido están diseñados para instalarlos en construcciones nuevas o existentes. En las construcciones existentes, debe retirarse la moldura del zócalo y los calentadores deben montarse topados contra la superficie de la pared. Cuando reinstale la moldura, deje 3 mm (1/8 de pulg.) de espacio libre entre la moldura y los extremos de los calentadores.

AVISO: Las conexiones para este calentador pueden hacerse en la caja de empalmes derecha, o bien izquierda. Consulte la Tabla 1 para ver los volúmenes de los compartimientos de cableado o conexiones.

⚠ PRECAUCION ***El calentador puede instalarse encima del piso, como por ejemplo, sobre un zócalo. Sin embargo, la alimentación eléctrica debe entrar al calentador a través del agujero ciego que se encuentra detrás del calentador, si se instala éste encima del piso.***

1. Coloque el calentador en el lugar deseado en la pared como se muestra en la Figura 3, página 3. Para lograr la calefacción más cómoda, sitúe el calentador debajo de una ventana.

Descripción	Volumen Total Neto Estimado	
	cm^3	$pulg^3$
Compartimiento de cableado del calentador (un extremo)	200	13.25
Compartimiento de cableado del calentador con Termostato Auxiliar T1 o T2	175	11.25
Sección desocupada para accesorios (sin controles) (opcional)	2400	145
Sección para accesorios de CA (opcional)	2300	140
Sección para accesorios DR (opcional)	2300	140
Sección para accesorios CDS2 (opcional)	2300	140
Sección para accesorios LVR (opcional)	2100	130

Tabla 1 – Volúmenes de los Compartimientos de Cableado de Campo

ESPAÑOL

Modelos 3UG27D a 3UG32D, 3ENA1 a 3ENA4, 3EMZ8 a 3EMZ9

Instalación (Continuación)

AVISO: Deje un espacio libre mínimo de 3 mm (1/8 de pulg.) en los extremos del calentador para la expansión y contracción del mismo.

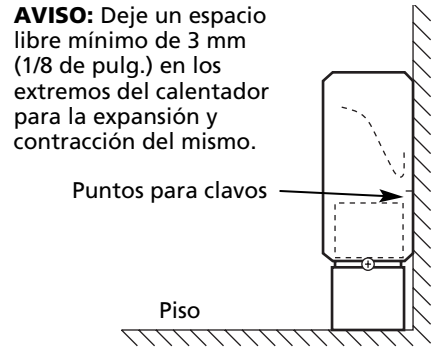


Figura 3 – Instalación del Calentador

2. Marque la posición en la pared o el piso para la entrada del suministro eléctrico para el calentador. Retire el calentador de la pared y taladre un agujero adecuado en la pared o el piso.
3. Retire la tapa extrema de la caja de empalmes izquierda o derecha. Para hacer esto, extraiga el tornillo en el extremo del calentador y deslice la tapa hacia afuera y sepárela del calentador (Figura 4).

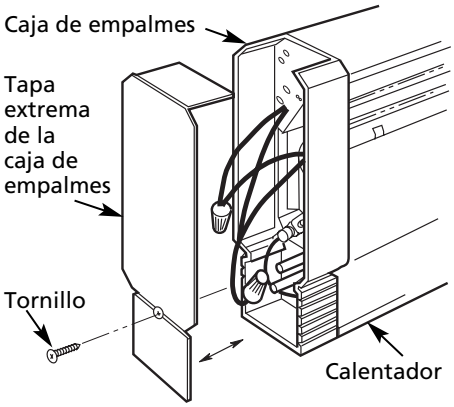


Figura 4 – Desmontaje de la Tapa Extrema

4. Extraiga los tornillos en las esquinas inferiores del calentador y retire la cubierta delantera del calentador. Tire de la parte inferior de la cubierta hacia afuera y levante la parte superior de la cubierta de la caja de empalmes. Repita el procedimiento para el otro extremo. Desenganche del soporte central y de los soportes intermedios la parte superior de la cubierta. Consulte la Figura 5.

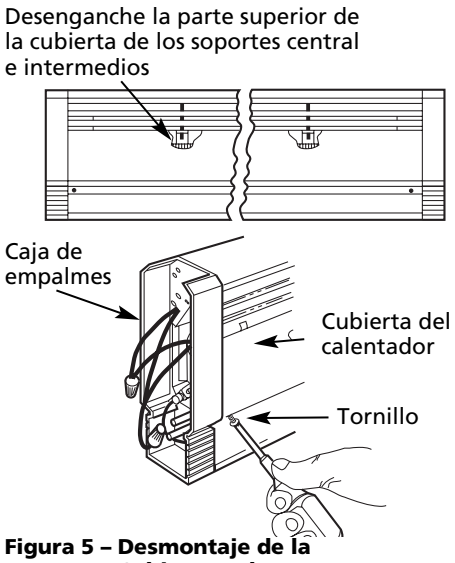


Figura 5 – Desmontaje de la Cubierta Delantera

5. Destape el agujero ciego correcto para cable eléctrico en la parte posterior del calentador o accesorio si es necesario. El cableado de suministro eléctrico también puede entrar al canal o conducto eléctrico a través del piso o la pared sin usar un agujero ciego.
6. Si hay uno o más calentadores conectados a un solo circuito ramal, determine la carga total de amperios (consulte la Placa de identificación), luego determine el calibre o tamaño necesario del conductor de suministro eléctrico y la capacidad necesaria del cortacircuito o fusible. (Consulte Especificaciones en la página 1 y Tabla 2).

Amperaje Total	Calibre AWG Mínimo del Alambre* (Cobre)	Capacidad del Cortacircuito o Fusible
0 a 12	#14	15 amp.
12.1 a 16	#12	20 amp.
16.1 a 24	#10	30 amp.

Tabla 2

(*) Consulte el Código Eléctrico Nacional (NEC) para obtener la máxima longitud de cable para minimizar la caída de tensión (voltaje) a un 3% como máximo. Es posible que las longitudes de circuitos de más de 30.5 m (100 pies) puedan requerir un mayor tamaño de conductor.

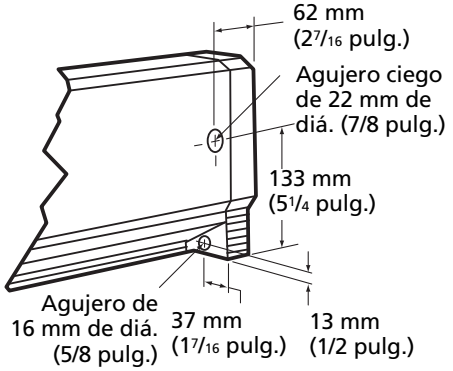


Figura 6 – Dimensiones de los Agujeros Ciegos

7. Instale el cable de alimentación eléctrica hasta la posición del calentador y la posición del termostato según como lo determine la opción de termostato seleccionada. Si el suministro eléctrico entra a través del agujero ciego destapado en la parte posterior del calentador, instale un conector de cable (no incluido) en el cable de suministro eléctrico e inserte éste en el agujero ciego, dejando 152 a 203 mm (6 a 8 pulg.) de longitud de cable para hacer la conexión al calentador.
8. Si el suministro eléctrico entra al calentador a través del agujero en la parte inferior de la caja de empalmes, no será necesario ningún conector de cable.

⚠ PRECAUCION ***El cable de suministro eléctrico debe encaminarse como se muestra en la Figura 7 para proporcionar el sistema necesario de alivio de esfuerzo.***

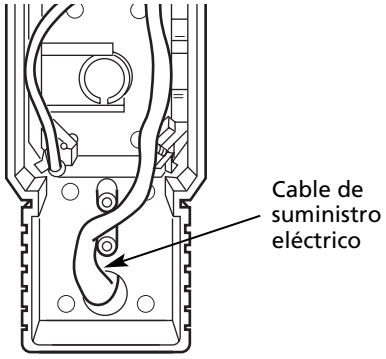


Figura 7 – Encaminamiento del Cable de Suministro Eléctrico

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Calentadores Eléctricos Hidrónicos de Zócalo y Termostato Auxiliar Dayton®

Instalación (Continuación)

9. Sitúe el calentador en la pared y localice los postes o maderos de la pared. Taladre, perfore, o use un martillo neumático para hacer agujeros en la parte posterior de la caja (por encima del elemento) en las posiciones donde están los postes o maderos.

AVISO: La caja del calentador se proporciona con marcas de punta de clavo que muestran las posiciones correctas para los agujeros de montaje.

A continuación se sugieren los métodos para montar los calentadores en tipos comunes de superficies de paredes:

a. Paredes de yeso: Utilice pernos acodillados o pernos de anclaje.

b. Postes o maderos de pared: Utilice tornillos de cabeza redonda No. 12 que penetren al menos 3/4 pulg. (19 mm) en el poste o madero.

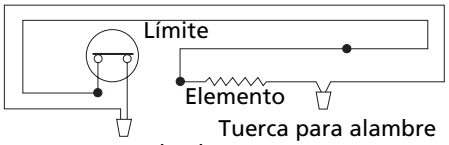
c. Paredes de mampostería: Utilice tornillos de cabeza redonda No. 12 con grapa o ancla de expansión para muro de fibra, plástico o plomo.

Apriete firmemente todos los tornillos, luego retroceda 1/2 vuelta para permitir que el panel posterior pueda expandirse y contraerse.

10. Conecte el cableado de suministro eléctrico como se describe en la Figura 8, o como se muestra en los diagramas eléctricos para los termostatos remotos o para el accesorio 3UG32D (página 5) diseñado para uso con este calentador.

⚠ ADVERTENCIA ***El calentador puede incendiarse o sufrir daño permanente si el voltaje del suministro eléctrico excede la capacidad de voltaje del calentador. Consulte la placa de identificación del calentador y compruebe que el voltaje de suministro eléctrico no excede la capacidad de voltaje del calentador antes de energizar el calentador.***

11. Fije los accesorios deseados en el zócalo como se indica en las instrucciones del accesorio y utilice el diagrama eléctrico suministrado con el accesorio.



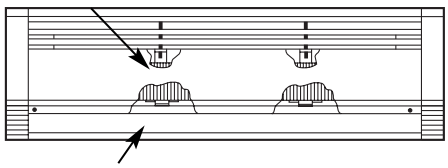
Conecte el suministro eléctrico en cualquiera de los dos extremos del calentador. Para hacer esto, retire la tuerca para alambre y conecte individualmente los conductores del calentador a los conductores del cable de suministro eléctrico. Asegúrese que todas las conexiones de los conductores estén apretadas.

Figura 8 – Conexiones del Cableado del Calentador

AVISO: Los calentadores de zócalo deben controlarse con un termostato.

12. Reinstale la cubierta delantera. Para hacer esto, encaje el labio superior de la cubierta en las lengüetas en cada caja de empalmes y el borde superior de la pieza de soporte del elemento (o de las piezas de soporte de los elementos). Gire la cubierta hacia abajo y empuje las esquinas inferiores hacia adentro. Instale dos tornillos (extraídos en el Paso 4) a través de la cubierta en las cajas de empalme. Asegúrese que la parte inferior de la cubierta esté enganchada en la parte inferior de cada pieza de soporte de elemento. Consulte la Figura 9.

Enganche la cubierta en la parte superior de la pieza(s) de soporte del elemento(s).



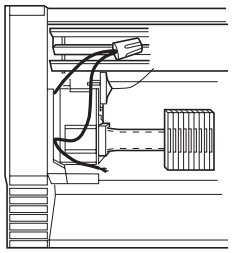
Enganche la cubierta en la parte inferior de cada pieza de soporte de un elemento.

Figura 9 – Instalación de la Cubierta

13. Reinstale la tapa extrema (o las tapas extremas) y el tornillo extraído (o los tornillos extraídos) en el Paso 3.

VARIAS UNIDADES

1. Con los calentadores montados extremo a extremo, deje un espacio de expansión de 3 mm (1/8 pulg.) por cada calentador entre cada calentador.
2. Para cada calentador que se va a instalar, consulte y siga los Pasos 1 a 8 para la instalación de "UNA UNIDAD".
3. Si el suministro eléctrico va a entrar a través del extremo de la serie de calentadores de manera que pueda instalarse la tapa extrema después de instalar los calentadores, continúe con los pasos de instalación 9 al 12 para "UNA UNIDAD".
4. Si el suministro eléctrico va a alimentar calentadores en la caja de empalmes que está adyacente a otro calentador, será más fácil hacer las conexiones de suministro eléctrico antes de instalar el calentador o los calentadores en la pared. Si esto no es posible, pueden hacerse las conexiones a través de la abertura en las cajas de empalmes cuando se les quita la cubierta delantera. Consulte la Figura 10.



Después de conectar el cable de suministro eléctrico, meta los conductores dentro de la caja de empalmes y asegúrese que los alambres y las tuercas para alambre no hagan contacto con el elemento.

Figura 10 – Cableado a Través de la Abertura en la Caja de Empalmes

5. Los cables de conexión del suministro eléctrico pueden encaminarse de calentador a calentador, mediante la perforación de un agujero de 13 mm (1/2 pulg.) de diámetro en las tapas extremas de los calentadores mutuamente adyacentes. Consulte la Figura 11, página 5. Para evitar la posibilidad de causarle daño al cableado interno del calentador, todas las perforaciones en las tapas extremas deben hacerse con éstas desmontadas del calentador.

ESPAÑOL

Modelos 3UG27D a 3UG32D, 3ENA1 a 3ENA4, 3EMZ8 a 3EMZ9

Instalación (Continuación)

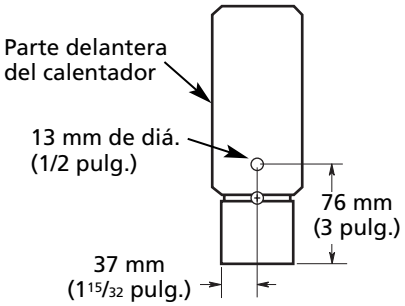


Figura 11 – Patrón de Perforación de las Tapas Extremas

6. Conecte los calentadores según se muestra en el Diagrama Eléctrico en la Figura 12.

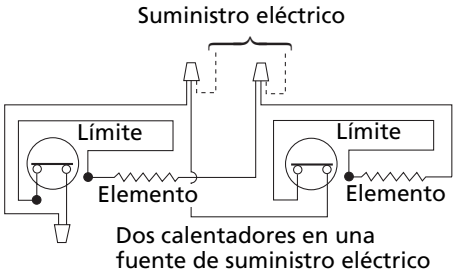


Figura 12 – Conexiones del Cableado para Dos Calentadores

7. Vuelva a instalar las cubiertas delanteras y las tapas extremas de acuerdo con los Pasos 12 y 13 para la instalación de "UNA UNIDAD".

TERMOSTATO AUXILIAR OPCIONAL, MODELO 3UG32D (Vendido por separado)

Conjunto del Termostato Bipolar de Acción Rápida

Capacidad - 25 Amperios a 208 V hasta 240 VCA.

El termostato bipolar opcional viene ya instalado en la tapa extrema.

⚠ ADVERTENCIA ***Asegúrese que se haya desconectado la alimentación eléctrica en el panel principal de cortacircuitos o fusibles antes de realizar la instalación o darle servicio a la unidad, y permita que el calentador se enfríe. La instalación deberá cumplir con los códigos eléctricos nacionales y locales, y con los requisitos de las empresas de servicio público. Consulte la placa de identificación del calentador y del accesorio para comprobar que el suministro eléctrico para el calentador y el accesorio coinciden con los requisitos de alimentación eléctrica del calentador y el accesorio. Asegúrese que los requisitos de potencia total no excedan las capacidades del accesorio.***

AVISO: Se recomienda no utilizar más de un termostato en cada habitación (área).

1. El termostato puede instalarse en cualquiera de los dos extremos del calentador por el cual entre el cable de suministro eléctrico.
2. Retire la tapa extrema de la caja de empalmes seleccionada (Figura 4, página 3) y deséchela; guarde el tornillo.
3. Si el termostato controla más de un calentador, el total de todas las capacidades de amperaje de calentador (Especificaciones, página 1) no puede ser mayor que 25 amperios a una tensión de 208 voltios CA a 240 voltios CA. Consulte la Tabla 2 en la página 3 para ver los tamaños correctos de conductor, cortacircuito o fusible.
4. Conecte el termostato al calentador de zócalo y a los conductores de alimentación de acuerdo con el diagrama de cableado eléctrico (Figura 13) utilizando las tuercas para alambre de lista del tamaño adecuado.

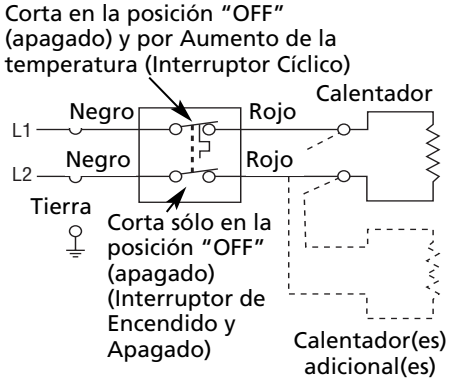


Figura 13 – Conexiones del Cableado del Termostato 3UG32D

5. Pliegue los conductores y métalos en el compartimiento de cableado, e instale el conjunto del termostato en lugar de la tapa extrema de la caja de empalmes desechada. Vuelva a utilizar el tornillo para fijar la tapa extrema en posición.

⚠ PRECAUCION ***No exceda la capacidad de amperios del termostato cuando agregue calentadores.***

6. Reconecte la alimentación eléctrica en el panel principal de distribución equipado con interruptor o fusible.

Coloque el termostato

- A no menos de 61 cm (2 pies) de cualquier pared exterior.
- A aproximadamente 1.5 m (5 pies) del piso, y preferiblemente en un lugar de una pared interior.

No coloque el termostato

- Por encima de los calentadores de zócalo.
- Cerca de televisores o aparatos electrodomésticos que emitan calor.
- Cerca de las corrientes de aire que provienen de una puerta abierta.
- Donde esté directamente expuesto a los rayos del sol.

Operación

Se recomienda utilizar un termostato integral (3UG32D) o uno de pared remoto en cada habitación. En las habitaciones o salas muy grandes, se recomienda utilizar un termostato de bajo voltaje con relés de circuitos múltiples o dobles para lograr los resultados más cómodos.

VERIFICACION DEL FUNCIONAMIENTO

1. Después de instalar todo el sistema de calentadores de zócalo, se recomienda disponer todos los termostatos a LOW (bajo calor) o NO HEAT (sin calefacción). Luego conecte los interruptores o instale los fusibles. Espere 3 a 5 minutos y compruebe que ninguno de los calentadores

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Calentadores Eléctricos Hidrónicos de Zócalo y Termostato Auxiliar Dayton®

Operación (Continuación)

esté funcionando. Si uno o más están funcionando, desconecte la alimentación eléctrica y revise el cableado. Si ninguno está funcionando, entonces ponga los termostatos en la posición de ajuste más alta y espere 3 a 5 minutos. Compruebe que todos los calentadores estén funcionando. Si alguno no funciona, desconecte la alimentación eléctrica y revise el cableado.

2. Permita que todo el sistema funcione constantemente durante 1/2 hora. Durante un período de tiempo después de activar los calentadores, es posible que el propietario perciba un "olor nuevo" que emana de los calentadores. Esto es normal en las instalaciones nuevas. El pleno funcionamiento de los calentadores eliminará esta condición en un corto período de tiempo.
3. Seleccione el ajuste de comodidad en todos los termostatos.
4. Su sistema de calefacción eléctrico tiene muchas ventajas, una de las cuales es el control por zonas o de habitación por habitación. Si usted desea mantener una habitación raramente utilizada a una temperatura más baja, esto puede hacerse, disponiendo el termostato a una temperatura más baja y cerrando la puerta. Sin embargo, NO intente controlar diferentes habitaciones a temperaturas diferentes a menos que se mantengan cerradas las puertas. Esto tenderá a aumentar el costo de operación y disminuir la comodidad. Se aconseja, si las habitaciones se mantienen abiertas, que todos los termostatos estén dispuestos a una misma temperatura. Usted gozará de una mayor comodidad si sigue estas instrucciones.

Mantenimiento

PARA LIMPIAR EL CALENTADOR

Debido al principio de la calefacción por convección, la cual depende de la circulación del aire a través de los elementos con aletas, las partículas de polvo serán depositadas periódicamente entre y alrededor de las aletas y será necesario limpiarlas para obtener la máxima eficacia del calentador. El calentador deberá limpiarse al comienzo de toda temporada de uso de la calefacción y según como sea necesario para mantener un flujo de aire no obstruido. Puede utilizarse una aspiradora equipada con los aditamentos adecuados para limpiar fácilmente el polvo acumulado en las partes superior e inferior de los elementos con aletas.

AVISO: Si la aspiradora no limpia bien el polvo, es posible que sea necesario desmontar la cubierta delantera para tener acceso a los elementos. Si es necesario hacer esto, desconecte la alimentación para el calentador y siga los pasos mostrados en la Figura 5. Tenga cuidado de no dañar las aletas del elemento de calefacción.

AVISO: Si se desea, el acabado pintado del calentador puede limpiarse con un trapo ligeramente húmedo. No utilice limpiadores ni lustradores de cera, ya que estas ceras o parafinas podrían vaporizarse cuando el calentador funciona y producir un cambio de color.

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Para Obtener Partes de Reparación en México Llame al 001-800-527-2331 en EE.UU. Llame al 1-800-323-0620

Servicio permanente – 24 horas al día al año

Por favor proporciónenos la siguiente información:
-Número de modelo
-Número de serie (si lo tiene)
-Descripción de la parte y número que le corresponde en la lista de partes

Envíe correspondencia relacionada con pedidos de partes a:
Grainger Parts
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

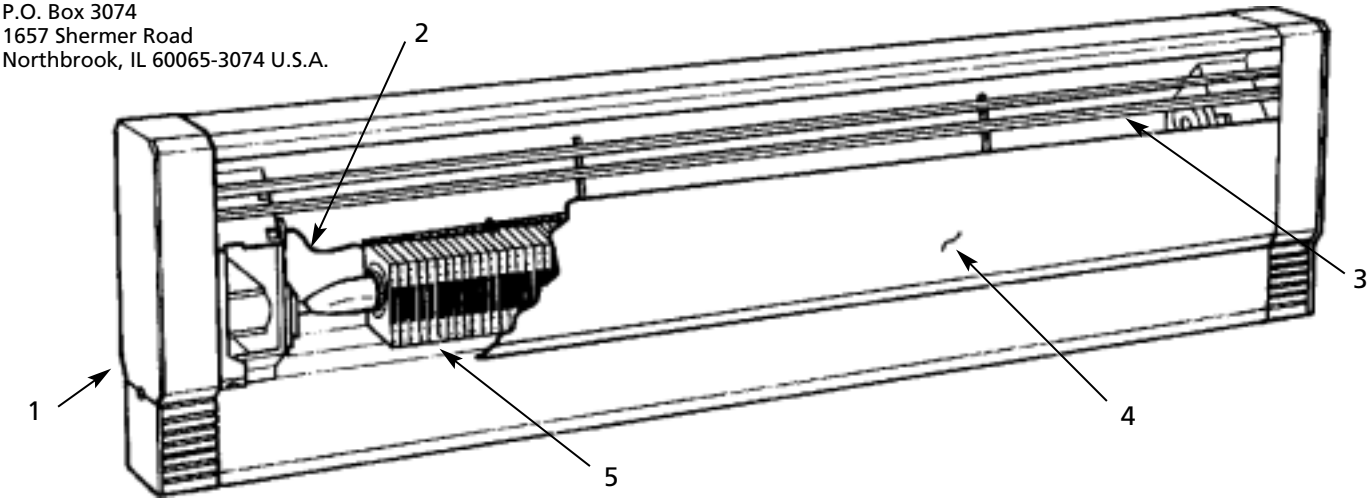


Figura 14 – Ilustración de las Partes de Reparación para los Calentadores Eléctricos Hidrónicos de Zócalo

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Lista de Partes de Reparación para los Calentadores Eléctricos Hidrónicos de Zócalo

No. de Ref.	Descripción	Número de Parte para los Modelos: 3UG27D	3UG28D	3UG29D	3UG30D	3UG31D	3ENA4	Cant.
1	Tapa del extremo	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1
2	Límite lineal	410122004	410122006	410122008	410122002	410122003	410122005	1
3	Rejilla	2501-2012-008	2501-2012-010	2501-2012-011	2501-2012-012	2501-2012-007	2501-2012-015	1
4	Cubierta frontal	1402-2066-002	1402-2066-004	1402-2066-005	1402-2066-000	1402-2066-001	1402-2066-003	1
5	Elemento	1802-2068-013	1802-2068-015	1802-2068-016	1802-2068-011	1802-2068-012	1402-2068-014	1

No. de Ref.	Descripción	Número de Parte para los Modelos: 3ENA1	3ENA2	3ENA3	3EMZ8	3EMZ9		Cant.
1	Tapa del extremo	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	–	1
2	Límite lineal	410122004	410122005	410122006	410022002	410022003	–	1
3	Rejilla	2501-2012-008	2501-2012-015	2501-2012-010	2501-2012-012	2501-2012-007	–	1
4	Cubierta frontal	1402-2066-002	1402-2066-003	1402-2066-004	1402-2066-000	1402-2066-001	–	1
5	Elemento	1802-2068-002	1802-2068-003	1802-2068-004	1802-2068-000	1802-2068-001	–	1

Lista de Partes de Reparación para el Termostato Auxiliar

Número de Referencia	Descripción	Número de Parte para el Modelo: 3UG32D	Cantidad
Δ	Termostato bipolar	5813-2015-000	1
Δ	Perilla del termostato	3301-2011-000	1

(Δ) No se muestra

Calentadores Eléctricos Hidrónicos de Zócalo y Termostato Auxiliar Dayton®

GARANTIA LIMITADA

GARANTIA LIMITADA DE DAYTON POR UN AÑO. *Dayton Electric Mfg. Co. (Dayton) le garantiza al usuario original que los modelos tratados en este manual de los Calentadores Eléctricos Hidrónicos de Zócalo y Termostato Auxiliar Dayton® están libres de defectos en la mano de obra o el material, cuando se les somete a uso normal, por un año a partir de la fecha de compra. Cualquier parte que se encuentre defectuosa, tanto en el material como en la mano de obra, y sea devuelta a un lugar de servicio autorizado designado por Dayton, con los costos de envío pagados por adelantado, será reparada o reemplazada a la discreción de Dayton como remedio exclusivo. Para obtener la información sobre los procedimientos de reclamo cubiertos en la garantía limitada vea ATENCION OPORTUNA a continuación. Esta garantía limitada confiere a los compradores derechos legales específicos que varían de jurisdicción a jurisdicción.*

LIMITES DE RESPONSABILIDAD. *Hasta el punto que las leyes aplicables lo permitan, la responsabilidad de Dayton por los daños emergentes o incidentales está expresamente excluida. La responsabilidad de Dayton expresamente está limitada y no puede exceder el precio de compra pagado por el artículo.*

EXCLUSION DE RESPONSABILIDAD DE LA GARANTIA. *Dayton se ha esforzado diligentemente para proporcionar información sobre el producto en esta literatura en forma apropiada; sin embargo, tal información y las ilustraciones y descripciones tienen como único propósito la identificación del producto y no expresan ni implican garantía de que los productos son VENDIBLES o ADECUADOS PARA UN PROPOSITO EN PARTICULAR o que se ajustan necesariamente a las ilustraciones o descripciones. Con excepción de lo que se establece a continuación, Dayton no hace ni autoriza ninguna garantía o afirmación de hecho, expresa o implícita, que no sea estipulada en la "GARANTIA LIMITADA" anterior.*

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ADAPTACION DEL PRODUCTO. *Muchas jurisdicciones tienen códigos o reglamentos que rigen las ventas, la construcción, la instalación y/o el uso del producto para ciertos propósitos que pueden variar con respecto a los aplicables a las zonas vecinas. Si bien Dayton trata de que sus productos cumplan con dichos códigos, no puede garantizar su conformidad y no puede hacerse responsable por la forma en que su producto se instala o usa. Antes de comprar y usar el producto, revise su aplicación y todos los códigos y regulaciones nacionales y locales aplicables, y asegúrese que el producto, la instalación y el uso los cumplan.*

Ciertos aspectos de limitación de responsabilidad no se aplican a los productos del consumidor; es decir (a) algunas jurisdicciones no permiten la exclusión o la limitación de daños incidentales o emergentes, de modo que las limitaciones o exclusiones anteriores puede que no se apliquen en su caso; (b) también, algunas jurisdicciones no permiten limitar el tiempo que una garantía implícita dura, por lo tanto, la limitación anterior puede que no se aplique en su caso; y (c) por ley, durante el período que dura esta Garantía Limitada, las garantías implícitas de comercialización o de adecuación para un propósito en particular aplicables a los productos del consumidor comprados por consumidores no pueden ser excluidas o no pueden excluirse de la responsabilidad en alguna otra forma.

ATENCION OPORTUNA. *Dayton hará un esfuerzo de buena fe para corregir puntualmente, o hacer otros ajustes, con respecto a cualquier producto que resulte defectuoso dentro de los términos de esta garantía limitada. En el caso de que encuentre un producto defectuoso y que esté cubierto dentro de los límites de esta garantía haga el favor de escribir primero, o llame, al distribuidor de quien compró el producto. El distribuidor le dará las instrucciones adicionales. Si no puede resolver el problema en forma satisfactoria, escriba a Dayton a la dirección a continuación, dando el nombre del distribuidor, su dirección, la fecha y el número de la factura del distribuidor y describa la naturaleza del defecto. La propiedad del artículo y el riesgo de pérdida pasan al comprador en el momento de la entrega del artículo a la compañía de transporte. Si el producto se daña durante el transporte debe presentar su reclamo a la compañía de transporte.*

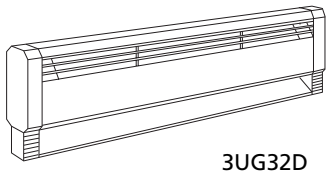
Fabricado para Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714 EE.UU.

Veuillez lire et conserver ces instructions. Lire attentivement avant de commencer à assembler, installer, faire fonctionner ou entretenir l'appareil décrit. Protégez-vous et les autres en observant toutes les informations sur la sécurité. Négliger d'appliquer ces instructions peut résulter en des blessures corporelles et/ou en des dommages matériels ! Conserver ces instructions pour références ultérieures.

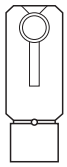
Plinthes chauffantes électriques, hydronic, et thermostat, de Dayton®

Description

Les plinthes chauffantes hydronic électriques proposent un style contemporain et la couleur neutre se fond dans tout décor. Avec une profondeur de seulement 76 mm, l'appareil se monte à égalité avec un mur et à plat sur du bois, des tuiles ou du plancher recouvert de tapis. L'élément électrique à gaine est entièrement submergé dans le fluide caloporteur et scellé dans un tube en cuivre qui se prolonge sur toute la longueur du radiateur. La chaleur est transférée uniformément sur toute la longueur du radiateur. Même après l'extinction du thermostat, une chaleur douce continue d'être irradiée grâce à la rétention maximale de chaleur qui caractérise l'élément hydronic.



c UL us
Fichier n° E256626



3UG32D
Accessoire
de thermostat
facultatif illustré

c UL us
Fichier n° E256626

Figure 1

Spécifications

Modèle	Volts	Watts	Ampères	Longueur	Poids à l'expédition
3EMZ8	120	500	4,2	71,1	4,5
3EMZ9	120	750	6,3	86,4	5,4
3ENA1	120	1000	8,3	116,8	6,8
3ENA2	120	1250	10,4	147,3	8,6
3ENA3	120	1500	12,5	177,8	10,0
3UG30D	240/208	500/375	2,1/1,8	71,1	4,5
3UG31D	240/208	750/563	3,1/2,7	86,4	5,4
3UG27D	240/208	1000/750	4,2/3,6	116,8 cm	6,8 kg
3ENA4	240/208	1250/938	5,2/4,5	147,3	8,6
3UG28D	240/208	1500/1125	6,3/5,8	177,8	10,0
3UG29D	240/208	2000/1500	8,3/7,2	238,8	13,6

Informations générales sur la sécurité

⚠ AVERTISSEMENT ***Lire attentivement - Cette feuille d'instructions contient des informations vitales pour l'installation correcte, l'utilisation et le fonctionnement efficace du radiateur. Lire attentivement le manuel avant d'installer, de faire fonctionner ou de nettoyer le radiateur. Négliger de suivre les instructions pourrait entraîner un incendie, une décharge électrique, la mort, des blessures graves ou des dommages matériels. Conserver ces instructions et les relire fréquemment pour continuer d'assurer un fonctionnement sécuritaire et pour la formation d'autres utilisateurs.***

⚠ AVERTISSEMENT ***Risque d'incendie ou de décharge électrique.***

1. Garder tous les cordons d'alimentation électrique, les articles remplis de mousse, les draperies, la literie et autres meubles de la maison éloignés du radiateur. Il est recommandé de garder tout article à une distance minimale de 152 mm (6 po) du radiateur.
2. Ne pas installer la plinthe chauffante sous des prises électriques.
3. Ne pas installer la plinthe chauffante contre une surface de papier peint en vinyle, de carton ou de panneaux en fibres de faible densité. Ne pas installer des draperies ou des stores en vinyle au-dessus du radiateur.
4. Ne pas encastrer le radiateur dans un mur.
5. L'installation doit être conforme au code national de l'électricité, aux codes locaux applicables et aux exigences des fournisseurs d'électricité.
6. Ne pas enlever ou contourner le coupe-circuit thermique.
7. Pour réduire les risques d'incendie, ne pas entreposer ni utiliser d'essence ou d'autres vapeurs ou liquides inflammables à proximité du radiateur.
8. Une décharge électrique peut entraîner des blessures ou la mort. Couper la source d'alimentation électrique du radiateur au niveau du panneau princi-pal avant de l'installer ou de le réparer.
9. La tension d'alimentation doit être identique à la tension du radiateur. Vérifier la plaque signalétique du radiateur et la tension d'alimentation avant la mise sous tension.
10. Le câblage d'alimentation doit convenir à 90 °C.
11. Ne pas installer le radiateur à l'envers ou à la verticale. Installer seulement comme il est illustré dans ces instructions.

CONSERVER CES INSTRUCTIONS

⚠ ATTENTION ***Certains tissus, pour la plupart synthétiques ou organiques, se décolorent avec le temps ou sous l'effet de la lumière indirecte du soleil ou encore de la température normale d'une pièce. Ils subiront une décoloration plus rapide si exposés à la lumière directe du soleil ou à des courants d'air chaud. Suspendre les draperies pour assurer un espace libre minimal de 51 mm (2 po) entre l'avant du radiateur et le replis le plus proche des draperies, comme dans l'exemple 1 de la figure 2, page 2, ou un espace libre de 152 mm (6 po) entre la partie supérieure du radiateur et la partie inférieure des draperies, comme dans l'exemple 2 de la figure 2. Laisser un dégagement minimal de 25 mm (1 po) entre les draperies et le plafond et à partir du dessus du couvre plancher pour permettre la circulation de l'air.***

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PPD 11697

Plinthes chauffantes électriques, hydronic, et thermostat, de Dayton®

Informations générales sur la sécurité (Suite)

⚠ATTENTION ***Afin d'éviter les risques de dommages au câblage intérieur du radiateur, tout perçage des capuchons d'extrémité en vue d'acheminer un câble d'alimentation reliant plusieurs radiateurs bout à bout (page 4), doit être effectué alors que les capuchons d'extrémité sont retirés du radiateur.***

DÉGAGEMENTS

Planchers et tapis : Les radiateurs peuvent être montés directement sur n'importe quelle surface de plancher, y compris sur du tapis. À l'endroit où des tapis mur à mur sont installés après l'installation des plinthes. Le tapis peut être installé jusqu'à l'avant et autour du corps du radiateur.

Draperies pleine grandeur : Maintenir les dégagements suivants pour obtenir un fonctionnement idéal des radiateurs :

1. Suspendre les draperies pour que, lorsqu'elles sont utilisées, elles s'étendent sous la ligne centrale du radiateur, mais avec un dégagement d'au moins 25 mm (1 po) à partir de la partie supérieure de revêtement de plancher, comme un tapis, des tuiles, etc.
2. Suspendre les draperies de manière à laisser un dégagement d'au moins 51 mm (2 po) entre l'avant du radiateur et le pli le plus rapproché des draperies lorsqu'elles sont en position repliée (draperies ouvertes).
3. Suspendre les draperies de manière à laisser un dégagement d'au moins 25 mm (1 po) entre la partie supérieure des draperies et le plafond.

Draperies courtes : Suspendre les draperies de manière à laisser un dégagement d'au moins 152 mm (6 po) au-dessus de la partie supérieure du radiateur.

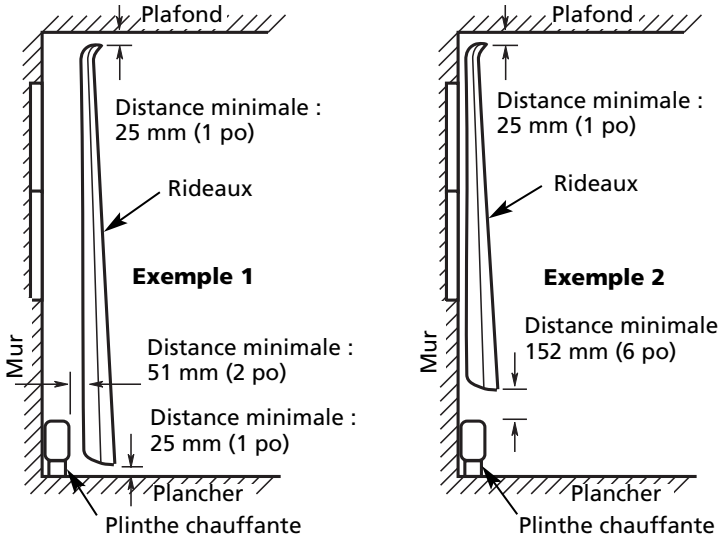


Figure 2 – Position des rideaux à proximité du radiateur

Meubles : Ne pas placer de meubles contre le radiateur. Il est recommandé de garder tout article à une distance minimale de 152 mm (6 po) du radiateur.

Installation

APPAREIL UNIQUE

Les plinthes chauffantes remplies de liquide caloporteur sont conçues pour être installées dans des constructions neuves ou existantes. Dans des constructions existantes, les moulures de plinthe doivent être enlevées et les radiateurs montés à égalité contre la surface du mur. Lors du remplacement de la moulure, laisser un dégagement de 3 mm (1/8 po) entre la moulure et les extrémités des radiateurs.

REMARQUE : Ce radiateur peut être câblé dans le côté gauche ou droit d'un boîtier de raccordement. Voir le Tableau 1 pour connaître les volumes du compartiment de câblage.

⚠ATTENTION ***Le radiateur peut être installé au-dessus du plancher, comme au-dessus d'une plinthe. Toutefois, dans une installation au-dessus du plancher, l'alimentation électrique doit entrer dans le radiateur au travers de l'alvéole défonçable située à l'arrière du radiateur.***

1. Placer le radiateur à l'emplacement désiré sur le mur, comme il est illustré à la Figure 3, page 3. Pour obtenir un confort de chaleur maximal, placer le radiateur sous une fenêtre.

Description	Volume net total prévu	
	cm³	po³
Compartiment de câblage du radiateur (une extrémité)	200	13.25
Compartiment de câblage du radiateur avec accessoires de thermostat T1 ou T2	175	11.25
Section vide pour les accessoires (pas de commandes) (en option)	2400	145
Section pour l'accessoire c.a. (en option)	2300	140
Section pour l'accessoire DR (en option)	2300	140
Section pour l'accessoire CDS2 (en option)	2300	140
Section pour l'accessoire LVR (en option)	2100	130

Tableau 1 – Volumes de la canalisation in situ

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Modèles 3UG27D à 3UG32D, 3ENA1 à 3ENA4, 3EMZ8 et 3EMZ9

Installation (Suite)

REMARQUE : Laisser un dégagement minimal de 3 mm (1/8 po) aux extrémités du radiateur pour son expansion et sa contraction.

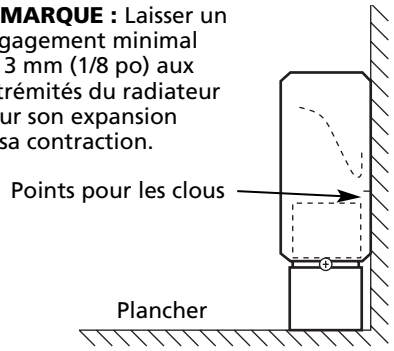


Figure 3 – Installation du radiateur

2. Marquer l'emplacement sur le mur ou sur le plancher où l'alimentation électrique entre dans le radiateur. Enlever le radiateur du mur et percer le trou qui convient dans le mur ou dans le plancher.
3. Enlever le capuchon d'extrémité du boîtier de raccordement en dévissant la vis située à l'extrémité du radiateur et en faisant glisser le capuchon vers l'extérieur du radiateur (Figure 4).

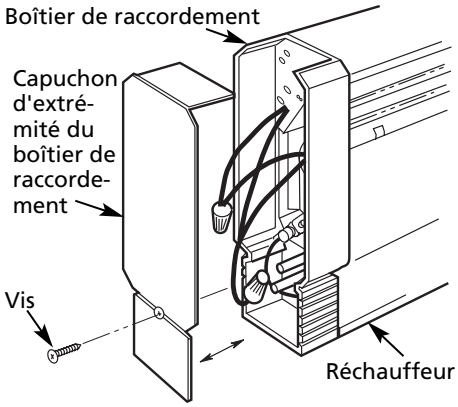


Figure 4 – Retrait du capuchon d'extrémité

4. Enlever le couvercle avant du radiateur en dévissant les vis des coins inférieurs. Tirer le fond du couvercle vers l'extérieur et soulever le dessus du couvercle pour le retirer du boîtier de raccordement. Répéter pour l'extrémité opposée. Retirer le dessus du couvercle du support central et des supports intermédiaires. Voir la Figure 5.

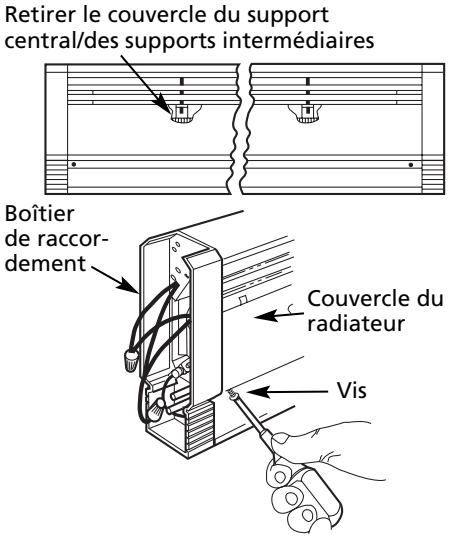


Figure 5 – Retrait du couvercle avant

5. Enlever les alvéoles défonçables qui conviennent de l'arrière du radiateur ou des accessoires, au besoin. Le câblage d'alimentation peut également entrer dans la canalisation à travers le mur ou le plancher en utilisant une alvéole défonçable.
6. Si un ou plusieurs radiateurs est raccordé à un circuit de dérivation simple, déterminer la charge d'ampérage totale (voir la plaque signalétique), puis déterminer le calibre du câble d'alimentation électrique et la taille du disjoncteur ou du fusible. (Voir les Spécifications, à la page 1 et dans le Tableau 2).

Ampérage total	Calibre* du fil AWG minimum (cuivre)	Taille du disjoncteur ou du fusible
0 à 12	n° 14	15 ampères
12,1 à 16	n° 12	20 ampères
16,1 à 24	n° 10	30 ampères

Tableau 2

(*) Consulter le CNE (Code national de l'électricité) pour connaître la longueur d'acheminement maximale afin de réduire la chute de tension à un maximum de 3 %. Des longueurs de circuit qui dépassent 30,5 cm (100 pi) pourraient exiger un conducteur de plus gros calibre.

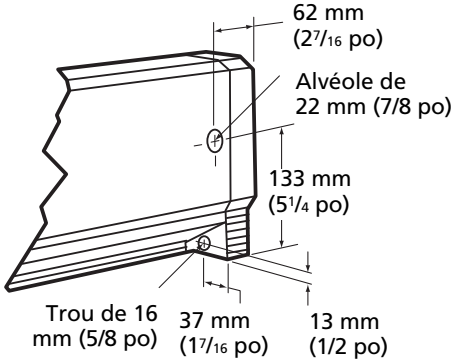


Figure 6 – Dimensions de l'alvéole défonçable

7. Installer le câble d'alimentation électrique du radiateur et du thermostat suivant le type de thermostat choisi. Si l'alimentation électrique entre par l'alvéole défonçable à l'arrière du radiateur, installer un connecteur de câble (non inclus) sur le câble d'alimentation électrique et insérer dans l'alvéole défonçable en laissant 152 mm à 203 mm (6 à 8 po) de câbles pour raccorder le radiateur.
8. Si l'alimentation électrique entre par le trou dans la portion inférieure du boîtier de raccordement, aucun connecteur de câble n'est requis.

⚠ ATTENTION ***Le câble d'alimentation électrique doit être acheminé comme il est illustré dans la Figure 7 afin de permettre l'utilisation du serre-câble requis.***

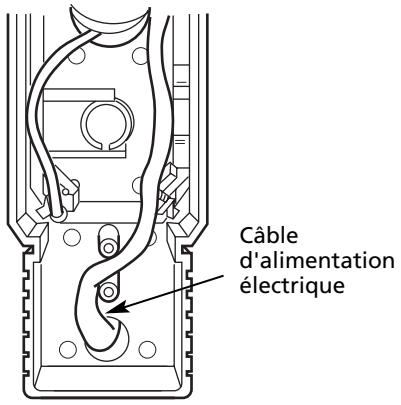


Figure 7 – Acheminement du câble d'alimentation électrique

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Plinthes chauffantes électriques, hydronic, et thermostat, de Dayton®

Installation (Suite)

9. Placer le radiateur sur le mur et repérer les montants du mur. Percer, trouer ou utiliser fusil à clous pour faire des trous à l'arrière de l'enveloppe (au-dessus de l'élément) aux emplacement des montants.

REMARQUE : L'enveloppe du radiateur est fournie avec des marques de clous indiquant les emplacements corrects des trous de montage.

Voici les méthodes de montage de radiateur suggérées sur des surfaces courantes de types de mur :

a. Murs en plâtre : Utiliser des ancrages à vis à ailettes ou à ancrage

b. Montants de mur : Utiliser des vis à tête ronde n° 12 qui pénètrent au moins 19 mm (3/4 po) dans le montant.

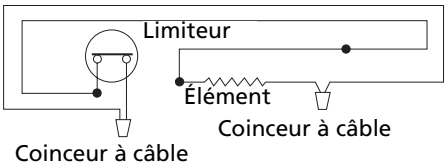
c. Murs en maçonnerie : Utiliser des vis n° 12 à tête ronde dans le plomb, le plastique ou un ancrage à fibre expansible.

Serrer toutes les vis pour qu'il n'y ait aucun jeu, puis dévisser d'un demi-tour pour tenir compte de l'expansion et la contraction du panneau.

10. Raccorder le câblage d'alimentation au radiateur, comme il est décrit dans la Figure 8 ou illustré dans les schémas de câblage pour les thermostats à distance ou pour l'accessoire 3UG32D (page 5) prévu pour une utilisation avec ce radiateur.

⚠ AVERTISSEMENT ***Risque d'incendie ou de dommage permanent au radiateur si la tension d'alimentation dépasse la tension nominale du radiateur. Vérifier la plaque signalétique du radiateur et que l'alimentation ne dépasse pas la tension nominale avant de mettre sous tension.***

11. Fixer solidement à la plinthe les accessoires voulus, comme il est illustré dans les instructions pour les accessoires et utiliser le schéma de câblage avec l'accessoire.



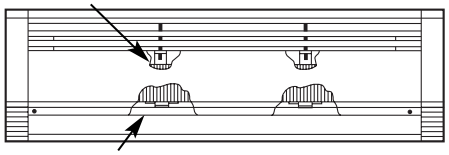
Connecter l'alimentation électrique à une des extrémités du radiateur en enlevant le coinceur à câble et en raccordant chaque fil du radiateur aux fils d'alimentation. Vérifier que les connexions de tous les fils sont bien serrées.

Figure 8 – Raccord de câblage du radiateur

REMARQUE : Les plinthes chauffantes doivent être commandées par thermosat.

12. Remettre en place le couvercle avant en ajustant la lèvre supérieur du couvercle sur les onglets de chaque boîtier de raccordement et sur le rebord supérieur du ou des supports de l'élément. Faire tourner le couvercle vers le bas en poussant les coins inférieurs vers l'intérieur. Installer deux vis (enlevées à l'étape 4) à travers le couvercle dans les boîtiers de raccordement. Vérifier que la partie inférieure du couvercle est engagée sur la partie inférieure de chaque élément du support. Voir la Figure 9.

Enclencher le couvercle sur le dessus du support d'élément.



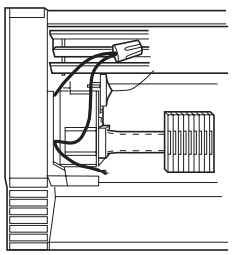
Enclencher le couvercle sur la partie inférieure de chaque support d'élément.

Figure 9 – Raccord de couvercle

13. Remettre en place le ou les capuchons d'extrémité en installant la ou les vis (enlevées à l'étape 3).

APPAREILS MULTIPLES

1. Dans le cas de radiateurs montés l'un à la suite de l'autre, laisser un espace d'expansion de 3 mm (1/8 po) par radiateur, entre chaque radiateur.
2. Pour chaque radiateur installé, consulter et suivre les étapes 1 à 8 d'installation pour « APPAREIL UNIQUE ».
3. Si l'alimentation électrique entre par l'extrémité de la série de radiateurs, de manière à pouvoir installer le capuchon d'extrémité après l'installation des radiateurs, continuer l'installation en suivant les étapes 9 à 12 de la section « APPAREIL UNIQUE ».
4. Si l'alimentation électrique est raccordée aux radiateurs à partir du boîtier de raccordement adjacent à un autre radiateur, il est plus facile d'effectuer le raccordement de l'alimentation électrique avant d'installer le ou les radiateurs sur le mur. Si cela est impossible, effectuer les connexions à travers l'ouverture dans le boîtier de raccordement alors que le ou les couvercles avant sont enlevés. Voir la Figure 10.



Après avoir raccordé le câbles d'alimentation, rentrer le câblage dans le boîtier de raccordement en s'assurant que le câble et les coinceurs à câble n'entrent pas en contact avec l'élément.

Figure 10 – Câblage au travers de l'ouverture du boîtier de raccordement

5. Le raccordement des câbles d'alimentation peut être acheminé d'un radiateur à l'autre en perçant un trou de 13 mm (1/2 po) de diamètre dans les capuchons d'extrémité pour les radiateurs qui s'adaptent ensemble. Voir la Figure 11, page 5. Afin d'éviter la possibilité de dommages au câblage interne du radiateur, le perçage de tous les capuchons d'extrémité doit être effectué lorsqu'ils sont enlevés du radiateur.

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Modèles 3UG27D a 3UG32D, 3ENA1 a 3ENA4, 3EMZ8 a 3EMZ9

Installation (Suite)

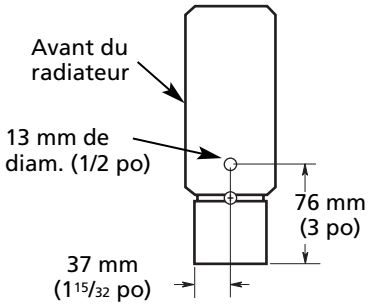


Figure 11 – Motif de perçage du capuchon d'extrémité

6. Câbler les radiateurs comme il est illustré dans le schéma de câblage de la Figure 12.

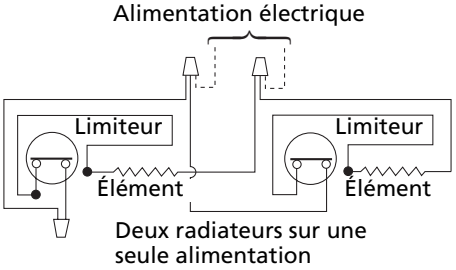


Figure 12 – Raccord de câblage de deux radiateurs

7. Remettre en place tous les couvercles avant et capuchons d'extrémité selon les étapes d'installation 12 et 13 de la section « APPAREIL UNIQUE ».

ACCESSOIRE DE THERMOSTAT EN OPTION, MODÈLE 3UG32D (vendu séparément)

Thermostat bipolaire, à pression

Caractéristique nominale - 25 ampères entre 208 V et 240 V c.a.

Le thermostat bipolaire en option est livré assemblé sur le capuchon d'extrémité.

⚠ AVERTISSEMENT ***S'assurer que l'alimentation électrique est coupée au niveau panneau du fusible ou du disjoncteur principal avant d'installer ou de réparer, et laisser refroidir le radiateur. L'installation doit être conforme au code national de l'électricité, aux codes locaux applicables et aux exigences des fournisseurs d'électricité. Vérifier la plaque signalétique de l'accessoire et du radiateur pour s'assurer que les exigences d'alimentation correspondent à l'alimentation fournie au radiateur et à l'accessoire. S'assurer que les exigences totales d'alimentation ne dépassent pas les caractéristiques de l'accessoire.***

REMARQUE : Il est recommandé d'utiliser un seul thermostat par pièce (aire).

1. Le thermostat peut être installé à l'une ou l'autre extrémité du radiateur, à l'entrée de l'alimentation électrique.
2. Enlever le capuchon d'extrémité du boîtier de raccordement sélectionné (Figure 4, page 3) et jeter, conserver la vis.
3. Si le thermostat commande plus d'un radiateur, l'ampérage nominal total de tous les radiateurs (voir les Spécifications, page 1) ne doit pas excéder 25 ampères pour une tension comprise entre 208 volts c.a. et 240 volts c.a. Consulter le Tableau 2 de la page 3 pour connaître le calibre exact des câbles et la taille du disjoncteur ou du fusible.
4. Raccorder le thermostat à la plinthe chauffante et le câblage d'alimentation selon les indications du schéma de câblage (Figure 13) en utilisant les tailles de coinceurs à câbles qui conviennent, figurant dans la liste.

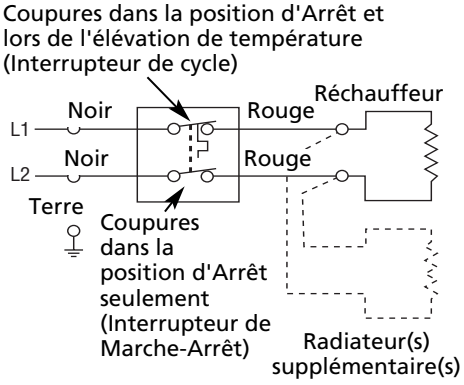


Figure 13 – 3UG32D Raccors de câblage du thermostat

5. Replier les câbles dans le compartiment de câblage et installer le thermostat à la place du capuchon d'extrémité de boîtier de jonction qui a été jeté précédemment. Réutiliser la vis pour fixer le capuchon d'extrémité.

⚠ ATTENTION ***Ne pas dépasser la tension d'ampérage du thermostat lors de l'ajout de radiateurs.***

6. Rétablir l'alimentation au niveau du panneau du fusible ou du disjoncteur principal.

Placer le thermostat

- À au moins 61 cm (2 pi) de tout mur extérieur.
- À environ 1,5 m (5 pi) du plancher, de préférence sur un mur intérieur.

Ne pas placer le thermostat

- Au-dessus des plinthes chauffantes.
- À proximité de téléviseurs ou d'appareils qui produisent de la chaleur.
- À proximité de courant d'air ou d'une entrée de porte.
- Où il pourrait être frappé par les rayons directs du soleil.

Fonctionnement

Un thermostat intégré (3UG32D) ou mural à distance est recommandé pour chaque pièce. Dans les très grandes pièces, il est recommandé d'utiliser un thermostat à faible tension avec des circuits de relais doubles ou multiples afin d'obtenir le meilleur confort possible.

VÉRIFICATION DU FONCTIONNEMENT

1. Une fois l'installation des plinthes terminée, tous les thermostats doivent être placés sur le réglage LOW (bas) ou NO HEAT (pas de chaleur). Mettre sous tension les disjoncteurs ou installer les fusibles. Attendre 3 à 5 minutes et vérifier qu'aucun radiateur ne fonctionne. Sinon débrancher l'alimentation et vérifier le câblage. Si aucun radiateur

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Plinthes chauffantes électriques, hydronic, et thermostat, de Dayton®

Fonctionnement (Suite)

ne fonctionne, placer les thermostats à la position maximale et attendre 3 à 5 minutes. Vérifier que le ou les radiateurs fonctionnent. Si un radiateur ne fonctionne pas, couper l'alimentation et vérifier le câblage.

2. Laisser tout le système fonctionner régulièrement pendant 1/2 heure. Pendant quelques temps après le fonctionnement des radiateurs, le propriétaires pourrait remarquer une « nouvelle odeur » provenant des radiateurs. Elle est normale dans les nouvelles installations. Un fonctionnement à la capacité maximale des radiateurs éliminera cette situation dans peu de temps.
3. Régler tous les thermostats pour obtenir une température confortable.

Votre système de chauffage électrique comporte plusieurs avantages, entre autres celui de pouvoir contrôler la température d'une zone ou d'une pièce. Si vous souhaitez réduire la température d'une pièce moins utilisée, vous pouvez le faire en réglant le thermostat à une température plus basse et en fermant la porte. Toutefois, NE PAS essayer de contrôler la température dans plusieurs pièces à moins de garder les portes fermées. Ceci aura tendance à augmenter les frais d'utilisation et à réduire le confort. Si les portes des pièces sont laissées ouvertes, il est préférable de régler tous les thermostats à la même température. En suivant ces instructions vous jouirai d'un meilleur confort.

Entretien

NETTOYAGE DU RADIATEUR

Étant donné que le principe de chauffage par convexion dépend de la circulation de l'air à travers un élément à ailettes, les particules de poussière se déposeront régulièrement entre et autour des ailettes et doivent être enlevées pour obtenir le rendement maximum du radiateur. Le radiateur doit être nettoyé au début de chaque saison de chauffage et selon le besoin, afin de permettre une circulation d'air sans obstruction. Un aspirateur muni des accessoires appropriés peut être utilisé pour faciliter le nettoyage de la partie supérieure et inférieure des éléments à ailettes et enlever les dépôts de poussière.

REMARQUE : Si un aspirateur ne peut être utilisé, il pourrait être nécessaire d'enlever le couvercle avant pour avoir accès. Dans ce cas, couper l'alimentation électrique au radiateur et suivre les étapes indiquées à la Figure 5. Veiller à ne pas endommager les ailettes de l'élément chauffant.

REMARQUE : Le fini peint du radiateur peut être nettoyé avec un chiffon humide au besoin. Ne pas utiliser de nettoyant contenant de la cire ou des polis, car ils peuvent former des vapeurs lorsque le radiateur fonctionne, et décolorer la peinture.

FRANÇAIS

Commandez les pièces détachées en appelant gratuitement 1 800 323-0620

24 heures par jour – 365 jours par an

S'il vous plaît fournir l'information suivant :
-Numéro de modèle
-Numéro de série (s'il y en a un)
-Description de la pièce et son numéro comme montré sur la liste de pièces

Adressez la correspondance concernant les pièces à :
Grainger Parts
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

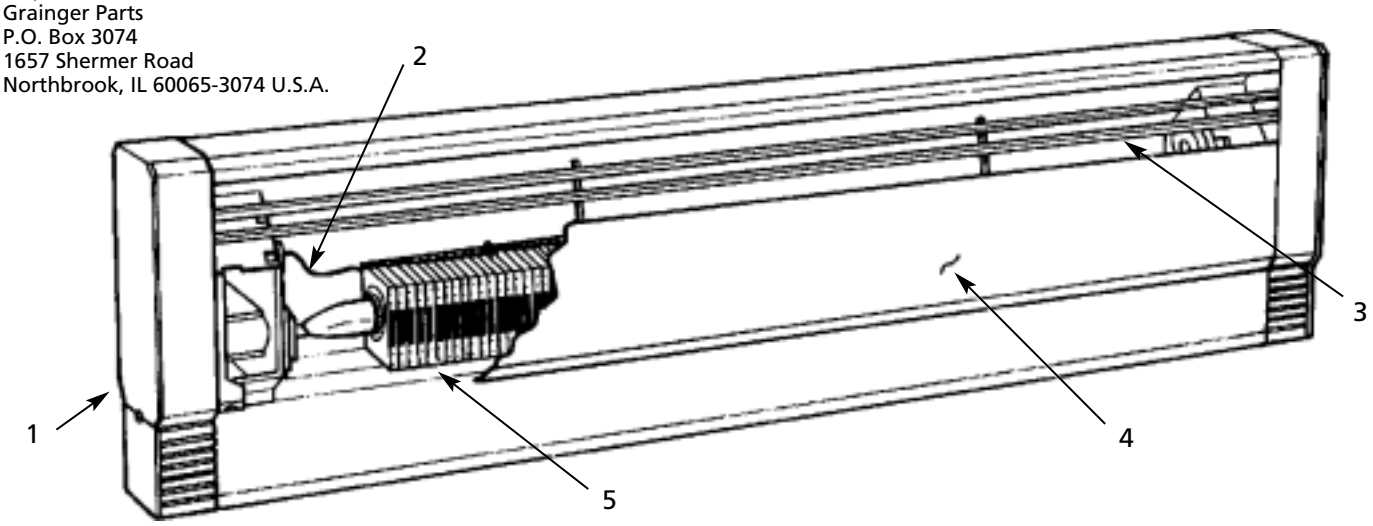


Figure 14 – Illustration des pièces de rechange pour plinthe chauffante électrique / hydronic

Liste des pièces de rechange pour plinthe chauffante électrique / hydronic

N° de réf.	Description	Numéros de pièce pour les modèles : 3UG27D	3UG28D	3UG29D	3UG30D	3UG31D	3ENA4	Qté
1	Capuchon d'extrémité	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1
2	Limite linéaire	410122004	410122006	410122008	410122002	410122003	410122005	1
3	Grille	2501-2012-008	2501-2012-010	2501-2012-011	2501-2012-012	2501-2012-007	2501-2012-015	1
4	Couvercle avant	1402-2066-002	1402-2066-004	1402-2066-005	1402-2066-000	1402-2066-001	1402-2066-003	1
5	Élément	1802-2068-013	1802-2068-015	1802-2068-016	1802-2068-011	1802-2068-012	1402-2068-014	1

N° de réf.	Description	Numéros de pièce pour les modèles : 3ENA1	3ENA2	3ENA3	3EMZ8	3EMZ9		Qté
1	Capuchon d'extrémité	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	1800-2022-000	–	1
2	Limite linéaire	410122004	410122005	410122006	410022002	410022003	–	1
3	Grille	2501-2012-008	2501-2012-015	2501-2012-010	2501-2012-012	2501-2012-007	–	1
4	Couvercle avant	1402-2066-002	1402-2066-003	1402-2066-004	1402-2066-000	1402-2066-001	–	1
5	Élément	1802-2068-002	1802-2068-003	1802-2068-004	1802-2068-000	1802-2068-001	–	1

Liste des pièces détachées pour le thermostat

Numéro de référence	Description	Numéros de pièce pour le modèle : 3UG32D	Quantité
Δ	Thermostat, bipolaire	5813-2015-000	1
Δ	Bouton du thermostat	3301-2011-000	1

(Δ) Non illustré

FRANÇAIS

Plinthes chauffantes électriques, hydronic, et thermostat, de Dayton®

GARANTIE LIMITÉE

GARANTIE DAYTON LIMITÉE À UN AN. *Les modèles couverts dans ce manuel – Plinthes chauffantes électriques, hydronic, et thermostat, de Dayton® – sont garantis à l'utilisateur d'origine par Dayton Electric Mfg. Co. (Dayton), contre tout défaut de fabrication ou de matériaux, lors d'une utilisation normale, et cela pendant un an après la date d'achat. Toute pièce, dont les matériaux ou la main d'oeuvre seront jugés défectueux par Dayton, et qui sera renvoyée, port payé, à un centre de réparation autorisé par Dayton, sera, à titre de solution exclusive, soit réparée, soit remplacée, par Dayton. Pour le procédé de réclamation sous garantie limitée, reportez-vous à la clause de DISPOSITION PROMTE ci-dessous. Cette garantie limitée donne aux acheteurs des droits légaux spécifiques qui varient de juridiction à juridiction.*

LIMITES DE RESPONSABILITÉ. *La responsabilité de Dayton, dans les limites permises par la loi, pour les dommages indirects ou fortuits est expressement déniée. Dans tous les cas la responsabilité de Dayton est limitée et ne dépassera pas la valeur du prix d'achat payé.*

DÉSISTEMENT DE GARANTIE. *Dayton a fait de dilligents efforts pour fournir avec précision les informations et illustrations des produits décrits dans cette brochure ; cependant, de telles informations et illustrations sont pour la seule raison d'identification, et n'expriment ni n'impliquent que les produits sont COMMERCIALISABLES, ou ADAPTABLES À UN BESOIN PARTICULIER, ni que ces produits sont nécessairement conformes aux illustrations ou descriptions. Sauf pour ce qui suit, aucune garantie ou affirmation de fait, énoncée ou impliquée, autre que ce qui est énoncé dans la « GARANTIE LIMITÉE » ci-dessus n'est faite ou autorisée par Dayton.*

CONFORMITÉ DU PRODUIT. *De nombreuses juridictions ont des codes et règlements qui gouvernent les ventes, constructions, installation et/ou usage de produits pour certains usages qui peuvent varier par rapport à une zone voisine. Bien que Dayton essaie de s'assurer que ses produits s'accordent avec ces codes, il ne peut pas garantir cet accord, et ne peut pas être responsable de la façon dont le produit et installé ou utilisé. Avant l'achat et l'usage d'un produit, revoir les applications de ce produit, ainsi que tous les codes et réglements nationaux et locaux applicables, et s'assurer que le produit, son installation et son usage sont en accord avec eux.*

Certains aspects de désistement ne sont pas applicables aux produits pour consommateur ; ex : (a) certaines juridictions ne permettent pas l'exclusion ou la limitation des dommages indirects ou fortuits et donc la limitation ou exclusion ci-dessus peut ne pas s'appliquer dans le cas présent ; (b) également, certaines juridictions n'autorisent pas de limitations de durée de la garantie implicite, en conséquence, la limitation ci-dessus peut ne pas s'appliquer dans le cas présent ; et (c) par force de loi, pendant la période de cette Garantie Limitée, toutes garanties impliquées de commerciabilité ou d'adaptabilité à un besoin particulier applicables aux produits de consommateurs achetés par des consommateurs, peuvent ne pas être exclues ni autrement désistées.

DISPOSITION PROMPTE. *Dayton fera un effort de bonne foi pour corriger ou ajuster rapidement tout produit prouvé défectueux pendant la période de la garantie limitée. Pour tout produit considéré défectueux pendant la période de garantie limitée, contacter tout d'abord le concessionnaire où l'appareil a été acheté. Le concessionnaire doit donner des instructions supplémentaires. S'il est impossible de résoudre le problème de façon satisfaisante, écrire à Dayton à l'adresse ci-dessous, en indiquant le nom et l'adresse du concessionnaire, la date et le numéro de la facture du concessionnaire, et en décrivant la nature du défaut. Le titre et le risque de perte passent à l'acheteur au moment de la livraison par le transporteur. Si le produit a été endommagé pendant le transport, une réclamation doit être faite auprès du transporteur.*

Fabriqué pour Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714 États-Unis

FRANÇAIS

ST252NP-ST302NP-ST402NP

ELECTRONIC THERMOSTATS **FOR BASEBOARDS AND CONVECTORS**

NON-PROGRAMMABLE







2500 W

3000 W

4000 W

ECOLOGICAL ENERGY

5 YEAR WARRANTY

COMFORT MADE SIMPLE

Stelpro's all-new non-programmable electronic thermostats for baseboards and convectors will meet all your needs. Harmonious design, superior technology and safe operation merge to ensure your comfort in all circumstances. Thanks to their advanced technology, you'll enjoy energy savings up to 12% compared to a mechanical thermostat.

- **ENERGY SAVINGS UP TO 12%***
- **ECO MODE**
  ONE-CLICK TEMPERATURE SETBACK
- **UNBEATABLE ACCURACY**
  QUALITY SENSORS AND ADVANCED ALGORITHMS
- **SAFE DESIGN**
  SEALED HOUSING
- **S³ MOUNTING PLATE**
  STURDY, SIMPLE AND SAFE INSTALLATION

COLOR

- white

FINISH

- molded plastic

WATTAGE AND VOLTAGE

ST252NP

- 150 W to 1250 W @ 120 V
- 260 W to 2160 W @ 208 V
- 300 W to 2500 W @ 240 V

ST302NP

- 150 W to 1500 W @ 120 V
- 260 W to 2600 W @ 208 V
- 300 W to 3000 W @ 240 V

ST402NP

- 150 W to 2000 W @ 120 V
- 260 W to 3475 W @ 208 V
- 300 W to 4000 W @ 240 V

CONTROL

- two-wire connection
- eco mode: One-click temperature setback
- display in Celsius or Fahrenheit

ACCURACY

- accurate ambient temperature control of ± 1°F
- CSA C828-19
- temperature sensing with thermistor

TEMPERATURE RANGE

- 41 to 86 °F

WARRANTY

- five years

* independent study

TECHNICAL SPECIFICATIONS

PRODUCT	WATTS		VOLTAGE	MAX. AMPERAGE	FREQUENCY
CODE	MINIMUM	MAXIMUM	VOLTS	AMPERES	HZ
ST252NP	150/260/300	1250/2160/2500	120/208/240	10.4	60
ST302NP	150/260/300	1500/2600/3000	120/208/240	12.5	60
ST402NP	150/260/300	2000/3475/4000	120/208/240	16.7	60

DIMENSIONS ST252NP - ST302NP : 4,35 in. wide, 4,94 in. high and 1,38 in. deep
DIMENSIONS ST402NP : 4,94 in. wide, 4,94 in. high and 1,38 in. deep

°STELPRO

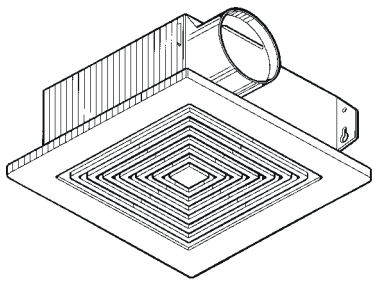
Stelpro reserves the right to modify descriptions, manufacturing specifications or prices without prior notice. **No returns accepted on optional-color products.**
For all the latest models and prices, please refer to our website at www.stelpro.com.

FC_ST252NP-ST302NP-ST402NP_US_230124

BROAN®

SPECIFICATION SHEET

MODEL 688
CEILING/WALL FAN



Versatile, high quality ventilator at economy price.

FEATURES

GRILLE:
- White polymeric - blends well with any decor
- Torsion spring grille mounting - no tools required
- Metal grille kit available - purchase separately

BLOWER:
- Pug-in, permanently lubricated
- Broan-designed polymeric blower wheel
- Snap in/out motor assembly for easy cleaning - no screws to drive or drop

HOUSING:
- Compact, 25-gauge galvanized steel - attaches easily to wall of ceiling joists
- Double strength mounting flanges with keyhole slots
- Removable wiring cover - make connections away from tight corners
- No electrical knockout to remove
- Polymeric duct fitting with tapered sleeve for easy, positive duct connection
- Quiet polymeric damper prevents cold backdrafts - no metallic clatter
- cULus listed for use over bathtubs and showers when connected to a GFCI protected branch circuit.

CONTROLS DESIGNED FOR USE WITH THIS PRODUCT (purchase separately):

- Refer to Broan's catalog for a complete line of accessories to effectively adapt this fan to your construction requirements.

MODEL 1667H: Rough-in housing for Models 1688F and 1689F finish assemblies (packed 6 per carton).

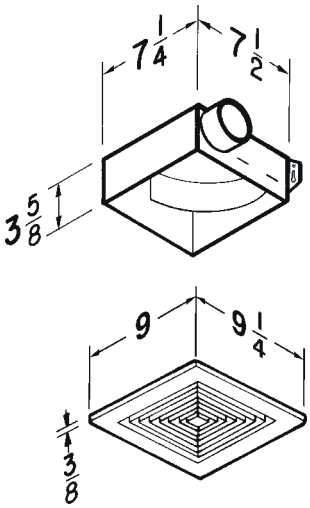
TYPICAL SPECIFICATION

Fan shall be Broan Model 688.

Unit shall have galvanized steel housing with double-strength mounting flanges. It shall be ducted vertically (horizontally) to a roof cap (wall cap).

Motor assembly shall be removable and permanently lubricated.

Air delivery shall be no less than 50 CFM and sound levels no greater than 4.0 Sones. All air and sound ratings shall be certified by HVI. Units shall be cULus Listed.



Dimensions shown are in inches.

HVI-2100 CERTIFIED RATINGS comply with new testing technologies and procedures prescribed by the Home Ventilating Institute, for off-the-shelf products, as they are available to consumers. Product performance is rated at 0.1 in. static pressure, based on tests conducted in a state-of-the-art test laboratory. Sones are a measure of humanly-perceived loudness, based on laboratory measurements.

MODEL	VOLTS	AMPS	SONES	CFM	DUCT
688	120	0.9	4.0	50	3" Round

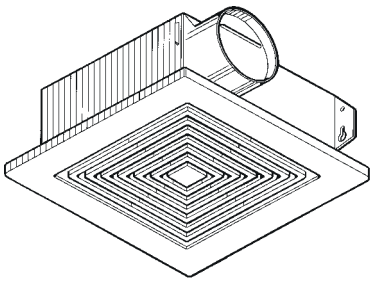
Broan-NuTone LLC, 926 West State Street, Hartford, Wisconsin USA 53027 Broan-NuTone.com 800-558-1711
Venmar Ventilation ULC, 550 Lemire Blvd., Drummondville, Québec, Canada J2C 7W9 Broan-NuTone.ca 800-567-3855

REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by Date

BROAN®

FICHE TECHNIQUE

VENTILATEUR À INSTALLATION AU PLAFOND/MURALE MODÈLE 688



Ventilateur polyvalent de grande qualité à bas prix.

CARACTÉRISTIQUES

GRILLE :
- Blanche en polymère, s'agence à tous les décors
- Montée au boîtié par des ressorts de torsion, nul besoin d'outils
- Un ensemble de grille de métal est offert, acheter séparément

VENTILATEUR :
- Enfichable, lubrifié à vie
- Roue de ventilateur en polymère conçue par Broan
- Bloc moteur encliquetable pour un nettoyage facile, sans vis à enlever et remettre

BOÎTIER :
- Compact, en acier galvanisé de calibre 25, se fixe facilement aux montants des murs ou aux solives de plafond
- Brides de montages renforcies munies de fentes en trous de serrure
- Couvercle de câblage amovible, rend les connexions éloignées des coins étroits
- Pas d'ouverture préamorcée à enlever pour le câblage
- Raccord de conduit en polymère avec manchon conique pour un raccordement sûr au conduit
- Clapet en polymère silencieux prévenant les retours d'air froid, sans cliquetis métalliquesr
- Homologué cULus pour une utilisation au-dessus de la baignoire et de la douche lorsqu'il est raccordé à un circuit protégé par un disjoncteur de fuite à la terre (DDFT)

COMMANDES CONÇUES POUR CE PRODUIT (acheter séparément) :
- Consulter le catalogue Broan pour la liste complète des accessoires afin d'adapter efficacement ce ventilateur à vos besoins de construction

MODÈLE 1667H : Ensemble de boîtiers pour projets à utiliser avec les modèles d'ensemble de finition 1688F et 1689F (emballage de 6 par boîte).

MODÈLE	VOLTS	A	SONES	PI³/MIN	CONDUIT
688	120	0,9	4,0	50	3 po rond

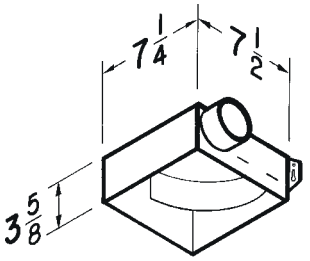
SPÉCIFICATIONS TYPES

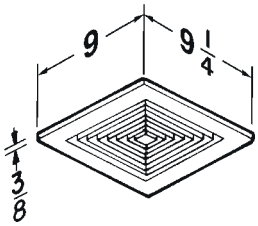
Le ventilateur doit être de modèle 688 de Broan.

L'appareil doit avoir un boîtier en acier galvanisé muni de brides de montage renforcies. Le conduit doit être installé verticalement (horizontalement) et raccordé à un évent de toit (évent mural).

Le bloc moteur doit être amovible et lubrifié à vie.

Le débit de l'air ne doit pas être inférieur à 50 pi³/min et le niveau sonore pas plus grand que 4,0 sones. Les données sur le débit de l'air et le niveau sonore doivent être certifiées par le HVI. L'appareil doit être homologué cULus.





Les dimensions indiquées sont en pouces.

RÉSULTATS HOMOLOGUÉS HVI-2100 conforme aux nouvelles technologies de test et aux procédures prescrites par le *Home Ventilating Institute* pour les produits offerts sur le marché, tels qu'ils sont présentés aux consommateurs. La performance du produit est calibrée à 0,1 po de pression statique, basée sur les tests dirigés par un laboratoire de pointe. Un sone est une unité de mesure de bruit perçu par l'oreille humaine, basée sur des mesures en laboratoire.

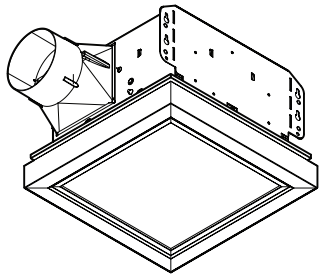
Broan-NuTone LLC, 926 West State Street, Hartford, Wisconsin USA 53027 Broan-NuTone.com 800 558-1711
Venmar Ventilation ULC, 550 boul. Lemire, Drummondville, Québec, Canada J2C 7W9 Broan-NuTone.ca 800 567-3855

RÉFÉRENCE	QTÉ	REMARQUES	Projet
			Lieu
			Architecte
			Ingénieur
			Entrepreneur
			Soumis par Date

BROAN®

SPECIFICATION SHEET

MODELS AER110LTK, AER110LTMB & AER110LTW *ROOMSIDE* SERIES DECORATIVE FAN / LIGHT



DESCRIPTION

BLOWER:

- Plug-in, permanently lubricated motor - engineered for continuous operation
- Dynamically balanced centrifugal blower wheel for quiet, efficient performance
- Low RPM for quiet operation

HOUSING:

- Rugged, 26 gauge, galvanized steel construction
- Polymeric, 4" duct connector with tapered sleeve and no metallic clatter
- 5-3/4" height allows for 2" x 6" ceiling installations
- Sturdy, easy, four-point mounting directly to joist

LIGHT FIXTURE:

- Low-profile consumer-validated design
- Corrosion-resistant
- Adapter bracket for constant air flow, completely covers drywall cuts
- Acrylic lens
- Light fixture is plug-in and removable
- Easy-to-change trim kits - White/Matte Black (includes either a white or a matte black trim kit)
- Dimmable,16-Watt integrated LED lighting for energy efficiency
- 3500 K color temperature provides soft white light - ideal for bathroom illumination
- LED lasts up to 15,000 hours for maintenance-free convenience

CONTROLS (Purchase separately):

- Refer to Broan's catalog for a complete line of accessories to effectively adapt this fan to your construction requirements.

DIMMING CONTROLS :

- May not be compatible with all dimmer controls
- Each application is unique and various factors such as load, common neutrals or other electrical products on the circuit can, in certain instances, cause variance in system performance.
- Dimmer model numbers vary slightly depending on color, packaging type, etc. such that variations of Model numbers may be suitable. Consult dimming system manufacturer for additional support in operation

* For a list of compatible controls, see Broan-NuTone.com, or Broan-NuTone.ca

For installation in flat ceilings only.

cULus Listed for use in insulated ceilings (TYPE I.C.)

3-Year Warranty

TYPICAL SPECIFICATION

Fan / Light shall be Broan Models AER110LTK, AER110LTMB or AER110LTW.

Fan / Light shall have corrosion resistant galvanized steel housing with four-point mounting capability. It shall be ducted to a roof or wall cap using 4" round ductwork.

Blower assembly shall be removable, have a centrifugal-type blower wheel and a permanently lubricated motor designed for continuous operation.

Non-metallic damper/duct connector shall be included.

Light fixture assembly shall be plug-in, removable and include an acrylic lens. It will have a corrosion-resistant base.

LED shall be 16-Watt with 3500K color temperature and 1100 lumen output (min.).

Air delivery shall be no less than the airflow values and no greater than the sound level values listed in the HVI Performance Specifications provided in this specification (see chart on next page). All air and sound ratings are certified by HVI.

Ceiling Ventilator shall be cULus Listed for use in insulated ceilings (Type I.C.).

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® 2100 HVI CERTIFIED

energy ENERGY STAR

JA8-2019

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Venmar Ventilation ULC, 550 Lemire Blvd., Drummondville, Québec, Canada J2C 7W9 Broan-NuTone.ca 800-567-3855

REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by Date

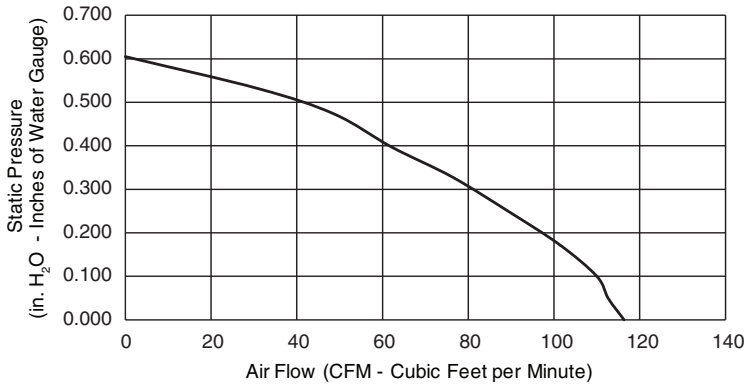
PERFORMANCE RATINGS
MODELS AER110LTK, AER110LTMB & AER110LTW *ROOMSIDE* SERIES DECORATIVE FAN / LIGHT

HVI PERFORMANCE

Static Pressure	CFM	Sones	Fan Watts	Duct
0.1	110	1.5	26	4" Round
0.25	89			

HVI-2100 CERTIFIED RATINGS comply with new testing technologies and procedures prescribed by the Home Ventilating Institute, for off-the-shelf products, as they are available to consumers. Product performance is rated at 0.1 in. static pressure, based on tests conducted in a state-of-the-art test laboratory. Sones are a measure of humanly-perceived loudness, based on laboratory measurements.

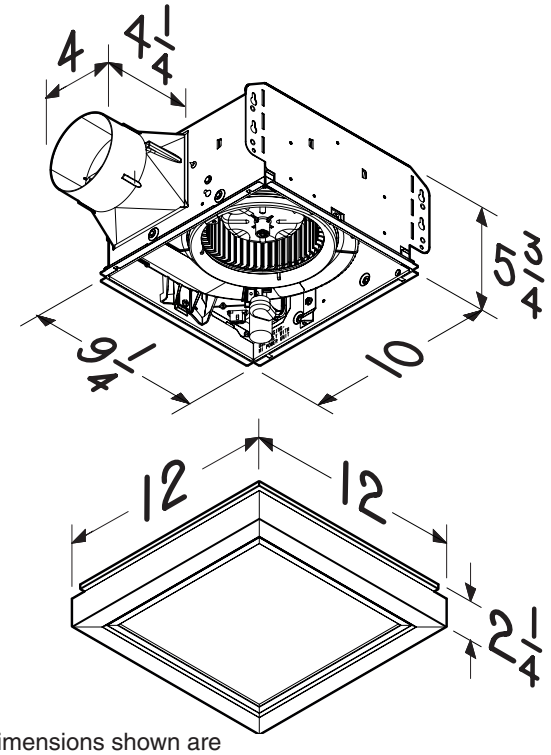
AIR FLOW PERFORMANCE



ELECTRICAL & WEIGHT

Volts	Hz	Amps*	Shipping Weight
120	60	0.6	18.5 lb.

* Total connected load.



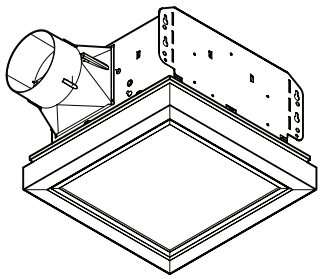
Dimensions shown are in inches.

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FICHE TECHNIQUE

VENTILATEUR/LUMINAIRE DÉCORATIF DE SÉRIE *ROOMSIDE* MODÈLES AER110LTK, AER110LTMB & AER110LTW



DESCRIPTION

VENTILATEUR :

- Moteur enfichable, lubrifié à vie, conçu pour un fonctionnement continu
- Roue de ventilateur centrifuge équilibrée dynamiquement assurant une performance silencieuse et optimale
- Bas régime de rotation permettant un fonctionnement silencieux

BOÎTIER :

- Boîtier robuste en acier galvanisé de calibre 26
- Raccord de conduit en polymère de 4 po rond, avec manchon conique ne produisant aucun cliquetis métallique
- Hauteur de 5¾ po permettant l'installation sur des solives de plafond en 2 po x 6 po
- Montage simple et solide sur solives en quatre points

LUMINAIRE :

- Design discret approuvé par les consommateurs
- Résistant à la corrosion
- Le socle couvre complètement la découpe dans la cloison sèche et permet un débit d'air constant
- Lentille en acrylique
- Le luminaire est enfichable et amovible
- Ensembles de bande décorative faciles à changer : blanc ou noir mat (comprend soit un ensemble de bande décorative blanc, soit un ensemble de bande décorative noir mat)
- Éclairage DEL intégré de 16 watts, modulable, pour l'efficacité énergétique
- Couleur de température de 3500 K produit un éclairage blanc doux, idéal pour éclairer la salle de bains
- La DEL dure jusqu'à 15,000 heures pour plus de commodité

COMMANDES (vendues séparément) :

- Consulter le catalogue Broan pour la liste complète des accessoires afin d'adapter efficacement ce ventilateur à vos besoins de construction

GRADATEURS :

- Peut ne pas être compatible avec tous les gradateurs
- Chaque situation est unique et plusieurs facteurs tels que la charge, les neutres communs ou autres produits électriques du circuit du ventilateur peuvent, dans certains cas, modifier la performance du système
- Les numéros de modèle de gradateur varient légèrement selon la couleur, le type d'emballage, etc. De telles variations dans les numéros de modèle sont appropriées. Consulter le manufacturier de système de gradateur pour plus d'information quant au fonctionnement

* Pour la liste des commandes compatible, visitez Broan-NuTone.com, ou Broan-NuTone.ca

Pour une installation en un plafond plat seulement.

Homologué cULus pour utilisation sur un plafond isolé (TYPE I.C.)

Garantie de 3 ans.

SPÉCIFICATION TYPE

Le ventilateur/luminaire doit être un modèle AER110LTK, AER110LTMB ou AER110LTW de Broan.

Le ventilateur doit avoir un boîtier en acier galvanisé permettant un montage en quatre points. Il doit pouvoir être raccordé à un évent de toit ou mural au moyen d'un conduit rond de 4 po.

Le bloc ventilateur doit être amovible, avoir une roue de ventilateur centrifuge et un moteur lubrifié à vie, conçu pour un fonctionnement continu.

Le clapet/raccord de conduit non métallique doit être inclus.

L'ensemble de luminaire doit être enfichable, amovible et comprendre une lentille en acrylique. Son socle doit être résistant à la corrosion.

Le module DEL doit être de 16 watts et de température de couleur de 3500 K et produire 1100 lumens (minimum).

Le débit de l'air ne doit pas être inférieur aux valeurs en pi³/min et le niveau sonore ne doit pas dépasser les valeurs en sone indiquées dans les évaluations de rendement (Performance HVI) (voir le tableau à la page suivante). Le débit de l'air et le niveau sonore sont certifiés par le HVI.

Homologué cULus pour une utilisation sur un plafond isolé (Type I.C.).

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RÉFÉRENCE	QTÉ	REMARQUES	Projet
			Lieu
			Architecte
			Ingénieur
			Entrepreneur
			Soumis par Date

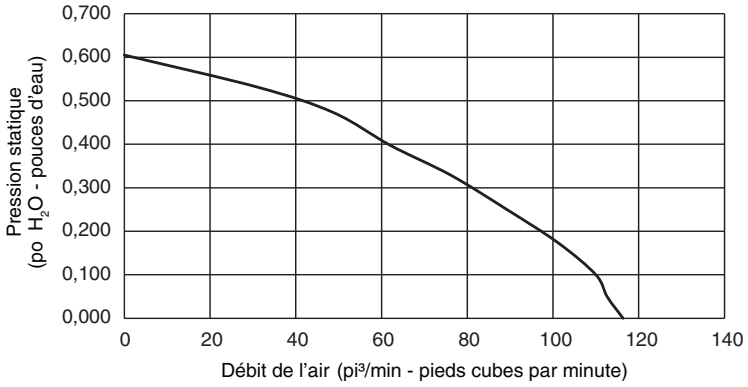
ÉVALUATIONS DE RENDEMENT
VENTILATEUR/LUMINAIRE DE SÉRIE *ROOMSIDE* MODÈLE AER110LTK, AER110LTMB & AER110LTW

PERFORMANCE HVI

Pression statique	pi³/min	Sones	Watts du ventilateur	Conduit
0,1	110	1,5	26	4 po rond
0,25	89			

RÉSULTATS HOMOLOGUÉS HVI-2100 conforme aux nouvelles technologies de test et aux procédures prescrites par le Home Ventilating Institute pour les produits offerts sur le marché, tels qu'ils sont présentés aux consommateurs. La performance du produit est calibrée à 0,1 po de pression statique, basée sur les tests dirigés par un laboratoire de pointe. Un sone est une unité de mesure de bruit perçu par l'oreille humaine, basée sur des mesures en laboratoire.

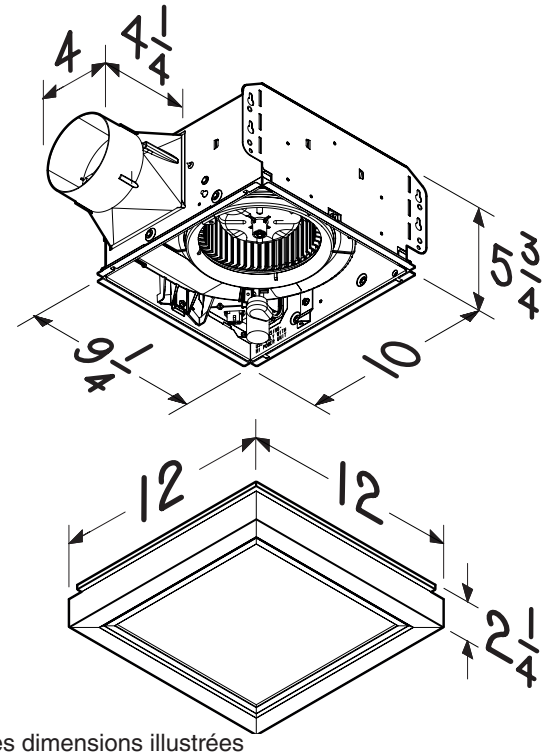
RENDEMENT DU DÉBIT DE L'AIR



ÉLECTRICITÉ ET POIDS

Volts	Hz	Ampères*	Poids à l'expédition
120	60	0,6	18,5 lb

* Charge totale connectée.



Les dimensions illustrées sont en pouces.

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