

**CONTRACT DOCUMENTS & SPECIFICATIONS
FOR
CONTRACT NO. eDPW-091824**

Parks Restrooms Renovations

July 18, 2024

Prepared for:

**The County of Delaware
Department of Public Works**
Government Center Building
201 West Front Street
Media, PA 19063

Prepared by:

Mdesigns + MWJ Consulting LLC



Delaware County Council:

**Dr. Monica Taylor, Chair
Richard R. Womack Jr., Vice Chair
Kevin M. Madden
Elaine Paul Schaefer
Christine A. Reuther**

Advertisement

Sealed bids will be received through PennBid™ by Delaware County for The Parks Restrooms Renovations project, **until 11:00 AM**, Eastern Standard Time, **on Wednesday, September 18, 2024**.

All documents and solicitations details are available online anytime at no cost at PennBid™ (<https://pennbid.procureware.com>). Note, PennBID™ assesses a fee to the bidder who is issued the award. Click on the “Solicitations” and “View” tabs.

Each bid must be accompanied by a certified check or bid bond payable to the Owner in an amount of not less than ten percent (10%) of the bid or bids. Only bonds from companies licensed to do business in the State where the Owner is located will be accepted and the bond shall so state same.

This project involves the renovation and reconfiguration of the male and female public restrooms to make them handicap accessible as described in the bid documents, and includes but is not necessarily limited to replacement of plumbing and electrical fixtures, toilet stall and urinal partitions, entry doors; repair/replacement of wall, floor and ceiling finishes; construction of accessible route from parking lot via concrete slope walk and re-striping a portion of parking lot to create handicap accessible parking space.

Bids must be submitted unconditionally. No bidder may withdraw bid within SIXTY (60) days after the scheduled closing time for receipt of bids.

The Owner reserves the right to waive any informalities, or to reject any or all bids.

CONTRACT #: eDPW-091824

Invitations for Bids for
Parks Restrooms Renovations

The undersigned Delaware County Council will receive sealed bids electronically through PennBid™ until 11:00 AM Eastern Standard Time, **on September 18th 2024**, for the Clayton Park and Rose Tree Park Restrooms Renovations.

Failure to accompany this bid with an appropriate bid security noted above will automatically disqualify the bidder.

The contractor shall list related experience with appropriate references and complete the attached AIA Document A305 and submit with bid. In addition, the bidder shall submit with his bid a written statement describing his Apprentice Training Program and Affirmative Action Program. **In accordance with the County of Delaware Ordinance No 2022-7.**

All documents and solicitation details are available and open to public inspection at PennBid™ (<https://pennbid.procureware.com>). Click on the “Solicitations” and “View” tabs. The bidder who is awarded the contract will be required to pay a fee to PennBid™. The names of those who have secured plans/specifications may be obtained at PennBid™.

This project **involves the renovation and reconfiguration of the male and female public restrooms to make them handicap accessible as described in the bid documents**

All workmen performing work on this project shall be paid the general minimum **Prevailing Wage Rates** supplied herein, as determined by the Secretary of the Pennsylvania Department of Labor and Industry, in accordance with the Regulations for Pennsylvania Prevailing Wage Act.

There will be an on-site Pre-Bid Conference Thursday August 8, 2024 at 11:00 AM. The conference will begin at the Clayton Park Restrooms located at 3173 Garnet Mine Rd, Concord Township, PA, and will then continue at the Rose Tree Park Restrooms located at 1671 N. Providence Road, Media, PA. This conference is not mandatory but is highly encouraged.

Questions may be asked through the PennBID system. **The final date to submit questions is 5:00pm Thursday August 22, 2024 , 2:00 PM.**

If you are a person with a disability and wish to attend the bid opening, and require an auxiliary aid, service or accommodation to observe or participate in the bid opening proceedings, please contact Delaware County Department of Public Works to discuss how your needs can best be accommodated.

The Delaware County Council reserves the right to reject any and all bids or parts thereof and to determine whether the quality and type of equipment and/or service to be furnished meet the requirements for which it is intended. They further reserve the right to insist or waive any technicalities required for the best interest of the County and to consider competency and responsibility of the bidder before the award of the Contract and award bids accordingly.

Delaware County Council:

Dr. Monica Taylor, Chair
Richard R. Womack, Vice Chair
Kevin M. Madden
Elaine Paul Schaefer
Christine A. Reuther
Delaware County Council

Parks Restrooms Renovations

Name and Address of Bidder

Phone Number

Terms (if offered, list here):

INSTRUCTIONS TO BIDDERS

1. **PROJECT SCOPE**

The complete description of the work required to complete this project is contained in the General Conditions, Standard Specifications, Special Provisions and Construction Plans.

PLEASE NOTE: Contractor must develop and submit their own COVID-19 Work Safety Plan, and have their plan approved by Delaware County, prior to any work starting. Contractor will be responsible for any/all additional Personal Protective Equipment (PPE), which their employees require, in accordance with PennDOT Publication 408, Section 107.08. The contractor is also required and expected to adhere to their own COVID-19 Safety Plan while working on-site. Violations to the approved COVID-19 Safety Plan can result in project delays or shut-downs. The project shall not restart until Delaware County approves the re-start of work.

2. **TIME FOR COMPLETING WORK**

The work under this contract must be completed WITHIN 120 DAYS consecutive calendar days from the date of the Official Notice-to-Proceed. This work must be completed in the summer to avoid increase in school traffic along the detour. All Bidders are notified that time is of the essence of this Contract. The successful Bidder will be required to so execute the work to ensure its completion within the above number of calendar days set forth.

3. **BID INFORMATION**

The Owner may consider non-responsive any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any and all bids. A bid which is incomplete, obscure, conditioned, or which contains additions not called for, or irregularities of any kind, including alterations or erasures, may be rejected. Any bid received after the time and date specified shall not be considered.

Section B
Instructions to Bidders

In the event that there is a tie between two or more lowest responsible bidders, and the place of business of one is located in Delaware County and the other(s) is (are) located outside of the County, the Council may in their discretion opt to award the bid to the Delaware County bidder, all other relevant factors being equal.

Requests for Information are required to be submitted in writing seven (7) calendar days prior to bid opening via Pennbid at pennbid.bonfirehub.com.

No bid may be withdrawn within the twenty-four (24) hours prior to the bid opening.

The Contractor shall not transfer or sublet any portion of the work covered by these bid documents without written consent of the County.

4. BID SUBMITTAL FORMS

The Bid Submittal Forms consist of the following:

- Invitation to Bid
- Proposal Form for Unit Price Contract
- Bid Guarantee
- Consent / Agreement of Surety
- Non-Collusion Affidavit
- Contractor Responsibility Certification Form
- AIA Document A305 - 1986, Contractor's Qualification Statement
- Financial Statement in accordance with A305 – 1986, Section 5.1.1
- Apprenticeship Training Program (Special Conditions No. 21)
- Affirmative Action Program (Special Conditions No. 22)

5. PREPARATION OF BIDS

Bidders will be assumed to have carefully examined **the Invitation for Bids, the Instructions to Bidders, the Form of Proposal, the Agreement, the General Conditions, Other Conditions of the Contract, the Standard Specifications, Special Provisions and the Construction Drawings for the work**, all attached hereto, and to have carefully investigated physical conditions at the site and character of the work to be done and to have inquired fully into the difficulties of construction of the work before preparing their Proposal. The Owner will not be responsible for failure of the Contractor to properly estimate such difficulties and costs, or for overlooking any of the requirements of the Contract Documents.

If, in the Bidder's opinion, any work is specified in such a manner as would make it impossible for him to guarantee to produce the required result; or should obvious and unintentional errors or omissions appear in Contract Documents, the Bidder shall refer the same in writing to the Engineer for a decision before submitting his bid. If the Bidder fails to make such reference, no extra charge thereafter will be allowed or excuse entertained for failure to carry out the work in an acceptable manner, or to produce the required results, or to remedy defects in the workmanship because of alleged impossibilities in the production of the results specified or because of inadequate or improper Specifications.

No oral interpretations of the meaning of the Contract Documents made to any prospective Bidder by any person will be binding upon the Owner to any extent or for any purpose and may not be relied upon by any prospective Bidder.

Every request for such interpretation should be in writing via the Pennbid website (<https://pennbid.bonfirehub.com/login>) by the posted deadline. Bidders are not permitted to contact the Design Professional or County Staff directly

To be given consideration, each request must be received at least seven (7) calendar days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be given in the form of written Addenda to the Bid Documents which will be mailed by Certified Mail to all prospective Bidders (at the respective address furnished for such purposes) not later than three (3) calendar days prior to the date fixed for the opening of bids. Failure of any Bidder to receive any such Addenda or interpretations shall not relieve said Bidder from obligations with respect to the bid as submitted. All addenda so issued shall become part of the Contract Documents

6. CONDITIONS OF WORK

Section B
Instructions to Bidders

Each Bidder must inform himself fully of the conditions relating to the construction and labor under which the work will be performed; failure to do so will not relieve the successful Bidder of his obligation to furnish all material and labor necessary to carry out provisions of the Contract Documents and to complete the contemplated work for the consideration set forth in his bid.

Bidders are notified that it is obligatory upon them to obtain by their own means, information which they may require as to the existing physical conditions and, in particular, as to subsurface and groundwater conditions. Bids for all types of excavation are to be based on Unclassified Excavation which shall include all types of materials which are encountered, including, but not limited to weathered, decomposed, and sound bedrock; soil, gravel, and boulders; debris of any kind and organic matter.

7. ESTIMATED QUANTITIES

The quantities given in the Form of Proposal and attached to the Contract Documents are approximate only, being given as a basis for the uniform comparison of bids, and the Owner does not expressly or by implication warrant that the actual amount of work will correspond therewith.

8. CONTAMINATED SOILS

Should the Engineer agree that reasons exist to believe that contaminated soil is encountered in the excavation, the Owner shall, at his cost, engage the services of an environmental services company to assess the extent, if any, of the contamination of soils. If contamination is found to be present, the contaminated soils shall be separately stockpiled on and covered by plastic sheeting at the site for disposal by the Contractor.

PROPOSAL

Contract No. **eDPW-091824**

Date: _____

Council Members:

The undersigned hereby submits a proposal for the **Parks Restrooms Renovations, located at Clayton Park, 3173 Garnet Mine Rd, Concord Township, Pennsylvania; and Rose Tree Park, 1671 N Providence Rd, Media, Pennsylvania, respectively at the following price:**

Having become completely familiar with the local conditions affecting the cost of Work at the place where Work is to be executed, and having carefully examined the site conditions as they currently exist, and having carefully examined the Bidding and Contract Documents prepared for this project, together with any Addenda to such Bidding and Contract Documents as listed hereinafter, the Undersigned hereby proposes and agrees to provide all labor, materials, plant, equipment, transportation and other facilities as necessary and/or required to execute all of the Work described by the Contract Documents for the above cited Contract for the lump sum consideration of:

_____ Dollars
(\$ _____), said amount being hereinafter referred to as the Base Proposal Amount. Base proposal Amount includes Unit Price Items listed below, if applicable.

BID ALTERNATES (Not applicable to this Contract – No Alternates)

UNIT PRICES: (Provide separate breakdown for Clayton Park and Rose Tree Park Restrooms)

Item No.	Quantity	Item Description (Unit Price in words)	Unit Price	Total Price
		_____	_____	

		_____	_____	

		_____	_____	

Item No.	Quantity	Item Description (Unit Price in words)	Unit Price	Total Price
----------	----------	---	------------	-------------

TOTAL BASE BID

<div><div></div><div>Dollars</div><div>\$</div></div>

(The unit prices supplied above are required to be indicated in both words and figures. In the event of a discrepancy between the words and figures for a given item, the price shown in words will be accepted.)

- All items must be bid.
- A performance bond and a labor and materials bond in the amount of one hundred percent (100%) of the total amount bid, and a maintenance bond must be submitted by the successful bidder within ten (10) days from the bid award date.

IF AND WHERE DIRECTED BID

Item No.	Quantity	Item Description (Unit Price in words)	Unit Price	Total Price

IF AND WHERE DIRECTED BID

Dollars \$

It is understood that THE INSURANCE REQUIREMENTS ARE A CRITICAL PORTION OF THIS BID. THE REQUIREMENTS **AS SET FORTH IN VARIOUS SECTIONS** MUST BE SATISFIED. IT IS UNDERSTOOD THAT NO EXCEPTIONS WILL BE MADE.

It is further understood that upon notice to furnish the County with the necessary Contract and Bonds, we will execute the attached Form of Contract and Bonds with the County of Delaware within twenty (20) calendar days after receipt of such notice.

It is understood and agreed that the County Council reserves the right to reject any and all bids and that if the Successful Bidder fails to execute the attached Contract and Bond within twenty (20) calendar days after receiving notice from the County to do so, the County Council shall be free to notify the next lowest, responsible bidder. It is understood that if the Successful Bidder shall fail to execute a Contract as set forth in these General Condition, the deposit will be forfeited as liquidated damages. Award will be based on bids for the Base Bid(s) or a combination of Base Bid(s) and if and where directed.

It is understood that this Bid may not be withdrawn for a period of sixty (60) calendar days after the date of opening thereof.

It is understood that we will start work within **Ten (10)** calendar days after execution of the Contract and shall complete work in accordance with the schedule given in Section B, Instructions to Bidders, Time for Completing Work. Liquidated Damages (if any) shall be assessed as defined in the Special Conditions, Liquid Damages, for all days past this limit. It is understood that the County may, on its own decision or initiate, extend the completion date by giving notice of all parties to this Contract of its intention to extend.

Delaware County shall not be liable for any expenses, damages, or loss of profits, anticipated or otherwise.

It is understood that if our Bonding Company is not a Pennsylvania Company, the Bid Bond, Performance Bond and Payment Bond, must be countersigned by a Pennsylvania Resident Agent, with Power of Attorney so to do.

The undersigned acknowledges receipt of the foregoing Addenda and that he has prepared this bid accordingly.

Addendum No.	Date
_____	_____
_____	_____
_____	_____

Insert the numbers of all addenda received - If none were received, insert the word "None"

It is understood that each bidder is to prepare and present satisfactory evidence of his experience, qualifications, and financial abilities to carry out the terms of the Contract. In addition, the Prime Contractor shall prepare and present satisfactory evidence of his qualification and references related to the work.

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

Our signature on this proposal page signifies that we have read and agree to comply with all parts of the Invitation, Instructions, Proposal, General Conditions, Special Conditions and Specifications of this Bid and will carry out all the conditions of the above.

The undersigned hereby certifies that this bid is genuine, and not a sham or collusive, or made in the interest or in behalf of any person, firm, or corporation not herein named; that the undersigned has not directly or indirectly induced or solicited any bidder to refrain from bidding, and that the undersigned has not, in any manner, sought by collusion to secure for himself an advantage over any other bidder.

It is understood that the Proposal Page must have two (2) signatures, and if the firm is a corporation, the corporate seal must also be affixed when submitting bid.

Respectfully submitted,

FIRM NAME _____

SIGNATURE _____

TYPED NAME & TITLE _____

OFFICIAL ADDRESS _____

Telephone # _____ FAX # _____

ATTEST: _____

Secretary or Assistant Secretary

Bidder will check whether the bid is by:
an individual (), partnership (), or corporation ().

NOTES:

If the Bidder is a partnership, the names of all members of the firm, as well as the trading name, shall be set forth. If the Bidder is a corporation, the Bid must be executed by the President or Vice-President, and attested by the Secretary or Assistant Secretary of the corporation, with the corporate seal applied. No other names will be accepted unless accompanied by the proper certification from the corporation permitting other than the President or Vice-President and Secretary to sign contracts. If the business is operated by a sole owner, only his signature is required, and it should be noted under signature that he is the sole owner.

COUNTY OF DELAWARE

VENDOR/CONTRACTOR'S INSURANCE REQUIREMENTS

COMPREHENSIVE GENERAL LIABILITY

Before the Contract is awarded, the Contractor shall take out and maintain during the life of this Contract such Public Liability and Property Damage insurance as shall protect him and any sub-contractors, if any, performing work covered by this Contract, from all claims for loss arising from Property damage, personal injury and bodily injury including accidental death. Such Insurance Policy shall include Products and Completed Operations coverage and include coverage for damages that may arise from the Operations of the Contractor or by any sub-contractor or by anyone directly or indirectly employed by either of them. The Combined Single Limit of Liability required is \$3,000,000 per occurrence with a deductible of no more than \$1,000.

VEHICLES

Comprehensive Business Automobile Coverage shall be maintained with a Combined Single Limit of Liability in an amount no less than \$1,000,000 per occurrence with no deductible.

CATASTROPHE UMBRELLA LIABILITY

One million dollars in excess of Primary General.

WORKER'S COMPENSATION

Worker's Compensation Insurance required by Pennsylvania law covering all Owner's employees and all employees of the general contractors and all sub-contractors. A current certificate of Exempt status from the Pennsylvania Department of Labor and Industry is acceptable if the Owner is an Exempt Self-Insurer in the State of Pennsylvania.

EMPLOYER'S LIABILITY INSURANCE:

Employer's Liability Insurance with limits no less than \$500,000 per accident or employee disease.

The County of Delaware shall be named as an additional insured on all policies insofar as the specified Contract is concerned. In addition, the Contractor shall furnish the County with a certificate of insurance showing the type, amount, class of operations covered, effective dates and dates of expiration. All policies should also contain a sixty (60) day notice of cancellation clause.

NOTE:

Section D
Insurance Requirements

If the owner maintains a self-insurance program or a limited self-insurance program for any or all of the exposures listed above, a complete description of the program with information on excess carriers and funding arrangements should be provided. In the event that the worker's compensation is self-insured, a copy of the current exemption shall be provided.

BID GUARANTEE

KNOW ALL MEN BY THESE PRESENTS, THAT WE, the undersigned, _____
_____, as Principal,
and held firmly bound unto _____ as OWNER
in the penal sum of _____ for the payment
of which, well and truly to be made, we hereby jointly and severally bind
ourselves, successors and assigns.

Signed, this _____ day of _____, 20 ____.

The Condition of the above obligation is such that whereas the Principal has
submitted to The Delaware County Council a certain BID, attached hereto and
hereby made a part hereof to enter into a contract in writing, for **The Parks
Restrooms Renovations, located at Clayton Park, 3173 Garnet Mine Rd,
Concord, Pennsylvania; and Rose Tree Park, 1671 N Providence Rd, Media,
Pennsylvania, respectively,**

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and
deliver a contract in the Form of Contract attached hereto (properly
completed in accordance with said BID) and shall furnish a BOND
for his faithful performance of said contract, and for the payment of
all persons performing labor or furnishing materials in connection

Section E
Bid Guarantee

therewith and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set above.

Principal

Surety

By: _____

Section F
Consent/Agreement of Surety

CONSENT/AGREEMENT OF SURETY

The undersigned _____
Name of Surety Company
a corporation organized and existing under the laws of
_____ and authorized to do business
in the Commonwealth of Pennsylvania do hereby consent and agree with
The County of Delaware that if the proposal of
_____, for the project
Name of Bidder

The Parks Restrooms Renovations, located at Clayton Park, 3173 Garnet Mine Rd, Concord, Pennsylvania; and Rose Tree Park, 1671 N Providence Rd, Media, Pennsylvania, respectively

be accepted and a contract for said work be awarded to said bidder, it will, upon its being so awarded, become the surety for said Bidder on such surety bonds as are called for in the Bid Documents.

Signed and Sealed (Date)

Name of Surety Company

By: _____
Attorney-in-fact

INSTRUCTIONS FOR NON-COLLUSION AFFIDAVIT

1. This Non-Collusion Affidavit is material to any contract awarded pursuant to this bid. According to the Pennsylvania Antibid-Rigging Act, 73 P.S. 1611 et seq., governmental agencies may require Non-Collusion Affidavits to be submitted together with bids.
2. This Non-Collusion Affidavit must be executed by the member, officer or employee of the bidder who makes the final decision on prices and the amount quoted in the bid.
3. Bid rigging and other efforts to restrain competition, and the making of false sworn statements in connection with the submission of bids are unlawful and may be subject to criminal prosecution. The person who signs the Affidavit should examine it carefully before signing and assure himself or herself that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the bidder with responsibilities for the preparation, approval or submission of this bid.
4. In the case of a bid submitted by a joint venture, each party to the venture must be identified in the bid documents, and an Affidavit must be submitted separately on behalf of each party.
5. The term “complementary bid” as used in the Affidavit has the meaning commonly associated with that term in the bidding process, and includes the knowing submission of bids lower than the bid of another firm, any intentionally low or noncompetitive bid, and any other form of bid submitted for the purpose of giving a false appearance of competition.
6. Failure to file an Affidavit in compliance with these instructions may result in disqualification of the bid.

Section G
Non-Collusion Affidavit

NON-COLLUSION AFFIDAVIT

Contract/Bid No. eDPW-091824

State of _____:

County of _____:

I state that I am _____ of _____
Title Name of Firm

and that I am authorized to make this affidavit on behalf of my firm and its owners, directors, and officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

(1) The price(s) and amount of this bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder or potential bidder.

(2) Neither the price(s) nor the amount of this bid, and neither the approximate price(s) nor approximate amount of this bid have been disclosed to any other firm or person who is a bidder or potential bidder, and they will not be disclosed before bid opening.

(3) No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid lower than this bid, or to submit any intentionally low or noncompetitive bid or other form of complementary bid.

(4) The bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid.

(5) _____, its affiliates,
Name of my firm

Subsidiaries, officers, directors and employees are not currently under investigation by any governmental agency and have not in the last four years been convicted or found liable for any act prohibited by the State or Federal law

Section G
Non-Collusion Affidavit

in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract, except as follows:

I _____ state that _____
Name of firm

understands and acknowledges that the representations are material and important and will be relied on by Delaware County in awarding the contract(s) for which this bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from Delaware County of the true facts relating to the submission of bids for this contract.

Name

Company Position

SWORN TO AND SUBSCRIBED
BEFORE ME THIS ____ DAY
OF _____, 20____

Notary Public

My Commission Expires: _____

COUNTY OF DELAWARE PENNSYLVANIA

ORDINANCE No. 2021-2

AN ORDINANCE OF THE COUNTY OF DELAWARE, COMMONWEALTH OF PENNSYLVANIA AMENDING SECTION 6-12 OF THE ADMINISTRATIVE CODE TO INCLUDE THAT COUNTY COUNCIL MEMBERS ARE PROHIBITED FROM KNOWINGLY DERIVING A FINANCIAL INTEREST FROM COUNTY CONTRACTS AND ADDING CERTAIN OTHER CONFLICT OF INTEREST PROVISIONS.

WHEREAS, pursuant to Section 6-121 of the Administrative Code (the "Code") of the County of Delaware, Commonwealth of Pennsylvania (the "County"), the Code may be amended by ordinances of the County Council; and

WHEREAS, Section 6-12.B(2) of the Code limits elected and appointed officials, the County Executive Director and department heads, and all County employees from having a business interest that would interfere with their official duties; and

WHEREAS, Section 6-12.B(2) includes only a limited restriction of Council members from having a financial interest or other conflict that would interfere with their official duties; and

WHEREAS, County Council believes that a more expansive restriction on financial interests and other conflicts of Council members will allow Delaware County citizens to be assured that Council members will not directly or indirectly knowingly realize any financial gain through their public office other than any compensation that is provided by law;

IT IS HEREBY, ENACTED AND ORDAINED BY County Council of Delaware County, Commonwealth of Pennsylvania as follows:

SECTION 1. The Code shall be amended to add a new Section 6-12.D to read as set forth below:

§ 6-12.D County Council Members Prohibited From Knowingly Deriving a Financial Interest From County Contracts.

(1) Prohibition Against Knowingly Deriving Financial Gain and Conflict of Interest. In addition to the limitations imposed elsewhere in this Administrative Code, including Section 6-12.B(2), no Council member shall knowingly have a financial interest (including any immediate family member having a financial interest) in any entity that is a party to a contract with the County, approved by County Council, including subcontractors.

Notwithstanding the foregoing, there shall be no violation of this Section 6-12.D(1) if a Council member recuses her or himself from voting on a contract in which such Council member (or an immediate family member) has a minor financial interest and submits a written statement listing the reasons for such recusal. Said statement shall be submitted by the Council member to the County Clerk, Council Chairman and Vice Chairman within seven (7) days of identification of the conflict by the member but not less than one (1) day prior to the Council meeting at which a vote on the contract is scheduled. Such statement shall be read into the Council minutes at such meeting.

(2). Other Prohibitions.

- (a) Council members are prohibited from receiving compensation (other than the payment of expenses) as an officer or director of (i) any entity that is a party to a contract with the County and/or (ii) any subcontractor to such an entity.
- (b) Council members are prohibited from using non-public information received through public office for their own financial benefit or the financial benefit of an immediate family member.

- (3). Conflicts of Interest. A Council member must recuse her or himself from voting on a contract if he or she knows that there is a conflict of interest (which is not a financial interest) and shall submit a written statement listing the reasons for such recusal. Such conflicts of interest shall include serving as an officer or director of a nonprofit organization that is a party to a contract with the County and/or any subcontractor to such a contract.

Said statement shall be submitted by the Council member to the County Clerk, Council Chairman and Vice Chairman within seven (7) days of identification of the conflict by the member but not less than one (1) day prior to the Council meeting at which a vote on the contract is scheduled. Such statement shall be read into the Council minutes at such meeting.

(4). Definitions.

A "financial interest" for purposes of this Section 6-12.D is any financial interest in a legal entity engaged in business for profit which comprises more than 5% of the equity of the business or more than 5% of the assets of the economic interest in indebtedness.

An "immediate family member" for purposes of this Section 6-12.D is defined as a parent, spouse, brother and sister (or like relative in laws), child(ren) and step-child(ren).

"Knowingly" or "Knows" means that the individual in question actually knew or, based on facts and circumstances, should have known, of the existence of a financial interest or conflict of interest, as applicable.

A "minor financial interest" for purposes of this Section 6-12.D is any financial interest from which a Council member and all immediate family members, in the aggregate, derives (or reasonably anticipates deriving) compensation, earnings, revenues and/or other payments not exceeding a total of \$25,000 on an annual basis (including the effect of the contract then under consideration for approval by Council).

- (5). Penalties. Any of the following penalties may be imposed for violations of the limitations in Section 6-12.D(1) as determined per Section 6-12.D (5):

- a. A reprimand of the Council member in violation.
- b. A censure of the Council member in violation.
- c. An assessment of a fine of the Council member in violation, in an amount not to exceed the lesser of (i) ten percent (10%) of the total compensation under the contract in question or (ii) \$20,000.

- d. To the extent legally permitted, termination of the contract in question and/or repayment to the County of any profit made by the contractor under such contract.
- e. Any entity, contractor or subcontractor which entered into a contract with the County which resulted in a violation of this section, may be banned as a contractor or subcontractor to the County for a period of two (2) years.

(6). **Determination of Penalties.** The determination of a penalty for the violation of this ordinance shall be made by a majority vote of County Council (not to include the Council member whose action is the subject of such vote) following such investigation and consideration of such evidence as County Council deems appropriate or such other entity or body as may be designated by resolution of County Council.

(7). **County Executive Director.** If the County Executive Director knows that he or she has a financial interest in a contract being considered for approval by County Council, he or she shall disclose such financial interest to County Council prior to approval of such contract by County Council, and such financial interest shall be noted in the minutes of the Council meeting at which such approval is considered. County Council may take appropriate disciplinary action for violation of this requirement by the County Executive Director, subject to the limitations elsewhere in the Administrative Code.

SECTION 2. This Ordinance shall take effect on the tenth day after its adoption.

ENACTED AND ORDAINED by County Council of the County of Delaware, Pennsylvania, this
day of 2021.

COUNTY OF DELAWARE

Brian P. Zidek, Chair

Dr. Monica Taylor, Vice Chair

Kevin M. Madden

Elaine Paul Schaefer

Christine A. Reuther

Attested:

Anne M. Coogan
County Clerk

**COUNTY OF DELAWARE
COMMONWEALTH OF PENNSYLVANIA
RESOLUTION NUMBER 2022-3**

**RESOLUTION REGARDING GOALS FOR DIVERSITY
IN PUBLIC WORKS CONTRACTING**

WHEREAS, County Council is committed to addressing the challenges it faces relating to public works projects and, to that end, is considering enactment of the revision of Chapter 29 of the County Code to protect its proprietary and financial interests and create adequate safeguards to ensure the successful delivery of such projects to the fullest extent possible; and

WHEREAS, together with the changes to the County Code in such revision of Chapter 29, County Council also desires to set forth its goals for increasing the diversity of the workforce for such public works projects;

NOW, THEREFORE, BE IT RESOLVED BY THE COUNTY COUNCIL OF DELAWARE COUNTY, PENNSYLVANIA as follows:

1. County Council hereby directs that the following provisions shall be included in any contract which is subject to the requirements of Chapter 29 of the County Code:

a. The contractor will make a good faith effort to employ local residents for completion of the project, when it has a need for new employees, in an effort to meet a goal of 10% local worker participation on the project. Good faith effort shall include, but not be limited to: hosting a public job fair prior to the commencement of the Project open to residents of Delaware County, posting of available employment opportunities with the Delaware County Workforce Development Board and its PACareerLink offices, providing employment and training services, advertisement of employment opportunities in a newspaper of general circulation throughout Delaware County, and internet advertisements.

b. The contractor will make a good faith effort to employ minority and female craftspeople for completion of the qualified project when such contractor has a need for new employees to complete the project, in an effort to meet the goal of having 10% minority and female participation on the project. Good faith effort shall include, but not be limited to: hosting a public job fair prior to the commencement of the Project open to all applicants in an attempt to identify, hire and utilize minority and female craftspeople, the posting of available employment opportunities with the Delaware County Workforce Development Board and its PACareerLink offices, providing employment and training services, advertisement of employment opportunities in a newspaper of general circulation throughout Delaware County, and internet advertisements.

c. The contractor shall, as a material condition of the contract, make a good faith effort to utilize veteran owned businesses, minority owned businesses, women owned

businesses and small business enterprises on the qualified project. “Minority owned business” shall mean that at least 51% of the business is owned by an individual who is a United States citizen or permanent resident alien who has and can demonstrate membership in one of the following groups: Black persons having origins in any of the Black African racial groups; Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American Descent of either Indian or Hispanic origin, regardless of race; Native American or Alaskan native persons having origins in any of the original peoples of North America; Asian and Pacific Islander persons having origins in any of the Far East countries, South East Asia, the Indian subcontinent or the Pacific Islands. “Small business enterprise” shall mean a business with an annual gross income which is determined by the United States Small Business Administration to qualify it as a small business enterprise.

2. County Council hereby directs the County Executive Director to take steps to obtain a disparity study related to relevant County public works contracting in order to assess the utilization by the County of a diverse workforce for public works projects and to help direct any further actions by County Council to increase such diversity.

ADOPTED by the County Council of the County of Delaware, Pennsylvania, this 15th day of June, 2022.

BY: DELAWARE COUNTY COUNCIL

Dr. Monica Taylor, Chair

ATTESTED: _____
ANNE COOGAN, County Clerk

COUNTY OF DELAWARE PENNSYLVANIA

ORDINANCE No. 2022-7

**AN ORDINANCE OF THE COUNTY OF DELAWARE, COMMONWEALTH
OF PENNSYLVANIA AMENDING AND RESTATING CHAPTER 29 OF
THE COUNTY CODE RELATING TO CONTRACTORS.**

WHEREAS, pursuant to § 1-10 of the Code (the "Code") of the County of Delaware, Commonwealth of Pennsylvania (the "County"), the Code may be amended by ordinances of the County Council when passed and adopted in such form as to indicate the intention of the County Council to be a part of the Code; and

WHEREAS, Chapter 29 of the Code sets forth provisions regarding the qualification of contractors for certain County public works projects; and

WHEREAS, County Council has been presented considerations regarding the current public works contract environment and the need for significant changes to its procurement standards for public works construction to address these considerations, limit project delivery risks, protect its financial and proprietary interests, and better ensure efficient procurement and successful delivery of these projects; and

WHEREAS, County Council is committed to addressing the challenges it faces relating to public works projects by enacting necessary and appropriate procurement legislation to protect its proprietary and financial interests and create adequate safeguards to ensure the successful delivery of such projects to the fullest extent possible; and

WHEREAS, Chapter 29 of the Code was last revised in 2007, and County Council desires to update and modernize the provisions of Chapter 29 of the Code;

IT IS HEREBY ENACTED AND ORDAINED BY County Council of Delaware County, Commonwealth of Pennsylvania as follows:

SECTION 1. The Code shall be amended to replace Chapter 29 of the Code in its entirety to read as set forth in Exhibit A attached hereto.

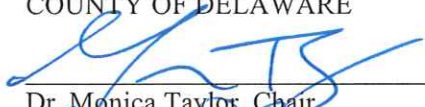
SECTION 2. Any and all other ordinances or parts of ordinances in violation or in conflict with the terms, conditions and provisions of this ordinance are hereby repealed to the extent of such irreconcilable conflict.

SECTION 3. The terms, conditions and provisions of this ordinance are hereby declared to be severable, and should any portion, part or provision of this ordinance be found by a court of competent jurisdiction to be invalid, unenforceable or unconstitutional, County Council hereby declares its intent that the ordinance shall have been enacted without regard to the invalid, unenforceable or unconstitutional portion, part or provision of this ordinance.

SECTION 4. This Ordinance shall take effect on the tenth day after its adoption.

ENACTED AND ORDAINED by County Council of the County of Delaware, Pennsylvania,
this 15 day of June 2022.

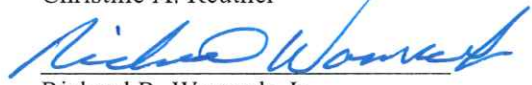
COUNTY OF DELAWARE


Dr. Monica Taylor, Chair


Elaine Paul Schaefer, Vice Chair


Kevin M. Madden


Christine A. Reuther


Richard R. Womack, Jr.

Attested:


Anne M. Coogan
County Clerk

Exhibit A

Chapter 29 CONTRACTORS

§ 29-1. Purpose

- A. Delaware County recognizes that there is a need to ensure that all work on public construction and maintenance contracts is performed by responsible, qualified firms that maintain the capacity, expertise, personnel and other qualifications and resources necessary to successfully perform such contracts in a timely, reliable and cost-effective manner.
- B. To effectuate the purpose of selecting responsible contractors for these public contracts and to protect Delaware County's investments in such contracts, prospective contractors and sub-contractors should be required to meet pre-established, clearly defined, minimum qualification standards regarding past project performance in terms of competency, safety and law compliance, technical abilities, experience, and adequacy of resources.
- C. Further, due to the critical impact that skilled craft labor has on the execution of public works projects, and the increasingly limited availability of such labor, it is necessary to require contractors and subcontractors to participate in proven apprenticeship training programs as a condition of bidding to promote successful project delivery and help ensure future workforce development.
- D. Therefore, Delaware County shall require compliance with the provisions of this Chapter by business entities seeking to provide services as specified herein. The requirements of this Chapter are intended to supplement, not replace, existing contractor qualification standards or other criteria currently required by Delaware County. However, in the event that this Chapter conflicts with any law, public policy or contracting documents of Delaware County, the requirements of this Chapter shall prevail.

§ 29-2. Responsible Contractor Requirements

- A. This Chapter shall apply to contracts valued at \$500,000 or more for public works projects undertaken by Delaware County for construction, demolition, alteration, renovation, modernization, service or maintenance of buildings, structures or facilities. All contractors and subcontractors of any tier that perform work on such projects, regardless of value of individual contract or subcontract packages shall meet the requirements of this Chapter.
- B. All firms engaged in public works contracts subject to this Chapter, including general contractors, construction managers, other lead or prime contractors, and subcontractors at any level, shall be qualified, responsible contracting firms that have sufficient capabilities in all respects to successfully perform contracts on which they are engaged, including the necessary experience, equipment, technical skills and qualifications and organizational, financial and personnel resources. Firms bidding or otherwise participating in public works contracts shall also be required to have a satisfactory past performance record and a satisfactory record of law compliance, integrity and business ethics.
- C. This Chapter does not apply to work incident to the installation of specialized equipment pursuant to either warranty requirements or manufacturers' requirements.
- D. Compliance with this Chapter and compliance with the provisions of Article V (Central Purchasing) of the Administrative Code are separate requirements which need to be independently satisfied.

§ 29-3. Contractor Responsibility Certifications

- A. As a condition of performing work on a public works contract subject to this Chapter, a general contractor, construction manager or other lead or prime contractor seeking award of a contract shall submit a Contractor Responsibility Certification as specified herein.

- B. The Contractor Responsibility Certification shall be completed on a form provided by Delaware County and reference the project for which a bid is being submitted by name and contract or project number.
- C. In the Contractor Responsibility Certification the construction manager, general contractor or other lead or prime contractor shall confirm the following facts regarding its past performance and work history and its current qualifications and performance capabilities:
- (1) The firm and its employees have all licenses, registrations, certificates or other credentials required by federal and state law and the laws of Delaware County
with respect to the contract work it seeks to self-perform.
 - (2) The firm meets the bonding requirements for the contract required by law or contract specifications, as well as applicable insurance requirements for the contract, including general liability, workers compensation and unemployment insurance.
 - (3) The firm has not been debarred or suspended by any federal, state or local government agency or authority in the past three years.
 - (4) The firm has not defaulted on any project in the past three years.
 - (5) The firm has not had any type of business, contracting or trade license, registration or certification revoked or suspended in the past three years.
 - (6) The firm and its principals/owners have not been convicted of any crime relating to its contracting business in the past ten years.
 - (7) Within the past three years, the firm has not been found in violation of any law applicable to its contracting business, including, but not limited, to licensing laws, tax laws, wage and hour laws, prevailing wage laws, environmental laws or others, where the result of such violation was the payment of a fine, back pay damages or any other type of penalty in the amount of \$5,000 or more.
 - (8) The firm will employ a sufficient number of craft labor personnel required to successfully perform any project work it self-performs or shall use qualified subcontractors to meet this requirement and shall assign workers to perform only work in their respective craft or trade for which they have sufficient skills and training, or shall use qualified subcontractors to meet this requirement.
 - (9) The firm will pay all craft employees on the project, at a minimum, the applicable wage and fringe benefit rates, as established for the classification in which the worker is employed, in accordance with the Pennsylvania Prevailing Wage Act (43 P.S. § 165-1 et seq.).
 - (10) The firm will ensure that all craft labor it employs on the project will have completed, prior to working on the project the OSHA 10-hour training course for safety established by the U.S. Department of Labor. If the firm is a prime contractor, it shall also ensure that at least one person on the project has completed the OSHA 30-hour construction training course established by the U.S. Department of Labor
 - (11) The firm participates in a Class A Apprenticeship Training Program, as defined below, for each separate trade or classification in which it employs craft employees.
 - (a) For purposes of this section, a Class A Apprenticeship Program is an apprenticeship program registered with and approved by the U.S. Department of Labor or a state apprenticeship agency and has graduated apprentices to journey person status for at least three of the past five years. This may be an apprenticeship program subject to the Employee Retirement Income Security Act of 1974, 29 U.S.C. § 1001 et seq. ("ERISA"), or a non-ERISA program.
 - (b) To demonstrate compliance with this section, the firm shall provide, with this certification, a list of all trades or classifications of craft employees it will employ on the project and

documentation verifying it participates in a Class A Apprenticeship Program for each trade or classification listed.

- (c) The requirements of this section and Section 29-3.C(12) help ensure that the bulk of the craft labor workforce employed on the project will have sufficient skills and training to correctly perform work assigned to them.
 - (12) The construction manager, general contractor or other lead or prime contractor responsible for the project shall ensure that at least 70 percent of the craft labor workers employed on the project shall be comprised of either journey person workers who have successfully completed a Class A Apprenticeship Program as defined in Section 29-3.C(10) or apprentices registered in such programs. The apprenticeship participation of specified by this section must be in the same trade or craft for which the workers are employed on the project.
 - (13) The firm shall assign craft labor personnel only work in the craft or trade in which they are employed.
 - (14) The firm has all other technical qualifications and resources, including equipment, personnel and financial resources, to successfully perform the referenced contract and shall maintain such capabilities throughout the duration of the project, or will obtain same through the use of qualified, responsible subcontractors or vendors
 - (15) The firm shall notify Delaware County within seven days of any material changes in its operation that relate to any matter attested to in this certification.
- D. Execution of the Contractor Responsibility Certification required by this Chapter shall not establish a presumption of contractor responsibility, and Delaware County may require any additional information it deems necessary to evaluate a firm's status as a responsible contractor, including information regarding the firm's technical qualifications, financial capacity or other resources and performance capabilities. Delaware County may require that such information be included in a separate Statement of Qualifications and Experience or as an attachment to the Contractor Responsibility Certification.
- E. The submitting firm shall stipulate in the Contractor Responsibility Certification that, if it receives a Notice of Intent to Award Contract, it will provide a Subcontractor List and required subcontractor information as specified in Section 29-5.
- F. If the submitting firm has ever operated under another name or is controlled by another company or business entity or in the past five years controlled or was controlled by another company or business entity, whether as a parent company, subsidiary or in any other business relation, it shall attach an appendix to its Contractor Responsibility Certification that explains in detail the nature of any such relationship. Additional information may be required from such an entity if the relationship in question could potentially impact contract performance.
- G. If a firm fails to provide a Contractor Responsibility Certification required by this section, it may be disqualified from bidding. No action of any nature shall lie against Delaware County because of its refusal to accept a bid for this reason.

§ 29-4. Notice of Intent to Award Contract

- A. After it has received bids for a project, Delaware County shall issue a Notice of Intent to Award Contract to the firm that has submitted the lowest responsive bid.
- B. Such Notice shall be issued immediately or as soon as practicable after bids are opened and shall stipulate that the contract award is conditioned on the issuance of a written Contractor Responsibility Determination for the firm as required by Section 29-6, compliance with Subcontractor Certifications required by Section 29-5, and any other qualification standards required by Delaware County.

§ 29-5. Subcontractor Responsibility Requirements

- A. Within fourteen (14) days of receiving a Notice of Intent to Award Contract, the prospective awardee shall submit a Subcontractor List, which provides the name and address of the subcontractors it will use on the project, the scope of work assigned to each subcontractor, and Subcontractor Responsibility Certifications as required by this section. The Director of Public Works may extend such deadline for submission upon good justification from a prospective awardee as to the delayed response.
- B. The prospective awardee shall not be permitted to use a subcontractor on any work performed for Delaware County unless it has identified the subcontractor on its Subcontractor List and provided a Subcontractor Responsibility Certification in accordance with the requirements of Section 29-5.
- C. At the time a prospective awardee submits the Subcontractor List it shall also submit Subcontractor Responsibility Certifications and applicable supporting information for all listed subcontractors to Delaware County.
- D. A prospective awardee shall determine whether any firm on its Subcontractor List is organized as a sole proprietorship owned and operated by a single person. This shall apply to subcontractors at any tier. For any such entity, the prospective awardee shall ensure that the sole proprietorship subcontractor is a legitimate business entity and not a misclassified employee by requiring the subcontractor to supplement its Subcontractor Certification with its Employer Identification Number and copies of any license, certificate or registration it is required to maintain in to do business in the state in which it is located.
- E. Subcontractor Responsibility Certifications shall be executed by the respective subcontractors on forms prepared by Delaware County and contain the same information, representations and supporting information required in Contractor Responsibility Certifications, including verification of apprenticeship qualifications required by Section 29-3.C(11) for each trade or classification of craft workers it will employ on the project.
- F. Subcontractor Responsibility Certifications shall be executed by a person having sufficient knowledge to address all matters in the certification and shall include an attestation stating, under the penalty of perjury, that all information submitted is true, complete and accurate.
- G. A subcontractor listed on a firm's Subcontractor List shall not be substituted unless written authorization is obtained from Delaware County and a Subcontractor Responsibility Certification is provided for the substitute subcontractor.
- H. In the event that Delaware County determines that a subcontractor fails to meet the requirements of this Chapter or is otherwise determined to be non-responsible, it may, after informing the prospective awardee, exercise one of the following options:
 - (1) Permit the awardee to substitute a qualified, responsible subcontractor in accordance with the requirements of this section, upon submission of a completed Subcontractor Certification for the substitute and approval of the substitute by Delaware County.
 - (2) Require the awardee to self-perform the work in question if the firm has the required experience, licenses and other qualifications to perform the work in question; or
 - (3) Disqualify the prospective awardee.
- I. In the event a subcontractor is disqualified under this Chapter, the general contractor, construction manager or other lead or prime contractor shall not be permitted to make any type of claim against Delaware County on the basis of a subcontractor disqualification.

§ 29-6. Contractor Responsibility Review and Determination

- A. After Delaware County has issued a Notice of Intent to Award Contract to the lowest responsive bidder, it shall undertake a contractor responsibility review process to determine whether the firm is a

qualified, responsible firm in accordance with the requirements of this Chapter and other applicable laws and regulations. The time frame for conducting this review process shall be as determined by Delaware County.

- B. As part of the review process, Delaware County shall ensure that the Contractor Responsibility Certification and Subcontractor Responsibility Certifications and applicable supporting information comply with the requirements of this Chapter.
- C. Delaware County may conduct any additional inquiries to verify that the prospective awardee and its subcontractors have the technical qualifications and performance capabilities necessary to successfully perform the contract and that the firms have a sufficient record of law compliance and business integrity to justify the award of a public contract. In conducting such inquiries, Delaware County may seek relevant information from the firm, its prior clients or customers, its subcontractors or any other relevant source.
- D. After Delaware County determines that all responsibility certifications have been properly executed and has verified that all other relevant information requested for reviews indicates that the prospective awardee and its subcontractors are qualified, responsible firms, it shall issue a written Contractor Responsibility Determination for the prospective awardee.
- E. In the event a firm is determined to be non-responsible, Delaware County shall notify the firm and proceed to conduct a responsibility review of the next lowest, responsive bidder or, if necessary, rebid the project. A Responsibility Determination may be revoked at any time if Delaware County obtains relevant information warranting any such revocations.

§ 29-7. Execution of Final Contract

- A. A contract subject to this Chapter shall not be executed until all requirements of this Chapter have been fulfilled and until a Contractor Responsibility Determination has been issued by Delaware County pursuant to Section 29-6.
- B. Prior to the execution of a final contract under this Section, Delaware County shall publicly post the Notice of Intent to Award, Contractor and Subcontractor Responsibility Certifications, Subcontractor Lists, related supporting documentation and the Contractor Responsibility Determination on a publicly available website for public inspection for a period of ten (10) calendar days after the issuance of the Contractor Responsibility Determination.

§ 29-8. False, Incomplete or Misleading Responsibility Certifications.

- A. If Delaware County determines that a Contractor Certification, Subcontractor List or Subcontractor Responsibility Certification contains false or misleading information that was provided knowingly or with reckless disregard for the truth or omits material information knowingly or with reckless disregard of the truth, the firm for which the certification was submitted shall be disqualified from the project and shall be prohibited from performing work for Delaware County for a period of three years. Delaware County may withhold payment of any monies due to the firm as damages and impose other applicable penalties and sanctions, including contract termination, as permitted by law or contract.



COUNTY OF DELAWARE

Contractor Responsibility Certification

Chapter 29 of the Delaware County Code requires that as a condition of performing work on certain public works contracts, a firm seeking award of a contract shall submit a Contractor Responsibility Certification. Delaware County has determined that the contract subject to this solicitation is covered by Chapter 29, and that firms responding to this solicitation must submit this form and otherwise comply with the provisions of Chapter 29 as well as Delaware County Resolution Number 2022-3 (Regarding Goals for Diversity in Public Works Contracting).

In order for this Contractor Responsibility Certification to be considered validly submitted, it must be properly signed by the firm or an officer or employee of the Contractor authorized to make it. Contractor Responsibility Certifications that are not properly signed will not be considered as responsive to the requirements of the Delaware County Code. If a firm fails to provide a Contractor Responsibility Certification required by this section, it may be disqualified from bidding/responding. No action of any nature shall lie against Delaware County because of its refusal to accept a bid/response for this reason.

Execution of this Contractor Responsibility Certification shall not establish a presumption of contractor responsibility, and Delaware County may require any additional information it deems necessary to evaluate a firm's status as a responsible contractor, including information regarding the firm's technical qualifications, financial capacity or other resources and performance capabilities.

If Delaware County determines that a Contractor Certification, Subcontractor List or Subcontractor Responsibility Certification contains false or misleading information that was provided knowingly or with reckless disregard for the truth or omits material information knowingly or with reckless disregard of the truth, the firm for which the certification was submitted shall be disqualified from the project and shall be prohibited from performing work for Delaware County for a period of three years. Delaware County may withhold payment of any monies due to the firm as damages and impose other applicable penalties and sanctions, including contract termination, as permitted by law or contract.

I hereby represent, warrant and agree on behalf of the firm indicated below that:

Acknowledged*

- (1) The firm and its employees have all licenses, registrations, certificates or other credentials required by federal and state law and the laws of Delaware County with respect to the contract work it seeks to self-perform. ☐
- (2) The firm meets the bonding requirements for the contract required by law or contract specifications, as well as applicable insurance requirements for the contract, including general liability, workers compensation and unemployment insurance. ☐

- (3) The firm has not been debarred or suspended by any federal, state or local government agency or authority in the past three years. ☐
- (4) The firm has not defaulted on any project in the past three years. ☐
- (5) The firm has not had any type of business, contracting or trade license, registration or certification revoked or suspended in the past three years. ☐
- (6) The firm and its principals/owners have not been convicted of any crime relating to its contracting business in the past ten years. ☐
- (7) Within the past three years, the firm has not been found in violation of any law applicable to its contracting business, including, but not limited, to licensing laws, tax laws, wage and hour laws, prevailing wage laws, environmental laws or others, where the result of such violation was the payment of a fine, back pay damages or any other type of penalty in the amount of \$5,000) or more. ☐
- (8) Has the firm operated under a different name in the last ten (10) years? If yes, please provide prior name(s). ☐
- (9) Have the principals of the firm operated a business under a different name in the last ten (10) years? If yes, please provide name(s) of such businesses. ☐
- (10) The firm will employ a sufficient number of craft labor personnel required to successfully perform any project work it self-performs or shall use qualified subcontractors to meet this requirement and shall assign workers to perform only work in their respective craft or trade for which they have sufficient skills and training, or shall use qualified subcontractors to meet this requirement. ☐
- (11) The firm will pay all craft employees on the project, at a minimum, the applicable wage and fringe benefit rates, as established for the classification in which the worker is employed, in accordance with the Pennsylvania Prevailing Wage Act (43 P.S. § 165-1 et seq.). ☐
- (12) The firm will ensure that all craft labor it employs on the project will have completed, prior to working on the project the OSHA 10-hour training course for safety established by the U.S. Department of Labor. If the firm is a prime contractor, it shall also ensure that at least one person on the project has completed the OSHA 30-hour construction training course established by the U.S. Department of Labor ☐
- (13) The firm participates in a Class A Apprenticeship Training Program for each separate trade or classification in which it employs craft employees. ☐
- (a) A "Class A Apprenticeship Program" is an apprenticeship program registered with and approved by the U.S. Department of Labor or a state apprenticeship agency and has graduated apprentices to journey person status for at least three of the past five years. This may be an apprenticeship program subject to the Employee Retirement Income Security Act of 1974, 29 U.S.C. § 1001 et seq. ("ERISA"), or a non-ERISA program.
- (b) To demonstrate compliance with this section, the firm shall provide, with this certification, a list of all trades or classifications of craft employees it will employ on the project and documentation verifying it participates in a Class A

Apprenticeship Program for each trade or classification listed. See Attachment 1.

- (14) The construction manager, general contractor or other lead or prime contractor responsible for the project shall ensure that at least 70 percent of the craft labor workers employed on the project shall be comprised of either journeyperson workers who have successfully completed a Class A Apprenticeship Program or apprentices registered in such programs. The apprenticeship participation of specified by this section must be in the same trade or craft for which the workers are employed on the project. ☐
- (15) The firm shall assign craft labor personnel only work in the craft or trade in which they are employed. ☐
- (16) The firm has all other technical qualifications and resources, including equipment, personnel and financial resources, to successfully perform the referenced contract and shall maintain such capabilities throughout the duration of the project, or will obtain same through the use of qualified, responsible subcontractors or vendors ☐
- (17) The firm shall notify Delaware County within seven days of any material changes in its operation that relate to any matter attested to in this certification. ☐
- (18) If the submitting firm has ever operated under another name or is controlled by another company or business entity or in the past five years controlled or was controlled by another company or business entity, whether as a parent company, subsidiary or in any other business relation, it shall attach as Attachment 2 hereto that explains in detail the nature of any such relationship. Additional information may be required from such an entity if the relationship in question could potentially impact contract performance. ☐
- (19) Please include a proposed Subcontractor List as Attachment 3. If the firm receives a Notice of Intent to Award Contract, it agrees to: (a) provide Subcontractor Responsibility Forms and any required subcontractor information within fourteen days (Director of Public Works may extend such deadline upon good justification by firm); and (b) provide any reasonably requested supporting documentation as part of Delaware County's contractor responsibility review process. ☐
- (20) The firm and its owners have not declared bankruptcy in the past three (3) years. ☐
- (21) The firm has not committed or been cited for a willful violation of federal or state safety laws as determined by a final decision of a court or government agency in the past three (3) years. ☐
- (22) The firm will notify, in writing, the Delaware County Department of Public Works within seven (7) days of any material change to any of the above certifications. ☐

****Please check each box to acknowledge that you have read the corresponding representation/warranty/agreement.***

By executing below, you declare and certify that:

- (A) You are an employee or officer of the firm who is duly authorized to execute this Contractor Responsibility Certification.
- (B) Have sufficient knowledge to address all matters in this Contractor Responsibility Certification and attest that all information submitted is true, complete and accurate. This attestation is made subject to the penalties and provisions of 18 Pa. C.S.A. §4904 relating to unsworn falsification to authorities.

Name of Firm: _____

By: _____

Name:

Title:

Date:

Exhibit A

Diversity Goal Contract Provisions

Pursuant to Delaware County Resolution Number 2022-3 Regarding Goals for Diversity in Public Works Contracting, the following provisions will be required in any contract resulting from this solicitation.

- a. The contractor will make a good faith effort to employ local residents for completion of the project, when it has a need for new employees, in an effort to meet a goal of 10% local worker participation on the project. Good faith effort shall include, but not be limited to: hosting a public job fair prior to the commencement of the Project open to residents of Delaware County, posting of available employment opportunities with the Delaware County Workforce Development Board and its PACareerLink offices, providing employment and training services, advertisement of employment opportunities in a newspaper of general circulation throughout Delaware County, and internet advertisements.
- b. The contractor will make a good faith effort to employ minority and female craftspeople for completion of the qualified project when such contractor has a need for new employees to complete the project, in an effort to meet the goal of having 10% minority and female participation on the project. Good faith effort shall include, but not be limited to: hosting a public job fair prior to the commencement of the Project open to all applicants in an attempt to identify, hire and utilize minority and female craftspeople, the posting of available employment opportunities with the Delaware County Workforce Development Board and its PACareerLink offices, providing employment and training services, advertisement of employment opportunities in a newspaper of general circulation throughout Delaware County, and internet advertisements.
- c. The contractor shall, as a material condition of the contract, make a good faith effort to utilize veteran owned businesses, minority owned businesses, women owned businesses and small business enterprises on the qualified project. "Minority owned business" shall mean that at least 51% of the business is owned by an individual who is a United States citizen or permanent resident alien who has and can demonstrate membership in one of the following groups: Black persons having origins in any of the Black African racial groups; Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American Descent of either Indian or Hispanic origin, regardless of race; Native American or Alaskan native persons having origins in any of the original peoples of North America; Asian and Pacific Islander persons having origins in any of the Far East countries, South East Asia, the Indian subcontinent or the Pacific Islands. "Small business enterprise" shall mean a business with an annual gross income which is determined by the United States Small Business Administration to qualify it as a small business enterprise.

Attachment 1

Class A Apprenticeship Program

[Firm to attach a list of all trades or classifications of craft employees it will employ on the project and documentation verifying it participates in a Class A Apprenticeship Program per paragraph 11(b).]

Attachment 2

Prior Names/Organization Changes

[Firm to attach additional information if required under Paragraph (16).]

Attachment 3

Subcontractor List

[Must include name, phone number, address and type of work to be performed for each subcontractor].



COUNTY OF DELAWARE

Subcontractor Responsibility Certification

Chapter 29 of the Delaware County Code requires that as a condition of performing work on certain public works contracts, a firm seeking award of a contract shall submit Subcontractor Responsibility Certification for all identified subcontractors. Delaware County has determined that the contract subject to this solicitation is covered by Chapter 29, and that firms responding to this solicitation must submit this form for all subcontractors.

In order for this Subcontractor Responsibility Certification to be considered validly submitted, it must be properly signed by the subcontractor or an officer or employee of the subcontractor authorized to make it. Subcontractor Responsibility Certifications that are not properly signed will not be considered as responsive to the requirements of the Delaware County Code.

Execution of this Subcontractor Responsibility Certification shall not establish a presumption of subcontractor responsibility, and Delaware County may require any additional information it deems necessary to evaluate a subcontractor's status as a responsible contractor, including information regarding the firm's technical qualifications, financial capacity or other resources and performance capabilities.

If Delaware County determines that a Subcontractor Responsibility Certification contains false or misleading information that was provided knowingly or with reckless disregard for the truth or omits material information knowingly or with reckless disregard of the truth, the firm for which the certification was submitted shall be disqualified from the project and shall be prohibited from performing work for Delaware County for a period of three years. Delaware County may withhold payment of any monies due to the firm as damages and impose other applicable penalties and sanctions, including contract termination, as permitted by law or contract.

I hereby represent, warrant and agree on behalf of the firm indicated below that:

Acknowledged*

(1) The subcontractor and its employees have all licenses, registrations, certificates or other credentials required by federal and state law and the laws of Delaware County with respect to the contract work it seeks to self-perform.

☐

(2) The subcontractor meets the bonding requirements for the contract required by law or contract specifications, as well as applicable insurance requirements for the contract, including general liability, workers compensation and unemployment insurance.

☐

- (3) The subcontractor has not been debarred or suspended by any federal, state or local government agency or authority in the past three years. ☐
- (4) The subcontractor has not defaulted on any project in the past three years. ☐
- (5) The subcontractor has not had any type of business, contracting or trade license, registration or certification revoked or suspended in the past three years. ☐
- (6) The subcontractor and its principals/owners have not been convicted of any crime relating to its contracting business in the past ten years. ☐
- (7) Within the past three years, the subcontractor has not been found in violation of any law applicable to its contracting business, including, but not limited, to licensing laws, tax laws, wage and hour laws, prevailing wage laws, environmental laws or others, where the result of such violation was the payment of a fine, back pay damages or any other type of penalty in the amount of \$5,000) or more. ☐
- (8) Has the firm operated under a different name in the last ten (10) years? If yes, please provide prior name(s). ☐
- (9) Have the principals of the firm operated a business under a different name in the last ten (10) years? If yes, please provide name(s) of such businesses. ☐
- (10) The subcontractor will employ a sufficient number of craft labor personnel required to successfully perform any project work and shall assign workers to perform only work in their respective craft or trade for which they have sufficient skills and training. ☐
- (11) The subcontractor will pay all craft employees on the project, at a minimum, the applicable wage and fringe benefit rates, as established for the classification in which the worker is employed, in accordance with the Pennsylvania Prevailing Wage Act (43 P.S. § 165-1 et seq.). ☐
- (12) The subcontractor will ensure that all craft labor it employs on the project will have completed, prior to working on the project the OSHA 10-hour training course for safety established by the U.S. Department of Labor. ☐
- (13) The subcontractor participates in a Class A Apprenticeship Training Program for each separate trade or classification in which it employs craft employees. ☐
- (a) A "Class A Apprenticeship Program" is an apprenticeship program registered with and approved by the U.S. Department of Labor or a state apprenticeship agency and has graduated apprentices to journey person status for at least three of the past five years. This may be an apprenticeship program subject to the Employee Retirement Income Security Act of 1974, 29 U.S.C. § 1001 et seq. ("ERISA"), or a non-ERISA program.
- (b) To demonstrate compliance with this section, the subcontractor shall provide, with this certification, a list of all trades or classifications of craft employees it will employ on the project and documentation verifying it participates in a Class A Apprenticeship Program for each trade or classification listed. See Attachment 1.

- (14) The subcontractor shall assign craft labor personnel only work in the craft or trade in which they are employed. ☐
- (15) The subcontractor has all other technical qualifications and resources, including equipment, personnel and financial resources, to successfully perform the referenced contract and shall maintain such capabilities throughout the duration of the project, or will obtain same through the use of qualified, responsible subcontractors or vendors ☐
- (16) The subcontractor shall notify Delaware County within seven days of any material changes in its operation that relate to any matter attested to in this certification. ☐
- (17) If the submitting subcontractor has ever operated under another name or is controlled by another company or business entity or in the past five years controlled or was controlled by another company or business entity, whether as a parent company, subsidiary or in any other business relation, it shall attach as Attachment 2 hereto that explains in detail the nature of any such relationship. Additional information may be required from such an entity if the relationship in question could potentially impact contract performance. ☐
- (18) If you are organized as a sole proprietorship owned and operated by a single person, to ensure that you are a legitimate business entity and not a misclassified employee, you must submit as Attachment 3 your Employer Identification Number and copies of any license, certificate or registration you are required to maintain in to do business in the state in which it is located. ☐
- (19) The subcontractor and its owners have not declared bankruptcy in the past three (3) years. ☐
- (20) The subcontractor has not committed or been cited for a willful violation of federal or state safety laws as determined by a final decision of a court or government agency in the past three (3) years. ☐
- (21) The subcontractor will notify, in writing, the Delaware County Department of Public Works within seven (7) days of any material change to any of the above certifications. ☐

****Please check each box to acknowledge that you have read the corresponding representation/warranty/agreement.***

By executing below, you declare and certify that:

- (A) You are an employee or officer of the subcontractor who is duly authorized to execute this Contractor Responsibility Certification.
- (B) Have sufficient knowledge to address all matters in this Contractor Responsibility Certification and attest that all information submitted is true, complete and accurate. This attestation is made subject to the penalties and provisions of 18 Pa. C.S.A. §4904 relating to unsworn falsification to authorities.

Name of Subcontractor: _____

By: _____

Name:

Title:

Date:

Attachment 1

Class A Apprenticeship Program

[Subcontractor to attach a list of all trades or classifications of craft employees it will employ on the project and documentation verifying it participates in a Class A Apprenticeship Program per paragraph 11(b).]

Attachment 2

Prior Names/Organization Changes

[Subcontractor to attach additional information if required under Paragraph (15).]

Attachment 3

Sole Proprietorship Information

[Subcontractor to attach additional information if required under Paragraph (16).]

Section K
Contractor's Qualification Statement

CONTRACTOR'S QUALIFICATION STATEMENT

Contractor shall submit AIA Document A305 – 1986, Contractor's Qualification Statement, with Bid. (See Appendix B)

FORM OF CONTRACT

Article of Agreement made this _____ day of _____
_____, 20__ between _____

_____(hereinafter called Contractor)
and the County of Delaware (hereinafter called County).

WITNESSETH:

That the Contractor covenants, promises, and agrees to and with the County to

For the price or sum of _____

as per its annexed Bid, and to in all respects comply with the terms and conditions of the Annexed Proposal, Invitation to Bidders, Instructions to Bidders, General Conditions, Specifications and Drawings and the County covenants, promises, and agrees to and with the Contractor to pay it in the price of _____

for _____

It is further mutually agreed by said parties, in consideration of their aforesaid mutual covenants, that the annexed Invitation to Bidders, Proposal, General Conditions and Specifications annexed thereto constitute and are a part of the Contract as though fully set forth therein.

Section L
Form of Contract

In Witness Whereof, the Contractor and the County have hereunto caused their common of corporate Seals to be affixed hereto duly attested by their proper Officers the day and year aforesaid.

Attest: _____
Secretary or Assistant Secretary

COUNTY OF DELAWARE

Chairman

Attest: _____
County Clerk

Date: _____

Section M
Labor and Materials Bond

LABOR AND MATERIALS BOND

KNOW ALL PERSONS BY THESE PRESENTS that _____
(Principal) and _____ (Surety) are held and firmly
bound unto the County of Delaware in the Commonwealth of Pennsylvania, (hereinafter called
County), in the sum of: _____ lawful money of the United States of America, to
which payment well and truly to be made, we do hereby jointly and severally bind and oblige
ourselves, and our respective successors and assigns firmly by these presents:

Sealed with our Seals this _____ day of _____ 20 _____.

Whereas, the bounden Principal has entered into a written Contract with the County to:

for the price or sum of _____
which Contract by reference is made a part hereof:

Now, therefore, the condition of this obligation is such that if the above bounden Principal shall and
will promptly pay or cause to be paid all sums of money which may be due any person, co-
partnership, association or corporation for all materials furnished and labor supplied or performed in
the prosecution of the work whether or not the same material or labor enter into and become
component parts of the work or improvement contemplated, then this obligation to be void and of no
effect, otherwise, to continue in full force and virtue.

The Principal and Surety further and severally agree with the Obligee herein that every person, co-
partnership, association or corporation who whether as sub-contractor or otherwise, has furnished
material or supplied or performed labor in the prosecution of the work as above mentioned and who
has not been paid therefore, may use in assumpsit on this bond in the name of the County of
Delaware, Obligee for his, their or its use, prosecute the same to final judgment for such sum or
sums as may be justly due him, them or it, and have execution thereon, provided, however, that
Obligee shall not be liable for the payment of any costs or expense of any such suit.

Recovery by any person, co-partnership, association or corporation hereunder shall be subject to
the provisions of the Act of the General Assembly No. 869 approved December 20, 1967, to the
same extent as if said Provisions were fully incorporated in this Bond.

It is further agreed that any alterations which may be made in terms of the Contractor in the work to
be done or materials to be furnished or labor to be supplied or performed under it or the giving of the
Obligee or the Principal and the Surety or Sureties or either or any of them their prospective
successors and assigns, from their liability hereunder, notice to the Surety or Sureties of any such
alteration, extension or forbearance being hereby waived.

Section M
Labor and Materials Bond

In Witness Whereof, the Principal and the Surety have hereunto caused their Common Corporate Seals to be affixed hereto duly attested by their proper Officer the day and year aforesaid.

Attest: _____
(Secretary or Assistant Secretary)

(Principal)

Sealed and delivered in the presence of:

(Surety)

Section M
Performance Bond

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS, that _____
(PRINCIPAL) and _____ (SURETY) are held and firmly bound unto the
County of Delaware in the Commonwealth of Pennsylvania (hereinafter called County) in
the sum of: \$_____, lawful money of the United States of America, to
which payment well and truly to be made, we do hereby jointly and severally bind and
oblige ourselves and our respective successors and assignees firmly by these presents:

Sealed with our Seals this _____ day of _____ 20____.

Whereas, the above bounden Principal has entered into a written Contract with the
County to:

for the prices set forth in said Proposal, which said Contract, is by reference made a part
thereof.

Now the Condition of this obligation is such that if the above bounden Principal shall well
and truly perform said Contract and fully and faithfully carry out and complete the same
in all respects then this obligation shall be void and of no effect, otherwise, to continue in
full force and virtue.

AND FURTHER, we do in the event of default, hereby authorize and empower any
attorney of the Court of Common Pleas of the County of Delaware, Pennsylvania, or any
other Court of record elsewhere, or any Prothonotary or Clerk of said Courts, to appear for
us, our heirs, executors, administrators, successors or assigns, at the suit of the County of
Delaware, its successors, or assigns obligee in the above obligations as of any term, after
the date thereof, or hereof, and thereupon to confess judgment against us or against our
heirs, executors, administrators, successors or assigns for the above sum
_____ Dollars (\$_____)
debt, besides the cost of suite and any attorney's fee of ten percent (10%) without stay of
execution and inquisition upon any levy upon real estate is hereby waived, and
condemnation agreed to and the exemption of personal property from levy and sale on
any execution under and by virtue of any exemption law now in force, or which may be
hereafter passed, is also waived.

In Witness Whereof, the Principal and the Surety have hereunto caused their common or
Corporate Seals to be affixed hereto duly attested by their Officers, the day and year
aforesaid.

Attest: _____
Secretary or Assistant Secretary

Principal

Sealed and delivered in the presence of:

Surety

Section M
Maintenance Bond

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT WE _____
Name and Address of Contractor

OR WE _____
Name and Address of Partnership

(or if a corporation with address and state in which incorporated) (herein after called the "Principal"), as Principal, and _____
Name of Surety and Address

a corporation of the State of _____ with offices in the Commonwealth of Pennsylvania and licensed to do business in the Commonwealth of Pennsylvania (hereinafter called "Surety"), as Surety are held and firmly bound unto the County of Delaware in said Commonwealth (hereinafter called "Owner"), in the full and just sum of _____ Dollars (\$ _____) lawful money of the United States of America, to be paid to the said Principal and Surety bind themselves and their respective heirs, administrators, executors, successors and assigns, jointly and severally firmly by these presents.

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

WHEREAS, the Principal has entered into a certain contract with the Owner dated this _____ day of _____ A.D., 20____, to furnish:

in said County and Commonwealth, in strict conformance with the Specifications, a copy of which is or may be hereto attached.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall remedy, without cost to the said Owner, any defect which may develop during the period of one (1) year from the date of completion, and acceptance of the work performed under said Contract, provided such defects, in the judgment of said Owner, are caused by defective or inferior materials or workmanship, then this obligation shall be null and void, otherwise remain in full force and virtue. AND FURTHER, we do in the event of default; hereby authorize and empower any attorney of the Court of Common Pleas of the County of Delaware, Pennsylvania, or any other Court of record elsewhere, or any Prothonotary or Clerk of Said Courts, to appear for us. our heirs, executors, administrators, successors or assigns, at the suit of the Owner, its successors, or

Section M
Maintenance Bond

assigns oblige in the above obligations as of any term, after the date thereof or hereof and thereupon to confess judgment against us or against our heirs, executors, administrators, successors or assigns for the above sum of: _____ Dollars (\$ _____) debt, besides the cost of suit and an attorney's fee of ten percent (10%) without stay of execution and inquisition upon any levy upon real estate is hereby waived, and condemnation agreed to and the exemption of personal property from levy and sale on any execution under and by virtue of any exemption law now in force, or which may be hereafter be passed, is also waived.

Attest: _____
Secretary or Assistant Secretary

Principal

Sealed and delivered in the presence of:

Surety

Section N
Waiver of Liens

WAIVER OF LIENS

WHEREAS, entered into a contract with _____

to provide materials and perform labor necessary for _____

upon a lot of ground located _____

NOW, THEREFORE, it is hereby stipulated and agreed by and between the said parties, as part of the said contract and for the consideration therein set forth, that neither the undersigned contractor, any sub-contractor or material man, nor any other person furnishing labor or materials to the said contractor under this contract shall file a lien, commonly called a mechanic's lien, for work done or materials furnished to remove the said bridge or any part thereof.

This stipulation is made and intended to be filed with the County Prothonotary in accordance with the requirements of Section 1402 of the Mechanics Lien Law of 1963 of the Commonwealth of Pennsylvania in such case provided.

IN WITNESS WHEREOF, the said parties hereto have hereunto set their hands and seals this ____ day of _____, 20____.

COUNTY OF DELAWARE

By: _____
Authorized Signature

Attest:

CONTRACTOR

By: _____

By: _____
Authorized Signature

Typed Name & Title

STATEMENT OF SURETY COMPANY

Delaware County Contract No. eDPW-091824

In accordance with the provisions of the Contract dated _____
between the County of Delaware, Pennsylvania, and:

_____,
the _____ company of _____ Surety on
the Bonds of _____,
after a careful examination of the books and records of said Contractor or after
receipt of an Affidavit from Contractor, which examination or Affidavit satisfies
this Company that all claims for labor and materials have been satisfactorily
settled, hereby approve the final payment of the said
_____ Contractor and by
these presents witness that payment to the Contractor of the final payment shall
not relieve the Surety Company of any of its obligations to the County of
Delaware, Pennsylvania, as set forth in the said Surety Company's Bonds.

IN WITNESS WHEREOF, the said Surety Company has hereunto set its hand
and seal this

_____ day of _____, 20____.

Attest:

(SEAL) _____ BY: _____
President

NOTE: This statement, if executed by any person other than the President of
the Company, must be accompanied by a certificate of even date
showing authority conferred upon the person so signing to execute
such instruments on behalf of the company represented. This
statement must be executed and submitted by the Bonding Company,
to the Engineer, before final payment can be certified.

GENERAL CONDITIONS

These General Conditions shall apply to the Contract as a whole, and to each and all branches or sub-divisions and contractors for same, should the work be divided. Approved sub-contractors should be supplied with a copy of these General Conditions and no Contract or arrangements with them shall be such as to conflict herewith.

1. DEFINITIONS

The following terms shall have the meanings indicated below:

- a. The CONTRACT DOCUMENTS consist of the Agreement, the Instructions to Bidders, the General Conditions, the Proposal, the Drawings and Specifications, including all modifications thereof incorporated in the Documents before their execution.
- b. The term OWNER shall mean the County of Delaware.
- c. The term OFFICERS OF OWNER shall mean the County Council of the County of Delaware.
- d. The term ENGINEER shall mean the Design Professional who has prepared these Specifications.
- e. The term CONTRACTOR shall mean the person, firm, or corporation named in the Agreement, who will execute the work.
- f. The term SUB-CONTRACTOR includes only those having a direct Contract with a Prime Contractor for the performance of the work required under the Prime Contract, and it includes one who furnished materials worked to a special design according to the Drawings or Specifications for this work, but does not include one who merely furnishes material not so worked.
- g. Throughout the Contract Documents, the term OWNER, ENGINEER, CONTRACTOR, and SUB-CONTRACTOR are treated as if each were of the singular number.
- h. The term WORK of the Contractor or Sub-contractor includes labor, materials, and services, or any of them.
- i. Where AS SHOWN, AS DETAILED, or words of similar import are used, it shall be understood that reference to the Drawings accompanying this specification is made, unless otherwise stated.
- j. Where AS DIRECTED, AS REQUIRED, AS PERMITTED, APPROVED, ACCEPTANCE or words of similar import are used, it shall be understood that the directions, requirements, permission, approval, or acceptance of the Owner is intended, unless otherwise stated.

- k. As used herein, PROVIDED should be understood to mean PROVIDED COMPLETE IN PLACE, that is, FURNISHED AND INSTALLED.
- l. CHANGE ORDER shall mean any changes in the work which alter the terms of conditions of the Contract, including, but not limited to, any extension of time for completion of the Contract or any additional to, or deduction from the Contract Sum for extra work or changes in the work. Change orders shall be processed on standard A.I.A. forms and shall be signed by the Owner and the Contractor prior to the start of any work affected by or included in the scope of the change.
- m. The term NOTICE, as used herein, shall mean and include all written notices, demands, instructions, claims, approvals, and disapprovals required to obtain compliance with Contract requirements. Written notice by either party to the contract shall be deemed to have been duly served if delivered to or at the last known business address of the person, firm, or corporation, the other party to the Contract, or to his, their, or its duly authorized Agent, representative or Officer, or when enclosed in a postage repaid envelope addressed to such last known business address and deposited in the United States mail.
- n. The words TIME OF COMPLETION, CONTRACT TIME, or similar shall be as indicated in the Contract Documents.
- o. The law of the place of building shall govern the construction of this Contract.

2. ENGINEER'S INSPECTION

All work shall be subject to Engineer's inspection; he shall make all decisions regarding the work; shall interpret the contract documents and any authorized alterations in work; shall confirm in writing any oral orders, may stop work when necessary; have no authority to approve or order changes in work.

3. ENGINEER'S DECISION

All questions or disputes arising respecting any matter pertaining to the Contract or any part of it, or any breach of the Contract, or any questions and disagreements between the Owner and Contractor relating to the Meaning of the Drawings and Specifications or to kind and quality of work or materials required thereby, shall be decided by the Engineer. Reference of questions under this provision must be presented prior to the final payment.

4. INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary. What is called for by any one of them, shall be as binding as if called for by all. The intention of the Contract Documents is to include the Contract Price, the cost of all labor and materials, scaffold, ladders, runs centering, shoring, staging, rigging, hoists, water, fuel, tools, plant equipment, lights, power, transportation, shop drawings, samples, tests, tools, warranties, taxes, insurance and all other service and expenses necessary for and incidental to the proper execution and completion of the work, unless distinctly specified otherwise. In interpreting the Contract Documents, words describing materials or work which have a well-known technical or trade meaning, unless otherwise specifically defined in the Contract Documents, shall be construed in accordance with such well-known meaning, recognized by Architects, Engineers and Trades.

The Specifications, Drawings, Conditions, and Instruction in Directions as set forth are intended to cooperate and agree, and they shall be interpreted so that the work exhibited in the Drawings and not mentioned in the Specifications, or vice versa, shall be included the same as if it were mentioned in the Specifications and set forth in the Drawing themselves. Any such discrepancies shall be interpreted, explained and decided by the Engineer, who shall have the right to correct any errors or omissions in them as are necessary for the proper fulfillment of their intentions, either before or during the prosecution of the work, and the Contractor shall conform to and abide by whatever supplementary Drawings and explanations may be furnished by the Engineer for the purpose of illustrating the work.

Where the work is shown in complete detail on only half or a portion of a Drawing or there is indication of continuation, the remainder being shown in outline, the work drawn out in detail shall be understood to apply to other portions of the structure. On all work of additions, or alterations, it shall be the responsibility of the Contractor, by personal inspection, to satisfy himself as to correctness of any information given which may affect the quantity, size and quality of material required for a satisfactorily completed Contract, whether or not such information is indicated on the Drawings or within the Specifications.

5. WORK IMPLIED

Should any incidental work or materials be required but not set forth in the Specifications and Drawings, either directly or indirectly, but which is nevertheless necessary for the proper carrying out of the intent thereof, it shall be deemed to be implied and required, and the Contractor shall furnish and install all such work and materials as fully as if they were particularly delineated and described, without additional cost to the owner.

6. ACTUAL MEASUREMENTS

In all Cases where dimensions are governed by conditions already established, the Contractor must depend entirely upon measurements taken by himself, scale or figured dimensions to the contrary notwithstanding, but no deviation from the specified dimensions shall be made unless duly authorized by the Engineer.

7. ERRORS AND DISCREPANCIES

If the Contractor, in the course of the work, finds any discrepancy between the Drawings or Specifications and the physical conditions of the premises, or any errors, in the Drawings or Specifications or in the layout as given by the points and instructions, it shall be his duty to immediately inform the Engineer, in writing. Should any work be undertaken after the discrepancy has been noted and prior to decision by the Engineer, it is understood that the Contractor will rectify, at his own expense, such work as may have been accomplished and which does not comply with the decision of the Engineer.

8. ASSUMPTION OF RISK

The Contractor represents that he has had an opportunity to examine, and has carefully examined all of the Specifications, Drawings, Instruction and Directions in connection with the work; that he has fully acquainted himself with the actual levels, the excavations and filling required, visible obstructions or known obstructions below the surface, and all other conditions relevant to the work, the site of the work and its surroundings; and is fully aware of any variances between the actual conditions relevant to the work and the same as shown or represented in said Specifications, Drawings and Directions, as far as such variances can be determined by an inspection of the site; that he has made all investigations essential to a full understanding of the difficulties which may be encountered in performing the work and that anything in any of said Documents or in any representation, statements, or information made or furnished by Owner or Engineer notwithstanding, the Contractor will, regardless of any such conditions relevant to the work, the site of the work or its surroundings, complete the work for the compensation agreed upon (except in the case of changes in the work made by the Owner or Engineer and conditions at the site that cannot be determined by inspection, in connection with which the Contractor will be paid as provided in the Article regarding Changes), and will assume full and complete responsibility therefore and all risk in connection therewith. In addition, thereto, the Contractor represents that he has special qualifications for doing the work and will complete the said work to the satisfaction of Owner and Engineer.

9. SIGNING OF DOCUMENTS

The Contract Documents shall be signed, in duplicate, by the Owner and the Contractor.

10. ASSIGNMENT OF CONTRACT

The Contractor shall not assign the Contract or any part thereof without the written consent of the County of Delaware. He shall not Sub-Contract without prior written approval from the County of Delaware.

11. SUB-CONTRACTS

As soon as practicable and before awarding any sub-contracts, the Contractor shall notify the Engineer and Owner in writing, of the names of the sub-contractors proposed for the principal parts of the work, and for such other parts as the Engineer or Owner may direct.

The Contractor shall not sublet or sub-contract any work to be performed, or any materials to be furnished in the performance of the contract without the written consent of the Engineer or Owner.

The Contractor shall not be required to employ any sub-contractor against whom he has a reasonable objection.

If the Contractor shall sublet or sub-contract any part of the Contract, the Contractor shall be as fully responsible to the Owner of the acts and omissions of his sub-contractor as he is for the acts and omissions of persons directly employed by himself. The Engineer shall, on request, furnish to any sub-contractor, whatever practicable, evidence of the amounts certified on his account.

Nothing contained in the Contract Documents shall create any contractual relationship between any sub-contractor and the Owner. The Contractor agrees to bind every sub-contractor and every subcontractor shall agree to be bound by the terms of the Instructions to Bidders, Special Conditions, General Conditions, Drawings and Specification as far as applicable to his work.

12. OTHER CONTRACTS

The Owner reserves the right to let other Contracts in connection with this work even if of like character to the work under this Contract. The Contractor shall afford other Contractors adequate opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with their work.

If any part of the Contractor's work depends for proper execution or results upon the work of any other Contractor, the Contractor shall inspect and promptly report to the Engineer and Owner, any defects in such work that render it unsuitable for such proper acceptance of the other Contractor's work as fit and proper acceptance of the Contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the other Contractor's work after the execution of subsequent work.

To ensure the proper execution of this subsequent work, the Contractor shall measure work already in place and shall at once report to the Engineer any discrepancy between the executed work and the drawings.

13. TAXES

All Federal, State and Local Taxes, including Excise Tax, Sales and Use Taxes, when applicable, shall be included in the Proposal, and shall be paid by the Contractor.

14. OWNER'S RIGHT TO OCCUPY

The Owner reserves the right to occupy any portion of the project, before it has been entirely completed, with the distinct understanding that such occupancy shall in no way constitute acceptance of the work in whole or any part thereof, or of any work performed under the Contract.

The Contractor will be held strictly to the terms of the Contract regarding the diligent prosecution of the work and the time of completion of same. In case additional work is ordered or in case of delays not the fault of the Contractor, the Owner may make an equitable extension of working time by so designating in writing.

15. DEFAULT ON PART OF CONTRACTOR

If the Engineer shall at any time be of the opinion that the Contractor is not progressing with the work as rapidly as necessary to insure its completion by the date set forth in the Contract or is neglecting to remedy any imperfections or to repair damage to public or private property; or continues to employ or re-employ negligent or careless persons; or is conducting the work in a manner disapproved by the Engineer or if the Contractor stops or abandons work on any part of the construction without the written consent of the Engineer, or is violating any of the provisions of the Contract, the Engineer shall give the Contractor written notice of the specific deficiencies and direct the Contractor to remedy same. If, at the end of seven (7) calendar days from the date of such notice, the Contractor shall have failed to comply therewith, then the Owner may withhold all payments until the provisions of such notice are carried out and may also place additional forces, equipment, tools and materials on parts of the work at the Contractor's expense as specified or it may annul the Contract.

In case the Owner should augment the Contractor's forces, equipment, etc., as herein provided, the cost incurred in carrying on such parts of the work shall be paid by the Contractor. The Owner may retain the amount of the cost of such work from any sum or sums due or to become due the Contractor under this Contract. If such costs exceed such unpaid balance, the Contractor shall pay the difference to the Owner.

Should the Contractor be judged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he files any proceedings under the provisions of the Bankruptcy Act, or if he should persistently or repeatedly refuse, or should fail, except in cases for which extension of time is provided to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to sub-contractors or for material or labor, or persistently disregard laws, ordinances or the instruction of the Engineer or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner, upon the Certificate of the Engineer that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor, and his Surety, if any, seven (7) calendar days written notice, terminate the employment of the Contractor and take possession of the premises by whatever method he may deem expedient, including, but not limited to, contracting with another Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price shall exceed the expense of finishing the work, including compensation for additional engineering, managerial and administrative services, such balance shall be paid to the Contractor; should the unpaid balance be insufficient to complete the work, including compensation for engineering, managerial and administrative services, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Engineer.

16. REMOVAL OF EQUIPMENT

No equipment shall be removed from the worksite by the Contractor, except as herein designated until the usefulness of such equipment on the worksite has ceased, or except with the written consent of the Engineer, otherwise such removal may be considered by the Owner as an abandonment on the part of the Contractor.

In the case of annulment or rescission, or termination of this Contract for any cause whatsoever before the completion of this Project, no equipment, material or supplies shall be removed from the site without the prior authorization in writing from the Owner. Upon written notice from the Engineer to do so, the Contractor shall promptly remove such equipment and supplies from the property of the Owner. The Contractor's failure to carry out the provisions of such notice shall give the right to the Owner to remove such equipment and supplies at the expense of the Contractor.

17. MATERIALS AND WORKMANSHIP

Unless otherwise specifically stipulated in the Specifications, all workmanship shall be of the best quality and all equipment, materials and articles incorporated in the work under the Contract shall be new and of the best grade of their respective kinds for the purpose. The Contractor shall, if required, furnish evidence as to kind and quality of materials.

Should any dispute arise as to the quality and fitness of workmanship, equipment, materials and articles, the decision shall rest strictly with the Engineer and shall be based upon the requirements of the Contract, and what is usual and customary in the execution of other work shall in no way enter any consideration or decision whatsoever.

Where equipment, materials or articles are referred to in the Specifications as equal to any particular standard, the Engineer shall decide the question of quality. The Contractor shall furnish to the Engineer for his approval, the name of the manufacturer of machinery, mechanical and other equipment that he contemplates incorporating in the work, together with their performance, capacities and other pertinent information.

Where required by the Specifications or when called for by the Engineer, the Contractor shall furnish the Engineer for approval, full information concerning the materials or articles that he contemplates incorporating in the work. Machinery, equipment, materials and articles installed or used without such approval shall be at the risk of subsequent rejection.

When the Specifications give the Contractor the option of using one of several definitely named makes or kinds of a particular item or "Approved" equal, the Contractor shall use one of the named items or submit a written request to the Engineer for approval and obtain his approval of an equal before purchasing such material.

Where the Specifications call for any stipulated items, "or equal thereto and approved" or other words to that effect, the Engineer shall be the sole judge of the equality of any article or material offered and reserves the right to demand the particular items stipulated.

18. CHANGES IN SPECIFICATIONS

The Owner reserves the right to make any change in the location of any piece of apparatus or equipment, or roughing-in dimensions up to the time of roughing-in and to make any changes in the Drawings and Specifications, should any be found desirable previous to commencing or during the progress of the work, without in any

other respect or particular invalidating the original provisions of the Contract, without additional expense to the Owner unless such changes require additional labor and/or material. If such a change requires a less amount of labor and/or material than the original work shown or specified, the Owner will be entitled to a credit equal to the difference of the cost and installation. The greater or lesser amount, if any, to be paid the Contractor by the Owner by reason of such changes, shall be as herein specified or as agreed upon between them.

No part of the work shall be altered from that shown on the Drawings or described in the Specifications, nor shall any work in the nature of additional work, or any work not contemplated by the Contract Documents be performed except on written order of the Engineer, approved by the Owner, and if any extra, additional or different work be proceeded with or executed by the Contractor without previous order given, in writing, under the hand of the Engineer, as herein provided, the Contractor shall not be entitled to charge for such extra work.

19. ADDITIONAL OR OMITTED WORK

It is understood that the Owner shall have the right during the progress of construction to make any alterations, additions or omissions of work or material herein specified or shown on the Drawings that may be desired and the same shall be carried into effect by the Contractor without in any way violating the Contract. The amount of money to be added or deducted shall be agreed to, in writing, signed by the two contracting parties before any changes in the Contract Documents will be in force.

Unless specifically directed otherwise by the Engineer, the Contractor shall promptly submit his itemized prices for additions, alterations or deductions prior to proceeding with the changes, which prices, if approved by the Owner, shall be added to or deducted from the Contract price.

When so directed, the Contractor shall submit separate unit prices on work for both additions to and deductions from the Contract price; adjustment, if any, in the amounts to be paid to the Contractor by reason of any change, addition or reduction shall be determined by one or more of the following methods:

1. By unit price contained in the Contractor's Proposal and incorporated in the Contract which unit prices include all charges.
2. By an acceptable lump sum Proposal from the Contractor. Such Proposal shall indicate costs for materials and labor and shall indicate overhead and profit.

3. By actual time and material costs, verified by the Owner's representative, to which it is agreed that an overhead charge of 10% and a profit of 10% will be added.
4. No extra work or change shall be made unless in pursuance of a written order from the Owner signed or countersigned by the Engineer.

20. SUPERVISION AND LABOR

The Contractor shall provide continuous supervision of all work embraced in the Contract, from the beginning of the work to the date of final completion, by a duly authorized and competent Superintendent who shall be acceptable to the Engineer. The Superintendent shall be at all times in charge of the work and shall be provided with such assistants as are necessary to properly carry on the individual branches of the work. The Superintendent shall represent the Contractor in his absence from the work, and all directions, instruction, or notices given to the Superintendent by the Engineer shall be as binding as if given to the Contractor.

The Contractor shall at all times enforce good order and conduct among his employees. Every employee shall be a first-class workman and competent to perform the work assigned to him. Employees shall not be permitted to trespass or conduct themselves contrary to the rules and regulations governing the Owner's premises. Any employee of the Contractor whom the Engineer considers to be detrimental to the proper carrying out of the work is to be removed promptly on the request of the Engineer, and the services of such person shall not be employed on the project site without the written consent of the Engineer.

21. ENGINEERING AND LAYOUTS

If applicable, the Contractor shall provide competent engineering and layout services, approved by the Engineer, from the beginning of the work to the date of final completion of the Contract, to execute the work in accordance with the Contract requirements.

22. RIGHTS OF VARIOUS INTERESTS

Wherever work is being done by workmen other than those employed by the Contractor, but contiguous to his work, the respective rights of the parties involved shall, if necessary, be established by the Engineer. Requests in writing for such determination shall be submitted in a timely manner by the Contractor.

23. INSPECTION OF WORK

The Contractor shall afford the Engineer every facility for observation. All materials and workmanship shall be, at all times, subject to the inspection and acceptance of the Engineer who shall have full power at any time during the progress of the work to reject any materials or workmanship which the Engineer may deem unsuitable for the purpose for which they are intended, or which are not in strict conformity with the Specifications. The Engineer shall also have the power to cause any inferior or unsafe work to be taken down and altered at the cost of the Contractor. When deemed necessary for the proper protection of materials or building, the materials must be sorted and handled as directed by the Engineer. Every part of the work shall be executed to the entire satisfaction and acceptance of the Engineer and Owner.

24. WORK MAY BE PULLED DOWN AND OPENED UP FOR EXAMINATION AND INSPECTION

If directed by the Owner and the Engineer, the Contractor shall pull down, undo or uncover any part of completed or partially completed work or make openings therein to enable the Engineer to make a proper and thorough inspection and the Contractor, after such inspection, shall repair or reconstruct such affected work to the satisfaction of the Engineer.

If, in the opinion of the Engineer, the work should be found unsatisfactory in any respect, the cost of exposing, removing, replacement and restoring it shall be defrayed by the Contractor.

Should the work thus exposed be found not faulty by the Engineer, and if adequate opportunity was afforded for inspection of the work before it was covered or completed, the cost and expense thereby incurred shall be defrayed by the Owner or the Engineer to the extent to which they mutually accept responsibility for such required corrective work.

25. ROYALTIES AND PATENTS

The Contractor shall obtain all necessary consents and shall pay all royalties, licenses, and fees for the use of any patented invention, article, composition or process in the work done or the materials furnished, or any part thereof embraced in this Contract. The Contractor guarantees to save harmless the Owner, its Officers, members, Agents and employees from the liability of any kind of nature including cost and expense on account of suits and claims of any kind for the violation or infringement of any such patent rights by the Contractor or by anyone directly or indirectly employed by him, for, by reason of the use of any art, process, method, manufacture, or

composition of matter patented or un-patented in the performance of this Contract, in violation or infringement of any such patented rights.

The Contractor shall pay for all royalties, claims, and fees for any patented invention, article, or arrangements that may be used in the work under Agreement.

26. PERMITS, LICENSES AND CERTIFICATES

The Contractor shall arrange for the issuance of all Local permits required both temporary and permanent and the Contractor shall include in his price the cost of any of these items. All other licenses, certificates, inspections, survey and/or inspection fees shall be paid by the Contractor including license to practice his trade.

The Contractor shall deliver to the Engineer certificates of inspection and certificate of occupancy where such are required.

The Contractor shall furnish to the local authorities all necessary bonds or cash deposits required as a pledge and security for the protection or maintenance of any public property.

The Contractor and each of his sub-contractors shall secure and pay for all inspections and certification of their work as required by laws and regulations in effect in the locality in which the project is built including those of the Underwriter's and other regulatory bodies.

27. BUILDING REGULATIONS

The requirements of all applicable laws, rules and regulations of Local and State Departments governing building construction and equipment, shall be followed, and all work shall be carried out in strict accordance with such requirements even though each item involved be not herein particularly mentioned or shown on the drawings.

Work required by the Drawings and Specifications above or in excess of the standards required by the above-mentioned laws and regulations shall be provided as specified.

If the Drawings and Specifications are at variance with the above-mentioned laws and regulations, the Contractor shall promptly notify the Engineer, in writing, and any necessary changes shall be made as provided in the Contract. If the Contractor performs any work contrary to such laws, rules and regulations, and without such notice to the Engineer, he shall bear all costs arising therefrom.

28. COOPERATION

The Contractor shall cooperate with the other Contractors on the work and with the Owner so that the completion of all portions of the work may proceed with all possible speed. The Contractor will be required to furnish any and all other Contractors, whose work is fitted to his, detail and erection Drawings giving full information regarding the fabrication and assembly of his work.

So far as possible, these drawings shall show checked field measurements. The Contractor shall further cooperate in timing his work to join with the work of the Contractors or the Owner.

29. MOVING MATERIALS

If it becomes necessary at any time during the execution of the work to move materials or equipment which have been temporarily placed, the Contractor or Sub-contractor furnishing said materials shall, when so directed by the Engineer, move them or cause them to be moved without additional charge.

30. RECEIVING MATERIAL FURNISHED BY OTHERS

Whenever the Contractor or any Sub-contractor shall receive items from another Contractor or the Owner for storage, erection or installations, the Contractor or Sub-contractor receiving such items shall give receipt for the items delivered, and thereafter will be held responsible for the care, storage and any necessary replacing of items received.

31. INJURY TO PROPERTY

Should any direct or indirect injury be done to any existing installation or structures, or to public or private property of any kind or to any structure, materials, or fixtures, resulting from any act or omission on the part of the Contractor, his Sub-contractor, Employees or Agents, the Contractor shall, at his own expense, restore the same equal to its condition before the said damage or injury was done by repairing, replacing, rebuilding or otherwise as may be required by the Owner, Engineer or the Owner of the damaged property.

The Contractor shall take all necessary precautions to avoid injury or damage to buildings, driveways, sidewalks, grading, pipes, conduits, etc., and shall, unless otherwise specified, restore such structures, property, materials, etc., at his own cost and expense to a condition equal to that existing before such damage was done, by repairing, rebuilding, or otherwise, as may be required by the Owner, or shall make good such injury or damage in a satisfactory manner.

The Contractor shall be responsible for any injury or damage to the property of the Owner or to the property of any Public Utility Company included in this contract by or on account of any act, omission, neglect or misconduct of the Contractor in the prosecution of the work or in the storage of materials and equipment.

The Contractor shall properly safeguard the work under this Agreement and shall make good at his own expense all injuries or damages to said work before its completion and final acceptance.

32. BONDS

Should any surety upon the bonds for the performance of the Contract and payment for materials and labor become unsatisfactory to the Owner, the Contractor shall promptly furnish such additional security as may be required from time to time to protect the interest of the Owner and of persons supplying materials and labor in the prosecution of the work required by the Contract, including any change therein.

33. CUTTING AND PATCHING

The General Contractor shall do all demolition, cutting, patching, removals, additions, adjustments and replacements of building construction and finishes necessary for the installation of work of mechanical, electrical and other separate Contractors. All work shall be performed so as to leave the buildings and structures complete and watertight and, in a condition, satisfactory to the Engineer.

The Contractor for Mechanical and Electrical construction shall furnish all labor, material and equipment and perform all operations for the demolition, removal, salvaging, disposition of materials and alterations to the installations and equipment, utilities and services of their respective trades. Any cost of cutting and fittings caused by defective or ill-timed work shall be borne by the party responsible, therefore.

The Contractor shall not endanger any work by cutting, fitting or otherwise. The Contractor shall not cut or alter the work of any other Contractor.

34. ORDER OF COMPLETION

The Contractor shall complete any portion or portions of the work in such order as may be stated in the Specifications. All work shall be so arranged, and Contractors shall so coordinate their work as to complete the work by the date as set forth in the Contract.

35. SUSPENSION OF WORK DUE TO UNFAVORABLE CONDITIONS

If, in the judgment of the Engineer, the Contractor is taking undue risk in the interruption of ongoing site operations and risk of damage to any part of the building by proceeding with the work during unfavorable weather or other conditions, the Engineer shall immediately verbally notify the Contractor or his representative on the site, confirming the same in writing, with copies to the Owner. The Owner may thereupon suspend the work temporarily either wholly or in part, for such period or periods as it may be necessary on account of unsuitable weather or other conditions unfavorable for the safe and proper prosecution of the work. In case of such suspension, no allowance will be made to the Contractor for any expense resulting therefrom. The Owner shall not be liable to the Contractor in any manner for any other charges whatsoever arising out of a suspension in the work of either this Contractor or any Contractor engaged on this Project. It shall be clearly understood that the failure of the Owner or Engineer to suspend the work shall not relieve the Contractor of his responsibility for compliance with the conditions of the Contract.

36. SUSPENSION OF WORK DUE TO FAULT OF CONTRACTOR

Should the Contractor fail to comply with any order of the Engineer relative to any particular part of the work, the Engineer shall have the right to suspend the work on any or all parts until his orders respecting the particular parts are complied with. In case of such suspension, which shall be considered due to the fault of the Contractor, it shall be at the expense of the Contractor on account of idle equipment or forces during the terms of such suspension.

37. SUSPENSION OF WORK DUE TO UNFORESEEN CAUSES

If the Contractor shall be delayed in the completion of his work by reason of unforeseeable causes beyond his control and without his fault or knowledge; such as acts of God or of a public enemy, fire, flood, epidemic, quarantine, restriction, strike, riot, civil commotion or freight embargo, the period may be extended as hereinafter provided. Suspension of work as outlined above shall not in themselves operate to extend the Contract date of completion.

38. REQUEST FOR EXTENSION

The request for extension of time shall be submitted by the Contractor to the Owner and the Engineer setting forth his reasons, therefore. In submitting such requests, the Contractor shall state the completion date as stated in the existing Contract, any changes that have been authorized, and the date he is now requesting as a new completion date. The Owner will grant or deny such request at such time as he deems proper.

The Owner shall not be liable to the Contractor in any manner for any expenses, damages, loss of profits, anticipated or otherwise, or any other charge whatsoever arising out of an extension in the completion date of the work of either this Contract or any Contractor engaged on this Project.

39. STOPPAGE OF WORK BY ENGINEER

Should conditions arise which, in the opinion of the Engineer, warrant a stoppage of work, then the engineer may so direct. If the work is stopped and the Engineer subsequently directs its resumption, the Contractor shall resume full operation within the period of ten (10) calendar days after date of written notice. The Owner shall not be liable to the Contractor in any manner for any expenses, damages, loss of profits, anticipated or otherwise, or any other charges whatsoever arising out of the stoppage of the work of either this Contract or any Contractor engaged on this project. Any work done by the Contractor during the period of suspension shall be at his sole risk and he shall receive no pay therefore, unless the construction is subsequently ordered to be and is resumed and the work during the intervals of the suspension can be utilized in the resumed work.

In the event the Owner determines that any or all of the work as outlined in the Contract shall be terminated, the Contractor shall request payment for the percentage of the work that he actually has completed under the Contract.

The Owner will then determine the percentage of such work that has been completed and the Contractor will accept as full payment the sum of money determined by applying that percentage to the sum that would have been paid under the terms of the Contract, had all of the work been completed.

40. MONTHLY ESTIMATES AND PAYMENTS

Immediately following the receipt of executed copy of Contract, the Contractor shall submit, on forms approved by the Engineer, a detailed breakdown of all items of work entering into the Contract. This detailed breakdown will show quantities of the respective items and the allowances for labor, materials and other costs entering into each item. The detailed breakdown when approved by the Engineer shall be used as a basis by the Contractor in preparing monthly estimates for payment and shall, as accurately as possible, reflect the true division of cost of the respective items entering into the Contract.

As long as the work herein contracted for its prosecuted in accordance with the provisions of this Contract and with such progress as may insure completion by the date set forth in the Contract and to the satisfaction of the Engineer and owner, then

the Owner will make payment to the Contractor for the value of the work completed at monthly intervals.

Monthly estimates shall be prepared by the Contractor on forms approved by the Engineer and will indicate the quantity and value of the work done and materials incorporated by the Contractor to the end of the monthly estimate period. The monthly estimate will be forwarded by the Contractor, for approval to the Engineer, and he shall, in turn, forward it to the Owner. Materials in reasonable quantities that are delivered and accepted for incorporation in the work but not yet so used may be included on monthly estimates for payment.

The Contractor shall submit with the monthly estimate, reflecting the unincorporated material, original and two (2) copies of itemized receipt invoices showing payment for such material by the Contractor and delivery slips certifying to the delivery of the quantities set forth on the estimate to the site of this work, upon the property of the Owner.

The Contractor shall mark or identify such material and shall be solely responsible for its safekeeping and usability of the time it is to be incorporated in the structure or project, and shall, at his own expense, care for and protect the same and take out insurance against theft, loss from any other cause, damage, destruction and/or such other risks as may be involved, which would render the aforesaid materials unfit or unavailable for incorporation in the project.

Payment for materials stored at the site shall be based on 50% of actual cost for same as shown by the receipted invoices and shall not exceed the cost of materials as indicated on the approved "Breakdown Sheet" for the particular items involved. Monthly payments to the Contractor will be made on the basis of submission prepared by the Contractor as above explained. The form will require breakdown of total work completed to date of submission. From this total will be deducted ten percent (10%). From the resultant amount will be deducted all previous payments. The remainder, as approved, will constitute current amount due. The retained ten percent (10%) will be paid when the project has been finally accepted by the Owner. No estimates given or payment made shall be conclusive of the performance of the Contract either wholly or in part and no estimates or certificates of final payment shall be construed to be an acceptance of inferior or defective work or materials.

In Contracts exceeding \$50,000.00 for the construction, reconstruction, alteration or repair of any public building or other public work or public improvement, including heating or plumbing contracts, under the terms of which the Contractor is required to give a performance bond and labor and material payment bond, the Owner, in order to insure the proper performance of the Contract, shall withhold from the Contractor sums not to exceed 10% of the amount due the Contractor until 50% of the Contract

is completed. The sum or sums withheld by the Owner from the Contractor after the Contract is 50% completed shall not exceed 5% of the amount due the Contractor.

41. ACCEPTANCE AND FINAL PAYMENT

Whenever, in the opinion of the Engineer, the Contractor shall have completed his Contract in accordance with terms thereof, the Owner and the Engineer shall make a final observation of the entire work and, if satisfied that the Contractor has completely performed the Contract, the Contractor shall be instructed to submit a final estimate showing the entire amount of each class of work performed and the value thereof with such deductions as may be due the Owner under the Contracts or of such additions as may be due the Contractors. The total payments due to the Contractor cannot, however, exceed the sum authorized by the Owner under the terms of the Contract. The Engineer shall certify to the Owner the aggregate amount of said final estimates due to the Contractor and that all work in the Contract has been fully completed.

The final payment shall not become due and payable until the Contractor shall have furnished the Owner with satisfactory evidence that all labor and materials, outstanding claims and indebtedness of whatsoever nature arising out of the performance of the Contract have been paid, and until the Contractor shall have furnished a written General Release statement to such effect executed by Contractor and Sureties, which will further provide that payment to the Contractor of the final estimate shall not relieve any Surety of its obligation to the Owner as set forth in the Surety Bonds.

Where one or more claims against the Contractor, which are in controversy, appear unsatisfied, the Owner shall have the discretion to direct final payment to be withheld or a partial payment to be made from the retained percentage, should it be determined that the withholding of the entire final payment would work a hardship on the Contractor or delay the final payments to other Contractors on the project. If only partial payment is permitted under the paragraph from the retained percentage, final payment shall not be made until the Contractor shall have furnished satisfactory evidence and a statement from the Surety that all claims against the Contractor have been paid; that payment to the Contractor of the Contract balance shall not relieve any Surety of any of its obligations to the Owner as provided in the Surety Bond. The acceptance by the Contractor of the final payment made as aforesaid, shall operate as and be a release to the Owner and every member and agent thereof from all claims and liabilities to the Contractor for (1) anything done or furnished for, or relating to the work or (2) any act or neglect of the Owner, or of any person relating to or affecting the work, but his final payment shall not relieve the Contractor from his indemnity obligations under the terms of the Contract.

42. ESTOPPEL AND WAIVER OF LEGAL RIGHTS

Neither the Owner nor the Engineer shall be precluded or estopped by the measurements, estimate, or certificate, made or given by any of them or by any of their agents or employees, under any provision of the Contract, at any time, either before or after the completion and acceptance of the work and payment thereof, pursuant to any measurements, estimates, or certificate, from showing the true and correct amount or character of the work performed and materials furnished by the Contractor, nor from showing, at any time, that any such measurements, estimate or certificate is untrue or incorrectly made in any particular, or that the work or materials or any parts thereof do not conform in fact to Specifications and Contract. The Owner shall have the right to reject the whole or any part of the aforesaid work or materials should the said measurements, estimate, certificate or payments be found or be known to be inconsistent with terms of the Contract, or otherwise improperly given, and the Owner shall not be precluded or estopped notwithstanding any such measurements, estimate, or certificate or payment in accordance therewith from demands and recovering from the Contractor and/or his surety such damages as may sustain by reason of his failure to comply with the terms of the Specification and Contract, or on account of any over payments made on any estimate or certificate. Neither the acceptance by the Owner or Engineer or any of their agents or employees, nor any certificate approved for payment of money; nor any payments for, nor acceptance of, the whole or any part of the work by the Owner, nor any extension of time nor any possession taken by the Owner or its employees shall operate as a waiver of any portion of the Contract or any power therein reserved by the Owner, or any right to damages herein provided, nor shall any waiver of any breach of the Contract be held to be a waiver of any other or subsequent breach.

43. CHASES, THIMBLES, SLEEVES

The General Contractor shall construct, or have built into the building walls, floors, ceilings and partitions all chases, thimbles, sleeves, inserts, bolts, hangers and fastening devices that are necessary. All other prime or separate Contractors shall furnish to the General Contractor, for installation, all material in required locations.

If the foregoing has not been complied with within such time as may be necessary so that the work can progress along with the structure, then the Sub-contractor or separate Prime Contractor whose work is affected shall make and bear expenses for such changes incidental to the construction as may be required so that his work can be properly installed. All such work shall be undertaken only after securing the Engineer's approval.

44. HIRING, ETC.

That, in the hiring of employees for the performance of work under this Contract or any Sub-Contract hereunder, no Contractor, shall by reason of race, creed, or color or sex discriminate against any citizen of the Commonwealth of Pennsylvania who is qualified and available to perform the work to which employment relates.

45. SHOP DRAWINGS AND SAMPLES

Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are prepared by the Contractor or Sub-contractor, manufacturer, supplier or distributor and which illustrate some portion of the work; samples are physical examples furnished by the Contractor to illustrate materials, equipment or workmanship and to establish standards by which the work will be judged.

The Contractor shall review, stamp with his approval and submit, with reasonable promptness and in orderly sequence so as to cause no delay in the work or in the work of any other Contractor, all shop drawings required by the Contract Documents or subsequently by the Engineer as covered by Modifications. Shop drawings and samples shall be properly identified as specified, or as the Engineer may require, Contractor shall notify the Engineer in writing of any deviation in the shop drawings from the requirements of the Contract Documents at the time of submission.

The Contractor shall make any corrections required by the Engineer and shall resubmit the required number of corrected copies of shop drawings or new samples until approved. The Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections requested by the Engineer on previous submissions.

The Engineer's approval of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Engineer in writing of such deviation at the time of submission and the Engineer has given written approval to the specific deviation, nor shall the Engineer's approval relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

For each Shop Drawing required, the Contractor shall submit one copy of an acceptable, legible, reproducible (sepia) print of the original tracing, along with two (2) prints. The Engineer will mark as previously specified and return corrected sepia print to Contractor. This process shall be repeated until approved shop drawings are received. Five (5) prints of approval sepia, along with the sepia print, will be finally submitted. All sepia prints will become the property of the Owner.

46. AS-BUILT DRAWINGS

At termination of work and before final payment, submit As-built drawings of the work completed.

After approval, submit one (1) corrected bound copy and two (2) electronic CD's in PDF Format.

47. REQUIRED BREAKDOWN OF PROJECT COSTS AND FORM FOR MONTHLY BILLINGS

American Institute of Architects Document G702, "Application and Certificate for Payment", and Document G702A, "Continuation Sheet", will be used for all monthly billings on this project.

48. PREVAILING WAGE RATES

If Prevailing Wage Rates apply, the Contractor shall conform to and be bound by the laws of the Commonwealth of Pennsylvania, relating to conditions of employment with respect to Act. No. 442. Prevailing Wage Rates apply to any project over \$25,000.00

49. CONTRACTOR'S SECURITY

Upon notice to the Contractor that he is the low bidder, and before award of the Contract, the Contractor shall furnish two (2) Bonds with Surety acceptable to the County, as follows:

One in the full amount of the Contract conditioned for the faithful performance of said Contract, including the indemnification of the Owner, in all respects set forth in these General Conditions and Specifications.

And the other for the full amount of the Contract conditioned to pay for all labor and materials which may be furnished to the Contract or which may enter into the Contract with right in all persons, firms or Corporation furnishing such labor or materials to sue on said Bond in the name of the Owner, for his, their, or its use.

The Delaware County Council will also require a Maintenance Bond in the amount of ten percent (10%) of the Contract price conditioned that the Principal shall remedy, without cost to the Owner, any defects which may develop during the period of one (1) year from date of completion and acceptance of the work performed under the Contract.

To each Bond shall be attached a recent financial statement of the Surety, along with a Power of Attorney showing that the person signing the Bonds on behalf of the Surety has power to do so.

The surety Bonds are subject to the approval of County Council. No Surety Bond will be approved unless the bonding Company shall have a rating of at least "B+" in Best's Key Rating Guide and shall be approved by the United States Department of the Treasury as a surety Company acceptable on Federal Bonds. In addition, the bonding Company shall have been registered with the Office of judicial support and the Office for Recording of Deeds of the **County of Delaware**.

The bonds shall be duly executed by the successful bidder as principal and by the signers of the Agreement of Prepared Surety, or Sureties. If the Owner determines that the Sureties are not acceptable, the bidder shall replace the bond with bonds offered by Sureties, which are acceptable to the Council within ten (10) calendar days of notification by the Council.

50. STEEL PRODUCTS

In accordance with the Pennsylvania Steel Products Procurement Act #1978-3, it is required that if any steel products are to be used or supplied in the performance of the Contract only steel products as defined in said act shall be used or supplied in the performance of the Contract or any sub-contracts thereunder.

Steel products as defined in said act are products made from steel made in the United States by the open hearth, basic oxygen, electric furnace, Bessemer or other steel making process. These steel products include products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more of such operations.

51. MATERIAL SAFETY DATA SHEETS (MSDS)

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

52. GENERAL NOTES

Contracts shall be awarded to the lowest responsible bidder. In determining "lowest responsible bidder", in addition to price, the Central Purchasing Department in its pre-award evaluation shall, in consultation with the affected department head, ascertain and consider:

- a. The expertise of the bidder to perform the Contract or provide the service required;

Section P
General Conditions

- b. Whether the bidder can perform the Contract or provide the service promptly, or within the time specified and with adequate supervisory personnel;
- c. The character, integrity, reputation and judgment of the bidder;
- d. The quality of performance on previous contracts and services;
- e. The previous and existing compliance by the bidder with laws and ordinances relating to the Contract or service;
- f. The sufficiency of the financial resources of the bidder to perform the Contract or provide the service;
- g. The ready availability of supplies necessary to discharge performance in a prompt and workmanlike manner;
- h. The ability of the bidder to provide future maintenance and services for the use of the subject Contract;
- i. The number and scope of conditions attached to the bid.

(The acceptance of all bids for contracts is made expressly conditional upon a satisfactory rating from a pre-award investigation conducted by the Central Purchasing Department).

The following will automatically disqualify a low bidder:

- a. Default on the payment of taxes, licenses, or other monies due the County.
- b. Default, breach or repudiation on past contracts which reflect a course of performance deemed deleterious to the County's best interest.

When the award is not given to the lowest bidder, a full and complete statement of the reasons for placing the order elsewhere shall be prepared by the Central Purchasing Department and filed with the other papers relating to the transaction.

No verbal instructions or information will be binding. These specifications will be considered clear and complete unless attention is directed in writing to the Director of Public Works, County of Delaware, Delaware County Government Center, Media, Pennsylvania, to any apparent discrepancies or omissions thereof, before the opening of the Bids. Bidders should act promptly and allow sufficient time for replay to reach them before the submission of their Bids. Should any change in Specifications be required, an Addendum will be issued to all Bidders and receipt by the Bidders of the Form of Addendum must be acknowledged in space provided on Proposal Page.

Forms of Proposal are provided in these Specifications. This form must be used in submitting Proposal and must be signed by the Bidder.

DELAWARE COUNTY SPECIAL CONDITIONS

These General Conditions shall apply to the Contract as a whole, and to each and all branches or sub-divisions and contractors for same, should the work be divided. Sub-contractors shall have access to read a copy of these Special Conditions and no Contract or arrangements with them shall be such as to conflict herewith. Any requirements contained in the General Conditions which differ from any requirements contained in these "Special Conditions" shall be superseded by the requirements of these "Special Conditions".

1. ARRANGEMENT OF THE SPECIFICATIONS

- A. The Contractor is advised that the arrangement of the technical sections of the Specifications is furnished for his convenience only. The allocation of items of work between his Sub-contractors is entirely the responsibility of the Contractor.
- B. The Prime Contractors shall have a project foreman on-site whenever a Sub-contractor of the Prime Contractor is on-site to perform work. Sub-contractors shall submit all Owner related items to project foreman including operational and facility inquiries, building / room access. Scheduling conflicts and site coordination requests. It is the sole responsibility of the Prime Contractors to engage with Owner and Engineer, or their designated representatives to satisfy the Sub-contractors request.
- C. Materials and installation shall comply with the appropriate technical section of this specification unless otherwise indicated.

2. SAFETY DURING CONSTRUCTION

- A. The Contractor shall enforce suitable rules and provide the required guards and protective devices for the safe prosecution of the work and for the safety and health of the men employed in it and the public in general, both inside and outside the limit of Contract. The contractors are responsible for compliance with the Federal Occupational Safety and Health Act of 1970.

- B. The Prime Contractor and all Sub-contractors shall immediately report all accidents, injuries, or health hazards to the Owner and Engineer, or their designated representatives, in writing.
- C. It shall be the single and sole responsibility of the Contractor to ensure that his activities comply with all applicable safety requirements, including, but not limited to local, state and federal regulations. Neither the Engineer nor the Owner shall owe any duty under this Contract or otherwise to the Contractor or its agents, employees or guests to inspect the work or otherwise ensure compliance by the Contractor with applicable safety requirements. No increases in the Contract price or extensions in the Contract time of completion shall be given by the Owner as the consequence of the Contractor's failure to so comply.

3. STANDARD OF QUALITY

See General Condition, Paragraph 17.

4. SUBSTITUTIONS OF MATERIAL

Bidders wishing to obtain acceptance on items other than those specified by name shall submit their request to the Engineer not less than ten (10) days before the bid opening, provided that such request is in accordance with the terms of conditions of the Contract Documents.

Acceptance by the Engineer will be in the form of an addendum to the Specifications issued to all prospective bidders indicating that the additional brand or brands are approved as equal to those specified so far as the requirements of the project are concerned. If the bidders do not elect to obtain prior approval during the time so specified, they have thereby evidenced their intention and are bound to provide all those articles and brand names stated in the Specifications.

5. CASH ALLOWANCES

In accordance with the Commonwealth of Pennsylvania Laws and Regulations, no cash allowances are included in the Project Manual and Contracts.

The Drawings and / or Specifications indicate the standard of quality and the finite quantity of materials and work, specialties, and items of work required, where such quantities can be determined prior to commencement of the work.

In those instances where it is known that quantities required may exceed those specified, as the result of conditions impossible to anticipate, the Contractor shall state in his Proposal the unit price for such additional work, but no cash allowance for such additional quantity will be permitted.

6. DAMAGE TO PROPERTY

See General Conditions, Paragraph 31.

7. CLEAN-UP

The Contractor shall be responsible for periodic cleaning up of the building and premises. He shall remove all refuse of any kind regardless as to who may have left it. No rubbish shall be burned at the site. The Contractor shall also be responsible for keeping all property outside of the immediate work areas and material storage areas clean and free from all equipment, materials, and debris. If any condition in violation of this requirement persists more than twenty-four (24) hours after notification by the Owner or Engineer, the Owner shall have the right to abate the condition (without notice to the Contractor responsible) and charge the cost of abatement to the responsible Contractor.

8. DRAWINGS AND SPECIFICATIONS FURNISHED TO CONTRACTORS

Following the execution of their respective Contracts, Contractors shall be entitled to receive from the Engineer, without charge, sets of Contract Drawings and Specifications as follows:

A. Prime Contractors – 3 sets

Should a Contractor require a greater number of copies of Drawings and Specifications than above provided, he shall arrange to obtain them from the Engineer and pay the cost involved.

9. WARRANTY

Supplementing any specific guarantee or warranties provided for in any other provision of this Contract for the work to be performed hereunder; each Contractor covenants and agrees to remedy without cost to the Owner, any defect which may develop one (1) year from the date of completion and acceptance of the work performed under this Contract, or damage which may be caused by such defects, provided such defects, in the judgment of the Owner, are caused by inferior materials and workmanship.

10. OPERATIONS AND STORAGE AREAS

All operations of the Contractor (including storage of materials) shall be confined to areas authorized or approved by the Owner. No unauthorized or unwarranted entry upon, passage through, or storage or disposal of material shall be made upon area not so authorized or approved. The Contractor responsible shall be liable for any and all damage caused by him to such area.

11. SCAFFOLDS, LADDERS, RUNS, AND HOISTS

The Contractor shall construct and maintain such temporary scaffolds, ladders, runs, hoists, centering, shoring, and other facilities as required to construct the work under his contract.

12. TIME FOR COMMENCEMENT AND COMPLETION

See General Conditions, Paragraph 34.

13. CODES AND PERMITS

See General Conditions, Paragraphs 26 and 27.

14. GENERAL SCOPE OF WORK

See General Conditions, Paragraph 4.

15. INDEMNIFICATION AGAINST SUITS

The Contractor shall indemnify and save harmless the Owner, the Board, its members and officers, the Engineer, his assistants, and all others who may act for the Board or the Owner from all suits and actions of every kind, nature, and description brought by anyone whatsoever against them or any of them in any manner connected with the contract here proposed or the work thereunder; provided that nothing herein stated shall be construed to preclude the Contractor from maintaining an action at law for money which may be due to him under the Contract.

16. COMPETENT WORKMEN – RATES OF WAGES

No person shall be employed to do work under such Contract except competent and first-class workmen and mechanics. No workmen shall be regarded as competent and first-class, within the meaning of this clause, except those who are fully skilled in their respective branches of labor, and who shall be paid not less than such rates of wages and for such hours' work as shall be the established and current rate of wages paid for such hours by employers or organized labor in doing of similar work in the general geographical location of the project.

17. LINES, LEVELS, ETC.

The Contractor shall, at his own expense, procure datum information, grades, elevations, verify existing construction, etc., at the site, before starting work, otherwise any cost of correction shall be entirely at the contractor's expense.

18. REGULATIONS FOR PENNSYLVANIA PREVAILING WAGE ACT

- A. 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 contracts.

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 (No. 442), as amended August 9, 1963 (No. 342), and the Regulations issued pursuant thereto, to assure the full and proper payment of said wages.

- B. The contract provisions shall apply to all work performed on the Contract by the Contractor and to all work performed on the Contract by the Sub-contractors.
- C. The Contractor shall insert in each of the Sub-contracts all of the stipulations contained in these required provisions and such other stipulations as may be required.
- D. The Contract shall provide that no workmen may be employed on the public work except in accordance with the classifications set forth in the decision of the Secretary. In the event that additional or different

classifications are necessary the procedures set forth in Section 7 of these Regulations shall be followed.

- E. The Contract shall provide that all workmen 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 may be alleged to exist between any contractor, sub-contractor and workmen, not less than once a week without deduction 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 workmen on public work.
- F. The Contract shall provide that the Contractor and each Sub-contractor 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 used by them to pay workmen their wages. The posted notice of wage rates must contain the following information:
 - 1. Name of Project.
 - 2. Name of public body for which it is being constructed.
 - 3. The crafts and classifications of workmen listed in the Secretary's general prevailing minimum wage rate determination for the particular project.
 - 4. The general prevailing minimum wage rates determination for each craft and classification and the effective date of any changes.
 - 5. 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 Sub-contractor 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 months of the date of the occurrence, objecting to the payment by 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.

Section Q
Special Conditions

Any workman 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 months from the occurrence of the event creating such right.

- G. The Contract shall provide that the Contractor and all Sub-contractors 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 his duly authorized representatives.
- H. The Contract shall provide that 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 (No. 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 does not qualify as an apprentice within the provisions of this subsection shall be paid the rate predetermined for journeyman in that particular craft and / or classification.
- I. 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.
- J. 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.
- K. The Contract shall also provide that each contractor and each sub-contractor 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 form satisfactory to the Secretary, certifying that all workmen have been paid wages in strict conformity with the provisions of the Contract as prescribed by this Section 3 of these Regulations, or if any wages remain unpaid to set forth the amount of wages due and owing to each workman respectively.

- L. The provisions of the Act and the Regulations are hereby incorporated by reference in the Contract.

19. LIQUIDATED DAMAGES

- A. The Owner will suffer damages if the construction contract(s) is not complete as set forth in the Proposal Form(s).
- B. The Contractor and Contractor's surety company shall be liable for and shall pay to the Owner the sum of \$500.00 per day as Liquidated Damages for each calendar day of delay until the construction contract is complete.

20. PROJECT SCHEDULE

- A. Provide Project Schedule in accordance with other Sections of these Specifications.
- B. Include within the Project Schedule the related work activities of all trades by task / event with completion time frame, allowable slippage and critical start and finish dates. Incorporate milestones for Owner responsibilities.
- C. Acceptable formats for presentation of Project Schedule include:
 - 1. Simplified overlapping and coordinated bar charts with a timeline and activity dates and duration.
 - 2. A network schedule using the critical path method (cpm) of plotting nodes (events) and connecting arrows (activities).
- D. Update the Project Schedule as required to accommodate field and project conditions. Issue an updated Project Schedule to the Owner for review and approval every Three (3) weeks or as required to inform the Owner of deviations and revisions.
- E. The project shall be complete and operational in the time frame specified in Section B, Instructions to Bidders, Time for Completing Work. The time for completing work stated in Instructions to Bidders, Time for Completing

Work shall be considered the contract limit as defined in the Proposal Form in section C. It is understood that the County may, on its own decision or initiate, extend the completion date by giving notice to all parties to this contract of its intention to extend. The County shall not be liable for any expenses, damages, loss of profits, anticipated or otherwise for extending this contract.

21. APPRENTICESHIP TRAINING

- A. A bidder and all sub-contractors they may eventually employ on this Project shall each be a participant in a state or federally approved Apprenticeship Training Program. Each bidder shall submit with his / her proposal a complete description of the Apprenticeship Training Program in which the bidder participates. The bidder shall also provide with his / her bid a written statement that if awarded a contract, the bidder will employ apprentices enrolled in a state or federally approved Apprenticeships Training Program under the direction of experienced supervisors.
- B. If requested by the Owner, the bidder shall submit within three (3) days of the date of the request, the name, address, and telephone number of the state and federal agency which certifies the bidder's Apprentice / Training Program and the bidders identification number (if any) that would enable the Owner's representative to verify the information provided by the bidder.
- C. Failure of a bidder to provide information as required under this paragraph shall be cause for disqualification of the bidder's proposal.

22. AFFIRMATIVE ACTION PROGRAM

- A. Each bidder shall have a formal documented Affirmative Action Program and must provide with his / her proposal a written statement describing the exact nature, scope and history of their Affirmative Action Program in the interest of extending work opportunities to qualified minority workers.
- B. Failure of a bidder to provide information as required under this paragraph shall be cause for disqualification of the bidder's proposal.

23. SUB-CONTRACTOR ON SITE

Prime Contractors shall have a project foreman on-site whenever a Sub-contractor of such Prime Contractor is on-site to perform work. Sub-contractors shall submit all Owner related items to project foreman including operational and facility inquiries, building / room access, scheduling conflicts

and site coordination requests. It is the sole responsibility of the Prime Contractors to engage with Owner and Engineer, or their designated representatives to satisfy the Sub-contractor's request.

24. CRIMINAL BACKGROUND CHECK POLICY

The County will require all construction workmen working at the Facility to undergo a criminal background check. See Employee Background Requirements listed in Appendix B.

**COUNTY OF DELAWARE
COMMONWEALTH OF PENNSYLVANIA
RESOLUTION NUMBER 2022-3**

**RESOLUTION REGARDING GOALS FOR DIVERSITY
IN PUBLIC WORKS CONTRACTING**

WHEREAS, County Council is committed to addressing the challenges it faces relating to public works projects and, to that end, is considering enactment of the revision of Chapter 29 of the County Code to protect its proprietary and financial interests and create adequate safeguards to ensure the successful delivery of such projects to the fullest extent possible; and

WHEREAS, together with the changes to the County Code in such revision of Chapter 29, County Council also desires to set forth its goals for increasing the diversity of the workforce for such public works projects;

NOW, THEREFORE, BE IT RESOLVED BY THE COUNTY COUNCIL OF DELAWARE COUNTY, PENNSYLVANIA as follows:

1. County Council hereby directs that the following provisions shall be included in any contract which is subject to the requirements of Chapter 29 of the County Code:

a. The contractor will make a good faith effort to employ local residents for completion of the project, when it has a need for new employees, in an effort to meet a goal of 10% local worker participation on the project. Good faith effort shall include, but not be limited to: hosting a public job fair prior to the commencement of the Project open to residents of Delaware County, posting of available employment opportunities with the Delaware County Workforce Development Board and its PACareerLink offices, providing employment and training services, advertisement of employment opportunities in a newspaper of general circulation throughout Delaware County, and internet advertisements.

b. The contractor will make a good faith effort to employ minority and female craftspeople for completion of the qualified project when such contractor has a need for new employees to complete the project, in an effort to meet the goal of having 10% minority and female participation on the project. Good faith effort shall include, but not be limited to: hosting a public job fair prior to the commencement of the Project open to all applicants in an attempt to identify, hire and utilize minority and female craftspeople, the posting of available employment opportunities with the Delaware County Workforce Development Board and its PACareerLink offices, providing employment and training services, advertisement of employment opportunities in a newspaper of general circulation throughout Delaware County, and internet advertisements.

c. The contractor shall, as a material condition of the contract, make a good faith effort to utilize veteran owned businesses, minority owned businesses, women owned

businesses and small business enterprises on the qualified project. “Minority owned business” shall mean that at least 51% of the business is owned by an individual who is a United States citizen or permanent resident alien who has and can demonstrate membership in one of the following groups: Black persons having origins in any of the Black African racial groups; Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American Descent of either Indian or Hispanic origin, regardless of race; Native American or Alaskan native persons having origins in any of the original peoples of North America; Asian and Pacific Islander persons having origins in any of the Far East countries, South East Asia, the Indian subcontinent or the Pacific Islands. “Small business enterprise” shall mean a business with an annual gross income which is determined by the United States Small Business Administration to qualify it as a small business enterprise.

2. County Council hereby directs the County Executive Director to take steps to obtain a disparity study related to relevant County public works contracting in order to assess the utilization by the County of a diverse workforce for public works projects and to help direct any further actions by County Council to increase such diversity.

ADOPTED by the County Council of the County of Delaware, Pennsylvania, this 15th day of June, 2022.

BY: DELAWARE COUNTY COUNCIL

Dr. Monica Taylor, Chair

ATTESTED: _____
ANNE COOGAN, County Clerk

Section R
Standard Specifications

STANDARD TECHNICAL SPECIFICATIONS/PROJECT MANUALS FOR CLAYTON
PARK RESTROOMS AND ROSE TREE PARK RESTROOMS

PROJECT MANUAL

CLAYTON PARK RESTROOM RENOVATIONS
CONCORD TOWNSHIP,
DELAWARE COUNTY, PA

DELAWARE COUNTY DEPARTMENT OF
PUBLIC WORKS

PROJECT MANUAL

JULY 2024

Prepared by:
MDESIGNS+MWJ CONSULTING LLC

CLAYTON PARK RESTROOM RENOVATIONS: TABLE OF CONTENTS

Section	Section Title	Pages
DIVISION 1 - GENERAL REQUIREMENTS		
01 10 00	Summary	4
01 26 00	Contract Modification Procedure	3
01 29 00	Payment Procedures	4
01 31 00	Project Management and Coordination	7
01 32 33	Photographic Documentation.....	2
01 33 00	Submittal Procedures	7
01 50 00	Temporary Facilities and Controls	4
01 60 00	Product Requirements.....	5
01 73 00	Execution.....	5
01 77 00	Closeout Procedures	4
01 78 39	Project Record Documents.....	3
DIVISION 2 – EXISTING CONDITIONS		
02 41 19	Selective Demolition.....	4
DIVISION 4 – MASONRY		
04 20 00	Unit Masonry.....	8
DIVISION 5 – METALS		
05 50 00	Steel Lintels	5
05 52 13	Pipe and Tube Railings.....	5
DIVISION 7 – THERMAL AND MOISTURE PROTECTION		
07 46 33	Vinyl Soffits.....	3
07 92 00	Joint Sealants.....	6
DIVISION 8 – OPENINGS		
08 11 13	Hollow Metal Doors and Frames	4
DIVISION 9 – FINISHES		
09 01 60	Restoration of Terrazzo Flooring.....	3
09 22 16	Non-Structural Metal Framing.....	3
09 24 00	Cement Plastering.....	4
09 29 00	Gypsum Board.....	4
09 30 13	Ceramic Tiling.....	5
09 91 13	Exterior Painting.....	3
09 91 23	Interior Painting.....	4

CLAYTON PARK RESTROOM RENOVATIONS: TABLE OF CONTENTS

DIVISION 10 – SPECIALITIES

10 21 13	Phenolic Core Toilet Compartments.....	4
10 21 13 .19	Plastic Toilet Compartments.....	5
10 28 00	Restroom Accessories.....	4

DIVISION 22 – PLUMBING FIXTURES

22 42 13.13	Commercial Water Closets.....	4
22 42 13.16	Commercial Urinals.....	4
22 42 16.03	Commercial Lavatories and Faucets.....	5

DIVISION 31 – EARTHWORK

31 10 00	Site Clearing.....	4
31 20 00	Earth Moving.....	6

DIVISION 32 – SITE IMPROVEMENTS

32 13 13	Concrete Paving.....	5
32 17 13	Parking Bumpers.....	2
32 17 23	Pavement Markings.....	2
32 91 13	Soil Preparation.....	5
32 92 00	Turf and Grasses.....	4

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Contractor's use of site and premises.
4. Work restrictions.
5. Specification and Drawing conventions.

1.2 PROJECT INFORMATION

A. Project Identification: Restroom Renovations, Clayton Park, Garnet Valley, Delaware County PA

B. Owner: Delaware County Department of Public Works, 201 W Front Street, Suite 207, Media PA 19062

1. Owner's Representative: -----.

C. Architect: MDesigns+MWJ Consulting, LLC.

1. Architect's Representative: Michael Johns, FAIA, NOMA, LEED-AP 228 N. 53rd Street Philadelphia, PA 19139 (215)-917-3798

D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. MEP Design. JW Mechanical, Electrical Plumbing Systems Design. PO Box 1349, Willow Grove, PA 19090

- a. Representative: Joseph Warrick (267)-496 2633. jsphwarrickjr@gmail.com

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Renovation of public restrooms including selective demolition and removals, new restroom fixtures and accessories, new toilet partitions, new wall tiling, restoration of terrazzo floor, new lighting and electrical and plumbing work, new concrete walks
2. Project will be constructed under a single prime contract.

1.4 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Limits on Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits on Use of Site: Confine construction operations to areas where work is permitted.
 - 2. Driveways, Walkways, and Entrances: Keep driveways, parking areas, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
- D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.5 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7am a.m. to 5 p.m., Monday through Friday, unless otherwise indicated.
- C. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Project site or Owner's property is not permitted.
- D. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

1.6 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 10 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.4 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 A.

1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Arrange schedule of values consistent with format of AIA Document G703.
 - 2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
 - 3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 4. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
 - 5. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from .
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Products list (preliminary if not final).
 5. Schedule of unit prices.
 6. Submittal schedule (preliminary if not final).
 7. List of Contractor's staff assignments.

8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.
- H. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706.
 5. AIA Document G706A.
 6. AIA Document G707.
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. RFIs.
 - 3. Digital project management procedures.
 - 4. Project meetings.

1.2 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.

1.3 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the schedule of values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.

5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.4 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Owner name.
 2. Owner's Project number.
 3. Name of Architect.
 4. Architect's Project number.
 5. Date.
 6. Name of Contractor.
 7. RFI number, numbered sequentially.
 8. RFI subject.
 9. Specification Section number and title and related paragraphs, as appropriate.
 10. Drawing number and detail references, as appropriate.
 11. Field dimensions and conditions, as appropriate.
 12. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 13. Contractor's signature.
 14. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- C. RFI Forms: AIA Document G716.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow three days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
 1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.

- d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
- 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
- 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within five days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect.
 - 4. RFI number including RFIs that were returned without action or withdrawn.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within three days if Contractor disagrees with response.

1.5 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Web-Based Project Management Software Package: Provide, administer, and use web-based Project management software package for purposes of hosting and managing Project communication and documentation until Final Completion.
 - 1. Web-based Project management software includes, at a minimum, the following features:
 - a. Compilation of Project data, including Contractor, subcontractors, Architect, architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
 - b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
 - c. Document workflow planning, allowing customization of workflow between project entities.

- d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
 - e. Track status of each Project communication in real time, and log time and date when responses are provided.
 - f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 - g. Processing and tracking of payment applications.
 - h. Processing and tracking of contract modifications.
 - i. Creating and distributing meeting minutes.
 - j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 - k. Management of construction progress photographs.
 - l. Mobile device compatibility, including smartphones and tablets.
 - 2. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.
- B. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
- 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
 - 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.

- f. Lines of communications.
 - g. Use of web-based Project software.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Preparation of Record Documents.
 - o. Use of the premises.
 - p. Work restrictions.
 - q. Working hours.
 - r. Owner's occupancy requirements.
 - s. Responsibility for temporary facilities and controls.
 - t. Procedures for moisture and mold control.
 - u. Procedures for disruptions and shutdowns.
 - v. Construction waste management and recycling.
 - w. Parking availability.
 - x. Office, work, and storage areas.
 - y. Equipment deliveries and priorities.
 - z. First aid.
 - aa. Security.
 - bb. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Progress Meetings: Conduct progress meetings biweekly intervals.

- 1. Coordinate dates of meetings with preparation of payment requests.
- 2. Attendees: In addition to representatives of Owner, Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
- 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.

- b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Access.
 - 6) Site use.
 - 7) Temporary facilities and controls.
 - 8) Progress cleaning.
 - 9) Quality and work standards.
 - 10) Status of correction of deficient items.
 - 11) Field observations.
 - 12) Status of RFIs.
 - 13) Status of Proposal Requests.
 - 14) Pending changes.
 - 15) Status of Change Orders.
 - 16) Pending claims and disputes.
 - 17) Documentation of information for payment requests.
- 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - a. Initial payment will not be made prior to submission of preconstruction photographs.
 - 2. Periodic construction photographs.
 - a. Application for Payment will not be processed without periodic photographs. All photographs must be of views that have context for area of work.
 - 3. Final completion construction photographs.
 - a. The final Application for Payment will not be processed without project completion photographs.
- B. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
 - 2. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.

1.2 INFORMATIONAL SUBMITTALS

- A. Digital Photographs: Submit image files with each Application for Payment and for the work covering the period for which payment is being requested.
 - 1. Submit photos on thumb-drive. Include copy of key plan indicating each photograph's location and direction.
 - 2. Identification: Provide the following information with each image description in file:
 - a. Name of Project.
 - b. Date photograph was taken.
 - c. Description of location, vantage point, and direction.

1.3 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.

- B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- C. Metadata: Record accurate date and time from camera.
- D. File Names: Name media files with date, Project area and sequential numbering suffix.

1.4 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs with maximum depth of field and in focus.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Preconstruction Photographs: Before commencement of disassembly, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
 - 1. Flag construction limits before taking construction photographs.
 - 2. Take 10 photographs to show existing conditions adjacent to property before starting the Work.
 - 3. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- C. Periodic Construction Photographs: Take 10 photographs weekly coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- D. Final Completion Construction Photographs: Take 10 photographs after date of Substantial Completion for submission as Project Record Documents. Architect will inform photographer of desired vantage points.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.3 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
8. Category and type of submittal.

9. Submittal purpose and description.
 10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
 11. Drawing number and detail references, as appropriate.
 12. Indication of full or partial submittal.
 13. Location(s) where product is to be installed, as appropriate.
 14. Other necessary identification.
 15. Remarks.
 16. Signature of transmitter.
- B. Options: Identify options requiring selection by Architect.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1.5 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Email: Prepare submittals as PDF package, and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Resubmittal Review: Allow 10 days for review of each resubmittal.
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.6 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Statement of compliance with specified referenced standards.
 - d. Testing by recognized testing agency.
 - e. Application of testing agency labels and seals.
 - f. Notation of coordination requirements.
 - g. Availability and delivery time information.
- B. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- D. Certificates:
 - 1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 - 2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 - 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 - 4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 - 5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- E. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.7 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections. Mark with approval stamp before submitting to Architect.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.8 ARCHITECT'S REVIEW

- A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required.
 - 1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Architect will return without review submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

- A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
2. Indicate methods to be used to avoid trapping water in finished work.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

- A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.
 3. Drinking water and private toilet.
 4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F .
 5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating, Cooling, and Dehumidifying Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction and marked for intended location and application.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.
- C. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed

construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

- F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install WiFi cell phone access equipment.
- I. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Architect and Owner.
- J. Project Computer: Provide a desktop computer in the primary field office adequate for use by Architect and Owner to access Project electronic documents and maintain electronic communications. Equip computer with not less than the following:

3.4 SUPPORT FACILITIES INSTALLATION

- A. Comply with the following:
 - 1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E136. Comply with NFPA 241.
 - 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- D. Storage and Staging: Use designated areas of Project site for storage and staging needs.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site free of water.
 - 1. Dispose of water in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

2. Remove snow and ice as required to minimize accumulations.
- F. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 3. Maintain and touch up signs so they are legible at all times.
- G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- I. Existing Elevator Use: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.
1. Do not load elevators beyond their rated weight capacity.
 2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
- J. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.
- 3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION
- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent."
- D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.
- G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- H. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.
- I. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.2 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 SUBMITTAL SEQUENCING REQUIREMENTS

- A. Contractor is responsible for preparation and issuance of submittals to the Architect for review within at least fifteen (15) days of the Notice to Proceed or as noted in the individual sections of these Technical Specifications, which may indicate a shorter time frame. The shorter time frame dictates.

1.4 ACTION SUBMITTALS

- A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within fifteen days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Architect's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Onsite storage of materials is limited to enclosed lay-down area.
2. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: ..."
2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: ..."
3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
 - a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: ..."
5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."
6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: ..."

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
 1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 2. Evidence that proposed product provides specified warranty.
 3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 4. Samples, if requested.

PART 3 EXECUTION (Not Used)

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for limits on use of Project site.
 - 2. Section 017700 "Closeout Procedures" for submitting Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.

1.2 QUALITY ASSURANCE

- A. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before fabricating and installing each product or material. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Remove and replace damaged, defective, or non-conforming Work.
- K. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.4 CUTTING AND PATCHING

- A. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Proceed with patching after construction operations requiring cutting are complete.
- B. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- C. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

- F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- I. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Final cleaning.
- B. Related Requirements:
 - 1. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.3 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 3. Complete final cleaning requirements.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1.5 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1.6 LIST OF INCOMPLETE ITEMS

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
 - b. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - c. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - d. Wipe surfaces of mechanical and electrical equipment and similar equipment
 - e. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
 - f. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste-disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations required by Section 017300 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.

1.2 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Submit one set of marked-up record prints.
 - 2. Submit PDF electronic files of scanned record prints.
- B. Record Specifications: Submit one paper copy or an annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

1.3 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

- a. Dimensional changes to Drawings.
- b. Revisions to details shown on Drawings.
- c. Actual equipment locations.
- d. Locations of concealed internal utilities.
- e. Changes made by Change Order or Change Directive.
- f. Details not on the original Contract Drawings.
- g. Field records for variable and concealed conditions.
- h. Record information on the Work that is shown only schematically.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect.

1. Submit electronic PDF file identified as "PROJECT RECORD DRAWINGS" to Architect and Owner.

1.4 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file.

1.5 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- C. Format: Submit record Product Data as annotated PDF electronic file.
1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.6 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store record documents apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

- ##### A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.3 PREINSTALLATION MEETINGS

- ##### A. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

- ##### A. Engineering Survey: Submit engineering survey of condition of building.
- ##### B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property. Indicate proposed locations and construction of barriers.
- ##### C. Schedule of selective demolition activities with starting and ending dates for each activity.
- ##### D. Predemolition photographs or video.

1.5 FIELD CONDITIONS

- ##### A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- ##### B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- ##### C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
1. Maintain fire-protection facilities in service during selective demolition operations.
- F. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
- C. Inventory and record the condition of items to be removed and salvaged.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Arrange to shut off utilities with utility companies.
 - 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Equipment to Be Removed: Disconnect and cap services and remove equipment.

3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. 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. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. 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. Maintain portable fire-suppression devices during flame-cutting operations.
 - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 5. Dispose of demolished items and materials promptly

- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.
- D. Removed and Reinstalled Items:
 - 1. Clean and repair items to functional condition adequate for intended reuse.
 - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 - 3. Protect items from damage during transport and storage.
 - 4. 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.

3.5 CLEANING

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction. Do not allow demolished materials to accumulate on-site.
 - 1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Enlargement of exterior masonry door opening where indicated on drawings:
 - 1. Lintel installation.
 - 2. Brick.
 - 3. Mortar and grout materials.
 - 4. Embedded flashing.
 - 5. Accessories.
 - 6. Mortar and grout mixes.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type and color of exposed masonry unit and colored mortar.

1.4 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type and size of product and for masonry units, include data on material properties.
- B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1.5 QUALITY ASSURANCE

- A. Sample Panel Mockups: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.
 - 1. Build sample panels for typical exterior wall modification.

1.6 FIELD CONDITIONS

- A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602.
- B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602, except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

2.2 BRICK

- A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:
 - 1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
- B. Clay Face Brick: Match existing brick.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength that matches that of existing brick.
 - 2. Efflorescence: Provide brick that has been tested in accordance with ASTM C67/C67M and is rated "not effloresced."
 - 3. Size (Actual Dimensions): Match existing brick.

2.3 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
 - 1. Alkali content will not be more than 0.1 percent when tested in accordance with ASTM C114.

- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C91/C91M.
- E. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar.
- F. Colored Cement Products: Packaged blend made from portland cement and hydrated lime or masonry cement and mortar pigments, all complying with specified requirements, and containing no other ingredients.
- G. Preblended Dry Mortar Mix: Packaged blend made from portland cement and hydrated lime masonry cement, sand, mortar pigments, water repellents, and admixtures and complying with ASTM C1714/C1714M.
- H. Aggregate for Mortar: ASTM C144.
 - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
 - 2. White-Mortar Aggregates: Natural white sand or crushed white stone.
- I. Aggregate for Grout: ASTM C404.
- J. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
- K. Water: Potable.

2.4 EMBEDDED FLASHING

- A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:
- B. Flexible Flashing: Use one of the following unless otherwise indicated:
 - 1. Copper-Fabric Flashing: 5 oz./sq. ft. (1.5 kg/sq. m) self-adhesive copper sheet bonded between two layers of glass-fiber cloth.
 - 2. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 40 mil (1.0 mm).
 - 3. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy.

- a. Monolithic Sheet: Elastomeric thermoplastic flashing, 40 mil (1.0 mm) thick.
- 4. EPDM Flashing: Sheet flashing product made from ethylene-propylene-diene terpolymer, complying with ASTM D4637/D4637M, 40 mil (1.0 mm) thick.

2.5 ACCESSORIES

- A. Weep/Cavity Vents: Use material to match existing vents:

2.6 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. For exterior masonry, use portland cement-lime or masonry cement mortar.
 - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
 - 1. For exterior, above-grade, load-bearing, nonload-bearing walls, and parapet walls and for other applications where another type is not indicated, use Type N.
- D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color to match existing mortar.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed. Key in new bricks into existing brick masonry.
- B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (13 mm) or minus 1/4 inch (6.4 mm).
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (13 mm).
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6.4 mm) in a story height or 1/2 inch (13 mm) total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 ft. (6.4 mm in 3 m), or 1/2-inch (13-mm) maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 ft. (3.2 mm in 3 m), 1/4 inch in 20 ft. (6.4 mm in 6 m), or 1/2-inch (13-mm) maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 ft. (6.4 mm in 3 m), 3/8 inch in 20 ft. (10 mm in 6 m), or 1/2-inch (13-mm) maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 ft. (3.2 mm in 3 m), 1/4 inch in 20 ft. (6.4 mm in 6 m), or 1/2-inch (13-mm) maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 ft. (6.4 mm in 3 m), 3/8 inch in 20 ft. (10 mm in 6 m), or 1/2-inch (13-mm) maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 ft. (6.4 mm in 3 m), or 1/2-inch (13-mm) maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3.2 mm), with a maximum thickness limited to 1/2 inch (13 mm). Match existing joints
2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (10 mm) or minus 1/4 inch (6.4 mm). Match existing joints
3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3.2 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3.2 mm).]

3.3 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Lay exposed masonry in bond to match existing; do not use units with less-than-nominal 4-inch (102-mm) horizontal face dimensions at corners or jambs.

- C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

3.4 MORTAR BEDDING AND JOINTING

- A. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- B. Tool exposed joints to match existing.

3.5 FLASHING, WEEP HOLES, AND CAVITY VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.
- B. Install flashing as follows unless otherwise indicated:
 - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape.
 - 2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 4 inches (102 mm), and through inner wythe to within 1/2 inch (13 mm) of the interior face of wall in exposed masonry.
 - 3. At lintels and shelf angles, extend flashing 6 inches (152 mm) minimum at each end. At heads and sills, extend flashing 6 inches (152 mm) minimum and turn ends up not less than 2 inches (51 mm) to form end dams.
 - 4. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall, and adhere flexible flashing to top of metal drip edge.
 - 5. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall, and adhere flexible flashing to top of metal flashing termination.
- C. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.
 - 1. Use weep/cavity vent products to match existing to form weep holes.
 - 2. Space weep holes 24 inches (610 mm) o.c. unless otherwise indicated.
 - 3. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.

3.6 CLEANING

- A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
 - 4. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.
 - 5. Clean masonry with a proprietary acidic masonry cleaner applied according to manufacturer's written instructions.

3.7 MASONRY WASTE DISPOSAL

- A. Excess Masonry Waste: Remove excess clean masonry waste and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 055000 – STEEL LINTELS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
- B. Products furnished, but not installed, under this Section include the following:
 - 1. Loose steel lintels at widened door openings

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

2.2 METALS

- A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

2.3 FASTENERS

2.4 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- C. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.5 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Galvanize and prime loose steel lintels located in exterior walls.

- C. Prime loose steel lintels located in exterior walls with zinc-rich primer.

2.6 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

PART 3 - EXECUTION

- A. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 REPAIRS

- A. Touchup Painting:
 - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 055000

SECTION 055213 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Including:

1. Stainless steel railings.

1.2 ACTION SUBMITTALS

- ##### A. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1.3 INFORMATIONAL SUBMITTALS

- ##### A. Welding certificates.

1.4 QUALITY ASSURANCE

- ##### A. Welding Qualifications: Qualify procedures and personnel in accordance with the following:
1. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- ##### A. Structural Performance: Railings, including attachment to building construction, withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
 - b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.

2.2 METALS, GENERAL

- ##### A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

- 1. Provide type of bracket with flange tapped for concealed anchorage to threaded hanger bolt and that provides 1-1/2-inch (38-mm) clearance from inside face of handrail to finished wall surface.

2.3 STAINLESS STEEL RAILINGS

- A. Tubing: ASTM A554, Grade MT 304.
- B. Pipe: ASTM A312/A312M, Grade TP 304.
- C. Castings: ASTM A743/A743M, Grade CF 8 or CF 20.
- D. Plate and Sheet: ASTM A240/A240M or ASTM A666, Type 304.

2.4 FASTENERS

- A. Fastener Materials:
 - 1. Stainless Steel Railing Components: Type 304 stainless steel fasteners.
- B. Post-Installed Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 or ICC-ES AC308.
 - 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) or Group 2 (A4) stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.
 - 1. For stainless steel railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- B. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout, complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- C. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.

1. Water-Resistant Product: At exterior locations, provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.6 FABRICATION

- A. Cut, drill, and punch metals cleanly and accurately.
 1. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated.
 2. Remove sharp or rough areas on exposed surfaces.
- B. Form work true to line and level with accurate angles and surfaces.
- C. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove flux immediately.
 4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 welds; ornamental quality with no evidence of a welded joint.
- D. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
- E. Form changes in direction as follows:
 1. As detailed.
 2. By bending.
- F. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- G. Close exposed ends of hollow railing members with prefabricated cap and end fittings of same metal and finish as railings.
- H. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch (6 mm) or less.
- I. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
- J. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work.

1. Fabricate anchorage devices capable of withstanding loads imposed by railings.
 2. Coordinate anchorage devices with supporting structure.
- K. For railing posts set in concrete, provide stainless steel sleeves not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (13 mm) greater than outside dimensions of post, with metal plate forming bottom closure.

2.7 STEEL AND IRON FINISHES

2.8 STAINLESS STEEL FINISHES

- A. Stainless Steel Pipe and Tubing Finishes:
1. 180-Grit Polished Finish: Uniform, directionally textured finish.
- B. Stainless Steel Sheet and Plate Finishes:
1. Directional Satin Finish: ASTM A480/A480, No. 4.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Perform cutting, drilling, and fitting required for installing railings.
1. Fit exposed connections together to form tight, hairline joints.
 2. Install railings level, plumb, square, true to line; without distortion, warp, or rack.
 3. Set railings accurately in location, alignment, and elevation; measured from established lines and levels.
 4. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 5. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
 6. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (6 mm in 3.5 m).
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

3.2 ANCHORING POSTS

- A. Use stainless steel pipe sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink,

nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.

- B. Form or core-drill holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.

3.3 ATTACHING RAILING

- A. Attach handrails to walls with wall brackets, except where end flanges are used. Provide brackets with 1-1/2-inch (38-mm) clearance from inside face of handrail and finished wall surface.
- B. Secure wall brackets and railing end flanges to building construction as follows:
 - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
- C. Install railing gates level, plumb, and secure for full opening without interference.

3.4 CLEANING

- A. Clean stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 055213

SECTION 074633 – VINYL SOFFIT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes vinyl soffit.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For vinyl soffit including related accessories.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For vinyl soffit Installer.
- B. Product certificates.
- C. Research/evaluation reports.
- D. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 QUALITY ASSURANCE

- A. Vinyl Soffit Installer Qualifications: A qualified installer who employs a VSI-certified Installer on Project.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
 - 1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 VINYL SOFFIT

- A. Vinyl Soffit: Integrally colored product complying with ASTM D4477.
- B. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.
- C. Pattern: Match existing soffit style.
- D. Texture: Match texture of existing soffit.
- E. Ventilation: Provide ventilated soffit to match existing.
- F. Nominal Thickness: Match thickness of existing soffit.
- G. Minimum Profile Depth: Match depth of existing soffit.
- H. Colors: Match existing soffit.

2.2 ACCESSORIES

- A. Soffit Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.
 - 1. Provide accessories made from same material as matching color and texture of existing soffit unless otherwise indicated.
- B. Vinyl Accessories: Integrally colored vinyl accessories complying with ASTM D3679 except for wind-load resistance.
 - 1. Texture: Match existing.
- C. Colors for Decorative Accessories: Match existing soffit.
- D. Fasteners:
 - 1. For fastening to wood, use siding nails or ribbed bugle-head screws of sufficient length to penetrate a minimum of 1 inch (25 mm) into substrate.
 - 2. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch (6 mm), or three screw-threads, into substrate.
 - 3. For fastening vinyl, use stainless-steel fasteners. Where fasteners are exposed to view, use prefinished aluminum fasteners in color to match item being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 - 1. Center nails in elongated nailing slots without binding siding to allow for thermal movement.
- B. Install vinyl soffit and related accessories according to ASTM D4756.
- C. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.

3.2 ADJUSTING AND CLEANING

- A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
- B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 074633

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Silicone joint sealants.
 - 2. Urethane joint sealants
 - 3. Mildew-resistant joint sealants.
 - 4. Latex joint sealants.

1.2 ACTION SUBMITTALS

- A. Product data.
- B. Samples: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.
- B. Silicone, S, NS, 50, T, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Uses T and NT.

2.3 URETHANE JOINT SEALANTS

- A. Urethane, S, NS, 25, T, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade NS, Class 25, Uses T and NT.

2.4 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
- B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT.

2.5 LATEX JOINT SEALANTS

- A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.

2.6 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) Type O (open-cell material) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.
- G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
- H. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Exterior standard steel doors and frames. Provide new door hardware sets to match existing

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door type.
 - 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.

1.3 INFORMATIONAL SUBMITTALS

- A. Product test reports.

PART 2 - PRODUCTS

2.1 EXTERIOR STANDARD STEEL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 2; ANSI/SDI A250.4, Level B.
 - 1. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches (44.5 mm).
 - c. Face: Metallic-coated steel sheet, minimum thickness of 0.042 inch (1.0 mm), with minimum A60 (ZF180) coating.
 - d. Edge Construction: Model 1, Full Flush.

.

- e. Edge Bevel: Provide manufacturer's standard beveled or square edges.
- f. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets. Seal joints against water penetration.
- g. Bottom Edges: Close bottom edges of doors with end closures or channels of same material as face sheets. Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape.
- h. Core: Manufacturer's standard.

2. Frames:

- a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch (1.3 mm), with minimum A60 (ZF180) coating.
- b. Construction: Face welded.

2.2 FRAME ANCHORS

A. Jamb Anchors:

- 1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
- 2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches (610 mm) of frame height above 7 feet (2.1 m).
- 3. Postinstalled Expansion Anchor: Minimum 3/8-inch- (9.5-mm-) diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.

B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.

C. Material: ASTM A879/A879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.

- 1. For anchors built into exterior walls, steel sheet complying with ASTM A1008/A1008M or ASTM A1011/A1011M; hot-dip galvanized in accordance with ASTM A153/A153M, Class B.

2.3 MATERIALS

A. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.

B. Inserts, Bolts, and Fasteners: Hot-dip galvanized in accordance with ASTM A153/A153M.

C. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

- D. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.
- E. Glazing: Comply with requirements in Section 088000 "Glazing."

2.4 FABRICATION

- A. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.
 - 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
- B. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping in accordance with ANSI/SDI A250.6, the Door Hardware Schedule, and templates.
 - 1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 - 2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.

2.5 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware. Provide and install new hardware sets to match existing

3.2 INSTALLATION

- A. Hollow-Metal Frames: Comply with ANSI/SDI A250.11.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
 - a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.
 - b. Install frames with removable stops located on secure side of opening.
2. Fire-Rated Openings: Install frames in accordance with NFPA 80.
3. Floor Anchors: Secure with postinstalled expansion anchors.
4. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
6. Non-Fire-Rated Steel Doors: Comply with ANSI/SDI A250.8.

3.3 FIELD QUALITY CONTROL

- A. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- B. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

3.4 REPAIR

- A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- C. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 091 60 91 REFINISHING TERRAZZO FLOORS

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Refinishing terrazzo floors.
- B. Provide all labor, material, and equipment necessary to complete the following terrazzo repair work
- C. Preparation of all surfaces to receive patching compound
- D. Repairs to delaminated areas
- E. Repair of cracks (as per NTMA recommendations)
- F. Placement of patching compounds/terrazzo matrix
- G. Finish and curing of terrazzo

1.02 REFERENCE STANDARDS

- A. NTMA – Terrazzo Specifications; The National Terrazzo and Mosaic Association, Inc.; current edition located at www.ntma.com

1.03 SUBMITTALS

- A. Product Data: Provide manufacturers technical data for sealer and cleaner and grout.
- B. Cleaning products to be used and Terrazzo Maintenance Data/Protocols for facility managers
- C. Submit letter clearly identifying the terrazzo system (Epoxy, Cement, etc) and that the products are suitable/compatible

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section with not fewer than 5 years of documented experience.
 - 1. Installer shall be a contractor member of NTMA in good standing and shall perform all work in accordance with NTMA standards
 - 2. Use only skilled journeyman who are familiar and experienced with the materials and methods specified shall be used for terrazzo restoration/refinishing.
 - 3. Crack Repair: Prepare a sample area for each type of crack repair required (Hairline cracks 1/64" to 1/16" in size; Cracks and voids larger than 1/8") Repair shall demonstrate methods and quality of workmanship of crack repair.
 - 4. Patching: Prepare on-floor, a sample of patching. Patch shall demonstrate methods and quality of workmanship of patch repair

PART 2: PRODUCTS

2.01 MATERIALS

- A. Cleaner: Potable water, free of iron, all cleaners (optional) must be pH neutral
- B. Sealer: Liquid type to completely seal matrix surface; not detrimental to terrazzo components.
- C. Grout: Color to match existing matrix.
- D. Matrix: Pigmented epoxy to match sample submitted
- E. Aggregates: Aggregates to match architects approved sample

2.02 EQUIPMENT

- A. All work shall be executed with conventional terrazzo grinding equipment according to NTMA published trade practice.

PART 3: EXECUTION

3.01 GENERAL

- A. Perform work in accordance with NTMA recommendations as posted on the NTMA website (www.ntma.com)

3.02 PREPARATION

- A. Cover and protect all adjacent finished surfaces during restoration process.

3.03 CRACK REPAIR

A. Determination

- 1. The owner and contractor shall walk the entire floor and identify cracks and agree on
 - a. NA (No Action) RC (Repair Crack) or RT (Replace Terrazzo)
 - b. Hairline cracks are classified as less than 1/32" (0.030)
 - c. Replacement (RT) shall be from architectural break to architectural break

B. RC - Repair Crack

- 1. Clean crack of loose material, dirt or sealer
- 2. Fill with resin/to match existing. Use aggregate in the crack if crack is wider than ¼ inch.

3.04 RT- Replace Terrazzo (if repair is not to architectural break or existing terrazzo divider strip, the joining edge shall be a saw tooth (jagged edge)

- A. Remove areas to be replaced
- B. Clean area and prepare concrete for new terrazzo
- c. Repair concrete, fill cracks in concrete substrate as needed. Fill cracks in concrete with hardening epoxy
 - Optional upgrade: Employ the use of a mesh (isolation membrane) to cover crack with liquid applied membrane (epoxy systems only)
- e. Fill area with epoxy or cement /cement matrix and approved aggregate mixture/blend

3.04 INITIAL GRINDING

- A. Wet or dry grind with appropriate medium diamonds/Stones

3.05 GROUTING

- A. Cleanse floor with clean water and rinse. Wet grind with 50 or higher abrasive grit medium diamonds.
- B. Remove excess water and machine or hand grout with cement or epoxy material to fill as needed.

3.06 CURING GROUT

- A. Allow grout to cure a minimum of 12 hours. Maintain ambient air temperature between 70°F (21°C) and 80°F (27°C)

3.07 FINE (Final) GRINDING

- A. Grind with 120 grit carborundum or 200 grit resin bond diamond until grout has been removed from the terrazzo surface.

3.08 CLEANING AND SEALING:

- A. Rinse with clean water and allow too thoroughly dry.
- B. Seal: Apply sealer per sealer manufacturer's written directions
- C. Remove protection and clean any adjacent surfaces effected by the refinishing process.

3.09 PROTECTION

- A. General Contractor shall protect the finish floor from all site activity until Substantial Completion.

END OF SECTION

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Suspension systems for interior cement plastered ceilings and soffits.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E119 by an independent testing agency.

2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with AISI S220 for conditions indicated.
 - 1. Steel Sheet Components: Comply with AISI S220 requirements for metal unless otherwise indicated.
 - 2. Protective Coating: Comply with AISI S220; ASTM A653/A653M, G40 (Z120); or coating with equivalent corrosion resistance. Galvannealed products are unacceptable.

2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch- (1.59-mm-) diameter wire, or double strand of 0.048-inch- (1.21-mm-) diameter wire.
- B. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.16 inch (4.12 mm) in diameter.
- C. Flat Hangers: Steel sheet, 1 by 3/16 inch (25 by 5 mm).
- D. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-steel thickness of 0.0538 inch (1.367 mm) and minimum 1/2-inch- (13-mm-) wide flanges.

1. Depth: 2-1/2 inches (64 mm).

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
 1. Asphalt-Saturated Organic Felt: ASTM D226/D226M, Type I (No. 15 asphalt felt), nonperforated.
 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.
 1. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C1063 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.2 INSTALLING CEILING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 5. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 092400 - CEMENT PLASTERING

PART 1 - GENERAL

1.1 SUMMARY

- A. Work includes new cement plaster restroom ceiling
- B. Section Includes:
 - 1. Metal lath.
 - 2. Base-coat cement plaster.
 - 3. Cement plaster finish coats.
 - 4. Accessories.

1.2 ACTION SUBMITTALS

- A. Product data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance Ratings: Where indicated, provide cement plaster assemblies identical to those of assemblies tested for fire resistance according to ASTM E119 by a qualified testing agency.

2.2 METAL LATH

- 1. 3/8-Inch (10-mm) Rib Lath: [3.4 lb/sq. yd. (1.8 kg/sq. m)] [4 lb/sq. yd. (2.2 kg/sq. m)].

2.3 BASE-COAT CEMENT PLASTER

- A. General: Comply with ASTM C926 for applications indicated.
 - 1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. (0.6 kg of fiber/cu. m) of cementitious materials.
- B. Base-Coat Mixes for Use over Metal Lath: Scratch and brown coats for three-coat plasterwork as follows:
 - 1. Portland Cement Mixes:

- a. Scratch Coat: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
 - b. Brown Coat: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 3 to 5 parts aggregate per part of cementitious material, but not less than volume of aggregate used in scratch coat.
- 2. Masonry Cement Mixes:
 - a. Scratch Coat: Mix 1 part masonry cement and 2-1/2 to 4 parts aggregate.
 - b. Brown Coat: Mix 1 part masonry cement and 3 to 5 parts aggregate, but not less than volume of aggregate used in scratch coat.

2.4 CEMENT PLASTER FINISH COATS

- A. Job-Mixed Finish-Coat Mixes:
 - 1. Portland Cement Mix: For cementitious materials, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 1-1/2 to 3 parts aggregate per part of cementitious material.
 - 2. Masonry Cement Mix: Use 1 part masonry cement and 1-1/2 to 3 parts aggregate.
- B. Ready-Mixed Finish-Coat Plaster: Mill-mixed portland cement, aggregates, coloring agents, and proprietary ingredients.
 - 1. Color: White .

2.5 ACCESSORIES

- A. General: Comply with ASTM C1063, and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.
- B. Metal Accessories:
 - 1. Cornerbeads: Fabricated from zinc-coated (galvanized) steel or anodized aluminum.
 - 2. Casing Beads: Fabricated from zinc-coated (galvanized) steel or anodized aluminum; square-edged style; with expanded flanges.
 - 3. Control Joints: Fabricated from zinc-coated (galvanized) steel; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
 - 4. Expansion Joints: Fabricated from zinc-coated (galvanized) steel; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.
 - a. .
 - b. Bullnose cornerbead, radius 3/4-inch (19-mm) minimum; use at locations indicated on Drawings.
 - 5. Casing Beads: With perforated flanges in depth required to suit plaster bases indicated and flange length required to suit applications indicated.

- a. Square-edge style; use unless otherwise indicated.
- b. Bullnose style, radius 3/4-inch (19-mm) minimum; use at locations indicated on Drawings.

2.6 PLASTER MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I.
 - 1. Color for Finish Coats: White.
- B. Masonry Cement: ASTM C91/C91M, Type N.
 - 1. Color for Finish Coats: White.
- C. Colorants for Job-Mixed Finish Coats: Colorfast mineral pigments that produce finish white plaster color .
- D. Lime: ASTM C206, Type S; or ASTM C207, Type S.
- E. Sand Aggregate: ASTM C897.
 - 1. Color for Job-Mixed Finish Coats: White.

2.7 MISCELLANEOUS MATERIALS

- A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.
- B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch (13 mm) long, free of contaminants, manufactured for use in cement plaster.
- C. Fasteners for Attaching Metal Lath to Substrates: ASTM C1063.
- D. Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch (1.21-mm) diameter unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Prepare smooth, solid substrates for plaster according to ASTM C926.
- B. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.

3.2 INSTALLATION OF METAL LATH

- A. Metal Lath: Install according to ASTM C1063.

3.3 INSTALLATION OF ACCESSORIES

- A. Install according to ASTM C1063 and at locations indicated on Drawings.
- B. Control Joints: Locate as indicated on Drawings.

3.4 APPLICATION OF BASE-COAT CEMENT PLASTER

- A. General: Comply with ASTM C926.
- B. Ceilings; Base-Coat Mixes for Use over Metal Lath: For scratch and brown coats, for three-coat plasterwork and having 1/2-inch (13-mm) total thickness, as follows:
 - 1. Portland cement mixes.
 - 2. Masonry cement mixes.

3.5 APPLICATION OF CEMENT PLASTER FINISH COATS

- A. Plaster Finish Coats: Apply to provide float finish.

3.6 REPAIR

- A. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

END OF SECTION 092400

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
 - 2. Tile backing panels.

1.2 ACTION SUBMITTALS

- A. Product data.
 - 1.

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 E119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 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. Abuse-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.
 - 1. Core: 5/8 inch (15.9 mm), Type X.
 - 2. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 - 3. Indentation: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 - 4. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 - 5. Long Edges: Tapered.

6. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- B. Impact-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.
1. Core: 5/8 inch (15.9 mm), Type X.
 2. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 3. Indentation: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 4. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 5. Hard-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements according to test in Annex A1.
 6. Long Edges: Tapered.
 7. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- C. Mold-Resistant Gypsum Board: ASTM C1396/C1396M. With moisture- and mold-resistant core and paper surfaces.
1. Core: 5/8 inch (15.9 mm), Type X.
 2. Long Edges: Tapered.
 3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.4 TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Board: ASTM C1178/C1178M, with manufacturer's standard edges.
1. Core: 1/2 inch (12.7 mm), regular type. 5/8 inch (15.9 mm), Type X.
 2. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- B. Cementitious Backer Units: ANSI A118.9 and ASTM C1288 or ASTM C1325, with manufacturer's standard edges.
1. Thickness: 1/2 inch (12.7 mm) ,5/8 inch (15.9 mm).
 2. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C1047.
1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
 2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. L-Bead: L-shaped; exposed long flange receives joint compound.
 - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - f. Expansion (control) joint.

2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C475/C475M.
- B. Joint Tape:
 - 1. Interior Gypsum Board: Fiberglass.
 - 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 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 compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
 - 4. Finish Coat: For third coat, use setting-type, sandable topping compound.
- 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. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
 - 1.
- B. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
 - 1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- C. Sound-Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

PART 3 - EXECUTION

3.1 INSTALLATION OF PANELS

- A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- B. Comply with ASTM C840.
- C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) 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.
- D. 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.

3.2 FINISHING OF GYPSUM BOARD

- A. Prefill open joints and damaged surface areas.
- B. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- C. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 - 1. Level 2: Panels that are substrate for tile.
 - 2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
- D. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.
- E. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.3 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION 092900

SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Glazed wall tile.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples:
 - 1. Each type and composition of tile and for each color and finish required.
 - 2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.4 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 3 percent of amount installed for each type, composition, color, pattern, and size indicated.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Installer is a Five-Star member of the National Tile Contractors Association or a Trowel of Excellence member of the Tile Contractors' Association of America].
 - 2. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.
 - 3. Installer employs only Ceramic Tile Education Foundation Certified Installers or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers for Project.

- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup of wall tile installation.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide Standard-grade tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
- 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.

2.2 TILE PRODUCTS

- A. Porcelain Tile Type: Glazed. Daltile or approved equal.
 - 1. Certification: Tile certified by the Porcelain Tile Certification Agency.
 - 2. Face Size: 7-3/4 by 3-7/8 inches (197 by 98 mm).
 - 3. Face Size Variation: Rectified.
 - 4. Thickness: 1/4 inch (6.4 mm).
 - 5. Face: Plain with square or cushion edges.
 - 6. Tile Color, Glaze, and Pattern: As selected by Architect and Owner from manufacturer's full range.
 - 7. Grout Color: As selected by Architect and Owner from manufacturer's full range.
 - 8. 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 Cap: Surface bullnose, module size same as adjoining flat tile.
 - b. Wainscot Cap: Surface bullnose, module size same as adjoining flat tile.
 - c. External Corners: Surface bullnose, module size same as adjoining flat tile.
 - d. size as adjoining flat tile.
 - e. Internal Corners: Field-buttet square corners. For coved base and cap use angle pieces designed to fit with stretcher shapes.

2.3 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 or ASTM C1325, Type A.
 - 1. Thickness: 1/4 inch (6.4 mm)] [1/2 inch (12.7 mm).

2.4 SETTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
- B. Standard Dry-Set Mortar (Thinset): ANSI A118.1.
 - 1. For wall applications, provide nonsagging mortar.
- C. Modified Dry-Set Mortar (Thinset): ANSI A118.4.
 - 1. For wall applications, provide nonsagging mortar.
- D. Improved Modified Dry-Set Mortar (Thinset): ANSI A118.15.
 - 1. For wall applications, provide nonsagging mortar.

2.5 GROUT MATERIALS

- A. Sand-Portland Cement Grout: ANSI A108.10, consisting of white or gray cement and white or colored aggregate as required to produce color indicated.
- B. Standard Cement Grout: ANSI A118.6.
- C. High-Performance Tile Grout: ANSI A118.7.
 - 1. Polymer Type:
- D. Water-Cleanable Epoxy Grout: ANSI A118.3.

2.6 MISCELLANEOUS MATERIALS

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.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. 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

- 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.
- 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.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Porcelain Tile: 1/8 inch.
- G. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- H. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
- I. Install tile backing panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated. Use modified dry-set mortar for bonding material unless otherwise directed in manufacturer's written instructions.
- J. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

3.4 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

A. Interior Wall Installations, Wood or Metal Studs or Furring:

1. TCNA W244C or TCNA W244F: Thinset mortar on cementitious backer units or fiber-cement backer board .
 - a. Ceramic Tile Type: Porcelain wall tile.
 - b. Thinset Mortar: Modified dry-set mortar.
 - c. Grout: Standard unsanded cement grout.

.

END OF SECTION 093013

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes painting of exterior metal doors and cement plaster ceilings:
 - 1. Primers.
 - 2. Finish coatings.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of topcoat product.

1.3 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.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Sherwin Williams or approved equal.

2.2 PAINT PRODUCTS, GENERAL

- A. 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 manufacturer for use in paint system and on substrate indicated.
- B. Colors: As selected by Architect and Owner from manufacturer's full range. Match existing where indicated

2.3 PRIMERS

- A. Exterior, Alkali-Resistant, Water-Based Primer: Pigmented, water-based primer formulated for use on alkaline surfaces, such as exterior plaster, vertical concrete, and masonry.
- B. Water-Based, Galvanized-Metal Primer: Corrosion-resistant, pigmented, acrylic primer; formulated for use on cleaned/etched, exterior, galvanized metal to prepare it for subsequent water-based coatings.

2.4 FINISH COATINGS

- A. Exterior Latex Paint, Low Sheen: Water-based, pigmented coating; formulated for alkali, mold, microbial, and water resistance and for use on exterior surfaces, such as portland cement plaster, concrete, and primed wood.
 - 1. Gloss and Sheen Level: Manufacturer's standard low-sheen finish.
- B. Exterior Latex Paint, Gloss: Water-based, pigmented, acrylic-copolymer-emulsion coating formulated for alkali, mold, microbial, scrub, blocking (sticking of two painted surfaces), and water resistance and for use on exterior, primed, wood and metal trim, sashes, frames, and doors.
 - 1. Manufacturer's standard gloss finish

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.
- B. 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 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. Existing painted substrates: Scrape to remove all loose paint. Sand existing painted surfaces smooth to remove all imperfections. Fill all cracks with appropriate filler material and sand smooth.
- D. 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 specified in this Section.

3.3 INSTALLATION

- A. Apply paints in accordance with manufacturer's written instructions.
- B. 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.

3.4 CLEANING AND PROTECTION

- A. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- B. 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.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

- A. Galvanized-Metal Substrates:
 - 1. Latex System :
 - a. Prime Coat: Water-based, galvanized-metal primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, gloss.
- B. Portland Cement Plaster Substrates:
 - 1. Latex System :
 - a. Prime Coat: Exterior, alkali-resistant, water-based primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, low sheen.

END OF SECTION 099113

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Primers.
 - 2. Washable water-based finish coatings.
 - 3. Floor sealers and paints.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of topcoat product.

1.3 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Sherwin Williams, or approved equal.

2.2 PAINT PRODUCTS, GENERAL

- A. 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.
- B. Colors: As selected by Architect and Owner from manufacturer's full range.

2.3 PRIMERS

- A. Interior Latex Primer Sealer: Water-based latex sealer used on new interior plaster, concrete, and gypsum wallboard surfaces.
- B. Interior, Institutional Low-Odor/VOC Primer Sealer: Water-based primer sealer with low-odor characteristics and a VOC of less than 10 grams per liter for use on new interior plaster, concrete, and gypsum wallboard surfaces that are subsequently to be painted with latex finish coats.
- C. Water-Based Rust-Inhibitive Primer: Corrosion-resistant, water-based-emulsion primer formulated for resistance to flash rusting when applied to cleaned, interior ferrous metals subject to mildly corrosive environments.
- D. Water-Based Galvanized-Metal Primer: Corrosion-resistant, acrylic primer; formulated for use on cleaned/etched, exterior, galvanized metal to prepare it for subsequent water-based coatings.

2.4 WATER-BASED FINISH COATS

- A. Interior, Latex, Washable, Eggshell: Pigmented, water-based paint for use on primed/sealed interior plaster and gypsum board, and on primed wood and metals.
 - 1. Gloss and Sheen Level: Gloss of 10 to 25 units at 60 degrees and sheen of 10 to 35 units at 85 degrees when tested in accordance with ASTM D523.
- B. Interior, Latex, Washable Gloss: Pigmented, water-based paint for use on primed/sealed interior plaster and gypsum board, and on primed wood and metals.
 - 1. Gloss Level: Gloss of 70 to 85 units at 60 degrees when tested in accordance with ASTM D523.

2.5 FLOOR SEALERS AND PAINTS

- A. Water-Based Concrete Floor Sealer: Clear, water-based, acrylic-copolymer-emulsion sealer formulated for oil, gasoline, alkali, and water resistance and for use on concrete traffic surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- B. 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 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.
- C. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- D. 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.
- E. Existing painted substrates: Scrape to remove all loose paint. Sand existing painted surfaces smooth to remove all imperfections. Fill all cracks with appropriate filler material and sand smooth.
- F. 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.
 - 1. Concrete Floors: Remove oil, dust, grease, dirt, and other foreign materials. Comply with SSPC-SP-13/NACE 6 or ICRI 03732.
- G. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
- H. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.
- I. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- J. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- K. Aluminum Substrates: Remove loose surface oxidation.
- L. Wood Substrates:
 - 1. Scrape and clean knots and apply coat of knot sealer before applying primer.

2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 INSTALLATION

- A. Apply paints according to manufacturer's written instructions.
- B. 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.

3.4 CLEANING AND PROTECTION

- A. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- B. 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.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

- A. Galvanized-Metal Substrates:
 1. Latex System:
 - a. Prime Coat: Water-based galvanized primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Interior, latex, gloss.
- B. Gypsum Board and Plaster Substrates:
 1. Latex over Latex Sealer System:
 - a. Prime Coat: Interior latex primer sealer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Interior, latex, eggshell.

END OF SECTION 099123

SECTION 102113.17 - PHENOLIC-CORE TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Phenolic-core toilet compartments configured as toilet enclosures and urinal screens.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachment details.
- C. Samples for each type of toilet compartment material indicated.

1.3 INFORMATIONAL SUBMITTALS

- A. Product certificates.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Flame-Spread Index: 25 or less.
 2. Smoke-Developed Index: 450 or less.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.

2.2 PHENOLIC-CORE TOILET COMPARTMENTS

- A. Toilet-Enclosure Style: Overhead braced Floor anchored.
- B. Urinal-Screen Style: Wall hung Floor anchored .
- C. Door, Panel, Screen, and Pilaster Construction: Solid phenolic-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges. Provide minimum 3/4-inch- (19-mm-) thick doors and pilasters and minimum 1/2-inch- (13-mm-) thick panels.
- D. Pilaster Shoes and Sleeves (Caps)]: Formed from stainless steel sheet, not less than 0.031-inch (0.79-mm) nominal thickness and 3 inches (76 mm) high, finished to match hardware.

Retain "Urinal-Screen Post" Paragraph below for floor-anchored, overhead-braced, and post-to-ceiling urinal screens. First option is sometimes used with floor-mounted phenolic-core urinal screens; verify, with manufacturers, availability and cut-out design.

- E. Urinal-Screen Post: Manufacturer's standard post design of material matching the thickness and construction of pilasters or [1-3/4-inch- (44-mm-) square, aluminum tube with satin finish; with shoe and sleeve (cap)] matching that on the pilaster.
- F. Brackets (Fittings):
 - 1. Stirrup Type: Ear or U-brackets, stainless steel.
- G. Phenolic-Panel Finish:
 - 1. Facing Sheet Finish: One color and pattern in each room.
 - 2. Color and Pattern: As selected by Architect and Owner from manufacturer's full range, with manufacturer's standard through-color core matching face sheet.
 - 3. Edge Color: Manufacturer's standard.

2.3 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard operating hardware and accessories.
 - 1. Material: Stainless steel.
 - 2. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
- B. Hardware and Accessories: Manufacturer's heavy-duty stainless steel operating hardware and accessories.
 - 1. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
- C. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.

- D. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel compatible with related materials.

2.4 FABRICATION

- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
- B. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- C. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
- D. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at[tops and] bottoms of posts. Provide shoes[and sleeves (caps)] at posts to conceal anchorage.
- E. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch (13 mm).
 - b. Panels and Walls: 1 inch (25 mm).
 - 2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than three brackets attached at midpoint and near top and bottom of panel.
 - a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.

3.2 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 102113.17

SECTION 102113.19 - PLASTIC TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid-plastic toilet compartments configured as toilet enclosures entrance screens and urinal screens.

B. Related Requirements:

1. Section 102800 "Toilet, Bath, and Laundry Accessories" for accessories mounted on toilet compartments.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Solid-plastic toilet compartments:

B. Shop Drawings: For solid-plastic toilet compartments.

1. Include plans, elevations, sections, details, and attachment details.

C. Samples: For each type of toilet compartment material indicated.

1. Include Samples of hardware and accessories involving material and color selection.

1.3 INFORMATIONAL SUBMITTALS

A. Certificates:

1. Product Certificates.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire Performance: Tested in accordance with, and pass the acceptance criteria of, NFPA 286.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Department of Justice "2010 ADA Standards for Accessible Design" and ICC A117.1 for toilet compartments designated as accessible.

2.2 SOLID-PLASTIC TOILET COMPARTMENTS

- A. Toilet-Enclosure Style: Overhead braced. Floor anchored. Bradley Bradmar Series 400
- B. Urinal-Screen Style: Floor anchored. Bradley Bradmar Series 400
- C. Door, Screen, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch (25 mm) thick, seamless, with eased edges, and with homogenous color and pattern throughout thickness of material.
 - 1. Integral Hinges: Configure doors and pilasters to receive integral hinges.
 - 2. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum or stainless steel strip fastened to exposed bottom edges of solid-plastic components to hinder malicious combustion.
 - 3. Color and Pattern: One color and pattern in each room as selected by Architect and Owner from manufacturer's full range.
- D. Pilaster Shoes and Sleeves (Caps): Manufacturer's standard design; polymer or stainless steel.
 - 1. Polymer Color and Pattern: Matching pilaster.
- E. Urinal-Screen Post: Manufacturer's standard post design of material matching the thickness and construction of pilasters ; with shoe and sleeve (cap)] matching that on the pilaster.
- F. Brackets (Fittings):
 - 1. Stirrup Type: Ear or U-brackets, stainless steel.
 - 2. Full-Height (Continuous) Type: Manufacturer's standard design; polymer or extruded aluminum.
 - a. Polymer Color and Pattern: Matching panel.

2.3 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories, Heavy Duty: Manufacturer's heavy-duty operating hardware and accessories.

1. Hinges: Manufacturer's minimum 0.062-inch- (1.59-mm-) thick stainless steel, allowing emergency access by lifting door. Mount with through bolts.
2. Latch and Keeper: Manufacturer's heavy-duty, surface-mounted, cast-stainless steel latch unit, designed to resist damage due to slamming, with combination rubber-faced door strike and keeper, and with provision for emergency access. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible. Mount with through bolts.
3. Coat Hook: Manufacturer's heavy-duty combination cast-stainless steel hook and rubber-tipped bumper, sized to prevent inswinging door from hitting compartment-mounted accessories. Mount with through bolts.
4. Door Bumper: Manufacturer's heavy-duty, rubber-tipped, cast-stainless steel bumper at outswinging doors. Mount with through bolts.
5. Door Pull: Manufacturer's heavy-duty, cast-stainless steel pull at outswinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible. Mount with through bolts.

2.4 MATERIALS

- A. Aluminum Castings: ASTM B26/B26M.
- B. Aluminum Extrusions: ASTM B221 (ASTM B221M).
- C. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness.
- D. Stainless Steel Castings: ASTM A743/A743M.

2.5 FABRICATION

- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
- B. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- C. Floor Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at tops and bottoms of pilasters. Provide shoes and sleeves (caps) at pilasters to conceal anchorage.
- D. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at bottoms of posts. Provide shoes and sleeves (caps) at posts to conceal anchorage.

- E. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide, inswinging doors for standard toilet compartments and 36-inch- (914-mm-) wide, outswinging doors with a minimum 32-inch- (813-mm-) wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION OF PLASTIC TOILET COMPARTMENTS

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch (13 mm).
 - b. Panels and Walls: 1 inch (25 mm).
 - 2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than three brackets attached at midpoint and near top and bottom of panel.
 - a. Locate wall brackets, so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.
 - 3. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full-height brackets.
 - a. Locate bracket fasteners, so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches (44 mm) into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels and adjust, so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Floor Anchored Units: Secure pilasters to supporting construction and level, plumb, and tighten. Hang doors and adjust, so doors are level and aligned with panels, when doors are in closed position.
- D. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

3.2 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on inswinging doors to hold doors open

approximately 30 degrees from closed position when unlatched. Set hinges on outswinging doors to return doors to fully closed position.

END OF SECTION 102113.19

SECTION 102800 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each finish specified, full size.
- C. Delegated Design Submittal: For grab bars.
 - 1. Include structural design calculations indicating compliance with specified structural-performance requirements.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Design accessories and fasteners to comply with the following requirements:
 - 1. Grab Bars: Installed units are able to resist 250 lbf (1112 N) concentrated load applied in any direction and at any point.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

- A. Toilet Tissue (Roll) Dispenser. Bobrick B-273

1. Description: Single-roll dispenser.
 2. Mounting: Surface mounted.
 3. Operation: Noncontrol delivery with theft-resistant spindle. Concealed locking device
 4. Capacity: Designed for 4.06" long by 3.66" wide tissue rolls.
 5. Material and Finish: Satin-finish aluminum bracket with plastic spindle.
- B. Paper Towel (Folded) Dispenser. Bobrick Trimline B-359033:
1. Mounting: Recessed.
 2. Minimum Capacity: 300 C-fold towels.
 3. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).
 4. Lockset: Tumbler type.
- C. Grab Bar. Bobrick 9806. 1-1/2" Stainless Steel Grab Bar with Concealed Flange:
1. Mounting: Flanges with concealed fasteners.
 2. Material: Stainless steel, 1/16" inch (2mm) thick.
 - a. Finish: Smooth, ASTM A480/A480M No. 4 finish (satin).
 3. Outside Diameter: 1-1/2 inches .
 4. Configuration and Length: As indicated on Drawings. Straight, 36 inches (914 mm) long. Straight, 42" long.
- D. Mirror Unit. Welded Frame Mirror. Bobrick B-290 2440/2436:
1. Frame: Stainless steel 3/4" angle, 0.05 inch (1.3 mm) thick .
 2. Corners: Welded and ground smooth. Size: As indicated on Drawings.
 3. Glass: No 1 1/4" Mirror Glass
 4. Hangers: Manufacturer's standard rigid, tamper and theft resistant.

2.3 CHILDCARE ACCESSORIES

- A. Diaper-Changing Station. Bobrick KB310-SSWM:
1. Description: Horizontal unit that opens by folding down from stored position and with child-protection strap.
 - a. Engineered to support minimum of 250-lb (113-kg)] static load when opened.
 2. Mounting: Surface mounted, with unit projecting not more than 4 inches (102 mm) from wall when closed.
 3. Operation: By pneumatic shock-absorbing mechanism.
 4. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin), with replaceable insulated polypropylene tray liner.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories in accordance with manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
 - 1. Remove temporary labels and protective coatings.
- B. Grab Bars: Install to comply with specified structural-performance requirements.

END OF SECTION 102800

SECTION 224213.13 - COMMERCIAL WATER CLOSETS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wall-mounted water closets.
 - 2. Hard wired solenoid flushometer valves.
 - 3. Toilet seats.
 - 4. Supports.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Standards:
 - 1. Comply with ASME A112.19.2/CSA B45.1 for water closets.
 - 2. Comply with ASME A112.19.5/CSA B45.15 for flush valves and spuds for water closets and tanks.
 - 3. Comply with ASSE 1037/ASME A112.1037/CSA B125.37 for flush valves.
 - 4. Comply with IAMPO/ANSI Z124.5 for water-closet (toilet) seats.
 - 5. Comply with ASME A112.6.1M for water-closet supports.
 - 6. Comply with ICC A117.1 for ADA-compliant water closets.
 - 7. Comply with ASTM A1045 for flexible PVC gaskets used in connection of vitreous china water closets to sanitary drainage systems.
 - 8. Comply with ASME A112.4.3 for plastic fittings used in connection of vitreous china water closets to sanitary drainage systems.

2.2 WALL-MOUNTED WATER CLOSETS

.

- A. Water Closets - Wall Mounted, Top Spud: American Standard AFWall Millenium FloWise Elongated Flushometer Toilet LESS EverClean.
 - 1. Bowl:
 - a. Material: Vitreous china.
 - b. Type: Siphon jet.
 - c. Style: Flushometer valve.
 - d. Mounting Height: ADA compliant.
 - e. Rim Contour: Elongated.
 - f. Water Consumption: 1.1 gal. (4.2 L) per flush.
 - g. Spud Size and Location: NPS 1-1/2 (DN 40); top.
 - h. Color: White.
 - 2. Flushometer Valve: American Standard Sensor Operated Selectronic
 - 3. Toilet Seat: American Standard, commercial, extra heavy duty, open front, elongated, polypropylene. ADA compliant.
 - 4. Support: Water-closet carrier.

2.3 FLUSHOMETER VALVES

- A. Flushometer Valves - Touchless . American Standard sensor operated Selectronic Hardwired
 - 1. Minimum Pressure Rating: 125 psig (860 kPa).
 - 2. Features: Include integral check stop and backflow-prevention device.
 - 3. Material: Brass body with corrosion-resistant components.
 - 4. Style: Exposed.
 - 5. Flushometer-Valve Finish: Chrome-plated.
 - 6. Handle Finish: Chrome-plated Antimicrobial.
 - 7. Consumption: 1.1 gal. (4.2 L) per flush.
 - 8. Minimum Inlet: NPS 1 (DN 25).
 - 9. Minimum Outlet: NPS 1-1/4 (DN 32).

2.4 TOILET SEATS

- A. Toilet Seats: American Standard.
 - 1. Material: Plastic.
 - 2. Type: Commercial (Extra Heavy duty).
 - 3. Shape: Elongated rim, open front.
 - 4. Hinge: Self-sustaining, check.
 - 5. Hinge Material: Noncorroding metal.
 - 6. Seat Cover: Not required.
 - 7. Color: White.
 - 8. Surface Treatment: Antimicrobial.

2.5 SUPPORTS

A. Water-Closet Carrier:

1. Description: Waste-fitting assembly, as required to match drainage piping material and arrangement with faceplates, couplings gaskets, and feet; bolts and hardware matching fixture.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for water-supply piping and sanitary drainage and vent piping systems to verify actual locations of piping connections before water-closet installation.
- B. Examine walls and floors for suitable conditions where water closets will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Water-Closet Installation:

1. Install level and plumb.
2. Install floor-mounted water closets on bowl-to-drain connecting fitting attachments to piping or building substrate.
3. Install accessible, wall-mounted water closets at mounting height in accordance with ICC A117.1.

B. Support Installation:

1. Install supports, affixed to building substrate, for floor-mounted, back-outlet water closets.
2. Use carrier supports with waste-fitting assembly and seal.
3. Install floor-mounted, back-outlet water closets attached to building floor substrate, onto waste-fitting seals; and attach to support.
4. Install wall-mounted, back-outlet water-closet supports with waste-fitting assembly and waste-fitting seals; and affix to building substrate.
5. Measure support height installation from finished floor, not structural floor.

C. Flushometer-Valve Installation:

1. Install flushometer-valve, water-supply fitting on each supply to each water closet.
2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.
3. Install actuators in locations easily reachable for people with disabilities.

D. Install toilet seats on water closets.

E. Wall Flange and Escutcheon Installation:

1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations and within cabinets and millwork.
2. Install deep-pattern escutcheons if required to conceal protruding fittings.

F. Joint Sealing:

1. Seal joints between water closets and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
2. Match sealant color to water-closet color.

3.3 PIPING CONNECTIONS

- A. Connect water closets with water supplies and soil, waste, and vent piping. Use size fittings required to match water closets.
- B. Where installing piping adjacent to water closets, allow space for service and maintenance.

3.4 ADJUSTING

- A. Operate and adjust water closets and controls. Replace damaged and malfunctioning water closets, fittings, and controls.
- B. Adjust water pressure at flushometer valves to produce proper flow.

3.5 CLEANING AND PROTECTION

- A. Clean water closets and fittings with manufacturers' recommended cleaning methods and materials.
- B. Install protective covering for installed water closets and fittings.
- C. Do not allow use of water closets for temporary facilities unless approved in writing by Owner.

END OF SECTION 224213.13

SECTION 224213.16 - COMMERCIAL URINALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wall-hung urinals.
2. Hard wired urinal flushometer valves.
3. Supports.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 WALL-HUNG URINALS

A. Urinals - Wall Hung, Back Outlet, Washout: American Standard FloWise Universal Urinal

1. Fixture:
 - a. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5/CSA B45.15.
 - b. Material: Vitreous china.
 - c. Drain: Separate removable chrome-plated dome strainer with chrome-plated, NPS 1-1/2 (DN 40) tailpiece.
 - d. Strainer or Trapway: Manufacturer's standard strainer and NPS 1-1/2 (DN 40) tailpiece.
 - e. Inlet Spud Size and Location: NPS 3/4 (DN 20); top.
 - f. Outlet Size and Location: NPS 2" ; bottom.
 - g. Color: White .
 - h. Water Consumption: 0.125 gpf (0.5 Lpf).
 - i. ADA compliant
2. Flushometer Valve: American Standard Selectronic Sensor Operated Hardwired Flushometer.
3. Waste Fitting:

- a. Standard: ASME A112.18.2/CSA B125.2.
- b. Trap:
 - 1) Size: NPS 1-1/2 (DN 50).
 - 2) Material, Chrome Plated: and chrome-plated brass or steel wall flange.
 - 3) Material, Stainless Steel: Two-piece trap and swivel elbow with 0.012-inch- (0.30-mm-) thick, stainless steel tube to wall; and stainless steel wall flange.
- 4. Support: Type II urinal carrier with hanger and bearing plates. J R Smith
- 5. Urinal Mounting Height: Handicapped/elderly according to ICC A117.1.

2.2 URINAL FLUSHOMETER VALVES

A. Solenoid-Actuator, Diaphragm Flushometer Valves:.

- 1. American Standard Selectronic sensor operated hardwired flushometer
- 2. Standard: ASSE 1037/ASME 112.1037/CSA B125.37.
- 3. Minimum Pressure Rating: 125 psig (860 kPa).
- 4. Features: Include integral check stop and backflow-prevention device.
- 5. Material: Brass body with corrosion-resistant components.
- 6. Exposed Flushometer-Valve Finish: Chrome plated.
- 7. Panel Finish: Chrome plated or stainless steel.
- 8. Style: Concealed.
- 9. Actuator: Solenoid complying with UL 1951; listed and labeled as defined in NFPA 70, by a qualified testing agency; and marked for intended location and application.
- 10. Trip Mechanism: Hard wired electronic sensor complying with UL 1951; listed and labeled as defined in NFPA 70, by a qualified testing agency; and marked for intended location and application.
- 11. Consumption: 0.125 gal. per flush.
- 12. Minimum Inlet: NPS 3/4 (DN 20).
- 13. Minimum Outlet: NPS 3/4 (DN 20).

2.3 SUPPORTS

A. Type II Urinal Carrier:

- 1. Standard: ASME A112.6.1M. J R Smith

B. Urinal Installation:

- 1. Install urinals level and plumb according to rough-in drawings.
- 2. Install wall-hung, back-outlet urinals onto waste fitting seals and attached to supports.
- 3. Install accessible, wall-mounted urinals at mounting height for the handicapped/elderly, according to ICC A117.1.

C. Support Installation:

- 1. Install supports, affixed to building substrate, for wall-hung urinals.

2. Use off-floor carriers with waste fitting and seal for back-outlet urinals.
3. Use carriers without waste fitting for urinals with tubular waste piping.
4. Use chair-type carrier supports with rectangular steel uprights for accessible urinals.

D. Flushometer-Valve Installation:

1. Install flushometer-valve water-supply fitting on each supply to each urinal.
2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.

E. Wall Flange and Escutcheon Installation:

1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations.
2. Install deep-pattern escutcheons if required to conceal protruding fittings.
3. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."

F. Joint Sealing:

1. Seal joints between urinals and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
2. Match sealant color to urinal color.
3. Comply with sealant requirements specified in Section 079200 "Joint Sealants."

2.4 PIPING CONNECTIONS

- A. Connect urinals with water supplies and soil, waste, and vent piping. Use size fittings required to match urinals.
- B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."
- C. Comply with soil and waste piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."
- D. Where installing piping adjacent to urinals, allow space for service and maintenance.

2.5 ADJUSTING

- A. Operate and adjust urinals and controls. Replace damaged and malfunctioning urinals, fittings, and controls.
- B. Adjust water pressure at flushometer valves to produce proper flow.

2.6 CLEANING AND PROTECTION

- A. Clean urinals and fittings with manufacturers' recommended cleaning methods and materials.

- B. Install protective covering for installed urinals and fittings.
- C. Do not allow use of urinals for temporary facilities unless approved in writing by Owner.

END OF SECTION 224213.16

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Engineered stone commercial lavatory units.
- B. Lavatory faucets.
- C. Soap dispensers.

1.2 ACTION SUBMITTALS

- A. Product Data: For each product:
 - 1. Manufacturer's data sheets indicating operating characteristics, materials and finishes.
 - 2. Include details of electrical and mechanical operating parts.
 - 3. Provide mounting requirements and rough-in dimensions.
 - 4. Mark each sheet with product drawing designation.
- B. Product Test Reports: Indicating compliance of products with requirements, from a qualified independent testing agency, when requested by Architect.
- C. Shop Drawings: Prepared by manufacturer. Include mounting and rough-in requirements and power, signal, and control wiring diagrams.

1.3 INFORMATION SUBMITTALS

- A. Sample warranty.
- B. Manufacturer's certificates.
- C. Indoor environmental quality certificates.

1.4 MAINTENANCE SUBMITTALS

- A. Furnish indicated spare parts that are packaged with identifying labels listing associated products.
- B. Operation, care and cleaning instructions.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum 5 years experience in the manufacture of plumbing fixtures. Manufacturers seeking approval must submit the following:
 - 1. Product data, including test data from qualified independent testing agency indicating compliance with requirements.
 - 2. Samples of each component of product specified.
 - 3. List of successful installations of similar products available for evaluation by Architect.
 - 4. Submit substitution request not less than 15 days prior to bid date.
- B. Source Limitations: Obtain each type of plumbing fixture and compatible accessories through one source from a single approved manufacturer.

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

- C. Laminar-Flow, Faucet-Spout Outlets:
 - 1. NSF Standard: Comply with NSF 372 for faucet-spout outlet materials that will be in contact with potable water.
 - 2. Product shall meet a weighted average of not more than 0.25 percent lead as required by the U.S. Safe Drinking Water Act.
 - 3. Description: Chrome-plated-brass, faucet-spout outlet that produces non-aerating, laminar stream. Include external or internal thread that mates with faucet outlet for attachment to faucets where indicated and flow-rate range that includes flow of faucet.
 - D. Accessibility Requirements: Comply with requirements of ADA \ ANSI 117.1 and with requirements of authorities having jurisdiction.
 - 1. 306 Knee and Toe Clearance.
 - 2. 308 Reach Range.
 - 3. 606.5 Exposed Pipes & Surfaces with access panels.
 - 4. 309.4 Operation.
 - 5. 606.4 Faucets.
 - E. Water Flow and Consumption Requirements: Comply with EPACT.
 - F. Drinking Water Standard: Certified to NSF/ANSI 372.
 - G. Electrical Components: Listed and labeled per NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
 - H. Comply with Public Law 102-486, Energy Policy Act.
- 1.6 WARRANTY
- A. Special Manufacturer's Warranty: Provide manufacturer's standard form in which manufacturer agrees to repair or replace products that fail in materials or workmanship within the following periods:
 - 1. Engineered natural quartz material: 10 years.
 - 2. Soap Dispenser: Three years.
 - 3. Faucets: Three years.
 - 4. WashBar: 1 year

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide products of Bradley Corporation.

2.2 MATERIALS

- A. Lavatory Deck and Bowl Material: Fabricate lavatory units from molded engineered stone material consisting of natural quartz, granite, and other minerals in a matrix of thermoset bio-based polyester resin, listed by IAPMO R&T to IGC 156 and the requirements of CSA B45.5/IAPMO Z124 and ASME A112.18.1/CSA B125.1, with the following minimum properties:
 - 1. Basis of Design Product: Bradley, Evero Geo Series. 20 percent recycled content.
 - 2. Surface Burning Characteristics: Smoke developed, less than 450; flame spread, less than 25, per ASTM E 84.

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

3. Flexural Strength: 3267 psi (22.5 MPa), minimum, per ASTM D 790.
4. Compressive Strength: 11,500 psi (79 MPa), minimum, per ASTM C 170.
5. Moisture Absorption: 0.065 percent in 24 hours, per ASTM D 570.
6. Hardness: 6 – 7 Mohs Scale, per ASTM D 785.
7. Thickness: 1/2 inch (12.7 mm).

2.3 MULTI-STATION LAVATORY UNITS

- A. Lavatory: Wall-mounted linear design with angled basin and stainless steel drain cap to conceal the trench drain, molded from engineered stone material to create a seamless and integral elongated basin. Basin and drain designed to work in harmony with WashBar technology to evacuate water and dissipate airflow to prevent splashing on the user or floor. Unit includes combined waste and assembly connections to wall with stops and heavy gauge stainless steel wall mounting bracket that is concealed by a decorative swing down stainless steel access panel:
1. Basis of Design Manufacturer/Model: Bradley, Verge Lavatory System, Model LVQD.
 2. Number of Wash Stations: 1 and 2.
 3. Unit Length: 30 inches (762 mm), 60 inches (1524 mm).
 4. Water Supply: Thermostatic mixing valve assembly.
 5. Faucet: Included.
 6. Soap Dispenser: Included.
 7. Trench Drain Cap: Slotted Stainless Steel Trench Drain Cap with Vandal Resistant Screws.
 8. Color: As selected by Architect from manufacturer's full line.
 9. Rim Mounting Height: As indicated.

2.4 SENSOR-OPERATED WASHBAR

- A. Sleek single Casting WashBar with integral soap, faucet and single nozzle hand dryer with heated air and adjustable speeds, infrared control, smart technology with adjustable LED lighting and easy to identify icons and external tempering control:
1. Basis of Design Manufacturer/Model: Bradley WB1.
 2. Function: Blue LED lights help guide the user, indicating the functions. The LED light will change from blue to green to signify that the function is in use. Each function is easily identified by the corresponding icon on the WashBar top surface. Each sensor includes a turn-off delay of 1-2 seconds to aid in a smooth, controlled hand-washing
 3. Body: Polished chrome plated stainless steel. Load tested to 500 pounds, WashBar is secured to the basin with two anti-rotational shanks.
 4. Chrome Finish: "PC" Polished Chrome.
 5. Tempered Water Supply: Single thermostatic mixing valve.
 6. Flow Control: 0.35 gpm (1.33 Lpm) PCA Silicone Tip, Non-Aerated. 0.50 gpm (1.9 Lpm) PCA Silicone Tip, Non-Aerated.
 7. Soap Type: Liquid Soap Dispenser]. Soap system accommodates up to a 1 gallon container.
 8. Hand Dryer: DC Motor 120v/60hz, 20 Amp.
 9. Sensor Module: Water-conserving, durable sensor unit with adjustable timing turn-off delay and stationary object automatic timed cutoff, with diagnostic signal light.
 - a. Sensing Distance: 5 inches (127mm).
 10. Power Supply: 120V 2A 12V DC adapter that plugs directly into the electrical outlet.

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

11. Thermostatic Mixing Valve: Thermostatic mixing valve, ASSE 1070 listed, with stop/strainer/check valves, and flexible stainless steel connectors.
- B. Sleek single Casting WashBar with integral soap, faucet and single nozzle hand dryer with heated air and adjustable speeds, infrared control, smart technology with adjustable LED lighting and easy to identify icons and external tempering control :
 1. Basis of Design Manufacturer/Model: Bradley WB2.
 2. Function: Blue LED lights help guide the user, indicating the functions. The LED light will change from blue to green to signify that the function is in use. Each function is easily identified by the corresponding icon on the WashBar top surface. Each sensor includes a turn-off delay of 1-2 seconds to aid in a smooth, controlled hand-washing
 3. Body: Polished chrome plated stainless steel. Load tested to 500 pounds, WashBar is secured to the basin with one anti-rotational shank.
 4. Chrome Finish: "PC" Polished Chrome.
 5. Tempered Water Supply: Single thermostatic mixing valve.
 6. Flow Control: 0.35 gpm (1.33 Lpm) PCA Rubber Tip Aerator. 0.50 gpm (1.9 Lpm) PCA Rubber Tip Aerator.
 7. Soap Type: Liquid Soap Dispenser. Soap system accommodates up to a 1 gallon container.
 8. Hand Dryer: DC Motor 120v/60hz, 20 Amp.
 9. Sensor Module: Water-conserving, durable sensor unit with adjustable timing turn-off delay and stationary object automatic timed cutoff, with diagnostic signal light.
 - a. Sensing Distance: 5 inches (127mm).
 10. Power Supply: 120V 2A 12V DC adapter that plugs directly into the electrical outlet.
 11. Thermostatic Mixing Valve: Thermostatic mixing valve, ASSE 1070 listed, with stop/strainer/check valves, and flexible stainless steel connectors.
 12. dley, Model 6334.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessible wall-mounted sinks at juvenile/handicapped/elderly mounting heights according to ICC/ANSI A117.1.
- B. Assemble fixtures, accessories, and associated fittings and trim in accordance with manufacturer's instructions.
- C. Install fixture supports firmly attached to building structure.
- D. Install fixtures level, plumb, and in accordance with manufacturer's rough-in instructions.
- E. Install water supply piping. Provide stop on each supply in readily-serviceable location. Fasten supply piping to supports or substrate.
- F. Install trap and waste piping to each fixture.
- G. Install escutcheons at exposed piping penetrations in finished locations and within cabinets.
- H. Seal joints between fixtures and walls, floors, and countertops with mildew-resistant silicone sealant meeting requirements in Division 07 Section "Joint Sealants."

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

- I. Mount soap dispenser in 1-3/8 inches (35 mm) diameter hole in lavatory or countertop 1-1/2 inches (38 mm) from edge of sink. Shank will accommodate a maximum counter thickness of 1-1/2 inches (38 mm).

3.2 CLEANING AND PROTECTION

- A. Repair or replace defective work, including damaged fixtures and components.
- B. At time of Substantial Completion:
 - 1. Clean unit surfaces per manufacturer's care instructions, test fixtures, and leave in ready-to-use condition.
 - 2. Install new batteries in battery-operated devices.
 - 3. Fill soap dispensers.
 - 4. Turn over keys, tools, maintenance instructions, and maintenance stock to Owner.
- C. Protect units with water-resistant temporary covering. Do not allow temporary use of plumbing fixtures unless approved in writing by Architect. Remove protection at Substantial Completion and dispose.

3.3 TESTING AND ADJUSTING

- A. Set field-adjustable temperature set points of temperature-actuated water mixing valves. Adjust set point within allowable temperature range.
- B. Test and adjust installation.

END OF SECTION

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Saw cutting of tree roots of trees to remain that interfere with construction
5. Stripping and stockpiling topsoil.
6. Temporary erosion and sedimentation control.

1.2 PREINSTALLATION MEETINGS

- ##### A. Preinstallation Conference: Conduct conference at Project site.

1.3 MATERIAL OWNERSHIP

- ##### A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.4 FIELD CONDITIONS

- ##### A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.
- ##### B. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.
- ##### C. Tree- and Plant-Protection Zones: Protect according to requirements in Section 015639 "Temporary Tree and Plant Protection."

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

- A. Protect trees and plants remaining on-site.

- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations.

3.4 EXISTING UTILITIES

- A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

3.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Grind down stumps and remove roots larger than 3 inches (75 mm) in diameter, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
 - 2. Use only hand methods or air spade for grubbing within protection zones.
 - 3. Cut roots of trees to remain that interfere with construction. Consult with trained arborist for extent of removals
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to depth of 6 inches (150 mm) in a manner to prevent intermingling with underlying subsoil or other waste materials.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavating and filling for rough grading the Site.
 - 2. Preparing subgrades for walks.
 - 3. Subbase course for concrete walks.

1.2 DEFINITIONS

- A. Backfill: Soil material used to fill an excavation.
- B. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- C. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, will be without additional compensation.
- D. Fill: Soil materials used to raise existing grades.
- E. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- F. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- G. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct preexcavation conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Material test reports.
- B. Do not commence earth-moving operations until plant-protection measures are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D2487, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D2487 , or a combination of these groups.
 - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored to comply with local practice or requirements of authorities having jurisdiction.
- B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored to comply with local practice or requirements of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.
- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.4 SUBGRADE INSPECTION

- A. Proof-roll subgrade with a pneumatic-tired dump truck to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
- B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.5 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.6 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade.
 - 2. Surveying locations of underground utilities for Record Documents.
 - 3. Testing and inspecting underground utilities.
 - 4. Removing concrete formwork.
 - 5. Removing trash and debris.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.7 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under walks and pavements, use satisfactory soil material.
 - 2. Under steps and ramps, use engineered fill.

3.8 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.9 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D698:
 - 1. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.

2. Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85percent.

3.10 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:
 1. Walks: Plus or minus 1 inch (25 mm).

3.11 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

- A. Place subbase course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase course under pavements and walks as follows:
 1. Shape subbase course to required crown elevations and cross-slope grades.
 2. Place subbase course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
 3. Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D698.

3.12 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- C. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.13 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.14 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes concrete paving including the following:
 - 1. Walks.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.3 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1.4 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing on concrete paving mixtures.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 (ACI 301M) unless otherwise indicated.

2.2 CONCRETE MATERIALS

- A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
 - 1. Portland Cement: ASTM C150/C150M, gray portland cement Type I/II.

- B. Normal-Weight Aggregates: ASTM C33/C33M, Class 4S, uniformly graded. Provide aggregates from a single source.
- C. Air-Entraining Admixture: ASTM C260/C260M.
- D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
- E. Water: Potable and complying with ASTM C94/C94M.

2.3 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry or cotton mats.
- B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, dissipating.

2.4 RELATED MATERIALS

- A. Joint Fillers: ASTM D1751, asphalt-saturated cellulosic fiber ASTM D1752, cork or self-expanding cork or ASTM D8139, semirigid, closed-cell polypropylene foam in preformed strips.
- B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

2.5 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301 (ACI 301M), for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.
- B. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
 - 1. Air Content: 6 percent plus or minus 1-1/2 percent.

C. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

D. Concrete Mixtures: Normal-weight concrete.

1. Compressive Strength (28 Days): 4000 psi (27.6 MPa).
2. Maximum W/C Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).

2.6 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C94/C94M. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

- C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, to match jointing of existing adjacent concrete paving:
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes.

3.5 CONCRETE PLACEMENT

- A. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- B. Comply with ACI 301 (ACI 301M) requirements for measuring, mixing, transporting, and placing concrete.
- C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- D. Screed paving surface with a straightedge and strike off.
- E. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
- C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on paving surface according to manufacturer's written instructions.
 - 1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.

2. After curing, lightly work surface with a steel-wire brush or abrasive stone and water to expose nonslip aggregate.

3.7 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m 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.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture-retaining-cover curing.

3.8 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 (ACI 117M) and as follows:
 1. Elevation: 3/4 inch (19 mm).
 2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
 3. Surface: Gap below 10-feet- (3-m-) long; unleveled straightedge not to exceed 1/2 inch (13 mm).
 4. Joint Spacing: 3 inches (75 mm).
 5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
 6. Joint Width: Plus 1/8 inch (3 mm), no minus.

3.9 REPAIR AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 321713 - PARKING BUMPERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Precast concrete wheel stops.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Precast concrete wheel stops.

PART 2 - PRODUCTS

2.1 PARKING BUMPERS

- A. Precast Concrete Wheel Stops: Precast, steel-reinforced, air-entrained concrete; 4000-psi (27.6-MPa) minimum compressive strength; manufacturer's standard height and width 72 inches (1800 mm) long. Provide chamfered corners, transverse drainage slots on underside, and a minimum of three factory-formed or -drilled vertical holes through wheel stop for anchoring to substrate.
1. Surface Appearance: Smooth, free of pockets, sand streaks, honeycombs, and other obvious defects. Corners shall be uniform, straight, and sharp.
 2. Surface Sealer: Manufacturer's standard salt-resistant, clear sealer, applied at precasting location.
 3. Mounting Hardware: Galvanized-steel hardware as standard with wheel-stop manufacturer].

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Verify that pavement is in suitable condition to begin installation in accordance with manufacturer's written instructions.
- B. Install wheel stops in accordance with manufacturer's written instructions unless otherwise indicated.

- C. Securely anchor wheel stops to substrate with hardware in each preformed vertical hole in wheel stop as recommended in writing by manufacturer. Recess head of hardware beneath top of wheel stop.

END OF SECTION 321713

SECTION 321723 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Painted markings applied to asphalt paving.
 - 2. Painted markings applied to concrete surfaces.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data:
 - 1. Pavement-marking paint, solvent-borne.
 - 2. Pavement-marking paint, acrylic.
 - 3. Pavement-marking paint, latex.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.

2.2 PAVEMENT-MARKING PAINT

- A. Pavement-Marking Paint, Acrylic: Acrylic, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952F, Type II, with drying time of less than 45 minutes.
 - 1. Color: White, Blue As indicated.

PART 3 - EXECUTION

3.1 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Allow asphalt paving or concrete surfaces to age for a minimum of 90 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).
 - 1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to asphalt paving or concrete surface.

END OF SECTION 321723

SECTION 329113 - SOIL PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes planting soils specified by composition of the mixes.
- B. Related Requirements:
 - 1. Section 311000 "Site Clearing" for topsoil stripping and stockpiling.

1.2 DEFINITIONS

- A. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.
- B. Imported Soil: Soil that is transported to Project site for use.
- C. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- F. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- G. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- H. USCC: U.S. Composting Council.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 MATERIALS

2.2 PLANTING SOILS SPECIFIED BY COMPOSITION

- A. Planting-Soil Type: Existing, on-site surface soil, with the duff layer, if any, retained on-site; modified to produce viable planting soil. Blend existing, on-site surface soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:
 - 1. Ratio of Loose Compost to Soil: 1:4 by volume.
- B. Planting-Soil Type: Imported, naturally formed soil from off-site sources and consisting of loam soil according to USDA textures; and modified to produce viable planting soil.
 - 1. Sources: Take imported, unamended soil from sources that are naturally well-drained sites where topsoil occurs at least 4 inches (100 mm) deep, not from bogs, or marshes; and that do not contain undesirable organisms; disease-causing plant pathogens; or obnoxious weeds and invasive plants including, but not limited to, quackgrass, Johnsongrass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel, and brome grass.
 - 2. Additional Properties of Imported Soil before Amending: Soil reaction of pH 6 to 7 and minimum of percent organic-matter content, friable, and with sufficient structure to give good tilth and aeration.
 - 3. Unacceptable Properties: Clean soil of the following:
 - a. Unacceptable Materials: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
 - b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of coarse sand that exceed a combined maximum of 8 percent by dry weight of the imported soil.
 - c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding [2 inches (50 mm) in any dimension.
 - 4. Amended Soil Composition: Blend imported, unamended soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:
 - a. Ratio of Loose Compost to Soil: 1:4 by volume.

2.3 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:

1. Class: T, with a minimum of 99 percent passing through a No. 8 (2.36-mm) sieve and a minimum of 75 percent passing through a No. 60 (0.25-mm) sieve.
 2. Form: Provide lime in form of ground calcitic limestone.
- B. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C33/C33M.

2.4 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:
1. Feedstock: Limited to leaves.
 2. Reaction: pH of 5.5 to 8.
 3. Soluble-Salt Concentration: Less than 4 dS/m.
 4. Moisture Content: 35 to 55 percent by weight.
 5. Organic-Matter Content: 30 to 40 percent of dry weight.
 6. Particle Size: Minimum of 98 percent passing through a 1-inch (25mm)-sieve.

2.5 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
1. Composition: 1 lb/1000 sq. ft. (0.5 kg/100 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

PART 3 - EXECUTION

3.1 GENERAL

- A. Place planting soil and fertilizers according to requirements in other Specification Sections.
- B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

3.2 PREPARATION OF UNAMENDED, ON-SITE SOIL BEFORE AMENDING

- A. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.

- B. Unsuitable Materials: Clean soil to contain a maximum of 8 percent by dry weight of stones, roots, plants, sod, clay lumps, and pockets of coarse sand.

3.3 PLACING AND MIXING PLANTING SOIL OVER EXPOSED SUBGRADE

- A. General: Apply and mix unamended soil with amendments on-site to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Subgrade Preparation: Till subgrade to a minimum depth of 4 inches (100 mm). Remove stones larger than 1-1/2 inches (38 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- C. Mixing: Spread unamended soil to total depth of 4 inches (100 mm), but not less than required to meet finish grades after mixing with amendments and natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.
 - 1. Amendments: Apply soil amendments, except compost, and fertilizer, if required, evenly on surface, and thoroughly blend them with unamended soil to produce planting soil.
- D. Compaction: Compact each blended lift of planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D698 and tested in-place.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.4 BLENDING PLANTING SOIL IN PLACE

- A. General: Mix amendments with in-place, unamended soil to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Preparation: Till unamended, existing soil in planting areas to a minimum depth of 4 inches (100 mm). Remove stones larger than 1-1/2 inches (38 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- C. Mixing: Apply soil amendments and fertilizer, if required, evenly on surface, and thoroughly blend them into full depth of unamended, in-place soil to produce planting soil.
 - 1. Mix fertilizer with planting soil no more than seven days before planting.
- D. Compaction: Compact blended planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D698.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
- F. d sampling depth.

3.5 PROTECTION AND CLEANING

- A. Protection Zone: Identify protection zones according to Section 015639 "Temporary Tree and Plant Protection."
- B. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Vehicle traffic.
 - 4. Foot traffic.
 - 5. Erection of sheds or structures.
 - 6. Impoundment of water.
 - 7. Excavation or other digging unless otherwise indicated.
- C. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.
 - 1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

END OF SECTION 329113

SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Seeding.

1.2 DEFINITIONS

- A. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- B. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" and drawing designations for planting soils.

1.3 INFORMATIONAL SUBMITTALS

- A. Certification of grass seed.
- B. Product certificates.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.
1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 2. Pesticide Applicator: State licensed, commercial.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species:
 - 1. Quality, State Certified: State-certified seed of grass species as listed below for solar exposure.
 - 2. Quality, Non-State Certified: Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed:
 - 3. Full Sun: turf type Tall Fescue.
 - 4. Shade: Fine Fescue:

2.2 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

2.3 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

2.4 PESTICIDES

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

PART 3 - EXECUTION

3.1 TURF AREA PREPARATION

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."
- B. Reduce elevation of planting soil to allow for soil thickness of sod.
- C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- D. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h).
 - 1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 2. Do not use wet seed or seed that is moldy or otherwise damaged.
 - 3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at a total rate of 3 to 4 lb/1000 sq. ft. (1.4 to 1.8 kg/92.9 sq. m).
- C. Rake seed lightly into top 1/8 inch (3 mm) of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre (42 kg/92.9 sq to form a continuous blanket 1-1/2 inches (38 mm) in loose thickness over seeded areas.
 - 1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

3.3 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
- B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings.

3.4 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
 - 1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).
 - 2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
- B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

END OF SECTION 329200

PROJECT MANUAL

ROSE TREE PARK RESTROOM RENOVATIONS
UPPER PROVIDENCE TOWNSHIP,
DELAWARE COUNTY, PA

DELAWARE COUNTY DEPARTMENT OF
PUBLIC WORKS

PROJECT MANUAL

JULY 2024

Prepared by:
MDESIGNS+MWJ CONSULTING LLC

ROSE TREE PARK RESTROOM RENOVATIONS: TABLE OF CONTENTS

Section	Section Title	Pages
DIVISION 1 - GENERAL REQUIREMENTS		
01 10 00	Summary	4
01 26 00	Contract Modification Procedure	3
01 29 00	Payment Procedures	4
01 31 00	Project Management and Coordination	7
01 32 33	Photographic Documentation.....	2
01 33 00	Submittal Procedures	7
01 50 00	Temporary Facilities and Controls	4
01 60 00	Product Requirements.....	5
01 73 00	Execution	5
01 77 00	Closeout Procedures	4
01 78 39	Project Record Documents.....	3
DIVISION 2 – EXISTING CONDITIONS		
02 41 19	Selective Demolition.....	4
DIVISION 4 – MASONRY		
04 20 00	Unit Masonry.....	8
DIVISION 5 – METALS		
05 50 00	Steel Lintels	5
05 52 13	Pipe and Tube Railings.....	5
DIVISION 7 – THERMAL AND MOISTURE PROTECTION		
07 46 33	Vinyl Soffits.....	3
07 92 00	Joint Sealants.....	6
DIVISION 8 – OPENINGS		
08 11 13	Hollow Metal Doors and Frames	4
DIVISION 9 – FINISHES		
09 01 60	Restoration of Terrazzo Flooring.....	3
09 22 16	Non-Structural Metal Framing.....	3
09 24 00	Cement Plastering.....	4
09 29 00	Gypsum Board.....	4
09 30 13	Ceramic Tiling.....	5
09 90 13	Exterior Painting.....	3
09 91 23	Interior Painting.....	4

ROSE TREE PARK RESTROOM RENOVATIONS: TABLE OF CONTENTS

DIVISION 10 – SPECIALITIES

10 21 13	Phenolic Core Toilet Compartments.....	4
10 21 13.19	Plastic Toilet Compartments.....	5
10 28 00	Restroom Accessories.....	4

DIVISION 22 – PLUMBING FIXTURES

22 42 13.13	Commercial Water Closets.....	4
22 42 13.16	Commercial Urinals.....	4
22 42 16.03	Commercial Lavatories and Faucets.....	5

DIVISION 31 – EARTHWORK

31 10 00	Site Clearing.....	4
31 20 00	Earth Moving.....	6

DIVISION 32 – SITE IMPROVEMENTS

32 13 13	Concrete Paving.....	5
32 17 13	Parking Bumpers.....	2
32 17 23	Pavement Markings.....	2
32 91 13	Soil Preparation.....	5
32 92 00	Turf and Grasses.....	4

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Contractor's use of site and premises.
4. Work restrictions.
5. Specification and Drawing conventions.

1.2 PROJECT INFORMATION

A. Project Identification: Restroom Renovations, Rose Tree Park, Media, Delaware County PA

B. Owner: Delaware County Department of Public Works, 201 W Front Street, Suite 207, Media PA 19062

1. Owner's Representative: -----.

C. Architect: MDesigns+MWJ Consulting, LLC.

1. Architect's Representative: Michael Johns, FAIA, NOMA, LEED-AP 228 N. 53rd Street Philadelphia, PA 19139 (215)-917-3798

D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. MEP Design. JW Mechanical, Electrical Plumbing Systems Design. PO Box 1349, Willow Grove, PA 19090
 - a. Representative: Joseph Warrick (267)-496 2633. jsphwarrickjr@gmail.com

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Renovation of public restrooms including selective demolition and removals, new restroom fixtures and accessories, new toilet partitions, new wall tiling, restoration of terrazzo floor, new lighting and electrical and plumbing work, new concrete walks
2. Project will be constructed under a single prime contract.

1.4 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Limits on Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits on Use of Site: Confine construction operations to areas where work is permitted.
 - 2. Driveways, Walkways, and Entrances: Keep driveways, parking areas, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
- D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.5 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7am a.m. to 5 p.m., Monday through Friday, unless otherwise indicated.
- C. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Project site or Owner's property is not permitted.
- D. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

1.6 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 10 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.4 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 A.

1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Arrange schedule of values consistent with format of AIA Document G703.
 - 2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
 - 3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 4. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
 - 5. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from .
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Products list (preliminary if not final).
 5. Schedule of unit prices.
 6. Submittal schedule (preliminary if not final).
 7. List of Contractor's staff assignments.

8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.
- H. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706.
 5. AIA Document G706A.
 6. AIA Document G707.
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. RFIs.
 - 3. Digital project management procedures.
 - 4. Project meetings.

1.2 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.

1.3 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the schedule of values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.

5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.4 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Owner name.
 2. Owner's Project number.
 3. Name of Architect.
 4. Architect's Project number.
 5. Date.
 6. Name of Contractor.
 7. RFI number, numbered sequentially.
 8. RFI subject.
 9. Specification Section number and title and related paragraphs, as appropriate.
 10. Drawing number and detail references, as appropriate.
 11. Field dimensions and conditions, as appropriate.
 12. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 13. Contractor's signature.
 14. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- C. RFI Forms: AIA Document G716.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow three days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
 1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.

- d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
- 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
- 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within five days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect.
 - 4. RFI number including RFIs that were returned without action or withdrawn.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within three days if Contractor disagrees with response.

1.5 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Web-Based Project Management Software Package: Provide, administer, and use web-based Project management software package for purposes of hosting and managing Project communication and documentation until Final Completion.
 - 1. Web-based Project management software includes, at a minimum, the following features:
 - a. Compilation of Project data, including Contractor, subcontractors, Architect, architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
 - b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
 - c. Document workflow planning, allowing customization of workflow between project entities.

- d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
 - e. Track status of each Project communication in real time, and log time and date when responses are provided.
 - f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 - g. Processing and tracking of payment applications.
 - h. Processing and tracking of contract modifications.
 - i. Creating and distributing meeting minutes.
 - j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 - k. Management of construction progress photographs.
 - l. Mobile device compatibility, including smartphones and tablets.
 - 2. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.
- B. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
- 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
 - 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.

- f. Lines of communications.
 - g. Use of web-based Project software.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Preparation of Record Documents.
 - o. Use of the premises.
 - p. Work restrictions.
 - q. Working hours.
 - r. Owner's occupancy requirements.
 - s. Responsibility for temporary facilities and controls.
 - t. Procedures for moisture and mold control.
 - u. Procedures for disruptions and shutdowns.
 - v. Construction waste management and recycling.
 - w. Parking availability.
 - x. Office, work, and storage areas.
 - y. Equipment deliveries and priorities.
 - z. First aid.
 - aa. Security.
 - bb. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Progress Meetings: Conduct progress meetings biweekly intervals.

- 1. Coordinate dates of meetings with preparation of payment requests.
- 2. Attendees: In addition to representatives of Owner, Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
- 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.

- b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Access.
 - 6) Site use.
 - 7) Temporary facilities and controls.
 - 8) Progress cleaning.
 - 9) Quality and work standards.
 - 10) Status of correction of deficient items.
 - 11) Field observations.
 - 12) Status of RFIs.
 - 13) Status of Proposal Requests.
 - 14) Pending changes.
 - 15) Status of Change Orders.
 - 16) Pending claims and disputes.
 - 17) Documentation of information for payment requests.
- 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - a. Initial payment will not be made prior to submission of preconstruction photographs.
 - 2. Periodic construction photographs.
 - a. Application for Payment will not be processed without periodic photographs. All photographs must be of views that have context for area of work.
 - 3. Final completion construction photographs.
 - a. The final Application for Payment will not be processed without project completion photographs.
- B. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
 - 2. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.

1.2 INFORMATIONAL SUBMITTALS

- A. Digital Photographs: Submit image files with each Application for Payment and for the work covering the period for which payment is being requested.
 - 1. Submit photos on thumb-drive. Include copy of key plan indicating each photograph's location and direction.
 - 2. Identification: Provide the following information with each image description in file:
 - a. Name of Project.
 - b. Date photograph was taken.
 - c. Description of location, vantage point, and direction.

1.3 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.

- B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- C. Metadata: Record accurate date and time from camera.
- D. File Names: Name media files with date, Project area and sequential numbering suffix.

1.4 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs with maximum depth of field and in focus.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Preconstruction Photographs: Before commencement of disassembly, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
 - 1. Flag construction limits before taking construction photographs.
 - 2. Take 10 photographs to show existing conditions adjacent to property before starting the Work.
 - 3. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- C. Periodic Construction Photographs: Take 10 photographs weekly coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- D. Final Completion Construction Photographs: Take 10 photographs after date of Substantial Completion for submission as Project Record Documents. Architect will inform photographer of desired vantage points.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.3 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
8. Category and type of submittal.

9. Submittal purpose and description.
 10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
 11. Drawing number and detail references, as appropriate.
 12. Indication of full or partial submittal.
 13. Location(s) where product is to be installed, as appropriate.
 14. Other necessary identification.
 15. Remarks.
 16. Signature of transmitter.
- B. Options: Identify options requiring selection by Architect.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1.5 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Email: Prepare submittals as PDF package, and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Resubmittal Review: Allow 10 days for review of each resubmittal.
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.6 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Statement of compliance with specified referenced standards.
 - d. Testing by recognized testing agency.
 - e. Application of testing agency labels and seals.
 - f. Notation of coordination requirements.
 - g. Availability and delivery time information.
- B. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- D. Certificates:
 - 1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 - 2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 - 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 - 4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 - 5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- E. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.7 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections. Mark with approval stamp before submitting to Architect.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.8 ARCHITECT'S REVIEW

- A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required.
 - 1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Architect will return without review submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

- A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
2. Indicate methods to be used to avoid trapping water in finished work.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

- A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.
 3. Drinking water and private toilet.
 4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F .
 5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating, Cooling, and Dehumidifying Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction and marked for intended location and application.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.
- C. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed

construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

- F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install WiFi cell phone access equipment.
- I. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Architect and Owner.
- J. Project Computer: Provide a desktop computer in the primary field office adequate for use by Architect and Owner to access Project electronic documents and maintain electronic communications. Equip computer with not less than the following:

3.4 SUPPORT FACILITIES INSTALLATION

- A. Comply with the following:
 - 1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E136. Comply with NFPA 241.
 - 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- D. Storage and Staging: Use designated areas of Project site for storage and staging needs.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site free of water.
 - 1. Dispose of water in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

2. Remove snow and ice as required to minimize accumulations.
- F. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 3. Maintain and touch up signs so they are legible at all times.
- G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- I. Existing Elevator Use: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.
1. Do not load elevators beyond their rated weight capacity.
 2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
- J. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.
- 3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION
- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent."
- D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.
- G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- H. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.
- I. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.2 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 SUBMITTAL SEQUENCING REQUIREMENTS

- A. Contractor is responsible for preparation and issuance of submittals to the Architect for review within at least fifteen (15) days of the Notice to Proceed or as noted in the individual sections of these Technical Specifications, which may indicate a shorter time frame. The shorter time frame dictates.

1.4 ACTION SUBMITTALS

- A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within fifteen days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Architect's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Onsite storage of materials is limited to enclosed lay-down area.
2. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: ..."
2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: ..."
3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
 - a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: ..."
5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."
6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: ..."

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
 1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 2. Evidence that proposed product provides specified warranty.
 3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 4. Samples, if requested.

PART 3 EXECUTION (Not Used)

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for limits on use of Project site.
 - 2. Section 017700 "Closeout Procedures" for submitting Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.

1.2 QUALITY ASSURANCE

- A. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before fabricating and installing each product or material. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Remove and replace damaged, defective, or non-conforming Work.
- K. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.4 CUTTING AND PATCHING

- A. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Proceed with patching after construction operations requiring cutting are complete.
- B. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- C. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

- F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- I. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Final cleaning.
- B. Related Requirements:
 - 1. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.3 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 3. Complete final cleaning requirements.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1.5 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1.6 LIST OF INCOMPLETE ITEMS

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
 - b. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - c. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - d. Wipe surfaces of mechanical and electrical equipment and similar equipment
 - e. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
 - f. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste-disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations required by Section 017300 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.

1.2 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Submit one set of marked-up record prints.
 - 2. Submit PDF electronic files of scanned record prints.
- B. Record Specifications: Submit one paper copy or an annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

1.3 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

- a. Dimensional changes to Drawings.
- b. Revisions to details shown on Drawings.
- c. Actual equipment locations.
- d. Locations of concealed internal utilities.
- e. Changes made by Change Order or Change Directive.
- f. Details not on the original Contract Drawings.
- g. Field records for variable and concealed conditions.
- h. Record information on the Work that is shown only schematically.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect.

1. Submit electronic PDF file identified as "PROJECT RECORD DRAWINGS" to Architect and Owner.

1.4 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file.

1.5 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- C. Format: Submit record Product Data as annotated PDF electronic file.
1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.6 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store record documents apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

- ##### A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.3 PREINSTALLATION MEETINGS

- ##### A. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

- ##### A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property. Indicate proposed locations and construction of barriers.
- ##### B. Schedule of selective demolition activities with starting and ending dates for each activity.
- ##### C. Predemolition photographs or video.

1.5 FIELD CONDITIONS

- ##### A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- ##### B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- ##### C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
- C. Inventory and record the condition of items to be removed and salvaged.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Equipment to Be Removed: Disconnect and cap services and remove equipment.

3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. 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. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. 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. Maintain portable fire-suppression devices during flame-cutting operations.
 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 5. Dispose of demolished items and materials promptly
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.
- D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. 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.

3.5 CLEANING

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction. Do not allow demolished materials to accumulate on-site.
 1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Enlargement of exterior masonry door opening where indicated on drawings:
 - 1. Lintel installation.
 - 2. Brick.
 - 3. Mortar and grout materials.
 - 4. Embedded flashing.
 - 5. Accessories.
 - 6. Mortar and grout mixes.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type and color of exposed masonry unit and colored mortar.

1.4 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type and size of product and for masonry units, include data on material properties.
- B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1.5 QUALITY ASSURANCE

- A. Sample Panel Mockups: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.
 - 1. Build sample panels for typical exterior wall modification.

1.6 FIELD CONDITIONS

- A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602.
- B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602, except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

2.2 BRICK

- A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:
 - 1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
- B. Clay Face Brick: Match existing brick.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength that matches that of existing brick.
 - 2. Efflorescence: Provide brick that has been tested in accordance with ASTM C67/C67M and is rated "not effloresced."
 - 3. Size (Actual Dimensions): Match existing brick.

2.3 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
 - 1. Alkali content will not be more than 0.1 percent when tested in accordance with ASTM C114.

- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C91/C91M.
- E. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar.
- F. Colored Cement Products: Packaged blend made from portland cement and hydrated lime or masonry cement and mortar pigments, all complying with specified requirements, and containing no other ingredients.
- G. Preblended Dry Mortar Mix: Packaged blend made from portland cement and hydrated lime masonry cement, sand, mortar pigments, water repellents, and admixtures and complying with ASTM C1714/C1714M.
- H. Aggregate for Mortar: ASTM C144.
 - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
 - 2. White-Mortar Aggregates: Natural white sand or crushed white stone.
- I. Aggregate for Grout: ASTM C404.
- J. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
- K. Water: Potable.

2.4 EMBEDDED FLASHING

- A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:
- B. Flexible Flashing: Use one of the following unless otherwise indicated:
 - 1. Copper-Fabric Flashing: 5 oz./sq. ft. (1.5 kg/sq. m) self-adhesive copper sheet bonded between two layers of glass-fiber cloth.
 - 2. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 40 mil (1.0 mm).
 - 3. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy.

- a. Monolithic Sheet: Elastomeric thermoplastic flashing, 40 mil (1.0 mm) thick.
- 4. EPDM Flashing: Sheet flashing product made from ethylene-propylene-diene terpolymer, complying with ASTM D4637/D4637M, 40 mil (1.0 mm) thick.

2.5 ACCESSORIES

- A. Weep/Cavity Vents: Use material to match existing vents:

2.6 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. For exterior masonry, use portland cement-lime or masonry cement mortar.
 - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
 - 1. For exterior, above-grade, load-bearing, nonload-bearing walls, and parapet walls and for other applications where another type is not indicated, use Type N.
- D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color to match existing mortar.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed. Key in new bricks into existing brick masonry.
- B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (13 mm) or minus 1/4 inch (6.4 mm).
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (13 mm).
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6.4 mm) in a story height or 1/2 inch (13 mm) total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 ft. (6.4 mm in 3 m), or 1/2-inch (13-mm) maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 ft. (3.2 mm in 3 m), 1/4 inch in 20 ft. (6.4 mm in 6 m), or 1/2-inch (13-mm) maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 ft. (6.4 mm in 3 m), 3/8 inch in 20 ft. (10 mm in 6 m), or 1/2-inch (13-mm) maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 ft. (3.2 mm in 3 m), 1/4 inch in 20 ft. (6.4 mm in 6 m), or 1/2-inch (13-mm) maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 ft. (6.4 mm in 3 m), 3/8 inch in 20 ft. (10 mm in 6 m), or 1/2-inch (13-mm) maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 ft. (6.4 mm in 3 m), or 1/2-inch (13-mm) maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3.2 mm), with a maximum thickness limited to 1/2 inch (13 mm). Match existing joints
2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (10 mm) or minus 1/4 inch (6.4 mm). Match existing joints
3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3.2 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3.2 mm).]

3.3 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Lay exposed masonry in bond to match existing; do not use units with less-than-nominal 4-inch (102-mm) horizontal face dimensions at corners or jambs.

- C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

3.4 MORTAR BEDDING AND JOINTING

- A. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- B. Tool exposed joints to match existing.

3.5 FLASHING, WEEP HOLES, AND CAVITY VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.
- B. Install flashing as follows unless otherwise indicated:
 - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape.
 - 2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 4 inches (102 mm), and through inner wythe to within 1/2 inch (13 mm) of the interior face of wall in exposed masonry.
 - 3. At lintels and shelf angles, extend flashing 6 inches (152 mm) minimum at each end. At heads and sills, extend flashing 6 inches (152 mm) minimum and turn ends up not less than 2 inches (51 mm) to form end dams.
 - 4. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall, and adhere flexible flashing to top of metal drip edge.
 - 5. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall, and adhere flexible flashing to top of metal flashing termination.
- C. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.
 - 1. Use weep/cavity vent products to match existing to form weep holes.
 - 2. Space weep holes 24 inches (610 mm) o.c. unless otherwise indicated.
 - 3. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.

3.6 CLEANING

- A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
 - 4. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.
 - 5. Clean masonry with a proprietary acidic masonry cleaner applied according to manufacturer's written instructions.

3.7 MASONRY WASTE DISPOSAL

- A. Excess Masonry Waste: Remove excess clean masonry waste and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 055000 – STEEL LINTELS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
- B. Products furnished, but not installed, under this Section include the following:
 - 1. Loose steel lintels at widened door openings

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

2.2 METALS

- A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

2.3 FASTENERS

2.4 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- C. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.5 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Galvanize and prime loose steel lintels located in exterior walls.

- C. Prime loose steel lintels located in exterior walls with zinc-rich primer.

2.6 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

PART 3 - EXECUTION

- A. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 REPAIRS

- A. Touchup Painting:
 - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 055000

SECTION 055213 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Including:

1. Stainless steel railings.

1.2 ACTION SUBMITTALS

- ##### A. Shop Drawings:
- Include plans, elevations, sections, details, and attachments to other work.

1.3 INFORMATIONAL SUBMITTALS

- ##### A. Welding certificates.

1.4 QUALITY ASSURANCE

- ##### A. Welding Qualifications:
- Qualify procedures and personnel in accordance with the following:
1. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- ##### A. Structural Performance:
- Railings, including attachment to building construction, withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
 - b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.

2.2 METALS, GENERAL

- ##### A. Metal Surfaces, General:
- Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

- 1. Provide type of bracket with flange tapped for concealed anchorage to threaded hanger bolt and that provides 1-1/2-inch (38-mm) clearance from inside face of handrail to finished wall surface.

2.3 STAINLESS STEEL RAILINGS

- A. Tubing: ASTM A554, Grade MT 304.
- B. Pipe: ASTM A312/A312M, Grade TP 304.
- C. Castings: ASTM A743/A743M, Grade CF 8 or CF 20.
- D. Plate and Sheet: ASTM A240/A240M or ASTM A666, Type 304.

2.4 FASTENERS

- A. Fastener Materials:
 - 1. Stainless Steel Railing Components: Type 304 stainless steel fasteners.
- B. Post-Installed Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 or ICC-ES AC308.
 - 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) or Group 2 (A4) stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.
 - 1. For stainless steel railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- B. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout, complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- C. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.

1. Water-Resistant Product: At exterior locations, provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.6 FABRICATION

- A. Cut, drill, and punch metals cleanly and accurately.
 1. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated.
 2. Remove sharp or rough areas on exposed surfaces.
- B. Form work true to line and level with accurate angles and surfaces.
- C. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove flux immediately.
 4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 welds; ornamental quality with no evidence of a welded joint.
- D. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
- E. Form changes in direction as follows:
 1. As detailed.
 2. By bending.
- F. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- G. Close exposed ends of hollow railing members with prefabricated cap and end fittings of same metal and finish as railings.
- H. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch (6 mm) or less.
- I. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
- J. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work.

1. Fabricate anchorage devices capable of withstanding loads imposed by railings.
 2. Coordinate anchorage devices with supporting structure.
- K. For railing posts set in concrete, provide stainless steel sleeves not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (13 mm) greater than outside dimensions of post, with metal plate forming bottom closure.

2.7 STEEL AND IRON FINISHES

2.8 STAINLESS STEEL FINISHES

- A. Stainless Steel Pipe and Tubing Finishes:
1. 180-Grit Polished Finish: Uniform, directionally textured finish.
- B. Stainless Steel Sheet and Plate Finishes:
1. Directional Satin Finish: ASTM A480/A480, No. 4.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Perform cutting, drilling, and fitting required for installing railings.
1. Fit exposed connections together to form tight, hairline joints.
 2. Install railings level, plumb, square, true to line; without distortion, warp, or rack.
 3. Set railings accurately in location, alignment, and elevation; measured from established lines and levels.
 4. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 5. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
 6. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (6 mm in 3.5 m).
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

3.2 ANCHORING POSTS

- A. Use stainless steel pipe sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink,

nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.

- B. Form or core-drill holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.

3.3 ATTACHING RAILING

- A. Attach handrails to walls with wall brackets, except where end flanges are used. Provide brackets with 1-1/2-inch (38-mm) clearance from inside face of handrail and finished wall surface.
- B. Secure wall brackets and railing end flanges to building construction as follows:
 - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
- C. Install railing gates level, plumb, and secure for full opening without interference.

3.4 CLEANING

- A. Clean stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 055213

SECTION 074633 – VINYL SOFFIT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes vinyl soffit.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For vinyl soffit including related accessories.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For vinyl soffit Installer.
- B. Product certificates.
- C. Research/evaluation reports.
- D. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 QUALITY ASSURANCE

- A. Vinyl Soffit Installer Qualifications: A qualified installer who employs a VSI-certified Installer on Project.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
 - 1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 VINYL SOFFIT

- A. Vinyl Soffit: Integrally colored product complying with ASTM D4477.
- B. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.
- C. Pattern: Match existing soffit style.
- D. Texture: Match texture of existing soffit.
- E. Ventilation: Provide ventilated soffit to match existing.
- F. Nominal Thickness: Match thickness of existing soffit.
- G. Minimum Profile Depth: Match depth of existing soffit.
- H. Colors: Match existing soffit.

2.2 ACCESSORIES

- A. Soffit Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.
 - 1. Provide accessories made from same material as matching color and texture of existing soffit unless otherwise indicated.
- B. Vinyl Accessories: Integrally colored vinyl accessories complying with ASTM D3679 except for wind-load resistance.
 - 1. Texture: Match existing.
- C. Colors for Decorative Accessories: Match existing soffit.
- D. Fasteners:
 - 1. For fastening to wood, use siding nails or ribbed bugle-head screws of sufficient length to penetrate a minimum of 1 inch (25 mm) into substrate.
 - 2. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch (6 mm), or three screw-threads, into substrate.
 - 3. For fastening vinyl, use stainless-steel fasteners. Where fasteners are exposed to view, use prefinished aluminum fasteners in color to match item being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 - 1. Center nails in elongated nailing slots without binding siding to allow for thermal movement.
- B. Install vinyl soffit and related accessories according to ASTM D4756.
- C. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.

3.2 ADJUSTING AND CLEANING

- A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
- B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 074633

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Silicone joint sealants.
 - 2. Urethane joint sealants
 - 3. Mildew-resistant joint sealants.
 - 4. Latex joint sealants.

1.2 ACTION SUBMITTALS

- A. Product data.
- B. Samples: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.
- B. Silicone, S, NS, 50, T, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Uses T and NT.

2.3 URETHANE JOINT SEALANTS

- A. Urethane, S, NS, 25, T, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade NS, Class 25, Uses T and NT.

2.4 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
- B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT.

2.5 LATEX JOINT SEALANTS

- A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.

2.6 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) Type O (open-cell material) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.
- G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
- H. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Exterior standard steel doors and frames. Provide new door hardware sets to match existing

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door type.
 - 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.

1.3 INFORMATIONAL SUBMITTALS

- A. Product test reports.

PART 2 - PRODUCTS

2.1 EXTERIOR STANDARD STEEL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 2; ANSI/SDI A250.4, Level B.
 - 1. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches (44.5 mm).
 - c. Face: Metallic-coated steel sheet, minimum thickness of 0.042 inch (1.0 mm), with minimum A60 (ZF180) coating.
 - d. Edge Construction: Model 1, Full Flush.

.

- e. Edge Bevel: Provide manufacturer's standard beveled or square edges.
- f. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets. Seal joints against water penetration.
- g. Bottom Edges: Close bottom edges of doors with end closures or channels of same material as face sheets. Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape.
- h. Core: Manufacturer's standard.

2. Frames:

- a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch (1.3 mm), with minimum A60 (ZF180) coating.
- b. Construction: Face welded.

2.2 FRAME ANCHORS

A. Jamb Anchors:

- 1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
- 2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches (610 mm) of frame height above 7 feet (2.1 m).
- 3. Postinstalled Expansion Anchor: Minimum 3/8-inch- (9.5-mm-) diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.

B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.

C. Material: ASTM A879/A879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.

- 1. For anchors built into exterior walls, steel sheet complying with ASTM A1008/A1008M or ASTM A1011/A1011M; hot-dip galvanized in accordance with ASTM A153/A153M, Class B.

2.3 MATERIALS

A. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.

B. Inserts, Bolts, and Fasteners: Hot-dip galvanized in accordance with ASTM A153/A153M.

C. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

- D. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.
- E. Glazing: Comply with requirements in Section 088000 "Glazing."

2.4 FABRICATION

- A. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.
 - 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
- B. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping in accordance with ANSI/SDI A250.6, the Door Hardware Schedule, and templates.
 - 1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 - 2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.

2.5 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware. Provide and install new hardware sets to match existing

3.2 INSTALLATION

- A. Hollow-Metal Frames: Comply with ANSI/SDI A250.11.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
 - a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.
 - b. Install frames with removable stops located on secure side of opening.
2. Fire-Rated Openings: Install frames in accordance with NFPA 80.
3. Floor Anchors: Secure with postinstalled expansion anchors.
4. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
6. Non-Fire-Rated Steel Doors: Comply with ANSI/SDI A250.8.

3.3 FIELD QUALITY CONTROL

- A. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- B. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

3.4 REPAIR

- A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- C. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Suspension systems for interior cement plastered ceilings and soffits.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E119 by an independent testing agency.

2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with AISI S220 for conditions indicated.
 - 1. Steel Sheet Components: Comply with AISI S220 requirements for metal unless otherwise indicated.
 - 2. Protective Coating: Comply with AISI S220; ASTM A653/A653M, G40 (Z120); or coating with equivalent corrosion resistance. Galvannealed products are unacceptable.

2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch- (1.59-mm-) diameter wire, or double strand of 0.048-inch- (1.21-mm-) diameter wire.
- B. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.16 inch (4.12 mm) in diameter.
- C. Flat Hangers: Steel sheet, 1 by 3/16 inch (25 by 5 mm).
- D. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-steel thickness of 0.0538 inch (1.367 mm) and minimum 1/2-inch- (13-mm-) wide flanges.

1. Depth: 2-1/2 inches (64 mm).

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
 1. Asphalt-Saturated Organic Felt: ASTM D226/D226M, Type I (No. 15 asphalt felt), nonperforated.
 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.
 1. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C1063 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.2 INSTALLING CEILING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 5. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 091 60 91 REFINISHING TERRAZZO FLOORS

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Refinishing terrazzo floors.
- B. Provide all labor, material, and equipment necessary to complete the following terrazzo repair work
- C. Preparation of all surfaces to receive patching compound
- D. Repairs to delaminated areas
- E. Repair of cracks (as per NTMA recommendations)
- F. Placement of patching compounds/terrazzo matrix
- G. Finish and curing of terrazzo

1.02 REFERENCE STANDARDS

- A. NTMA – Terrazzo Specifications; The National Terrazzo and Mosaic Association, Inc.; current edition located at www.ntma.com

1.03 SUBMITTALS

- A. Product Data: Provide manufacturers technical data for sealer and cleaner and grout.
- B. Cleaning products to be used and Terrazzo Maintenance Data/Protocols for facility managers
- C. Submit letter clearly identifying the terrazzo system (Epoxy, Cement, etc) and that the products are suitable/compatible

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section with not fewer than 5 years of documented experience.
 - 1. Installer shall be a contractor member of NTMA in good standing and shall perform all work in accordance with NTMA standards
 - 2. Use only skilled journeyman who are familiar and experienced with the materials and methods specified shall be used for terrazzo restoration/refinishing.
 - 3. Crack Repair: Prepare a sample area for each type of crack repair required (Hairline cracks 1/64" to 1/16" in size; Cracks and voids larger than 1/8") Repair shall demonstrate methods and quality of workmanship of crack repair.
 - 4. Patching: Prepare on-floor, a sample of patching. Patch shall demonstrate methods and quality of workmanship of patch repair

PART 2: PRODUCTS

2.01 MATERIALS

- A. Cleaner: Potable water, free of iron, all cleaners (optional) must be pH neutral
- B. Sealer: Liquid type to completely seal matrix surface; not detrimental to terrazzo components.
- C. Grout: Color to match existing matrix.
- D. Matrix: Pigmented epoxy to match sample submitted
- E. Aggregates: Aggregates to match architects approved sample

2.02 EQUIPMENT

- A. All work shall be executed with conventional terrazzo grinding equipment according to NTMA published trade practice.

PART 3: EXECUTION

3.01 GENERAL

- A. Perform work in accordance with NTMA recommendations as posted on the NTMA website (www.ntma.com)

3.02 PREPARATION

- A. Cover and protect all adjacent finished surfaces during restoration process.

3.03 CRACK REPAIR

A. Determination

- 1. The owner and contractor shall walk the entire floor and identify cracks and agree on
 - a. NA (No Action) RC (Repair Crack) or RT (Replace Terrazzo)
 - b. Hairline cracks are classified as less than 1/32" (0.030)
 - c. Replacement (RT) shall be from architectural break to architectural break

B. RC - Repair Crack

- 1. Clean crack of loose material, dirt or sealer
- 2. Fill with resin/to match existing. Use aggregate in the crack if crack is wider than ¼ inch.

3.04 RT- Replace Terrazzo (if repair is not to architectural break or existing terrazzo divider strip, the joining edge shall be a saw tooth (jagged edge)

- A. Remove areas to be replaced
- B. Clean area and prepare concrete for new terrazzo
- c. Repair concrete, fill cracks in concrete substrate as needed. Fill cracks in concrete with hardening epoxy
 - Optional upgrade: Employ the use of a mesh (isolation membrane) to cover crack with liquid applied membrane (epoxy systems only)
- e. Fill area with epoxy or cement /cement matrix and approved aggregate mixture/blend

3.04 INITIAL GRINDING

- A. Wet or dry grind with appropriate medium diamonds/Stones

3.05 GROUTING

- A. Cleanse floor with clean water and rinse. Wet grind with 50 or higher abrasive grit medium diamonds.
- B. Remove excess water and machine or hand grout with cement or epoxy material to fill as needed.

3.06 CURING GROUT

- A. Allow grout to cure a minimum of 12 hours. Maintain ambient air temperature between 70°F (21°C) and 80°F (27°C)

3.07 FINE (Final) GRINDING

- A. Grind with 120 grit carborundum or 200 grit resin bond diamond until grout has been removed from the terrazzo surface.

3.08 CLEANING AND SEALING:

- A. Rinse with clean water and allow too thoroughly dry.
- B. Seal: Apply sealer per sealer manufacturer's written directions
- C. Remove protection and clean any adjacent surfaces effected by the refinishing process.

3.09 PROTECTION

- A. General Contractor shall protect the finish floor from all site activity until Substantial Completion.

END OF SECTION

SECTION 092400 - CEMENT PLASTERING

PART 1 - GENERAL

1.1 SUMMARY

- A. Work includes new cement plaster restroom ceiling
- B. Section Includes:
 - 1. Metal lath.
 - 2. Base-coat cement plaster.
 - 3. Cement plaster finish coats.
 - 4. Accessories.

1.2 ACTION SUBMITTALS

- A. Product data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance Ratings: Where indicated, provide cement plaster assemblies identical to those of assemblies tested for fire resistance according to ASTM E119 by a qualified testing agency.

2.2 METAL LATH

- 1. 3/8-Inch (10-mm) Rib Lath: [3.4 lb/sq. yd. (1.8 kg/sq. m)] [4 lb/sq. yd. (2.2 kg/sq. m)].

2.3 BASE-COAT CEMENT PLASTER

- A. General: Comply with ASTM C926 for applications indicated.
 - 1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. (0.6 kg of fiber/cu. m) of cementitious materials.
- B. Base-Coat Mixes for Use over Metal Lath: Scratch and brown coats for three-coat plasterwork as follows:
 - 1. Portland Cement Mixes:

- a. Scratch Coat: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
 - b. Brown Coat: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 3 to 5 parts aggregate per part of cementitious material, but not less than volume of aggregate used in scratch coat.
- 2. Masonry Cement Mixes:
 - a. Scratch Coat: Mix 1 part masonry cement and 2-1/2 to 4 parts aggregate.
 - b. Brown Coat: Mix 1 part masonry cement and 3 to 5 parts aggregate, but not less than volume of aggregate used in scratch coat.

2.4 CEMENT PLASTER FINISH COATS

- A. Job-Mixed Finish-Coat Mixes:
 - 1. Portland Cement Mix: For cementitious materials, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 1-1/2 to 3 parts aggregate per part of cementitious material.
 - 2. Masonry Cement Mix: Use 1 part masonry cement and 1-1/2 to 3 parts aggregate.
- B. Ready-Mixed Finish-Coat Plaster: Mill-mixed portland cement, aggregates, coloring agents, and proprietary ingredients.
 - 1. Color: White .

2.5 ACCESSORIES

- A. General: Comply with ASTM C1063, and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.
- B. Metal Accessories:
 - 1. Cornerbeads: Fabricated from zinc-coated (galvanized) steel or anodized aluminum.
 - 2. Casing Beads: Fabricated from zinc-coated (galvanized) steel or anodized aluminum; square-edged style; with expanded flanges.
 - 3. Control Joints: Fabricated from zinc-coated (galvanized) steel; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
 - 4. Expansion Joints: Fabricated from zinc-coated (galvanized) steel; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.
 - a. .
 - b. Bullnose cornerbead, radius 3/4-inch (19-mm) minimum; use at locations indicated on Drawings.
 - 5. Casing Beads: With perforated flanges in depth required to suit plaster bases indicated and flange length required to suit applications indicated.

- a. Square-edge style; use unless otherwise indicated.
- b. Bullnose style, radius 3/4-inch (19-mm) minimum; use at locations indicated on Drawings.

2.6 PLASTER MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I.
 - 1. Color for Finish Coats: White.
- B. Masonry Cement: ASTM C91/C91M, Type N.
 - 1. Color for Finish Coats: White.
- C. Colorants for Job-Mixed Finish Coats: Colorfast mineral pigments that produce finish white plaster color .
- D. Lime: ASTM C206, Type S; or ASTM C207, Type S.
- E. Sand Aggregate: ASTM C897.
 - 1. Color for Job-Mixed Finish Coats: White.

2.7 MISCELLANEOUS MATERIALS

- A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.
- B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch (13 mm) long, free of contaminants, manufactured for use in cement plaster.
- C. Fasteners for Attaching Metal Lath to Substrates: ASTM C1063.
- D. Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch (1.21-mm) diameter unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Prepare smooth, solid substrates for plaster according to ASTM C926.
- B. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.

3.2 INSTALLATION OF METAL LATH

- A. Metal Lath: Install according to ASTM C1063.

3.3 INSTALLATION OF ACCESSORIES

- A. Install according to ASTM C1063 and at locations indicated on Drawings.
- B. Control Joints: Locate as indicated on Drawings.

3.4 APPLICATION OF BASE-COAT CEMENT PLASTER

- A. General: Comply with ASTM C926.
- B. Ceilings; Base-Coat Mixes for Use over Metal Lath: For scratch and brown coats, for three-coat plasterwork and having 1/2-inch (13-mm) total thickness, as follows:
 - 1. Portland cement mixes.
 - 2. Masonry cement mixes.

3.5 APPLICATION OF CEMENT PLASTER FINISH COATS

- A. Plaster Finish Coats: Apply to provide float finish.

3.6 REPAIR

- A. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

END OF SECTION 092400

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
 - 2. Tile backing panels.

1.2 ACTION SUBMITTALS

- A. Product data.
 - 1.

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 E119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 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. Abuse-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.
 - 1. Core: 5/8 inch (15.9 mm), Type X.
 - 2. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 - 3. Indentation: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 - 4. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 - 5. Long Edges: Tapered.

6. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- B. Impact-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.
1. Core: 5/8 inch (15.9 mm), Type X.
 2. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 3. Indentation: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 4. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 5. Hard-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements according to test in Annex A1.
 6. Long Edges: Tapered.
 7. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- C. Mold-Resistant Gypsum Board: ASTM C1396/C1396M. With moisture- and mold-resistant core and paper surfaces.
1. Core: 5/8 inch (15.9 mm), Type X.
 2. Long Edges: Tapered.
 3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.4 TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Board: ASTM C1178/C1178M, with manufacturer's standard edges.
1. Core: 1/2 inch (12.7 mm), regular type. 5/8 inch (15.9 mm), Type X.
 2. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- B. Cementitious Backer Units: ANSI A118.9 and ASTM C1288 or ASTM C1325, with manufacturer's standard edges.
1. Thickness: 1/2 inch (12.7 mm) ,5/8 inch (15.9 mm).
 2. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C1047.
1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
 2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. L-Bead: L-shaped; exposed long flange receives joint compound.
 - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - f. Expansion (control) joint.

2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C475/C475M.
- B. Joint Tape:
 - 1. Interior Gypsum Board: Fiberglass.
 - 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 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 compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
 - 4. Finish Coat: For third coat, use setting-type, sandable topping compound.
- 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. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
 - 1.
- B. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
 - 1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- C. Sound-Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

PART 3 - EXECUTION

3.1 INSTALLATION OF PANELS

- A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- B. Comply with ASTM C840.
- C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) 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.
- D. 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.

3.2 FINISHING OF GYPSUM BOARD

- A. Prefill open joints and damaged surface areas.
- B. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- C. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 - 1. Level 2: Panels that are substrate for tile.
 - 2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
- D. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.
- E. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.3 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION 092900

SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Glazed wall tile.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples:
 - 1. Each type and composition of tile and for each color and finish required.
 - 2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.4 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 3 percent of amount installed for each type, composition, color, pattern, and size indicated.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Installer is a Five-Star member of the National Tile Contractors Association or a Trowel of Excellence member of the Tile Contractors' Association of America].
 - 2. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.
 - 3. Installer employs only Ceramic Tile Education Foundation Certified Installers or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers for Project.

- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup of wall tile installation.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide Standard-grade tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
- 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.

2.2 TILE PRODUCTS

- A. Porcelain Tile Type: Glazed. Daltile or approved equal.
 - 1. Certification: Tile certified by the Porcelain Tile Certification Agency.
 - 2. Face Size: 7-3/4 by 3-7/8 inches (197 by 98 mm).
 - 3. Face Size Variation: Rectified.
 - 4. Thickness: 1/4 inch (6.4 mm).
 - 5. Face: Plain with square or cushion edges.
 - 6. Tile Color, Glaze, and Pattern: As selected by Architect and Owner from manufacturer's full range.
 - 7. Grout Color: As selected by Architect and Owner from manufacturer's full range.
 - 8. 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 Cap: Surface bullnose, module size same as adjoining flat tile.
 - b. Wainscot Cap: Surface bullnose, module size same as adjoining flat tile.
 - c. External Corners: Surface bullnose, module size same as adjoining flat tile.
 - d. size as adjoining flat tile.
 - e. Internal Corners: Field-buttet square corners. For coved base and cap use angle pieces designed to fit with stretcher shapes.

2.3 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 or ASTM C1325, Type A.
 - 1. Thickness: 1/4 inch (6.4 mm)] [1/2 inch (12.7 mm).

2.4 SETTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
- B. Standard Dry-Set Mortar (Thinset): ANSI A118.1.
 - 1. For wall applications, provide nonsagging mortar.
- C. Modified Dry-Set Mortar (Thinset): ANSI A118.4.
 - 1. For wall applications, provide nonsagging mortar.
- D. Improved Modified Dry-Set Mortar (Thinset): ANSI A118.15.
 - 1. For wall applications, provide nonsagging mortar.

2.5 GROUT MATERIALS

- A. Sand-Portland Cement Grout: ANSI A108.10, consisting of white or gray cement and white or colored aggregate as required to produce color indicated.
- B. Standard Cement Grout: ANSI A118.6.
- C. High-Performance Tile Grout: ANSI A118.7.
 - 1. Polymer Type:
- D. Water-Cleanable Epoxy Grout: ANSI A118.3.

2.6 MISCELLANEOUS MATERIALS

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.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. 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

- 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.
- 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.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Porcelain Tile: 1/8 inch.
- G. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- H. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
- I. Install tile backing panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated. Use modified dry-set mortar for bonding material unless otherwise directed in manufacturer's written instructions.
- J. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

3.4 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

A. Interior Wall Installations, Wood or Metal Studs or Furring:

1. TCNA W244C or TCNA W244F: Thinset mortar on cementitious backer units or fiber-cement backer board .
 - a. Ceramic Tile Type: Porcelain wall tile.
 - b. Thinset Mortar: Modified dry-set mortar.
 - c. Grout: Standard unsanded cement grout.

.

END OF SECTION 093013

SECTION 099113 – EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes painting of exterior metal doors and cement plaster ceilings:
 - 1. Primers.
 - 2. Finish coatings.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of topcoat product.

1.3 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.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Sherwin Williams or approved equal.

2.2 PAINT PRODUCTS, GENERAL

- A. 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 manufacturer for use in paint system and on substrate indicated.
- B. Colors: As selected by Architect and Owner from manufacturer's full range. Match existing where indicated

2.3 PRIMERS

- A. Exterior, Alkali-Resistant, Water-Based Primer: Pigmented, water-based primer formulated for use on alkaline surfaces, such as exterior plaster, vertical concrete, and masonry.
- B. Water-Based, Galvanized-Metal Primer: Corrosion-resistant, pigmented, acrylic primer; formulated for use on cleaned/etched, exterior, galvanized metal to prepare it for subsequent water-based coatings.

2.4 FINISH COATINGS

- A. Exterior Latex Paint, Low Sheen: Water-based, pigmented coating; formulated for alkali, mold, microbial, and water resistance and for use on exterior surfaces, such as portland cement plaster, concrete, and primed wood.
 - 1. Gloss and Sheen Level: Manufacturer's standard low-sheen finish.
- B. Exterior Latex Paint, Gloss: Water-based, pigmented, acrylic-copolymer-emulsion coating formulated for alkali, mold, microbial, scrub, blocking (sticking of two painted surfaces), and water resistance and for use on exterior, primed, wood and metal trim, sashes, frames, and doors.
 - 1. Manufacturer's standard gloss finish

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.
- B. 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 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. Existing painted substrates: Scrape to remove all loose paint. Sand existing painted surfaces smooth to remove all imperfections. Fill all cracks with appropriate filler material and sand smooth.
- D. 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 specified in this Section.

3.3 INSTALLATION

- A. Apply paints in accordance with manufacturer's written instructions.
- B. 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.

3.4 CLEANING AND PROTECTION

- A. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- B. 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.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

- A. Galvanized-Metal Substrates:
 - 1. Latex System :
 - a. Prime Coat: Water-based, galvanized-metal primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, gloss.
- B. Portland Cement Plaster Substrates:
 - 1. Latex System :
 - a. Prime Coat: Exterior, alkali-resistant, water-based primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, low sheen.

END OF SECTION 099113

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Primers.
 - 2. Washable water-based finish coatings.
 - 3. Floor sealers and paints.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of topcoat product.

1.3 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Sherwin Williams, or approved equal.

2.2 PAINT PRODUCTS, GENERAL

- A. 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.
- B. Colors: As selected by Architect and Owner from manufacturer's full range.

2.3 PRIMERS

- A. Interior Latex Primer Sealer: Water-based latex sealer used on new interior plaster, concrete, and gypsum wallboard surfaces.
- B. Interior, Institutional Low-Odor/VOC Primer Sealer: Water-based primer sealer with low-odor characteristics and a VOC of less than 10 grams per liter for use on new interior plaster, concrete, and gypsum wallboard surfaces that are subsequently to be painted with latex finish coats.
- C. Water-Based Rust-Inhibitive Primer: Corrosion-resistant, water-based-emulsion primer formulated for resistance to flash rusting when applied to cleaned, interior ferrous metals subject to mildly corrosive environments.
- D. Water-Based Galvanized-Metal Primer: Corrosion-resistant, acrylic primer; formulated for use on cleaned/etched, exterior, galvanized metal to prepare it for subsequent water-based coatings.

2.4 WATER-BASED FINISH COATS

- A. Interior, Latex, Washable, Eggshell: Pigmented, water-based paint for use on primed/sealed interior plaster and gypsum board, and on primed wood and metals.
 - 1. Gloss and Sheen Level: Gloss of 10 to 25 units at 60 degrees and sheen of 10 to 35 units at 85 degrees when tested in accordance with ASTM D523.
- B. Interior, Latex, Washable Gloss: Pigmented, water-based paint for use on primed/sealed interior plaster and gypsum board, and on primed wood and metals.
 - 1. Gloss Level: Gloss of 70 to 85 units at 60 degrees when tested in accordance with ASTM D523.

2.5 FLOOR SEALERS AND PAINTS

- A. Water-Based Concrete Floor Sealer: Clear, water-based, acrylic-copolymer-emulsion sealer formulated for oil, gasoline, alkali, and water resistance and for use on concrete traffic surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- B. 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 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.
- C. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- D. 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.
- E. Existing painted substrates: Scrape to remove all loose paint. Sand existing painted surfaces smooth to remove all imperfections. Fill all cracks with appropriate filler material and sand smooth.
- F. 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.
 - 1. Concrete Floors: Remove oil, dust, grease, dirt, and other foreign materials. Comply with SSPC-SP-13/NACE 6 or ICRI 03732.
- G. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
- H. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.
- I. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- J. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- K. Aluminum Substrates: Remove loose surface oxidation.
- L. Wood Substrates:
 - 1. Scrape and clean knots and apply coat of knot sealer before applying primer.

2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 INSTALLATION

- A. Apply paints according to manufacturer's written instructions.
- B. 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.

3.4 CLEANING AND PROTECTION

- A. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- B. 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.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

- A. Galvanized-Metal Substrates:
 1. Latex System:
 - a. Prime Coat: Water-based galvanized primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Interior, latex, gloss.
- B. Gypsum Board and Plaster Substrates:
 1. Latex over Latex Sealer System:
 - a. Prime Coat: Interior latex primer sealer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Interior, latex, eggshell.

END OF SECTION 099123

SECTION 102113.17 - PHENOLIC-CORE TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Phenolic-core toilet compartments configured as toilet enclosures and urinal screens.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachment details.
- C. Samples for each type of toilet compartment material indicated.

1.3 INFORMATIONAL SUBMITTALS

- A. Product certificates.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Flame-Spread Index: 25 or less.
 2. Smoke-Developed Index: 450 or less.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.

2.2 PHENOLIC-CORE TOILET COMPARTMENTS

- A. Toilet-Enclosure Style: Overhead braced Floor anchored.
- B. Urinal-Screen Style: Wall hung Floor anchored .
- C. Door, Panel, Screen, and Pilaster Construction: Solid phenolic-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges. Provide minimum 3/4-inch- (19-mm-) thick doors and pilasters and minimum 1/2-inch- (13-mm-) thick panels.
- D. Pilaster Shoes and Sleeves (Caps)]: Formed from stainless steel sheet, not less than 0.031-inch (0.79-mm) nominal thickness and 3 inches (76 mm) high, finished to match hardware.

Retain "Urinal-Screen Post" Paragraph below for floor-anchored, overhead-braced, and post-to-ceiling urinal screens. First option is sometimes used with floor-mounted phenolic-core urinal screens; verify, with manufacturers, availability and cut-out design.

- E. Urinal-Screen Post: Manufacturer's standard post design of material matching the thickness and construction of pilasters or [1-3/4-inch- (44-mm-) square, aluminum tube with satin finish; with shoe and sleeve (cap)] matching that on the pilaster.
- F. Brackets (Fittings):
 - 1. Stirrup Type: Ear or U-brackets, stainless steel.
- G. Phenolic-Panel Finish:
 - 1. Facing Sheet Finish: One color and pattern in each room.
 - 2. Color and Pattern: As selected by Architect and Owner from manufacturer's full range, with manufacturer's standard through-color core matching face sheet.
 - 3. Edge Color: Manufacturer's standard.

2.3 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard operating hardware and accessories.
 - 1. Material: Stainless steel.
 - 2. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
- B. Hardware and Accessories: Manufacturer's heavy-duty stainless steel operating hardware and accessories.
 - 1. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
- C. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.

- D. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel compatible with related materials.

2.4 FABRICATION

- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
- B. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- C. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
- D. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at[tops and] bottoms of posts. Provide shoes[and sleeves (caps)] at posts to conceal anchorage.
- E. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch (13 mm).
 - b. Panels and Walls: 1 inch (25 mm).
 - 2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than three brackets attached at midpoint and near top and bottom of panel.
 - a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.

3.2 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 102113.17

SECTION 102113.19 - PLASTIC TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid-plastic toilet compartments configured as toilet enclosures entrance screens and urinal screens.

B. Related Requirements:

1. Section 102800 "Toilet, Bath, and Laundry Accessories" for accessories mounted on toilet compartments.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Solid-plastic toilet compartments:

B. Shop Drawings: For solid-plastic toilet compartments.

1. Include plans, elevations, sections, details, and attachment details.

C. Samples: For each type of toilet compartment material indicated.

1. Include Samples of hardware and accessories involving material and color selection.

1.3 INFORMATIONAL SUBMITTALS

A. Certificates:

1. Product Certificates.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire Performance: Tested in accordance with, and pass the acceptance criteria of, NFPA 286.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Department of Justice "2010 ADA Standards for Accessible Design" and ICC A117.1 for toilet compartments designated as accessible.

2.2 SOLID-PLASTIC TOILET COMPARTMENTS

- A. Toilet-Enclosure Style: Overhead braced. Floor anchored. Bradley Bradmar Series 400
- B. Urinal-Screen Style: Floor anchored. Bradley Bradmar Series 400
- C. Door, Screen, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch (25 mm) thick, seamless, with eased edges, and with homogenous color and pattern throughout thickness of material.
 - 1. Integral Hinges: Configure doors and pilasters to receive integral hinges.
 - 2. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum or stainless steel strip fastened to exposed bottom edges of solid-plastic components to hinder malicious combustion.
 - 3. Color and Pattern: One color and pattern in each room as selected by Architect and Owner from manufacturer's full range.
- D. Pilaster Shoes and Sleeves (Caps): Manufacturer's standard design; polymer or stainless steel.
 - 1. Polymer Color and Pattern: Matching pilaster.
- E. Urinal-Screen Post: Manufacturer's standard post design of material matching the thickness and construction of pilasters ; with shoe and sleeve (cap)] matching that on the pilaster.
- F. Brackets (Fittings):
 - 1. Stirrup Type: Ear or U-brackets, stainless steel.
 - 2. Full-Height (Continuous) Type: Manufacturer's standard design; polymer or extruded aluminum.
 - a. Polymer Color and Pattern: Matching panel.

2.3 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories, Heavy Duty: Manufacturer's heavy-duty operating hardware and accessories.

1. Hinges: Manufacturer's minimum 0.062-inch- (1.59-mm-) thick stainless steel, allowing emergency access by lifting door. Mount with through bolts.
2. Latch and Keeper: Manufacturer's heavy-duty, surface-mounted, cast-stainless steel latch unit, designed to resist damage due to slamming, with combination rubber-faced door strike and keeper, and with provision for emergency access. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible. Mount with through bolts.
3. Coat Hook: Manufacturer's heavy-duty combination cast-stainless steel hook and rubber-tipped bumper, sized to prevent inswinging door from hitting compartment-mounted accessories. Mount with through bolts.
4. Door Bumper: Manufacturer's heavy-duty, rubber-tipped, cast-stainless steel bumper at outswinging doors. Mount with through bolts.
5. Door Pull: Manufacturer's heavy-duty, cast-stainless steel pull at outswinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible. Mount with through bolts.

2.4 MATERIALS

- A. Aluminum Castings: ASTM B26/B26M.
- B. Aluminum Extrusions: ASTM B221 (ASTM B221M).
- C. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness.
- D. Stainless Steel Castings: ASTM A743/A743M.

2.5 FABRICATION

- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
- B. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- C. Floor Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at tops and bottoms of pilasters. Provide shoes and sleeves (caps) at pilasters to conceal anchorage.
- D. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at bottoms of posts. Provide shoes and sleeves (caps) at posts to conceal anchorage.

- E. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide, inswinging doors for standard toilet compartments and 36-inch- (914-mm-) wide, outswinging doors with a minimum 32-inch- (813-mm-) wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION OF PLASTIC TOILET COMPARTMENTS

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch (13 mm).
 - b. Panels and Walls: 1 inch (25 mm).
 - 2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than three brackets attached at midpoint and near top and bottom of panel.
 - a. Locate wall brackets, so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.
 - 3. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full-height brackets.
 - a. Locate bracket fasteners, so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches (44 mm) into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels and adjust, so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Floor Anchored Units: Secure pilasters to supporting construction and level, plumb, and tighten. Hang doors and adjust, so doors are level and aligned with panels, when doors are in closed position.
- D. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

3.2 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on inswinging doors to hold doors open

approximately 30 degrees from closed position when unlatched. Set hinges on outswinging doors to return doors to fully closed position.

END OF SECTION 102113.19

SECTION 102800 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each finish specified, full size.
- C. Delegated Design Submittal: For grab bars.
 - 1. Include structural design calculations indicating compliance with specified structural-performance requirements.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Design accessories and fasteners to comply with the following requirements:
 - 1. Grab Bars: Installed units are able to resist 250 lbf (1112 N) concentrated load applied in any direction and at any point.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

- A. Toilet Tissue (Roll) Dispenser. Bobrick B-273

1. Description: Single-roll dispenser.
 2. Mounting: Surface mounted.
 3. Operation: Noncontrol delivery with theft-resistant spindle. Concealed locking device
 4. Capacity: Designed for 4.06" long by 3.66" wide tissue rolls.
 5. Material and Finish: Satin-finish aluminum bracket with plastic spindle.
- B. Paper Towel (Folded) Dispenser. Bobrick Trimline B-359033:
1. Mounting: Recessed.
 2. Minimum Capacity: 300 C-fold towels.
 3. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).
 4. Lockset: Tumbler type.
- C. Grab Bar. Bobrick 9806. 1-1/2" Stainless Steel Grab Bar with Concealed Flange:
1. Mounting: Flanges with concealed fasteners.
 2. Material: Stainless steel, 1/16" inch (2mm) thick.
 - a. Finish: Smooth, ASTM A480/A480M No. 4 finish (satin).
 3. Outside Diameter: 1-1/2 inches.
 4. Configuration and Length: As indicated on Drawings. Straight, 36 inches (914 mm) long. Straight, 42" long.
- D. Mirror Unit. Welded Frame Mirror. Bobrick B-290 2440/2436:
1. Frame: Stainless steel 3/4" angle, 0.05 inch (1.3 mm) thick .
 2. Corners: Welded and ground smooth. Size: As indicated on Drawings.
 3. Glass: No 1 1/4" Mirror Glass
 4. Hangers: Manufacturer's standard rigid, tamper and theft resistant.

2.3 CHILDCARE ACCESSORIES

- A. Diaper-Changing Station. Bobrick KB310-SSWM:
1. Description: Horizontal unit that opens by folding down from stored position and with child-protection strap.
 - a. Engineered to support minimum of 250-lb (113-kg)] static load when opened.
 2. Mounting: Surface mounted, with unit projecting not more than 4 inches (102 mm) from wall when closed.
 3. Operation: By pneumatic shock-absorbing mechanism.
 4. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin), with replaceable insulated polypropylene tray liner.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories in accordance with manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
 - 1. Remove temporary labels and protective coatings.
- B. Grab Bars: Install to comply with specified structural-performance requirements.

END OF SECTION 102800

SECTION 224213.13 - COMMERCIAL WATER CLOSETS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wall-mounted water closets.
 - 2. Hard wired solenoid flushometer valves.
 - 3. Toilet seats.
 - 4. Supports.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Standards:
 - 1. Comply with ASME A112.19.2/CSA B45.1 for water closets.
 - 2. Comply with ASME A112.19.5/CSA B45.15 for flush valves and spuds for water closets and tanks.
 - 3. Comply with ASSE 1037/ASME A112.1037/CSA B125.37 for flush valves.
 - 4. Comply with IAMPO/ANSI Z124.5 for water-closet (toilet) seats.
 - 5. Comply with ASME A112.6.1M for water-closet supports.
 - 6. Comply with ICC A117.1 for ADA-compliant water closets.
 - 7. Comply with ASTM A1045 for flexible PVC gaskets used in connection of vitreous china water closets to sanitary drainage systems.
 - 8. Comply with ASME A112.4.3 for plastic fittings used in connection of vitreous china water closets to sanitary drainage systems.

2.2 WALL-MOUNTED WATER CLOSETS

.

- A. Water Closets - Wall Mounted, Top Spud: American Standard AFWall Millenium FloWise Elongated Flushometer Toilet LESS EverClean.
 - 1. Bowl:
 - a. Material: Vitreous china.
 - b. Type: Siphon jet.
 - c. Style: Flushometer valve.
 - d. Mounting Height: ADA compliant.
 - e. Rim Contour: Elongated.
 - f. Water Consumption: 1.1 gal. (4.2 L) per flush.
 - g. Spud Size and Location: NPS 1-1/2 (DN 40); top.
 - h. Color: White.
 - 2. Flushometer Valve: American Standard Sensor Operated Selectronic
 - 3. Toilet Seat: American Standard, commercial, extra heavy duty, open front, elongated, polypropylene. ADA compliant.
 - 4. Support: Water-closet carrier.

2.3 FLUSHOMETER VALVES

- A. Flushometer Valves - Touchless . American Standard sensor operated Selectronic Hardwired
 - 1. Minimum Pressure Rating: 125 psig (860 kPa).
 - 2. Features: Include integral check stop and backflow-prevention device.
 - 3. Material: Brass body with corrosion-resistant components.
 - 4. Style: Exposed.
 - 5. Flushometer-Valve Finish: Chrome-plated.
 - 6. Handle Finish: Chrome-plated Antimicrobial.
 - 7. Consumption: 1.1 gal. (4.2 L) per flush.
 - 8. Minimum Inlet: NPS 1 (DN 25).
 - 9. Minimum Outlet: NPS 1-1/4 (DN 32).

2.4 TOILET SEATS

- A. Toilet Seats: American Standard.
 - 1. Material: Plastic.
 - 2. Type: Commercial (Extra Heavy duty).
 - 3. Shape: Elongated rim, open front.
 - 4. Hinge: Self-sustaining, check.
 - 5. Hinge Material: Noncorroding metal.
 - 6. Seat Cover: Not required.
 - 7. Color: White.
 - 8. Surface Treatment: Antimicrobial.

2.5 SUPPORTS

A. Water-Closet Carrier:

1. Description: Waste-fitting assembly, as required to match drainage piping material and arrangement with faceplates, couplings gaskets, and feet; bolts and hardware matching fixture.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for water-supply piping and sanitary drainage and vent piping systems to verify actual locations of piping connections before water-closet installation.
- B. Examine walls and floors for suitable conditions where water closets will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Water-Closet Installation:

1. Install level and plumb.
2. Install floor-mounted water closets on bowl-to-drain connecting fitting attachments to piping or building substrate.
3. Install accessible, wall-mounted water closets at mounting height in accordance with ICC A117.1.

B. Support Installation:

1. Install supports, affixed to building substrate, for floor-mounted, back-outlet water closets.
2. Use carrier supports with waste-fitting assembly and seal.
3. Install floor-mounted, back-outlet water closets attached to building floor substrate, onto waste-fitting seals; and attach to support.
4. Install wall-mounted, back-outlet water-closet supports with waste-fitting assembly and waste-fitting seals; and affix to building substrate.
5. Measure support height installation from finished floor, not structural floor.

C. Flushometer-Valve Installation:

1. Install flushometer-valve, water-supply fitting on each supply to each water closet.
2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.
3. Install actuators in locations easily reachable for people with disabilities.

D. Install toilet seats on water closets.

E. Wall Flange and Escutcheon Installation:

1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations and within cabinets and millwork.
2. Install deep-pattern escutcheons if required to conceal protruding fittings.

F. Joint Sealing:

1. Seal joints between water closets and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
2. Match sealant color to water-closet color.

3.3 PIPING CONNECTIONS

- A. Connect water closets with water supplies and soil, waste, and vent piping. Use size fittings required to match water closets.
- B. Where installing piping adjacent to water closets, allow space for service and maintenance.

3.4 ADJUSTING

- A. Operate and adjust water closets and controls. Replace damaged and malfunctioning water closets, fittings, and controls.
- B. Adjust water pressure at flushometer valves to produce proper flow.

3.5 CLEANING AND PROTECTION

- A. Clean water closets and fittings with manufacturers' recommended cleaning methods and materials.
- B. Install protective covering for installed water closets and fittings.
- C. Do not allow use of water closets for temporary facilities unless approved in writing by Owner.

END OF SECTION 224213.13

SECTION 224213.16 - COMMERCIAL URINALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wall-hung urinals.
2. Hard wired urinal flushometer valves.
3. Supports.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 WALL-HUNG URINALS

A. Urinals - Wall Hung, Back Outlet, Washout: American Standard FloWise Universal Urinal

1. Fixture:
 - a. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5/CSA B45.15.
 - b. Material: Vitreous china.
 - c. Drain: Separate removable chrome-plated dome strainer with chrome-plated, NPS 1-1/2 (DN 40) tailpiece.
 - d. Strainer or Trapway: Manufacturer's standard strainer and NPS 1-1/2 (DN 40) tailpiece.
 - e. Inlet Spud Size and Location: NPS 3/4 (DN 20); top.
 - f. Outlet Size and Location: NPS 2" ; bottom.
 - g. Color: White .
 - h. Water Consumption: 0.125 gpf (0.5 Lpf).
 - i. ADA compliant
2. Flushometer Valve: American Standard Selectronic Sensor Operated Hardwired Flushometer.
3. Waste Fitting:

- a. Standard: ASME A112.18.2/CSA B125.2.
- b. Trap:
 - 1) Size: NPS 1-1/2 (DN 50).
 - 2) Material, Chrome Plated: and chrome-plated brass or steel wall flange.
 - 3) Material, Stainless Steel: Two-piece trap and swivel elbow with 0.012-inch- (0.30-mm-) thick, stainless steel tube to wall; and stainless steel wall flange.
- 4. Support: Type II urinal carrier with hanger and bearing plates. J R Smith
- 5. Urinal Mounting Height: Handicapped/elderly according to ICC A117.1.

2.2 URINAL FLUSHOMETER VALVES

A. Solenoid-Actuator, Diaphragm Flushometer Valves:.

- 1. American Standard Selectronic sensor operated hardwired flushometer
- 2. Standard: ASSE 1037/ASME 112.1037/CSA B125.37.
- 3. Minimum Pressure Rating: 125 psig (860 kPa).
- 4. Features: Include integral check stop and backflow-prevention device.
- 5. Material: Brass body with corrosion-resistant components.
- 6. Exposed Flushometer-Valve Finish: Chrome plated.
- 7. Panel Finish: Chrome plated or stainless steel.
- 8. Style: Concealed.
- 9. Actuator: Solenoid complying with UL 1951; listed and labeled as defined in NFPA 70, by a qualified testing agency; and marked for intended location and application.
- 10. Trip Mechanism: Hard wired electronic sensor complying with UL 1951; listed and labeled as defined in NFPA 70, by a qualified testing agency; and marked for intended location and application.
- 11. Consumption: 0.125 gal. per flush.
- 12. Minimum Inlet: NPS 3/4 (DN 20).
- 13. Minimum Outlet: NPS 3/4 (DN 20).

2.3 SUPPORTS

A. Type II Urinal Carrier:

- 1. Standard: ASME A112.6.1M. J R Smith

B. Urinal Installation:

- 1. Install urinals level and plumb according to rough-in drawings.
- 2. Install wall-hung, back-outlet urinals onto waste fitting seals and attached to supports.
- 3. Install accessible, wall-mounted urinals at mounting height for the handicapped/elderly, according to ICC A117.1.

C. Support Installation:

- 1. Install supports, affixed to building substrate, for wall-hung urinals.

2. Use off-floor carriers with waste fitting and seal for back-outlet urinals.
3. Use carriers without waste fitting for urinals with tubular waste piping.
4. Use chair-type carrier supports with rectangular steel uprights for accessible urinals.

D. Flushometer-Valve Installation:

1. Install flushometer-valve water-supply fitting on each supply to each urinal.
2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.

E. Wall Flange and Escutcheon Installation:

1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations.
2. Install deep-pattern escutcheons if required to conceal protruding fittings.
3. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."

F. Joint Sealing:

1. Seal joints between urinals and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
2. Match sealant color to urinal color.
3. Comply with sealant requirements specified in Section 079200 "Joint Sealants."

2.4 PIPING CONNECTIONS

- A. Connect urinals with water supplies and soil, waste, and vent piping. Use size fittings required to match urinals.
- B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."
- C. Comply with soil and waste piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."
- D. Where installing piping adjacent to urinals, allow space for service and maintenance.

2.5 ADJUSTING

- A. Operate and adjust urinals and controls. Replace damaged and malfunctioning urinals, fittings, and controls.
- B. Adjust water pressure at flushometer valves to produce proper flow.

2.6 CLEANING AND PROTECTION

- A. Clean urinals and fittings with manufacturers' recommended cleaning methods and materials.

- B. Install protective covering for installed urinals and fittings.
- C. Do not allow use of urinals for temporary facilities unless approved in writing by Owner.

END OF SECTION 224213.16

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Engineered stone commercial lavatory units.
- B. Lavatory faucets.
- C. Soap dispensers.

1.2 ACTION SUBMITTALS

- A. Product Data: For each product:
 - 1. Manufacturer's data sheets indicating operating characteristics, materials and finishes.
 - 2. Include details of electrical and mechanical operating parts.
 - 3. Provide mounting requirements and rough-in dimensions.
 - 4. Mark each sheet with product drawing designation.
- B. Product Test Reports: Indicating compliance of products with requirements, from a qualified independent testing agency, when requested by Architect.
- C. Shop Drawings: Prepared by manufacturer. Include mounting and rough-in requirements and power, signal, and control wiring diagrams.

1.3 INFORMATION SUBMITTALS

- A. Sample warranty.
- B. Manufacturer's certificates.
- C. Indoor environmental quality certificates.

1.4 MAINTENANCE SUBMITTALS

- A. Furnish indicated spare parts that are packaged with identifying labels listing associated products.
- B. Operation, care and cleaning instructions.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum 5 years experience in the manufacture of plumbing fixtures. Manufacturers seeking approval must submit the following:
 - 1. Product data, including test data from qualified independent testing agency indicating compliance with requirements.
 - 2. Samples of each component of product specified.
 - 3. List of successful installations of similar products available for evaluation by Architect.
 - 4. Submit substitution request not less than 15 days prior to bid date.
- B. Source Limitations: Obtain each type of plumbing fixture and compatible accessories through one source from a single approved manufacturer.

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

- C. Laminar-Flow, Faucet-Spout Outlets:
 - 1. NSF Standard: Comply with NSF 372 for faucet-spout outlet materials that will be in contact with potable water.
 - 2. Product shall meet a weighted average of not more than 0.25 percent lead as required by the U.S. Safe Drinking Water Act.
 - 3. Description: Chrome-plated-brass, faucet-spout outlet that produces non-aerating, laminar stream. Include external or internal thread that mates with faucet outlet for attachment to faucets where indicated and flow-rate range that includes flow of faucet.
 - D. Accessibility Requirements: Comply with requirements of ADA \ ANSI 117.1 and with requirements of authorities having jurisdiction.
 - 1. 306 Knee and Toe Clearance.
 - 2. 308 Reach Range.
 - 3. 606.5 Exposed Pipes & Surfaces with access panels.
 - 4. 309.4 Operation.
 - 5. 606.4 Faucets.
 - E. Water Flow and Consumption Requirements: Comply with EPACT.
 - F. Drinking Water Standard: Certified to NSF/ANSI 372.
 - G. Electrical Components: Listed and labeled per NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
 - H. Comply with Public Law 102-486, Energy Policy Act.
- 1.6 WARRANTY
- A. Special Manufacturer's Warranty: Provide manufacturer's standard form in which manufacturer agrees to repair or replace products that fail in materials or workmanship within the following periods:
 - 1. Engineered natural quartz material: 10 years.
 - 2. Soap Dispenser: Three years.
 - 3. Faucets: Three years.
 - 4. WashBar: 1 year

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide products of Bradley Corporation.

2.2 MATERIALS

- A. Lavatory Deck and Bowl Material: Fabricate lavatory units from molded engineered stone material consisting of natural quartz, granite, and other minerals in a matrix of thermoset bio-based polyester resin, listed by IAPMO R&T to IGC 156 and the requirements of CSA B45.5/IAPMO Z124 and ASME A112.18.1/CSA B125.1, with the following minimum properties:
 - 1. Basis of Design Product: Bradley, Evero Geo Series. 20 percent recycled content.
 - 2. Surface Burning Characteristics: Smoke developed, less than 450; flame spread, less than 25, per ASTM E 84.

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

3. Flexural Strength: 3267 psi (22.5 MPa), minimum, per ASTM D 790.
4. Compressive Strength: 11,500 psi (79 MPa), minimum, per ASTM C 170.
5. Moisture Absorption: 0.065 percent in 24 hours, per ASTM D 570.
6. Hardness: 6 – 7 Mohs Scale, per ASTM D 785.
7. Thickness: 1/2 inch (12.7 mm).

2.3 MULTI-STATION LAVATORY UNITS

- A. Lavatory: Wall-mounted linear design with angled basin and stainless steel drain cap to conceal the trench drain, molded from engineered stone material to create a seamless and integral elongated basin. Basin and drain designed to work in harmony with WashBar technology to evacuate water and dissipate airflow to prevent splashing on the user or floor. Unit includes combined waste and assembly connections to wall with stops and heavy gauge stainless steel wall mounting bracket that is concealed by a decorative swing down stainless steel access panel:
1. Basis of Design Manufacturer/Model: Bradley, Verge Lavatory System, Model LVQD.
 2. Number of Wash Stations: 1 and 2.
 3. Unit Length: 30 inches (762 mm), 60 inches (1524 mm).
 4. Water Supply: Thermostatic mixing valve assembly.
 5. Faucet: Included.
 6. Soap Dispenser: Included.
 7. Trench Drain Cap: Slotted Stainless Steel Trench Drain Cap with Vandal Resistant Screws.
 8. Color: As selected by Architect from manufacturer's full line.
 9. Rim Mounting Height: As indicated.

2.4 SENSOR-OPERATED WASHBAR

- A. Sleek single Casting WashBar with integral soap, faucet and single nozzle hand dryer with heated air and adjustable speeds, infrared control, smart technology with adjustable LED lighting and easy to identify icons and external tempering control:
1. Basis of Design Manufacturer/Model: Bradley WB1.
 2. Function: Blue LED lights help guide the user, indicating the functions. The LED light will change from blue to green to signify that the function is in use. Each function is easily identified by the corresponding icon on the WashBar top surface. Each sensor includes a turn-off delay of 1-2 seconds to aid in a smooth, controlled hand-washing
 3. Body: Polished chrome plated stainless steel. Load tested to 500 pounds, WashBar is secured to the basin with two anti-rotational shanks.
 4. Chrome Finish: "PC" Polished Chrome.
 5. Tempered Water Supply: Single thermostatic mixing valve.
 6. Flow Control: 0.35 gpm (1.33 Lpm) PCA Silicone Tip, Non-Aerated. 0.50 gpm (1.9 Lpm) PCA Silicone Tip, Non-Aerated.
 7. Soap Type: Liquid Soap Dispenser]. Soap system accommodates up to a 1 gallon container.
 8. Hand Dryer: DC Motor 120v/60hz, 20 Amp.
 9. Sensor Module: Water-conserving, durable sensor unit with adjustable timing turn-off delay and stationary object automatic timed cutoff, with diagnostic signal light.
 - a. Sensing Distance: 5 inches (127mm).
 10. Power Supply: 120V 2A 12V DC adapter that plugs directly into the electrical outlet.

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

11. Thermostatic Mixing Valve: Thermostatic mixing valve, ASSE 1070 listed, with stop/strainer/check valves, and flexible stainless steel connectors.
- B. Sleek single Casting WashBar with integral soap, faucet and single nozzle hand dryer with heated air and adjustable speeds, infrared control, smart technology with adjustable LED lighting and easy to identify icons and external tempering control :
 1. Basis of Design Manufacturer/Model: Bradley WB2.
 2. Function: Blue LED lights help guide the user, indicating the functions. The LED light will change from blue to green to signify that the function is in use. Each function is easily identified by the corresponding icon on the WashBar top surface. Each sensor includes a turn-off delay of 1-2 seconds to aid in a smooth, controlled hand-washing
 3. Body: Polished chrome plated stainless steel. Load tested to 500 pounds, WashBar is secured to the basin with one anti-rotational shank.
 4. Chrome Finish: "PC" Polished Chrome.
 5. Tempered Water Supply: Single thermostatic mixing valve.
 6. Flow Control: 0.35 gpm (1.33 Lpm) PCA Rubber Tip Aerator. 0.50 gpm (1.9 Lpm) PCA Rubber Tip Aerator.
 7. Soap Type: Liquid Soap Dispenser. Soap system accommodates up to a 1 gallon container.
 8. Hand Dryer: DC Motor 120v/60hz, 20 Amp.
 9. Sensor Module: Water-conserving, durable sensor unit with adjustable timing turn-off delay and stationary object automatic timed cutoff, with diagnostic signal light.
 - a. Sensing Distance: 5 inches (127mm).
 10. Power Supply: 120V 2A 12V DC adapter that plugs directly into the electrical outlet.
 11. Thermostatic Mixing Valve: Thermostatic mixing valve, ASSE 1070 listed, with stop/strainer/check valves, and flexible stainless steel connectors.
 12. dley, Model 6334.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessible wall-mounted sinks at juvenile/handicapped/elderly mounting heights according to ICC/ANSI A117.1.
- B. Assemble fixtures, accessories, and associated fittings and trim in accordance with manufacturer's instructions.
- C. Install fixture supports firmly attached to building structure.
- D. Install fixtures level, plumb, and in accordance with manufacturer's rough-in instructions.
- E. Install water supply piping. Provide stop on each supply in readily-serviceable location. Fasten supply piping to supports or substrate.
- F. Install trap and waste piping to each fixture.
- G. Install escutcheons at exposed piping penetrations in finished locations and within cabinets.
- H. Seal joints between fixtures and walls, floors, and countertops with mildew-resistant silicone sealant meeting requirements in Division 07 Section "Joint Sealants."

SECTION 22 42 16.03- COMMERCIAL LAVATORIES AND FAUCETS

- I. Mount soap dispenser in 1-3/8 inches (35 mm) diameter hole in lavatory or countertop 1-1/2 inches (38 mm) from edge of sink. Shank will accommodate a maximum counter thickness of 1-1/2 inches (38 mm).

3.2 CLEANING AND PROTECTION

- A. Repair or replace defective work, including damaged fixtures and components.
- B. At time of Substantial Completion:
 - 1. Clean unit surfaces per manufacturer's care instructions, test fixtures, and leave in ready-to-use condition.
 - 2. Install new batteries in battery-operated devices.
 - 3. Fill soap dispensers.
 - 4. Turn over keys, tools, maintenance instructions, and maintenance stock to Owner.
- C. Protect units with water-resistant temporary covering. Do not allow temporary use of plumbing fixtures unless approved in writing by Architect. Remove protection at Substantial Completion and dispose.

3.3 TESTING AND ADJUSTING

- A. Set field-adjustable temperature set points of temperature-actuated water mixing valves. Adjust set point within allowable temperature range.
- B. Test and adjust installation.

END OF SECTION

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Temporary erosion and sedimentation control.

1.2 PREINSTALLATION MEETINGS

- ##### A. Preinstallation Conference: Conduct conference at Project site.

1.3 MATERIAL OWNERSHIP

- ##### A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.4 FIELD CONDITIONS

- ##### A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.
- ##### B. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.
- ##### C. Tree- and Plant-Protection Zones: Protect according to requirements in Section 015639 "Temporary Tree and Plant Protection."

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

- A. Protect trees and plants remaining on-site.

- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations.

3.4 EXISTING UTILITIES

- A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

3.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Grind down stumps and remove roots larger than 3 inches (75 mm) in diameter, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
 - 2. Use only hand methods or air spade for grubbing within protection zones.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to depth of 6 inches (150 mm) in a manner to prevent intermingling with underlying subsoil or other waste materials.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavating and filling for rough grading the Site.
 - 2. Preparing subgrades for walks.
 - 3. Subbase course for concrete walks.

1.2 DEFINITIONS

- A. Backfill: Soil material used to fill an excavation.
- B. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- C. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, will be without additional compensation.
- D. Fill: Soil materials used to raise existing grades.
- E. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- F. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- G. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct preexcavation conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Material test reports.
- B. Do not commence earth-moving operations until plant-protection measures are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D2487, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D2487 , or a combination of these groups.
 - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored to comply with local practice or requirements of authorities having jurisdiction.
- B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored to comply with local practice or requirements of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.
- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.4 SUBGRADE INSPECTION

- A. Proof-roll subgrade with a pneumatic-tired dump truck to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
- B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.5 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.6 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade.
 - 2. Surveying locations of underground utilities for Record Documents.
 - 3. Testing and inspecting underground utilities.
 - 4. Removing concrete formwork.
 - 5. Removing trash and debris.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.7 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under walks and pavements, use satisfactory soil material.
 - 2. Under steps and ramps, use engineered fill.

3.8 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.9 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D698:
 - 1. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.

2. Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85percent.

3.10 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:
 1. Walks: Plus or minus 1 inch (25 mm).

3.11 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

- A. Place subbase course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase course under pavements and walks as follows:
 1. Shape subbase course to required crown elevations and cross-slope grades.
 2. Place subbase course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
 3. Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D698.

3.12 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- C. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.13 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.14 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes concrete paving including the following:
 - 1. Walks.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.3 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1.4 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing on concrete paving mixtures.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 (ACI 301M) unless otherwise indicated.

2.2 CONCRETE MATERIALS

- A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
 - 1. Portland Cement: ASTM C150/C150M, gray portland cement Type I/II.

- B. Normal-Weight Aggregates: ASTM C33/C33M, Class 4S, uniformly graded. Provide aggregates from a single source.
- C. Air-Entraining Admixture: ASTM C260/C260M.
- D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
- E. Water: Potable and complying with ASTM C94/C94M.

2.3 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry or cotton mats.
- B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, dissipating.

2.4 RELATED MATERIALS

- A. Joint Fillers: ASTM D1751, asphalt-saturated cellulosic fiber ASTM D1752, cork or self-expanding cork or ASTM D8139, semirigid, closed-cell polypropylene foam in preformed strips.
- B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

2.5 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301 (ACI 301M), for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.
- B. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
 - 1. Air Content: 6 percent plus or minus 1-1/2 percent.

C. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

D. Concrete Mixtures: Normal-weight concrete.

1. Compressive Strength (28 Days): 4000 psi (27.6 MPa).
2. Maximum W/C Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).

2.6 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C94/C94M. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

- C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, to match jointing of existing adjacent concrete paving:
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes.

3.5 CONCRETE PLACEMENT

- A. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- B. Comply with ACI 301 (ACI 301M) requirements for measuring, mixing, transporting, and placing concrete.
- C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- D. Screed paving surface with a straightedge and strike off.
- E. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
- C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on paving surface according to manufacturer's written instructions.
 - 1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.

2. After curing, lightly work surface with a steel-wire brush or abrasive stone and water to expose nonslip aggregate.

3.7 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m 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.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture-retaining-cover curing.

3.8 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 (ACI 117M) and as follows:
 1. Elevation: 3/4 inch (19 mm).
 2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
 3. Surface: Gap below 10-feet- (3-m-) long; unleveled straightedge not to exceed 1/2 inch (13 mm).
 4. Joint Spacing: 3 inches (75 mm).
 5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
 6. Joint Width: Plus 1/8 inch (3 mm), no minus.

3.9 REPAIR AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 321713 - PARKING BUMPERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Precast concrete wheel stops.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Precast concrete wheel stops.

PART 2 - PRODUCTS

2.1 PARKING BUMPERS

- A. Precast Concrete Wheel Stops: Precast, steel-reinforced, air-entrained concrete; 4000-psi (27.6-MPa) minimum compressive strength; manufacturer's standard height and width 72 inches (1800 mm) long. Provide chamfered corners, transverse drainage slots on underside, and a minimum of three factory-formed or -drilled vertical holes through wheel stop for anchoring to substrate.
1. Surface Appearance: Smooth, free of pockets, sand streaks, honeycombs, and other obvious defects. Corners shall be uniform, straight, and sharp.
 2. Surface Sealer: Manufacturer's standard salt-resistant, clear sealer, applied at precasting location.
 3. Mounting Hardware: Galvanized-steel hardware as standard with wheel-stop manufacturer].

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Verify that pavement is in suitable condition to begin installation in accordance with manufacturer's written instructions.
- B. Install wheel stops in accordance with manufacturer's written instructions unless otherwise indicated.

- C. Securely anchor wheel stops to substrate with hardware in each preformed vertical hole in wheel stop as recommended in writing by manufacturer. Recess head of hardware beneath top of wheel stop.

END OF SECTION 321713

SECTION 321723 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Painted markings applied to asphalt paving.
 - 2. Painted markings applied to concrete surfaces.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data:
 - 1. Pavement-marking paint, solvent-borne.
 - 2. Pavement-marking paint, acrylic.
 - 3. Pavement-marking paint, latex.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.

2.2 PAVEMENT-MARKING PAINT

- A. Pavement-Marking Paint, Acrylic: Acrylic, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952F, Type II, with drying time of less than 45 minutes.
 - 1. Color: White, Blue As indicated.

PART 3 - EXECUTION

3.1 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Allow asphalt paving or concrete surfaces to age for a minimum of 90 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).
 - 1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to asphalt paving or concrete surface.

END OF SECTION 321723

SECTION 329113 - SOIL PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes planting soils specified by composition of the mixes.
- B. Related Requirements:
 - 1. Section 311000 "Site Clearing" for topsoil stripping and stockpiling.

1.2 DEFINITIONS

- A. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.
- B. Imported Soil: Soil that is transported to Project site for use.
- C. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- F. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- G. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- H. USCC: U.S. Composting Council.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 MATERIALS

2.2 PLANTING SOILS SPECIFIED BY COMPOSITION

- A. Planting-Soil Type: Existing, on-site surface soil, with the duff layer, if any, retained on-site; modified to produce viable planting soil. Blend existing, on-site surface soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:
 - 1. Ratio of Loose Compost to Soil: 1:4 by volume.
- B. Planting-Soil Type: Imported, naturally formed soil from off-site sources and consisting of loam soil according to USDA textures; and modified to produce viable planting soil.
 - 1. Sources: Take imported, unamended soil from sources that are naturally well-drained sites where topsoil occurs at least 4 inches (100 mm) deep, not from bogs, or marshes; and that do not contain undesirable organisms; disease-causing plant pathogens; or obnoxious weeds and invasive plants including, but not limited to, quackgrass, Johnsongrass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel, and brome grass.
 - 2. Additional Properties of Imported Soil before Amending: Soil reaction of pH 6 to 7 and minimum of percent organic-matter content, friable, and with sufficient structure to give good tilth and aeration.
 - 3. Unacceptable Properties: Clean soil of the following:
 - a. Unacceptable Materials: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
 - b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of coarse sand that exceed a combined maximum of 8 percent by dry weight of the imported soil.
 - c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding [2 inches (50 mm) in any dimension.
 - 4. Amended Soil Composition: Blend imported, unamended soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:
 - a. Ratio of Loose Compost to Soil: 1:4 by volume.

2.3 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:

1. Class: T, with a minimum of 99 percent passing through a No. 8 (2.36-mm) sieve and a minimum of 75 percent passing through a No. 60 (0.25-mm) sieve.
 2. Form: Provide lime in form of ground calcitic limestone.
- B. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C33/C33M.

2.4 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:
1. Feedstock: Limited to leaves.
 2. Reaction: pH of 5.5 to 8.
 3. Soluble-Salt Concentration: Less than 4 dS/m.
 4. Moisture Content: 35 to 55 percent by weight.
 5. Organic-Matter Content: 30 to 40 percent of dry weight.
 6. Particle Size: Minimum of 98 percent passing through a 1-inch (25mm)-sieve.

2.5 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
1. Composition: 1 lb/1000 sq. ft. (0.5 kg/100 sq.m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

PART 3 - EXECUTION

3.1 GENERAL

- A. Place planting soil and fertilizers according to requirements in other Specification Sections.
- B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

3.2 PREPARATION OF UNAMENDED, ON-SITE SOIL BEFORE AMENDING

- A. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.

- B. Unsuitable Materials: Clean soil to contain a maximum of 8 percent by dry weight of stones, roots, plants, sod, clay lumps, and pockets of coarse sand.

3.3 PLACING AND MIXING PLANTING SOIL OVER EXPOSED SUBGRADE

- A. General: Apply and mix unamended soil with amendments on-site to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Subgrade Preparation: Till subgrade to a minimum depth of 4 inches (100 mm). Remove stones larger than 1-1/2 inches (38 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- C. Mixing: Spread unamended soil to total depth of 4 inches (100 mm), but not less than required to meet finish grades after mixing with amendments and natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.
 - 1. Amendments: Apply soil amendments, except compost, and fertilizer, if required, evenly on surface, and thoroughly blend them with unamended soil to produce planting soil.
- D. Compaction: Compact each blended lift of planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D698 and tested in-place.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.4 BLENDING PLANTING SOIL IN PLACE

- A. General: Mix amendments with in-place, unamended soil to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Preparation: Till unamended, existing soil in planting areas to a minimum depth of 4 inches (100 mm). Remove stones larger than 1-1/2 inches (38 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- C. Mixing: Apply soil amendments and fertilizer, if required, evenly on surface, and thoroughly blend them into full depth of unamended, in-place soil to produce planting soil.
 - 1. Mix fertilizer with planting soil no more than seven days before planting.
- D. Compaction: Compact blended planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D698.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
- F. d sampling depth.

3.5 PROTECTION AND CLEANING

- A. Protection Zone: Identify protection zones according to Section 015639 "Temporary Tree and Plant Protection."
- B. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Vehicle traffic.
 - 4. Foot traffic.
 - 5. Erection of sheds or structures.
 - 6. Impoundment of water.
 - 7. Excavation or other digging unless otherwise indicated.
- C. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.
 - 1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

END OF SECTION 329113

SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Seeding.

1.2 DEFINITIONS

- A. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- B. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" and drawing designations for planting soils.

1.3 INFORMATIONAL SUBMITTALS

- A. Certification of grass seed.
- B. Product certificates.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.
1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 2. Pesticide Applicator: State licensed, commercial.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species:
 - 1. Quality, State Certified: State-certified seed of grass species as listed below for solar exposure.
 - 2. Quality, Non-State Certified: Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed:
 - 3. Full Sun: turf type Tall Fescue.
 - 4. Shade: Fine Fescue:

2.2 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

2.3 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

2.4 PESTICIDES

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

PART 3 - EXECUTION

3.1 TURF AREA PREPARATION

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."
- B. Reduce elevation of planting soil to allow for soil thickness of sod.
- C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- D. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h).
 - 1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 2. Do not use wet seed or seed that is moldy or otherwise damaged.
 - 3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at a total rate of 3 to 4 lb/1000 sq. ft. (1.4 to 1.8 kg/92.9 sq. m).
- C. Rake seed lightly into top 1/8 inch (3 mm) of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre (42 kg/92.9 sq to form a continuous blanket 1-1/2 inches (38 mm) in loose thickness over seeded areas.
 - 1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

3.3 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
- B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings.

3.4 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
 - 1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).
 - 2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
- B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

END OF SECTION 329200

SPECIAL TECHNICAL PROVISIONS

NONDISCRIMINATION/SEXUAL HARASSMENT CLAUSE

The Contactor agrees:

1. In the hiring of any employee(s) for the manufacture of supplies, performance of work, or any other activity required under the contract or any sub-contract, the Contractor, each sub-contractor, or any person acting on behalf of the Contractor or sub-contractor, shall not, discriminate in violation of the *Pennsylvania Human Relations Act* (PHRA) and applicable federal laws against any citizen, who is qualified and available to perform the work to which the employment relates.
2. Neither the Contractor nor any sub-contractor nor any person on their behalf shall in any manner discriminate in violation of the PHRA and applicable federal laws against or intimidate any employee involved in the manufacture of supplies, the performance or work, or any other activity required under the contract.
3. The Contractor and each sub-contractor shall establish and maintain a written nondiscrimination and sexual harassment policy and shall inform their employees of the policy. The policy must contain a provision that sexual harassment will not be tolerated and employees who practice it will be disciplined. Posting this Nondiscrimination/Sexual Harassment Clause conspicuously in easily-accessible and well- lighted places customarily frequented by employees at or near where the contract services are performed shall satisfy this requirement.
4. The Contractor and each sub-contractor shall not discriminate in violation of PHRA and applicable federal laws against any sub-contractor or supplier who is qualified to perform the work to which the contract relates.
5. The Contractor and each sub-contractor represents that it is presently in compliance with and will maintain compliance with all applicable federal, state and local laws and regulations relating to nondiscrimination and sexual harassment. The Contractor and each sub-contractor further represents that it has filed a Standard Form 100 Employer Information Report ("EEO-1") with the U.S. Equal Employment Opportunity Commission ("EEOC") and shall file an annual EEO-1 report with the EEOC as required for employers' subject to Title VII of the Civil Rights Act of 1964, as amended, that have 100 or more employees and employers that have federal government contracts or first-tier sub-contracts and have 50 or more employees. The Contractor and each sub-contractor shall, upon request and within the time periods requested by the County, furnish all necessary employment documents and records, including EEO-1 reports and permit access to their books, records and accounts by the contracting agency and the Bureau of Small Business

Section T
Nondiscrimination/Sexual Harassment Clause

Opportunities (BSBO), for purpose of ascertaining compliance with provisions of the Nondiscrimination/Sexual Harassment Clause.

6. The Contractor shall include the provisions of this Nondiscrimination/Sexual Harassment Clause in every sub-contract so those provisions applicable to sub-contractors will be binding upon each sub-contractor.
7. The Contractor's and each sub-contractor's obligation pursuant to these provisions are ongoing from and after the effective date of the contract through termination date thereof. Accordingly, the Contractor and each sub-contractor shall have an obligation to inform the County if, at any time during the term of the Contract, it becomes aware of any actions or occurrences that would result in violation of these provisions.
8. The County may cancel or terminate the Contract and all money due or to become due under the Contract may be forfeited for a violation of the terms and conditions of the Nondiscrimination/Sexual Harassment Clause.

APPLICATION AND CERTIFICATE FOR PAYMENT CONSTRUCTION MANAGER-ADVISER EDITION
AIA DOCUMENT G702/CMA (Instructions on reverse side)

TO OWNER: PROJECT: APPLICATION NO.: Distribution to:
PERIOD TO: OWNER
PROJECT NOS.: CONSTRUCTION
MANAGER
CONTRACT DATE: ARCHITECT
CONTRACTOR

FROM CONTRACTOR:

VIA CONSTRUCTION MANAGER:
VIA ARCHITECT:

CONTRACT FOR:

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM\$

2. Net Change By Change Orders\$

3. CONTRACT SUM TO DATE (Line 1 + 2)\$

4. TOTAL COMPLETED & STORED TO DATE\$
(Column G on G702)

5. RETAINAGE:
a. _____% of Completed Work\$
(Columns D + E on G703)
b. _____% of Stored Material\$
(Column F on G703)
Total Retainage (Line 5a + 5b or
Total in Column I of G703)\$

6. TOTAL EARNED LESS RETAINAGE\$
(Line 4 less Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT
(Line 6 from prior Certificate)\$

8. CURRENT PAYMENT DUE\$

9. BALANCE TO FINISH, INCLUDING RETAINAGE
(Line 3 less Line 6)\$

CONTRACTOR:

By: _____ Date: _____

State of: _____

County of: _____

Subscribed and sworn to before
me this _____ day of _____

Notary Public:
My Commission expires: _____

CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Construction Manager and Architect certify to the Owner that to the best of their knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED\$
(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that changed to conform to the amount certified.)

CONSTRUCTION MANAGER:
By: _____ Date: _____
ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner		
Total approved this Month		
TOTALS		
NET CHANGES by Change Order		

INSTRUCTION SHEET

FOR AIA DOCUMENT G702/CMA, APPLICATION AND CERTIFICATE FOR PAYMENT CONSTRUCTION MANAGER-ADVISED EDITION

A. GENERAL INFORMATION

AIA Document G702/CMA, Application and Certificate for Payment, Construction Manager-Advised Edition, is to be used in conjunction with AIA Document G703, Continuation Sheet. These documents are designed to be used on a Project where a Construction Manager is employed as an adviser to the Owner, but not as a constructor, and where multiple Contractors have direct Agreements with the Owner. Procedures for their use are covered in AIA Document A201/CMA, General Conditions of the Contract for Construction, Construction Manager-Advised Edition, 1992 Edition.

B. COMPLETING THE G702/CMA FORM:

After the Contractor has completed AIA Document G703, Continuation Sheet, summary information should be transferred to AIA Document G702/CMA, Application and Certificate for Payment, Construction Manager-Advised Edition.

The Contractor should sign G702/CMA, have it notarized and submit it, together with G703, to the Construction Manager and Architect.

The Construction Manager and Architect should review G702/CMA and G703 and, if they are acceptable, complete the Certificate for Payment on G702/CMA. The Construction Manager and Architect may certify a different amount than that applied for, pursuant to Paragraphs 9.5 and 9.6 of A201/CMA. They should then initial all figures on G702/CMA and G703 that have been changed to conform to the amount certified and attach an explanation. The completed G702/CMA and G703 should be forwarded to the Owner.

C. COMPLETING THE G703 FORM:

Heading: This information should be completed to be consistent with similar information on AIA Document G702/CMA, Application and Certificate for Payment, Construction Manager-Advised Edition.

Columns A, B & C: These columns should be completed by identifying the various portions of the Project and their scheduled value consistent with the schedule of values submitted to the Architect at the commencement of the Project or as subsequently adjusted. The breakdown may be by sections of the Work or by Subcontractors and should remain consistent throughout the Project. Multiple pages should be used when required.

Column C should be subtotaled at the bottom when more than one page is used and totaled on the last page. Initially, this total should equal the original Contract Sum. The total of column C may be adjusted by Change Orders during the Project.

Column D: Enter in this column the amount of completed work covered by the previous application (columns D & E from the previous application). Values from column F (Materials Presently Stored) from the previous application should not be entered in this column.

Column E: Enter here the value of Work completed at the time of this application, including the value of materials incorporated into the project which were listed on the previous application under Materials Presently Stored (column F).

Column F: Enter here the value of Materials Presently Stored for which payment is sought. The total of the column *must* be recalculated at the end of each pay period. This value covers both materials newly stored for which payment is sought and materials previously stored which are not yet incorporated into the Project. Mere payment by the Owner for stored materials does not result in a deduction from this column. Only as materials are incorporated into the Project is their value deducted from this column and incorporated into column E (Work Completed—This Period).

Column G: Enter here the total of columns D, E and F. Calculate the percentage completed by dividing column G by column C.

Column H: Enter here the difference between column C (Scheduled Value) and column G (Total Completed and Stored to Date).

Column I: This column is normally used only for contracts where variable retainage is permitted on a line-item basis. It need not be completed on projects where a constant retainage is withheld from the overall contract amount.

Change Orders: Although Change Orders could be incorporated by changing the schedule of values each time a Change Order is added to the Project, this is not normally done. Usually, Change Orders are listed separately, either on their own G703 form or at the end of the basic schedule. The amount of the original contract adjusted by Change Orders is to be entered in the appropriate location on the G702/CMA form.

Construction Change Directives: Amounts not in dispute that have been included in Construction Change Directives should be incorporated into one or more Change Orders. Amounts remaining in dispute should be dealt with according to Paragraph 7.3 in A201/CMA.

D. MAKING PAYMENT

The Owner should make payment directly to the Contractor based on the amount certified by the Construction Manager and Architect on AIA Document G702/CMA, Application and Certificate for Payment, Construction Manager-Advised Edition. The completed form contains the name and address of the Contractor. Payment should not be made to any other party unless specifically indicated on G702/CMA.

AIA DOCUMENT G703 (Instructions on reverse side)

	PAGE	OF	PAGES
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
28	28	28	28
29	29	29	29
30	30	30	30
31	31	31	31
32	32	32	32
33	33	33	33
34	34	34	34
35	35	35	35
36	36	36	36
37	37	37	37
38	38	38	38
39	39	39	39
40	40	40	40
41	41	41	41
42	42	42	42
43	43	43	43
44	44	44	44
45	45	45	45
46	46	46	46
47	47	47	47
48	48	48	48
49	49	49	49
50	50	50	50
51	51	51	51
52	52	52	52
53	53	53	53
54	54	54	54
55	55	55	55
56	56	56	56
57	57	57	57
58	58	58	58
59	59	59	59
60	60	60	60
61	61	61	61
62	62	62	62
63	63	63	63
64	64	64	64
65	65	65	65
66	66	66	66
67	67	67	67
68	68	68	68
69	69	69	69
70	70	70	70
71	71	71	71
72	72	72	72
73	73	73	73
74	74	74	74
75	75	75	75
76	76	76	76
77	77	77	77
78	78	78	78
79	79	79	79
80	80	80	80
81	81	81	81
82	82	82	82
83	83	83	83
84	84	84	84
85	85	85	85
86	86	86	86
87	87	87	87
88	88	88	88
89	89	89	89
90	90	90	90
91	91	91	91
92	92	92	92
93	93	93	93
94	94	94	94
95	95	95	95
96	96	96	96
97	97	97	97
98	98	98	98
99	99	99	99
100	100	100	100

APPLICATION NO.:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO.:

Use Column I on Contracts where variable retainage for line items may apply.

AIA DOCUMENT G703 • CONTINUATION SHEET FOR G702 • 1992 EDITION • AIA® • ©1992 • THE AMERICAN INSTITUTE OF ARCHITECTS, 1735 NEW YORK AVENUE, N.W., WASHINGTON, D.C. 20006-5292 • WARNING: Unauthorized photocopying violates U.S. copyright laws and will subject the violator to legal prosecution.

G703-1992



CAUTION: You should use an original AIA document which has this caution printed in red. An original assures that changes will not be obscured as may occur when documents are reproduced.

INSTRUCTION SHEET

FOR AIA DOCUMENT G703

A. GENERAL INFORMATION

1. Purpose and Related Documents

AIA Document G702, Application and Certificate for Payment, is to be used in conjunction with AIA Document G703, Continuation Sheet. These documents are designed for use on Projects where the Contractor has a direct Agreement with the Owner. Procedures for their use are covered in AIA Document A201, General Conditions of the Contract for Construction, 1987 Edition.

2. Use of Current Documents

The user should consult the AIA, an AIA component chapter or a current AIA Documents List to determine the current edition of each document.

3. Limited License for Reproduction

AIA Document G703 is a copyrighted work and may not be reproduced or excerpted from in substantial part without the express written permission of the AIA. The document is intended to be used as a consumable—that is, the original document purchased by the user is intended to be consumed in the course of being used. There is no implied permission to reproduce this document, nor does membership in The American Institute of Architects confer any further rights to reproduce G703. A limited license is hereby granted to retail purchasers to reproduce a maximum of ten copies of a completed or executed G703, but only for use in connection with a particular Project. Further reproductions are prohibited without the express written permission of the AIA.

B. COMPLETING THE G703 FORM:

Heading: This information should be completed in a manner consistent with similar information on AIA Document G702, Application and Certificate for Payment.

Columns A, B & C: These columns should be completed by identifying the various portions of the Project and their scheduled values consistent with the schedule of values submitted to the Architect at the commencement of the Project or as subsequently adjusted. The breakdown may be by sections of the Work or by Subcontractors and should remain consistent throughout the Project. Multiple pages should be used when required.

Column C should be subtotaled at the bottom when more than one page is used and totaled on the last page. Initially, this total should equal the original Contract Sum. The total of column C may be adjusted by Change Orders during the Project.

Column D: Enter in this column the amount of completed Work covered by the previous application (columns D & E from the previous application). Values from column F (Materials Presently Stored) from the previous application should not be entered in this column.

Column E: Enter here the value of Work completed at the time of this application, including the value of materials incorporated in the project that were listed on the previous application under Materials Presently Stored (column F).

Column F: Enter here the value of Materials Presently Stored for which payment is sought. The total of the column must be recalculated at the end of each pay period. This value covers both materials newly stored for which payment is sought and materials previously stored which are not yet incorporated into the Project. Mere payment by the Owner for stored materials does not result in a deduction from this column. Only as materials are incorporated into the Project is their value deducted from this column and incorporated into column E (Work Completed—This Period.)

Column G: Enter here the total of columns D, E and F. Calculate the percentage completed by dividing column G by column C.

Column H: Enter here the difference between column C (Scheduled Value) and column G (Total Completed and Stored to Date).

Column I: This column is normally used only for contracts where variable retainage is permitted on a line-item basis. It need not be completed on projects where a constant retainage is withheld from the overall contract amount.

Change Orders: Although Change Orders could be incorporated by changing the schedule of values each time a Change Order is added to the Project, this is not normally done. Usually, Change Orders are listed separately, either on their own G703 form or at the end of the basic schedule. The amount of the original contract adjusted by Change Orders is to be entered in the appropriate location on the G702 form.

Construction Change Directives: Amounts not in dispute that have been included in Construction Change Directives should be incorporated into one or more Change Orders. Amounts remaining in dispute should be dealt with according to Paragraph 7.3 in A201.

The following is an example of a Continuation Sheet for work in progress. Please note that dollar amounts shown below are for illustrative purposes only, and are not intended to reflect actual construction costs.

ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)		BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD			% (G ÷ C)		
1	MOBILIZATION	5,000	5,000	0	0	5,000	100	0	
2	STUMP REMOVAL	5,000	5,000	0	0	5,000	100	0	
3	EARTH WORK	15,000	10,000	5,000	0	15,000	100	0	
4	LOWER RETAINING WALL	10,000	0	5,000	0	5,000	50	5,000	
5	CURBS & MISC. CONC.	5,000	0	0	0	0	0	5,000	
6	PAVING, UPPER DRIVE	20,000	0	0	0	0	0	20,000	
7	PAVING, LOWER DRIVE	20,000	0	0	0	0	0	20,000	
8	PAVERS	10,000	0	0	10,000	10,000	50	10,000	
9	BRICK WORK	5,000	0	0	0	0	0	5,000	
		105,000	10,000	10,000	10,000	40,000		65,000	

CHANGE ORDER

CONSTRUCTION MANAGER-ADVISER EDITION

AIA DOCUMENT G701/CMa

FOR INFORMATION ONLY. ORIGINAL, COPYRIGHTED DOCUMENTS
MAY BE OBTAINED AT <http://www.aia.org/constructiondocs/index.htm>

CONSTRUCTION MANAGER

ARCHITECT

CONTRACTOR

FIELD

OTHER

☐

☐

☐

☐

☐

☐

(Instructions on reverse side)

PROJECT:

(Name and address)

CHANGE ORDER NO.:

INITIATION DATE:

TO CONTRACTOR:

(Name and address)

PROJECT NOS.:

CONTRACT FOR:

CONTRACT DATE:

The Contract is changed as follows:

Not valid until signed by the Owner, Construction Manager, Architect and Contractor.

The original (Contract Sum) (Guaranteed Maximum Price) was \$

Net change by previously authorized Change Orders \$

The (Contract Sum) (Guaranteed Maximum Price) prior to this Change Order was \$

The (Contract Sum) (Guaranteed Maximum Price) will be (increased) (decreased) (unchanged) by
this Change Order \$

The new (Contract Sum) (Guaranteed Maximum Price) including this Change Order will be \$

The Contract Time will be (increased) (decreased) (unchanged) by () days

The date of Substantial Completion as of the date of this Change Order therefore is

NOTE: This summary does not reflect changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized
by Construction Change Directive.

CONSTRUCTION MANAGER

ADDRESS

BY

DATE

ARCHITECT

ADDRESS

BY

DATE

CONTRACTOR

ADDRESS

BY

DATE

OWNER

ADDRESS

BY

DATE



**CAUTION: You should use an original AIA document which has this caution printed in red.
An original assures that changes will not be obscured as may occur when documents are reproduced.**



AIA DOCUMENT G701/CMa • CHANGE ORDER • CONSTRUCTION MANAGER-ADVISER EDITION • 1992 EDITION • AIA®
©1992 • THE AMERICAN INSTITUTE OF ARCHITECTS, 1735 NEW YORK AVENUE, N.W., WASHINGTON, D.C. 20006-5292
WARNING: Unlicensed photocopying violates U.S. copyright laws and will subject the violator to legal prosecution.

G701/CMa-1992

INSTRUCTION SHEET

FOR AIA DOCUMENT G701/CMA, CHANGE ORDER
CONSTRUCTION MANAGER-ADVISER EDITION

A. GENERAL INFORMATION

1. Purpose

This document is intended for use in implementing changes in the Work agreed to by the Owner, Construction Manager, Architect and Contractor. Execution of a completed G701/CMA form indicates agreement upon all the terms of the change, including any changes in the Contract Sum (or Guaranteed Maximum Price) and Contract Time. In contrast, AIA Document G714/CMA, Construction Change Directive, Construction Manager-Adviser Edition, should be used in situations where, for whatever reason, the Owner and Contractor have not reached agreement upon the proposed changes in Contract Sum or Contract Time, and where changes in the Work need to be implemented expeditiously in order to avoid a delay in the Project.

2. Related Documents

This document was prepared for use under the terms of AIA Document A201/CMA, General Conditions of the Contract for Construction, Construction Manager-Adviser Edition.

3. Use of Current Documents

Prior to using any AIA document, the user should consult the AIA, an AIA component chapter or a current AIA Documents List to determine the current edition of each document.

4. Limited License for Reproduction

AIA Document G701/CMA is a copyrighted work and may not be reproduced or excerpted from in substantial part without the express written permission of the AIA. The G701/CMA document is intended to be used as a consumable—that is, the original document purchased by the user is intended to be consumed in the course of being used. There is no implied permission to reproduce this document, nor does membership in the American Institute of Architects confer any further rights to reproduce G701/CMA.

A limited license is hereby granted to retail purchasers to reproduce a maximum of ten copies of a completed or executed G701/CMA, but only for use in connection with a particular Project.

B. COMPLETING THE G701/CMA FORM

1. Description of Change in the Contract

Insert a detailed description of the change to be made in the Contract by this Change Order, including any Drawings, Specifications, documents or other supporting data to clarify the scope of the change.

2. Determination of Costs

Insert the following information in the blanks provided, and strike out the terms in parentheses that do not apply:

- the original Contract Sum or Guaranteed Maximum Price;
- the net change by previously authorized Change Order (note that this does not include changes authorized by Construction Change Directive unless such a change was subsequently agreed to by the Contractor and recorded as a Change Order);
- the Contract Sum or Guaranteed Maximum Price prior to this Change Order;
- the amount of increase or decrease, if any, in the Contract Sum or Guaranteed Maximum Price; and
- the new Contract Sum or Guaranteed Maximum Price as adjusted by this Change Order.

3. Change in Contract Time

Insert the following information in the blanks provided, and strike out the terms in parentheses that do not apply:

- in number of days, the increase or decrease, if any, in the Contract Time; and
- the date of Substantial Completion, including any adjustment effected by this Change Order.

C. EXECUTION OF THE DOCUMENT

When the Owner, Construction Manager, Architect and Contractor have reached agreement on the change to be made in the Contract, including any adjustments in the Contract Sum (or Guaranteed Maximum Price) and Contract Time, the G701/CMA document should be executed in quadruplicate by the two parties, the Construction Manager and Architect, each of whom retains an original.



Printed on Recycled Paper

Reprinted 1/94

**CERTIFICATE OF
SUBSTANTIAL COMPLETION****CONSTRUCTION MANAGER-ADVISER EDITION**

AIA DOCUMENT G704/CMA

(Instructions on reverse side)

OWNER	<input type="checkbox"/>
CONSTRUCTION MANAGER	<input type="checkbox"/>
ARCHITECT	<input type="checkbox"/>
CONTRACTOR	<input type="checkbox"/>
FIELD	<input type="checkbox"/>
OTHER	<input type="checkbox"/>

PROJECT:

(Name and address)

PROJECT NOS.:

CONTRACT FOR:

CONTRACT DATE:

TO OWNER:

(Name and address)

TO CONTRACTOR:

(Name and address)

DATE OF ISSUANCE:

PROJECT OR DESIGNATED PORTION SHALL INCLUDE:

The Work performed under this Contract has been reviewed and found, to the Construction Manager's and Architect's best knowledge, information and belief, to be substantially complete. 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 the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion thereof designated above is hereby established as

which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

A list of items to be completed or corrected is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

CONSTRUCTION MANAGER

BY

DATE

ARCHITECT

BY

DATE

The Contractor will complete or correct the Work on the list of items attached hereto within

days from

the above date of Substantial Completion.

CONTRACTOR

BY

DATE

The Owner accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof at (time) on (date).

OWNER

BY

DATE

The responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work and insurance shall be as follows:

(Note—Owner's and Contractor's legal and insurance counsel should determine and review insurance requirements and coverage.)



CAUTION: You should use an original AIA document which has this caution printed in red. An original assures that changes will not be obscured as may occur when documents are reproduced.



INSTRUCTION SHEET

FOR AIA DOCUMENT G704/CMA, CERTIFICATE OF SUBSTANTIAL COMPLETION
CONSTRUCTION MANAGER-ADVISER EDITION

A. GENERAL INFORMATION

1. Purpose

AIA Document G704/CMA, Certificate of Substantial Completion, Construction Manager-Adviser Edition, is a new document. This document was developed to include the Construction Manager in the process of establishing the date of Substantial Completion, which is established for the purpose of commencement of applicable warranties and to allow the Owner to occupy or utilize the Work or designated portion thereof.

2. Related Documents

This document was prepared for use under the terms of AIA Document A201/CMA, General Conditions of the Contract for Construction, Construction Manager-Adviser Edition.

3. Use of Current Documents

Prior to using any AIA document, the user should consult the AIA, an AIA component chapter or a current AIA Documents List to determine the current edition of each document.

4. Limited License for Reproduction

AIA Document G704/CMA is a copyrighted work and may not be reproduced or excerpted from in substantial part without the express written permission of the AIA. The G704/CMA document is intended to be used as a consumable—that is, the original document purchased by the user is intended to be consumed in the course of being used. There is no implied permission to reproduce this document, nor does membership in the American Institute of Architects confer any further rights to reproduce G704/CMA.

A limited license is hereby granted to retail purchasers to reproduce a maximum of ten copies of a completed or executed G704/CMA, but only for use in connection with a particular Project.

B. COMPLETING THE G704/CMA FORM

1. After the words "Project or Designated Portion shall include:", insert a detailed description of the Project or portion(s) of the Project that have been accepted as being substantially complete.

2. Determine Work to be completed.

Provide a list of items that are to be completed or corrected.

Determine dates for completion of the Work.

Establish an amount to be withheld to complete the Work.

C. EXECUTION OF THE DOCUMENT

The G704/CMA document should be executed in not less than quadruplicate by the Owner, Construction Manager, Architect and Contractor, each of whom retains an original.

CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS

AIA Document G706A

(Instructions on reverse side)

OWNER	<input type="checkbox"/>
ARCHITECT	<input type="checkbox"/>
CONTRACTOR	<input type="checkbox"/>
SURETY	<input type="checkbox"/>
OTHER	<input type="checkbox"/>

TO OWNER:
(Name and address)

ARCHITECT'S PROJECT NO.:

CONTRACT FOR:

PROJECT:
(Name and address)

CONTRACT DATED:

STATE OF:
COUNTY OF:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR:
(Name and address)

BY: _____
(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:



CAUTION: You should sign an original AIA document that has this caution printed in red. An original assures that changes will not be obscured as may occur when documents are reproduced. See Instruction Sheet for Limited License for Reproduction of this document.



INSTRUCTION SHEET

FOR AIA DOCUMENT G706A, CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS

A. GENERAL INFORMATION

1. Purpose

This document is intended for use as a companion to AIA Document G706, Contractor's Affidavit of Payment of Debts and Claims.

2. Related Documents

This document may be used with most of the AIA's Owner-Contractor agreements and general conditions, such as A201 and its related family of documents. As noted above, G706A is a companion document to AIA Document G706.

3. Use of Current Documents

Prior to using any AIA document, the user should consult the AIA, an AIA component chapter or a current AIA Documents List to determine the current edition of each document.

4. Limited License for Reproduction

AIA Document G706A is a copyrighted work and may not be reproduced or excerpted from in substantial part without the express written permission of the AIA. The G706A document is intended to be used as a consumable—that is, the original document purchased by the user is intended to be consumed in the course of being used. There is no implied permission to reproduce this document, nor does membership in The American Institute of Architects confer any further rights to reproduce G706A.

A cautionary notice is printed in red on the original of this document. This notice distinguishes an original AIA document from copies and counterfeits. To ensure accuracy and uniformity of language, purchasers should use only an original AIA document or one that has been reproduced from an original under a special limited license from the AIA.

A limited license is hereby granted to retail purchasers to reproduce a maximum of ten copies of a completed or executed G706A, but only for use in connection with a particular project. Further reproductions are prohibited without the express permission of the AIA.

B. CHANGES FROM THE PREVIOUS EDITION

A cross-reference to AIA Document A201 has been deleted to permit the use of G706A with other families of AIA documents, including construction management, interiors and design/build.

C. COMPLETING THE G706A FORM

GENERAL: The Owner-Contractor Agreement is the usual source of required information such as the contract date and the names and addresses of the Owner, Project and Contractor.

ARCHITECT'S PROJECT NO.: This information is typically supplied by the Architect and entered on the form by the Contractor.

CONTRACT FOR: This refers to the scope of the contract, such as "General Construction" or "Mechanical Work".

AFFIDAVIT: Indicate the state and county where the Affidavit is made. This is not necessarily the same location as the Project, but should be the location where the notary is authorized to administer sworn oaths. If there are any EXCEPTIONS to the statement, these should be listed in the space provided; otherwise enter as "None". It may be a stipulation of the Contract Documents that the Owner has the right to require the Contractor to furnish a bond to cover each exception listed on the Affidavit.

SUPPORTING DOCUMENTS: The AIA does not publish a "Release or Waiver of Liens" for contractors or subcontractors because of the great diversity of releases or waivers permitted by various state mechanics lien laws. Forms for such purposes may be available from local contractors' associations or may be written with the assistance of legal counsel.

D. EXECUTION OF THE DOCUMENT

The Notary Public should administer a sworn oath to the Contractor referencing the written statements appearing on G706A, and should duly sign and seal this document containing the Contractor's signature. G706A should be signed by the Contractor or the Contractor's authorized representative.

CONSENT OF SURETY TO FINAL PAYMENT

AIA Document G707

(Instructions on reverse side)

OWNER	<input type="checkbox"/>
ARCHITECT	<input type="checkbox"/>
CONTRACTOR	<input type="checkbox"/>
SURETY	<input type="checkbox"/>
OTHER	<input type="checkbox"/>

TO OWNER:
(Name and address)

ARCHITECT'S PROJECT NO.:

CONTRACT FOR:

PROJECT:
(Name and address)

CONTRACT DATED:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
(Insert name and address of Surety)

on bond of
(Insert name and address of Contractor)

, SURETY,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of
any of its obligations to
(Insert name and address of Owner)

as set forth in said Surety's bond.
, OWNER,

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:
(Insert in writing the month followed by the numeric date and year.)

(Surety)

(Signature of authorized representative)

Attest:
(Seal):

(Printed name and title)



CAUTION: You should sign an original AIA document that has this caution printed in red. An original assures that changes will not be obscured as may occur when documents are reproduced. See Instruction Sheet for Limited License for Reproduction of this document.



INSTRUCTION SHEET

FOR AIA DOCUMENT G707, CONSENT OF SURETY TO FINAL PAYMENT

A. GENERAL INFORMATION

1. Purpose

This document is intended for use as a companion to AIA Document G706, Contractor's Affidavit of Payment of Debts and Claims, on construction projects where the Contractor is required to furnish a bond. By obtaining the Surety's approval of final payment to the Contractor and its agreement that final payment will not relieve the Surety of any of its obligations, the Owner may preserve its rights under the bond.

2. Related Documents

This document may be used with most of the AIA's Owner-Contractor agreements and general conditions, such as A201 and its related family of documents. As noted above, this is a companion document to AIA Document G706.

3. Use of Current Documents

Prior to using any AIA document, the user should consult the AIA, an AIA component chapter or a current AIA Documents List to determine the current edition of each document.

4. Limited License for Reproduction

AIA Document G707 is a copyrighted work and may not be reproduced or excerpted from in substantial part without the express written permission of the AIA. The G707 document is intended to be used as a consumable—that is, the original document purchased by the user is intended to be consumed in the course of being used. There is no implied permission to reproduce this document, nor does membership in The American Institute of Architects confer any further rights to reproduce G707.

A cautionary notice is printed in red on the original of this document. This notice distinguishes an original AIA document from copies and counterfeits. To ensure accuracy and uniformity of language, purchasers should use only an original AIA document or one that has been reproduced from an original under a special limited license from the AIA.

A limited license is hereby granted to retail purchasers to reproduce a maximum of ten copies of a completed or executed G707, but only for use in connection with a particular project. Further reproductions are prohibited without the express permission of the AIA.

B. CHANGES FROM THE PREVIOUS EDITION

Changes in the location of various items of information were made, without revision to the substance of the document.

C. COMPLETING THE G707 FORM

GENERAL: The bond form is the usual source of required information such as the contract date and the names and addresses of the Surety, Owner, Contractor and Project.

ARCHITECT'S PROJECT NO.: This information is typically supplied by the Architect and entered on the form by the Contractor.

CONTRACT FOR: This refers to the scope of the contract, such as "General Construction" or "Mechanical Work".

D. EXECUTION OF THE DOCUMENT

The G707 form requires both the Surety's seal and the signature of the Surety's authorized representative.

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project Name:	Media Station Road
Awarding Agency:	Delaware County Public Works
Contract Award Date:	6/1/2020
Serial Number:	20-02538
Project Classification:	Highway
Determination Date:	3/23/2020
Assigned Field Office:	Philadelphia
Field Office Phone Number:	(215)560-1858
Toll Free Phone Number:	
Project County:	Delaware County

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 20-02538 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	5/29/2017		\$47.30	\$34.85	\$82.15
Asbestos & Insulation Workers	5/1/2018		\$49.30	\$35.85	\$85.15
Asbestos & Insulation Workers	5/1/2019		\$51.20	\$36.95	\$88.15
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2017		\$28.52	\$18.22	\$46.74
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2018		\$29.52	\$18.22	\$47.74
Boilermaker (Commercial, Institutional, and Minor Repair Work)	1/1/2019		\$29.26	\$18.48	\$47.74
Boilermakers	1/1/2018		\$46.26	\$33.36	\$79.62
Boilermakers	3/1/2018		\$45.89	\$33.73	\$79.62
Boilermakers	1/1/2019		\$45.51	\$34.11	\$79.62
Boilermakers	8/1/2019		\$47.21	\$34.11	\$81.32
Bricklayer	5/1/2017		\$40.98	\$26.78	\$67.76
Bricklayer	5/1/2018		\$43.73	\$26.78	\$70.51
Bricklayer	5/1/2019		\$46.48	\$26.78	\$73.26
Carpenter - Chief of Party (Surveying & Layout)	5/1/2017		\$45.25	\$27.59	\$72.84
Carpenter - Chief of Party (Surveying & Layout)	5/1/2018	4/30/2019	\$45.83	\$27.59	\$73.42
Carpenter - Chief of Party (Surveying & Layout)	5/1/2019		\$46.54	\$27.59	\$74.13
Carpenter - Chief of Party (Surveying & Layout)	5/1/2020		\$47.73	\$27.59	\$75.32
Carpenter - Instrument Person (Surveying & Layout)	5/1/2017		\$39.35	\$27.59	\$66.94
Carpenter - Instrument Person (Surveying & Layout)	5/1/2018	4/30/2019	\$39.85	\$27.59	\$67.44
Carpenter - Instrument Person (Surveying & Layout)	5/1/2019		\$40.47	\$27.59	\$68.06
Carpenter - Instrument Person (Surveying & Layout)	5/1/2020		\$41.50	\$27.59	\$69.09
Carpenter - Rodman (Surveying & Layout)	5/1/2017		\$19.68	\$19.64	\$39.32
Carpenter - Rodman (Surveying & Layout)	5/1/2018	4/30/2019	\$19.93	\$19.49	\$39.42
Carpenter - Rodman (Surveying & Layout)	5/1/2019		\$20.24	\$19.69	\$39.93
Carpenter - Rodman (Surveying & Layout)	5/1/2020		\$20.75	\$19.49	\$40.24
Carpenters	5/1/2017		\$39.35	\$27.59	\$66.94
Carpenters	5/1/2018	4/30/2019	\$39.85	\$27.59	\$67.44
Carpenters	5/1/2019	4/30/2020	\$40.87	\$27.59	\$68.46
Carpenters	5/1/2020		\$41.90	\$27.59	\$69.49
Cement Masons	5/1/2017		\$36.45	\$31.76	\$68.21
Cement Masons	5/1/2018		\$37.50	\$32.26	\$69.76
Cement Masons	5/1/2019		\$38.50	\$32.81	\$71.31
DockBuilder/Pile Drivers (Building, Heavy & Highway)	5/1/2018		\$43.45	\$34.47	\$77.92
Dockbuilder/Piledriver (Building, Heavy, Highway)	11/1/2017		\$43.45	\$33.22	\$76.67
Dockbuilder/Piledriver (Building, Heavy, Highway)	5/1/2018		\$44.70	\$33.22	\$77.92
Drywall Finisher	5/1/2017		\$37.11	\$26.75	\$63.86
Drywall Finisher	5/1/2018		\$39.27	\$27.49	\$66.76
Drywall Finisher	5/1/2019		\$37.75	\$28.11	\$65.86
Electricians	4/30/2017		\$56.50	\$36.24	\$92.74
Electricians	4/29/2018		\$58.33	\$37.41	\$95.74
Electricians	4/29/2019		\$59.79	\$38.95	\$98.74
Elevator Constructor	1/1/2018		\$55.76	\$33.05	\$88.81

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 20-02538 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Elevator Constructor	1/1/2020		\$59.44	\$35.25	\$94.69
Floor Coverer	5/1/2019		\$44.37	\$28.44	\$72.81
Floor Coverer	5/1/2020		\$46.01	\$28.44	\$74.45
Floor Layer	5/1/2017		\$42.51	\$27.91	\$70.42
Floor Layer	5/1/2018		\$43.11	\$28.09	\$71.20
Glazier	5/1/2017		\$41.30	\$31.80	\$73.10
Glazier	5/1/2018		\$43.32	\$32.33	\$75.65
Glazier	5/1/2019		\$43.87	\$33.38	\$77.25
Interior Finish	5/1/2019		\$30.20	\$25.80	\$56.00
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2017		\$47.30	\$32.91	\$80.21
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2018		\$51.46	\$30.60	\$82.06
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2019		\$49.30	\$34.41	\$83.71
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	1/1/2020		\$49.80	\$34.41	\$84.21
Iron Workers (Riggers)	7/1/2017		\$39.83	\$27.92	\$67.75
Ironworker (Rodman)	7/1/2017		\$42.56	\$29.30	\$71.86
Ironworker (Rodman)	7/1/2018		\$42.88	\$30.60	\$73.48
Ironworker (Rodman)	7/1/2019		\$43.88	\$30.85	\$74.73
Laborers (Class 01 - General)	5/1/2020		\$32.05	\$25.25	\$57.30
Laborers (Class 01 - See notes)	5/1/2017		\$28.65	\$24.95	\$53.60
Laborers (Class 01 - See notes)	5/1/2019		\$30.20	\$25.80	\$56.00
Laborers (Class 02 - See notes)	5/1/2017		\$30.85	\$25.65	\$56.50
Laborers (Class 02 - See notes)	5/1/2019		\$33.15	\$26.50	\$59.65
Laborers (Class 02 - see notes)	5/1/2020		\$35.15	\$26.15	\$61.30
Laborers (Class 03 - See notes)	5/1/2017		\$28.92	\$25.18	\$54.10
Laborers (Class 03 - See notes)	5/1/2019		\$30.52	\$25.98	\$56.50
Laborers (Class 03 - See notes)	5/1/2020		\$32.47	\$25.43	\$57.90
Laborers (Class 04 - See notes)	5/1/2017		\$28.95	\$24.95	\$53.90
Laborers (Class 04 - See notes)	5/1/2019		\$30.52	\$25.98	\$56.50
Laborers (Class 04 - See notes)	5/1/2020		\$32.47	\$25.43	\$57.90
Laborers (Class 05 - See notes)	5/1/2017		\$28.65	\$24.95	\$53.60
Laborers (Class 05 - See notes)	5/1/2019		\$30.20	\$25.80	\$56.00
Laborers (Class 05 - See notes)	5/1/2020		\$32.05	\$25.25	\$57.30
Landscape Laborer	5/1/2017		\$22.71	\$23.08	\$45.79
Landscape Laborer	5/1/2019		\$24.64	\$23.68	\$48.32
Landscape Laborer	5/1/2020		\$26.55	\$23.13	\$49.68
Marble Finisher	5/1/2017		\$35.55	\$24.17	\$59.72
Marble Finisher	5/1/2018		\$37.55	\$24.17	\$61.72
Marble Finisher	5/1/2019		\$39.75	\$24.17	\$63.92
Marble Mason	5/1/2017		\$40.36	\$26.99	\$67.35
Marble Mason	5/1/2018		\$43.11	\$26.99	\$70.10
Marble Mason	5/1/2019		\$45.86	\$26.99	\$72.85
Mason Tender, Cement	5/1/2019		\$30.52	\$25.98	\$56.50

BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGES PROJECT RATES

Project: 20-02538 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Millwright	7/1/2017		\$41.35	\$32.24	\$73.59
Millwright	5/1/2018		\$43.33	\$32.96	\$76.29
Millwright	5/1/2019		\$45.50	\$33.29	\$78.79
Operators (Building, Class 01 - See Notes)	5/1/2017		\$44.87	\$28.14	\$73.01
Operators (Building, Class 01 - See Notes)	5/1/2018		\$46.41	\$28.60	\$75.01
Operators (Building, Class 01 - See Notes)	5/1/2019		\$46.41	\$30.60	\$77.01
Operators (Building, Class 01 - See Notes)	5/1/2020		\$47.96	\$31.05	\$79.01
Operators (Building, Class 01 - See Notes)	5/1/2021		\$49.50	\$31.51	\$81.01
Operators (Building, Class 01A - See Notes)	5/1/2017		\$47.86	\$29.03	\$76.89
Operators (Building, Class 01A - See Notes)	5/1/2018		\$49.41	\$29.49	\$78.90
Operators (Building, Class 01A - See Notes)	5/1/2019		\$49.41	\$31.49	\$80.90
Operators (Building, Class 01A - See Notes)	5/1/2020		\$50.96	\$31.94	\$82.90
Operators (Building, Class 01A - See Notes)	5/1/2021		\$52.51	\$32.39	\$84.90
Operators (Building, Class 02 - See Notes)	5/1/2017		\$44.62	\$28.07	\$72.69
Operators (Building, Class 02 - See Notes)	5/1/2018		\$46.16	\$28.53	\$74.69
Operators (Building, Class 02 - See Notes)	5/1/2019		\$46.16	\$30.53	\$76.69
Operators (Building, Class 02 - See Notes)	5/1/2020		\$47.71	\$30.98	\$78.69
Operators (Building, Class 02 - See Notes)	5/1/2021		\$49.25	\$31.44	\$80.69
Operators (Building, Class 02A - See Notes)	5/1/2017		\$47.61	\$28.97	\$76.58
Operators (Building, Class 02A - See Notes)	5/1/2018		\$49.16	\$29.42	\$78.58
Operators (Building, Class 02A - See Notes)	5/1/2019		\$49.17	\$31.41	\$80.58
Operators (Building, Class 02A - See Notes)	5/1/2020		\$50.71	\$31.87	\$82.58
Operators (Building, Class 02A - See Notes)	5/1/2021		\$52.26	\$32.32	\$84.58
Operators (Building, Class 03 - See Notes)	5/1/2017		\$40.53	\$26.87	\$67.40
Operators (Building, Class 03 - See Notes)	5/1/2018		\$42.07	\$27.33	\$69.40
Operators (Building, Class 03 - See Notes)	5/1/2019		\$42.08	\$29.32	\$71.40
Operators (Building, Class 03 - See Notes)	5/1/2020		\$43.62	\$29.78	\$73.40
Operators (Building, Class 03 - See Notes)	5/1/2021		\$45.16	\$30.24	\$75.40
Operators (Building, Class 04 - See Notes)	5/1/2017		\$40.24	\$26.78	\$67.02
Operators (Building, Class 04 - See Notes)	5/1/2018		\$41.78	\$27.22	\$69.00
Operators (Building, Class 04 - See Notes)	5/1/2019		\$41.78	\$29.23	\$71.01
Operators (Building, Class 04 - See Notes)	5/1/2020		\$43.32	\$29.69	\$73.01
Operators (Building, Class 04 - See Notes)	5/1/2021		\$44.87	\$30.14	\$75.01
Operators (Building, Class 05 - See Notes)	5/1/2017		\$38.51	\$26.27	\$64.78
Operators (Building, Class 05 - See Notes)	5/1/2018		\$40.05	\$26.73	\$66.78
Operators (Building, Class 05 - See Notes)	5/1/2019		\$40.06	\$28.72	\$68.78
Operators (Building, Class 05 - See Notes)	5/1/2020		\$41.60	\$29.18	\$70.78
Operators (Building, Class 05 - See Notes)	5/1/2021		\$43.14	\$29.64	\$72.78
Operators (Building, Class 06 - See Notes)	5/1/2017		\$37.52	\$25.98	\$63.50
Operators (Building, Class 06 - See Notes)	5/1/2018		\$39.07	\$26.43	\$65.50
Operators (Building, Class 06 - See Notes)	5/1/2019		\$39.07	\$28.43	\$67.50
Operators (Building, Class 06 - See Notes)	5/1/2020		\$40.61	\$28.89	\$69.50
Operators (Building, Class 06 - See Notes)	5/1/2021		\$42.16	\$29.34	\$71.50
Operators (Building, Class 07A- See Notes)	5/1/2017		\$54.14	\$32.47	\$86.61

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 20-02538 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Building, Class 07A- See Notes)	5/1/2018		\$55.99	\$33.02	\$89.01
Operators (Building, Class 07A- See Notes)	5/1/2019		\$56.30	\$35.11	\$91.41
Operators (Building, Class 07A- See Notes)	5/1/2020		\$58.16	\$35.65	\$93.81
Operators (Building, Class 07A- See Notes)	5/1/2021		\$60.00	\$36.21	\$96.21
Operators (Building, Class 07B- See Notes)	5/1/2017		\$53.84	\$32.40	\$86.24
Operators (Building, Class 07B- See Notes)	5/1/2018		\$55.70	\$32.92	\$88.62
Operators (Building, Class 07B- See Notes)	5/1/2019		\$56.00	\$35.03	\$91.03
Operators (Building, Class 07B- See Notes)	5/1/2020		\$57.86	\$35.57	\$93.43
Operators (Building, Class 07B- See Notes)	5/1/2021		\$59.72	\$36.11	\$95.83
Painters Class 1 (see notes)	5/1/2017		\$37.82	\$26.46	\$64.28
Painters Class 1 (see notes)	5/1/2018		\$38.64	\$27.64	\$66.28
Painters Class 1 (see notes)	5/1/2019		\$39.04	\$28.99	\$68.03
Painters Class 1 (see notes)	2/1/2020		\$46.16	\$28.75	\$74.91
Painters Class 2 (see notes)	2/1/2017		\$53.67	\$26.09	\$79.76
Painters Class 2 (see notes)	2/1/2018		\$54.14	\$27.27	\$81.41
Painters Class 2 (see notes)	2/1/2019		\$55.52	\$28.39	\$83.91
Painters Class 2 (see notes)	2/1/2020		\$57.12	\$28.79	\$85.91
Plasterers	5/2/2017		\$37.42	\$28.83	\$66.25
Plasterers	5/1/2018		\$37.42	\$30.04	\$67.46
Plasterers	5/1/2019		\$37.72	\$30.74	\$68.46
plumber	5/1/2018		\$53.45	\$33.54	\$86.99
plumber	5/1/2019		\$55.45	\$34.54	\$89.99
Plumbers	5/1/2017		\$51.42	\$32.57	\$83.99
Pointers, Caulkers, Cleaners	5/1/2017		\$42.26	\$25.69	\$67.95
Pointers, Caulkers, Cleaners	5/1/2018		\$45.01	\$25.69	\$70.70
Pointers, Caulkers, Cleaners	5/1/2019		\$47.76	\$25.69	\$73.45
Roofers (Composition)	5/1/2017		\$36.15	\$30.22	\$66.37
Roofers (Composition)	5/1/2018		\$37.15	\$31.27	\$68.42
Roofers (Composition)	5/1/2019		\$38.35	\$31.80	\$70.15
Roofers (Shingle)	5/1/2016		\$25.70	\$19.17	\$44.87
Roofers (Shingle)	5/1/2019		\$28.50	\$20.87	\$49.37
Roofers (Slate & Tile)	5/1/2018		\$30.50	\$20.37	\$50.87
Roofers (Slate & Tile)	5/1/2019		\$31.50	\$20.87	\$52.37
Sheet Metal Workers	5/1/2017		\$46.42	\$39.51	\$85.93
Sheet Metal Workers	5/1/2018		\$47.58	\$41.60	\$89.18
Sheet Metal Workers	5/1/2019		\$49.79	\$42.89	\$92.68
Sprinklerfitters	1/1/2018		\$53.65	\$26.22	\$79.87
Sprinklerfitters	5/1/2019		\$57.20	\$28.32	\$85.52
Steamfitters	5/1/2017		\$54.64	\$32.53	\$87.17
Steamfitters	5/1/2018		\$56.37	\$34.39	\$90.76
Steamfitters	5/1/2019		\$58.17	\$35.99	\$94.16
Stone Masons	5/1/2017		\$40.36	\$26.99	\$67.35
Stone Masons	5/1/2018		\$43.11	\$26.99	\$70.10
Stone Masons	5/1/2019		\$45.86	\$26.99	\$72.85

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 20-02538 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Terrazzo Finisher	5/1/2017		\$39.06	\$22.73	\$61.79
Terrazzo Finisher	5/1/2018		\$41.31	\$22.73	\$64.04
Terrazzo Finisher	5/1/2019		\$43.61	\$22.73	\$66.34
Terrazzo Grinder	5/1/2017		\$39.33	\$22.73	\$62.06
Terrazzo Grinder	5/1/2018		\$41.58	\$22.73	\$64.31
Terrazzo Grinder	5/1/2019		\$43.88	\$22.73	\$66.61
Terrazzo Mechanics	5/1/2017		\$43.71	\$24.81	\$68.52
Terrazzo Mechanics	5/1/2018		\$46.46	\$24.81	\$71.27
Terrazzo Mechanics	5/1/2019		\$49.21	\$24.81	\$74.02
Tile Finisher	5/1/2017		\$35.55	\$24.17	\$59.72
Tile Finisher	5/1/2018		\$37.55	\$24.17	\$61.72
Tile Finisher	5/1/2019		\$39.75	\$24.17	\$63.92
Tile Setter	5/1/2017		\$43.71	\$24.81	\$68.52
Tile Setter	5/1/2018		\$46.46	\$24.81	\$71.27
Tile Setter	5/1/2019		\$49.21	\$24.81	\$74.02
Truckdriver class 1(see notes)	5/1/2017		\$30.46	\$17.96	\$48.42
Truckdriver class 1(see notes)	5/1/2018		\$31.93	\$17.96	\$49.89
Truckdriver class 1(see notes)	5/1/2019		\$32.21	\$19.19	\$51.40
Truckdriver class 1(see notes)	5/1/2020		\$34.93	\$17.96	\$52.89
Truckdriver class 1(see notes)	5/1/2021		\$36.48	\$17.96	\$54.44
Truckdriver class 2 (see notes)	5/1/2017		\$30.56	\$17.96	\$48.52
Truckdriver class 2 (see notes)	5/1/2018		\$32.03	\$17.96	\$49.99
Truckdriver class 2 (see notes)	5/1/2019		\$32.31	\$19.19	\$51.50
Truckdriver class 2 (see notes)	5/1/2020		\$35.03	\$17.96	\$52.99
Truckdriver class 2 (see notes)	5/1/2021		\$36.58	\$17.96	\$54.54
Truckdriver class 3 (see notes)	5/1/2017		\$30.81	\$17.96	\$48.77
Truckdriver class 3 (see notes)	5/1/2018		\$32.28	\$17.96	\$50.24
Truckdriver class 3 (see notes)	5/1/2019		\$32.56	\$19.19	\$51.75
Truckdriver class 3 (see notes)	5/1/2020		\$35.28	\$17.96	\$53.24
Truckdriver class 3 (see notes)	5/1/2021		\$36.83	\$17.96	\$54.79
Window Film / Tint Installer	6/1/2019		\$24.52	\$12.08	\$36.60

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 20-02538 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter - Chief of Party (Surveying & Layout)	5/1/2017		\$51.42	\$27.39	\$78.81
Carpenter - Chief of Party (Surveying & Layout)	5/1/2018	4/30/2019	\$53.20	\$27.69	\$80.89
Carpenter - Chief of Party (Surveying & Layout)	5/1/2019	4/30/2020	\$55.38	\$27.69	\$83.07
Carpenter - Chief of Party (Surveying & Layout)	5/1/2020	4/30/2021	\$57.63	\$27.69	\$85.32
Carpenter - Chief of Party (Surveying & Layout)	5/1/2021		\$59.93	\$27.69	\$87.62
Carpenter - Instrument Person (Surveying & Layout)	5/1/2017		\$44.71	\$27.39	\$72.10
Carpenter - Instrument Person (Surveying & Layout)	5/1/2018	4/30/2019	\$46.26	\$27.69	\$73.95
Carpenter - Instrument Person (Surveying & Layout)	5/1/2019	4/30/2020	\$48.16	\$27.69	\$75.85
Carpenter - Instrument Person (Surveying & Layout)	5/1/2020	4/30/2021	\$50.11	\$27.69	\$77.80
Carpenter - Instrument Person (Surveying & Layout)	5/1/2021		\$52.11	\$27.69	\$79.80
Carpenter - Rodman (Surveying & Layout)	5/1/2017		\$35.77	\$21.19	\$56.96
Carpenter - Rodman (Surveying & Layout)	5/1/2018	4/30/2019	\$37.01	\$21.34	\$58.35
Carpenter - Rodman (Surveying & Layout)	5/1/2019	4/30/2020	\$38.53	\$21.34	\$59.87
Carpenter - Rodman (Surveying & Layout)	5/1/2020	4/30/2021	\$40.09	\$21.34	\$61.43
Carpenter - Rodman (Surveying & Layout)	5/1/2021		\$41.69	\$21.34	\$63.03
Carpenter	5/1/2018	4/30/2019	\$46.26	\$27.69	\$73.95
Carpenter	5/1/2019	4/30/2020	\$47.81	\$28.04	\$75.85
Carpenter	5/1/2020	4/30/2021	\$49.76	\$28.04	\$77.80
Carpenter	5/1/2021		\$51.76	\$28.04	\$79.80
Carpenters	5/1/2017		\$44.71	\$27.39	\$72.10
Carpenters	5/1/2018		\$46.56	\$27.39	\$73.95
Carpenters	5/1/2019		\$48.46	\$27.39	\$75.85
Carpenters	5/1/2020		\$50.41	\$27.39	\$77.80
Carpenters	5/1/2021		\$52.41	\$27.39	\$79.80
Cement Masons	5/1/2017		\$34.45	\$31.51	\$65.96
Cement Masons	5/1/2018		\$35.65	\$32.01	\$67.66
Cement Masons	5/1/2019		\$37.90	\$31.51	\$69.41
Cement Masons	5/1/2020		\$39.70	\$31.51	\$71.21
Cement Masons	5/1/2021		\$41.55	\$31.51	\$73.06
Electric Lineman	5/29/2017		\$52.60	\$26.37	\$78.97
Electric Lineman	5/28/2018		\$53.64	\$27.45	\$81.09
Electric Lineman	5/27/2019		\$54.66	\$28.56	\$83.22
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	1/1/2017		\$46.20	\$31.26	\$77.46
Iron Workers	7/1/2017		\$47.30	\$32.91	\$80.21
Iron Workers	7/1/2019		\$49.30	\$34.41	\$83.71
Iron Workers	1/1/2020		\$49.80	\$34.41	\$84.21
Laborers (Class 01 - See notes)	5/1/2017		\$29.75	\$25.65	\$55.40
Laborers (Class 01 - See notes)	5/1/2018		\$31.25	\$25.65	\$56.90
Laborers (Class 01 - See notes)	5/1/2019		\$31.95	\$26.50	\$58.45
Laborers (Class 01 - See notes)	5/1/2020		\$33.95	\$26.15	\$60.10
Laborers (Class 01 - See notes)	5/1/2021		\$36.20	\$25.65	\$61.85
Laborers (Class 02 - See notes)	5/1/2017		\$29.95	\$25.65	\$55.60
Laborers (Class 02 - See notes)	5/1/2018		\$31.45	\$25.65	\$57.10
Laborers (Class 02 - See notes)	5/1/2019		\$32.15	\$26.50	\$58.65

BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGES PROJECT RATES

Project: 20-02538 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Laborers (Class 02 - See notes)	5/1/2020		\$34.15	\$26.15	\$60.30
Laborers (Class 02 - See notes)	5/1/2021		\$36.40	\$25.65	\$62.05
Laborers (Class 03 - See notes)	5/1/2017		\$29.95	\$25.65	\$55.60
Laborers (Class 03 - See notes)	5/1/2018		\$31.45	\$25.65	\$57.10
Laborers (Class 03 - See notes)	5/1/2019		\$32.15	\$26.50	\$58.65
Laborers (Class 03 - See notes)	5/1/2020		\$34.15	\$26.15	\$60.30
Laborers (Class 03 - See notes)	5/1/2021		\$36.40	\$25.65	\$62.05
Laborers (Class 04 - See notes)	5/1/2017		\$24.55	\$25.65	\$50.20
Laborers (Class 04 - See notes)	5/1/2018		\$26.05	\$25.65	\$51.70
Laborers (Class 04 - See notes)	5/1/2019		\$26.75	\$26.50	\$53.25
Laborers (Class 04 - See notes)	5/1/2020		\$28.75	\$26.15	\$54.90
Laborers (Class 04 - See notes)	5/1/2021		\$31.00	\$25.65	\$56.65
Laborers (Class 05 - See notes)	5/1/2017		\$30.60	\$25.65	\$56.25
Laborers (Class 05 - See notes)	5/1/2018		\$32.10	\$25.65	\$57.75
Laborers (Class 05 - See notes)	5/1/2019		\$32.80	\$26.50	\$59.30
Laborers (Class 05 - See notes)	5/1/2020		\$34.80	\$26.15	\$60.95
Laborers (Class 05 - See notes)	5/1/2021		\$37.05	\$25.65	\$62.70
Laborers (Class 06 - See notes)	5/1/2017		\$30.65	\$25.65	\$56.30
Laborers (Class 06 - See notes)	5/1/2018		\$32.15	\$25.65	\$57.80
Laborers (Class 06 - See notes)	5/1/2019		\$32.85	\$26.50	\$59.35
Laborers (Class 06 - See notes)	5/1/2020		\$34.85	\$26.15	\$61.00
Laborers (Class 06 - See notes)	5/1/2021		\$37.10	\$25.65	\$62.75
Laborers (Class 07 - See notes)	5/1/2017		\$30.50	\$25.65	\$56.15
Laborers (Class 07 - See notes)	5/1/2018		\$32.00	\$25.65	\$57.65
Laborers (Class 07 - See notes)	5/1/2019		\$32.70	\$26.50	\$59.20
Laborers (Class 07 - See notes)	5/1/2020		\$34.70	\$26.15	\$60.85
Laborers (Class 07 - See notes)	5/1/2021		\$36.95	\$25.65	\$62.60
Laborers (Class 08 - See notes)	5/1/2017		\$30.25	\$25.65	\$55.90
Laborers (Class 08 - See notes)	5/1/2018		\$31.75	\$25.65	\$57.40
Laborers (Class 08 - See notes)	5/1/2019		\$32.45	\$26.50	\$58.95
Laborers (Class 08 - See notes)	5/1/2020		\$34.45	\$26.15	\$60.60
Laborers (Class 08 - See notes)	5/1/2021		\$36.70	\$25.65	\$62.35
Laborers (Class 09 - See notes)	5/1/2017		\$30.10	\$25.65	\$55.75
Laborers (Class 09 - See notes)	5/1/2018		\$31.60	\$25.65	\$57.25
Laborers (Class 09 - See notes)	5/1/2019		\$32.30	\$26.50	\$58.80
Laborers (Class 09 - See notes)	5/1/2020		\$34.30	\$26.15	\$60.45
Laborers (Class 09 - See notes)	5/1/2021		\$36.55	\$25.65	\$62.20
Laborers (Class 10- See notes)	5/1/2017		\$30.25	\$25.65	\$55.90
Laborers (Class 10- See notes)	5/1/2018		\$33.30	\$25.65	\$58.95
Laborers (Class 10- See notes)	5/1/2019		\$32.45	\$26.50	\$58.95
Laborers (Class 10- See notes)	5/1/2020		\$34.45	\$26.15	\$60.60
Laborers (Class 10- See notes)	5/1/2021		\$36.70	\$25.65	\$62.35
Laborers (Class 11 -See Notes)	5/1/2017		\$30.15	\$25.65	\$55.80
Laborers (Class 11 -See Notes)	5/1/2018		\$31.55	\$25.65	\$57.20

BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGES PROJECT RATES

Project: 20-02538 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Laborers (Class 11 -See Notes)	5/1/2019		\$32.35	\$26.50	\$58.85
Laborers (Class 11 -See Notes)	5/1/2020		\$34.35	\$26.15	\$60.50
Laborers (Class 11 -See Notes)	5/1/2021		\$36.50	\$25.65	\$62.15
Laborers (Class 12 -See Notes)	5/1/2017		\$31.85	\$25.65	\$57.50
Laborers (Class 12 -See Notes)	5/1/2018		\$32.45	\$25.65	\$58.10
Laborers (Class 12 -See Notes)	5/1/2019		\$34.05	\$26.50	\$60.55
Laborers (Class 12 -See Notes)	5/1/2020		\$36.05	\$26.15	\$62.20
Laborers (Class 12 -See Notes)	5/1/2021		\$37.40	\$25.65	\$63.05
Laborers (Class 13 -See Notes)	5/1/2017		\$33.88	\$25.65	\$59.53
Laborers (Class 13 -See Notes)	5/1/2018		\$35.38	\$25.65	\$61.03
Laborers (Class 13 -See Notes)	5/1/2019		\$36.08	\$26.50	\$62.58
Laborers (Class 13 -See Notes)	5/1/2020		\$38.08	\$26.15	\$64.23
Laborers (Class 13 -See Notes)	5/1/2021		\$40.33	\$25.65	\$65.98
Laborers (Class 14 -See Notes)	5/1/2017		\$30.00	\$25.65	\$55.65
Laborers (Class 14 -See Notes)	5/1/2018		\$31.50	\$25.65	\$57.15
Laborers (Class 14 -See Notes)	5/1/2019		\$32.20	\$26.50	\$58.70
Laborers (Class 14 -See Notes)	5/1/2020		\$34.20	\$26.15	\$60.35
Laborers (Class 14 -See Notes)	5/1/2021		\$36.45	\$25.65	\$62.10
Laborers Utility (PGW ONLY) (Flagperson)	5/1/2017		\$23.52	\$17.58	\$41.10
Laborers Utility (PGW ONLY)	5/1/2017		\$30.55	\$17.58	\$48.13
Landscape Laborer	5/1/2016		\$21.19	\$22.65	\$43.84
Landscape Laborer	5/1/2019		\$24.22	\$23.50	\$47.72
Landscape Laborer	5/1/2020		\$26.13	\$22.95	\$49.08
Operators (Heavy, Class 05 - See Notes)	5/1/2019		\$40.06	\$28.72	\$68.78
Operators (Heavy, Class 06 - See Notes)	5/1/2019		\$39.07	\$28.43	\$67.50
Operators Class 01 - See Notes (Building, Heavy, Highway)	5/1/2017		\$44.87	\$28.14	\$73.01
Operators Class 01 - See Notes (Building, Heavy, Highway)	5/1/2018		\$46.41	\$28.60	\$75.01
Operators Class 01a - See Notes (Building, Heavy, Highway)	5/1/2017		\$47.86	\$29.03	\$76.89
Operators Class 01a - See Notes (Building, Heavy, Highway)	5/1/2018		\$49.41	\$29.49	\$78.90
Operators Class 02 - See Notes (Building, Heavy, Highway)	5/1/2017		\$44.62	\$28.07	\$72.69
Operators Class 02 - See Notes (Building, Heavy, Highway)	5/1/2018		\$46.16	\$28.53	\$74.69
Operators Class 02a - See Notes (Building, Heavy, Highway)	5/1/2017		\$47.61	\$28.97	\$76.58
Operators Class 02a - See Notes (Building, Heavy, Highway)	5/1/2018		\$49.16	\$29.42	\$78.58
Operators Class 03 - See Notes (Building, Heavy, Highway)	5/1/2017		\$40.53	\$26.87	\$67.40
Operators Class 03 - See Notes (Building, Heavy, Highway)	5/1/2018		\$42.07	\$27.33	\$69.40
Operators Class 04 - See Notes (Building, Heavy, Highway)	5/1/2017		\$40.24	\$26.78	\$67.02
Operators Class 04 - See Notes (Building, Heavy, Highway)	5/1/2018		\$41.78	\$27.22	\$69.00

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 20-02538 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Highway)					
Operators Class 05 - See Notes (Building, Heavy, Highway)	5/1/2017		\$38.51	\$26.27	\$64.78
Operators Class 05 - See Notes (Building, Heavy, Highway)	5/1/2018		\$40.05	\$26.73	\$66.78
Operators Class 06 - See Notes (Building, Heavy, Highway)	5/1/2017		\$37.52	\$25.98	\$63.50
Operators Class 06 - See Notes (Building, Heavy, Highway)	5/1/2018		\$39.07	\$26.43	\$65.50
Operators Class 07 (A) - See Notes (Building, Heavy, Highway)	5/1/2017		\$54.14	\$32.47	\$86.61
Operators Class 07 (A) - See Notes (Building, Heavy, Highway)	5/1/2018		\$55.99	\$33.02	\$89.01
Operators Class 07 (B) - See Notes (Building, Heavy, Highway)	5/1/2017		\$53.84	\$32.40	\$86.24
Operators Class 07 (B) - See Notes (Building, Heavy, Highway)	5/1/2018		\$55.70	\$32.92	\$88.62
Painters (Bridges, Stacks, Towers)	2/1/2017		\$53.67	\$26.09	\$79.76
Painters (Bridges, Stacks, Towers)	2/1/2018		\$54.14	\$27.27	\$81.41
Painters (Bridges, Stacks, Towers)	2/1/2019		\$55.52	\$28.39	\$83.91
Painters (Bridges, Stacks, Towers)	2/1/2020		\$57.12	\$28.79	\$85.91
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2017		\$51.91	\$32.53	\$84.44
Steamfitters	5/1/2018		\$56.37	\$34.39	\$90.76
Truckdriver class 1(see notes)	5/1/2017		\$30.31	\$17.96	\$48.27
Truckdriver class 1(see notes)	5/1/2018		\$31.78	\$17.96	\$49.74
Truckdriver class 1(see notes)	5/1/2019		\$32.06	\$19.19	\$51.25
Truckdriver class 1(see notes)	5/1/2020		\$34.78	\$17.96	\$52.74
Truckdriver class 1(see notes)	5/1/2021		\$36.33	\$17.96	\$54.29
Truckdriver class 2 (see notes)	5/1/2017		\$30.41	\$17.96	\$48.37
Truckdriver class 2 (see notes)	5/1/2018		\$31.88	\$17.96	\$49.84
Truckdriver class 2 (see notes)	5/1/2019		\$32.16	\$19.19	\$51.35
Truckdriver class 2 (see notes)	5/1/2020		\$34.88	\$17.96	\$52.84
Truckdriver class 2 (see notes)	5/1/2021		\$36.43	\$17.96	\$54.39
Truckdriver class 3 (see notes)	5/1/2017		\$30.66	\$17.96	\$48.62
Truckdriver class 3 (see notes)	5/1/2018		\$32.13	\$17.96	\$50.09
Truckdriver class 3 (see notes)	5/1/2019		\$32.41	\$19.19	\$51.60
Truckdriver class 3 (see notes)	5/1/2020		\$35.13	\$17.96	\$53.09
Truckdriver class 3 (see notes)	5/1/2021		\$36.68	\$17.96	\$54.64

Bidder Checklist

- Have you carefully read and agreed to the entire bid package?
- Have you returned complete Bid Submittal Forms (See Instructions to Bidders, Section 4)?
- Has an authorized agent of your firm signed the Signature Page of the Bid?
- Have you provided a Bid Bond, Certified or Cashier's Check or Cash equal to ten percent (10%) of the total bid with your bid?
- If you are submitting a bid bond, has it been signed by both the insurance company and an authorized official of your firm?
- Have you provided a signed Consent / Agreement of Surety with your Bid?
- Have you submitted a Non-Collusion Affidavit?
- Have you submitted AIA Document A305 – 1986, Contractor's Qualification Statement?
- Have you included a financial statement in accordance with AIA Document A305 – 1986, Section 5.1.1?
- Have you submitted your Affirmative Action Program? (Special Conditions No. 22)

AIA[®] Document A305[™] – 1986

Contractor's Qualification Statement

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

SUBMITTED TO:

ADDRESS:

SUBMITTED BY:

NAME:

ADDRESS:

PRINCIPAL OFFICE:

- ☐ Corporation
- ☐ Partnership
- ☐ Individual
- ☐ Joint Venture
- ☐ Other

NAME OF PROJECT: *(if applicable)* Template

TYPE OF WORK: *(file separate form for each Classification of Work)*

- ☐ General Construction
- ☐ HVAC
- ☐ Electrical
- ☐ Plumbing
- ☐ Other: *(Specify)*

§ 1 ORGANIZATION

§ 1.1 How many years has your organization been in business as a Contractor?

§ 1.2 How many years has your organization been in business under its present business name?

§ 1.2.1 Under what other or former names has your organization operated?

§ 1.3 If your organization is a corporation, answer the following:

§ 1.3.1 Date of incorporation:

§ 1.3.2 State of incorporation:

§ 1.3.3 President's name:

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. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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

This form is approved and recommended by the American Institute of Architects (AIA) and The Associated General Contractors of America (AGC) for use in evaluating the qualifications of contractors. No endorsement of the submitting party or verification of the information is made by AIA or AGC.

§ 1.3.4 Vice-president's name(s)

§ 1.3.5 Secretary's name:

§ 1.3.6 Treasurer's name:

§ 1.4 If your organization is a partnership, answer the following:

§ 1.4.1 Date of organization:

§ 1.4.2 Type of partnership (if applicable):

§ 1.4.3 Name(s) of general partner(s)

§ 1.5 If your organization is individually owned, answer the following:

§ 1.5.1 Date of organization:

§ 1.5.2 Name of owner:

§ 1.6 If the form of your organization is other than those listed above, describe it and name the principals:

§ 2 LICENSING

§ 2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

§ 2.2 List jurisdictions in which your organization's partnership or trade name is filed.

§ 3 EXPERIENCE

§ 3.1 List the categories of work that your organization normally performs with its own forces.

§ 3.2 Claims and Suits. (If the answer to any of the questions below is yes, please attach details.)

§ 3.2.1 Has your organization ever failed to complete any work awarded to it?

§ 3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

§ 3.2.3 Has your organization filed any law suits or requested arbitration with regard to construction contracts within the last five years?

§ 3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please attach details.)

§ 3.4 On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

§ 3.4.1 State total worth of work in progress and under contract:

§ 3.5 On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

§ 3.5.1 State average annual amount of construction work performed during the past five years:

§ 3.6 On a separate sheet, list the construction experience and present commitments of the key individuals of your organization.

§ 4 REFERENCES

§ 4.1 Trade References:

§ 4.2 Bank References:

§ 4.3 Surety:

§ 4.3.1 Name of bonding company:

§ 4.3.2 Name and address of agent:

§ 5 FINANCING

§ 5.1 Financial Statement.

§ 5.1.1 Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement showing the following items:

Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);

Net Fixed Assets;

Other Assets;

Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes);

Other Liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

§ 5.1.2 Name and address of firm preparing attached financial statement, and date thereof:

§ 5.1.3 Is the attached financial statement for the identical organization named on page one?

§ 5.1.4 If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

§ 5.2 Will the organization whose financial statement is attached act as guarantor of the contract for construction?

§ 6 SIGNATURE

§ 6.1 Dated at this day of

Name of Organization:

By:

Title:

§ 6.2

M being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn before me this day of

Notary Public:

My Commission Expires:

Additions and Deletions Report for **AIA[®] Document A305[™] – 1986**

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 10:39:17 on 10/16/2013.

PAGE 1

NAME OF PROJECT: *(if applicable)* Template

Certification of Document's Authenticity

AIA® Document D401™ – 2003

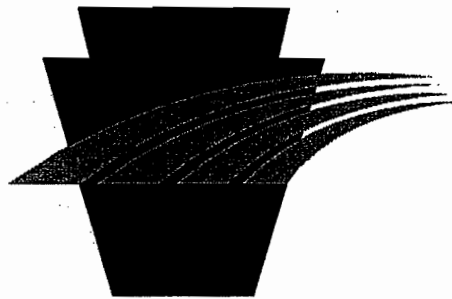
I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 10:39:17 on 10/16/2013 under Order No. 2365504816_1 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A305™ – 1986, Contractor's Qualification Statement, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)

(Title)

(Dated)

THE APPRENTICESHIP AND TRAINING ACT



DEPARTMENT OF
LABOR & INDUSTRY
COMMONWEALTH OF PENNSYLVANIA

BUREAU OF LABOR LAW COMPLIANCE

"THE APPRENTICESHIP AND TRAINING ACT"
Act of 1961, P.L. 604, No. 304

AN ACT

Relating to apprenticeship and training; creating a State Apprenticeship and Training Council in the Department of Labor and Industry to formulate an apprenticeship and training policy and program, and defining its powers and duties and providing for administration.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. Declaration of Policy.

It is declared to be the policy of this act,

(1) to encourage the development of an apprenticeship and training system through the voluntary cooperation of management and labor and interested State agencies and in cooperation with other states and the Federal Government;

(2) to provide for the establishment and furtherance of standards of apprenticeship and training to safeguard the welfare of apprentices and trainees;

(3) to aid in providing maximum opportunities for unemployed and employed persons to improve and modernize their work skills; and

(4) to contribute to a healthy economy by aiding in the development and maintenance of a skilled labor force sufficient in numbers and quality to meet the expanding needs of Pennsylvania industry and to attract new industry.

Section 2. Short Title.

This act shall be known and may be cited as "The Apprenticeship and Training Act."

Section 3. State Apprenticeship and Training Council.

There is hereby created a State Apprenticeship and Training Council (hereinafter called "The Council") as a departmental agency in the Department of Labor and Industry to be composed of eleven members who shall be appointed by the Governor. Four members shall be representatives of employees and four members shall be representatives of employers and three members shall be representatives of the general public. Members of the council, other than the ex-officio members, shall be appointed for a term of four years and until their successors are appointed, except that two of the original members shall be appointed for a term of one year, two for a term of two years, and two for a term of three years, and two for a term of four years. Members of the council shall be eligible for reappointment. In case of a vacancy, the Governor shall make an appointment for the unexpired term. A Deputy Secretary of the Department of Labor and Industry, the Director of the State Employment Service of the Bureau of Employment Security of the Department of Labor and Industry, the Executive Director of the Advisory Board on Problems of Older Workers of the Department of Labor and Industry, and the Coordinator of Industrial Education of the Department of Public Instruction, and Chief of the Bureau of Rehabilitation of the Department of Labor and Industry, shall be ex-officio members of the council but shall not be entitled to vote, except that in the event of a tie vote, the Deputy Secretary of Labor and Industry shall have the right to cast the tie-breaking vote. The council shall organize immediately upon its appointment, and annually thereafter, by the election of one of its members as chairman and another as vice-chairman, one of whom shall be a representative of employees and the other a representative of employers. Each member of the State Apprenticeship and Training Council, except ex-officio members, shall receive actual traveling expenses and per diem compensation at the rate of twenty-five dollars (\$25) per day for the time actually devoted to the business of the council.

Section 4. Powers and Duties.

(a) The council shall

(1) establish standards for apprenticeship in conformity with the provisions of this act and applicable statutes and regulations of the Federal Government;

(2) adopt such rules and regulations, subject only to the approval of the Secretary of Labor and Industry, as may be necessary to carry out the intent and purpose of this act;

(3) compile such data on population and employment trends, industrial production, vocational and industrial education and job requirements as may be deemed necessary to carry out the intent and purpose of this act;

(4) to terminate or cancel any apprenticeship agreements in accordance with the provisions of such agreements or order modifications of such agreements;

(5) maintain close liaison with Bureau of Apprenticeship and Training, the United States Department of Labor, the State Board of Vocational Education, the Department of Public Instruction, the Department of Commerce, Bureau of Rehabilitation of the Department of Labor and Industry, and Juvenile Forestry Camps under the Department of Public Welfare, and such other agencies which carry on programs closely related to the purposes of this act;

(6) conduct studies, surveys and investigations of the special problems of retraining or training unemployed or employed persons to improve or modernize work skills and make appropriate recommendations to cooperating agencies described above, local community organizations, local school boards and the Secretary of Labor and Industry;

(7) act as a convening agency in local communities to bring together local representatives of employees, employers, educational agencies and industrial development agencies in order to promote closer local cooperation in establishing better apprenticeship and other training programs including programs for employed persons who wish to improve and modernize their work skills;

(8) use appropriate media of information and education to acquaint employers, employees and the public at large with the advantages and availability of apprenticeship and other occupational training programs;

(9) study the effectiveness of apprenticeship agreements and make recommendations in accordance with the provisions of such agreements for their improvement; and

(10) perform such other duties as may be necessary to give full effect to the provisions of this act.

(b) The council shall make a report to the Secretary of the Department of Labor and Industry, on or before February fifteenth, each year, indicating the extent of apprenticeship and other occupational training programs during the previous year, trends in employment requiring adjustments in apprenticeship training and other occupational programs, needs for expansion of apprenticeship and other occupational training programs, activities of the council and such recommendations as are in accord with the purposes of this act.

(c) No action affecting the status of an agreement shall be taken by the council until an attempt has been made to bring the employees and employer together to settle the problem in conformity with the standards of the council.

Compiler's Note: The Department of Commerce, referred to in subsec. (a), was renamed the Department of Community and Economic Development by Act 58 of 1996.

Section 5. Meetings.

Meetings of the council shall be held monthly and as often as is necessary in the opinion of the majority of the council. The chairman shall designate the time and place of the meetings and the secretary shall notify all council members at least one week in advance of each meeting. A majority of the voting membership of the council shall constitute a quorum if at least one representative from both the employe and employer groups is present.

Section 6. Administration.

The Secretary of the Department of Labor and Industry shall appoint a Director of Apprenticeship and Training who shall be responsible to the Secretary of Labor and Industry in carrying out the provisions of this act and who shall serve as ex-officio secretary of the council. The Secretary of the Department of Labor and Industry is authorized to appoint or make available to the Director of Apprenticeship and Training such clerical, technical and professional services necessary to the performance of his duties.

Section 7. Director Duties.

The Director of Apprenticeship and Training shall carry out the purposes of this act. His duties shall include, but shall not be limited to,

- (1) encouragement and promotion of the standards established in accordance with this act and with the basic standards of the Federal Committee on Apprenticeship;
- (2) bringing about the settlement of differences arising out of apprenticeship agreements when the differences cannot be adjusted locally or in accordance with established trade procedure;
- (3) supervision of the execution of agreements and maintenance of standards;
- (4) registration of apprenticeship agreements as the council shall authorize as conforming to the established standards;
- (5) keeping a record of apprenticeship agreements and, upon performance thereof, issuing certificates of completion of apprenticeship;
- (6) execution of the actions of the council in all of its powers and duties under section 4 of this act;
- (7) encouragement of liaison and cooperation between all private, State and Federal agencies concerned with apprenticeship, trade and industrial training;
- (8) promotion of employe, employer and public awareness of apprenticeship and other occupational training; and
- (9) keeping a record of the progress of apprenticeship and training programs initiated in accordance with the provisions of this act and informing the council periodically as to the results.

Section 8. Limitation.

The provisions of this act shall apply only to persons, copartnerships, associations, corporations and political subdivisions, and employer associations or organizations or associations of employes as voluntarily elect to conform with its provisions.

Section 9. General Repeal.

All acts or parts of acts inconsistent herewith are hereby repealed.

Section 10. This act shall become effective June 1, 1961.

STATEMENTS OF POLICY

DEPARTMENT OF GENERAL SERVICES

[4 PA. CODE CH. 66]

Guidelines for Administering and Enforcing the Public Works Employment Verification Act

[42 Pa.B. 7821]

[Saturday, December 29, 2012]

The Department of General Services (Department) adopts a statement of policy in Chapter 66 (relating to employment verification—statement of policy) to read as set forth in Annex A. Chapter 66 implements the Public Works Employment Verification Act (act) (43 P. S. §§ 167.1—167.11).

Chapter 66 establishes guidelines for administering and enforcing the act, which requires public works contractors and subcontractors performing work on public works projects in this Commonwealth to comply with the Federal E-Verify program to ensure employees are authorized to work in the United States. The E-Verify program is a free Internet-based program operated by the United States Department of Homeland Security that compares information from an employee's Form I-9, Employment Eligibility Verification, to data from the United States Department of Homeland Security and Social Security Administration records to confirm employment eligibility. The purpose of this statement of policy is to establish guidelines for administering and enforcing the act.

Fiscal Impact

Civil penalties collected in the enforcement of the act will be retained by the Department to offset the costs of administering the Pennsylvania Public Works Employment Verification Program.

Effective Date

This statement of policy is effective January 1, 2013.

Contact Person

Specific questions regarding this statement of policy should be directed to the Department of General Services, Public Works Employment Verification Compliance Office, Room 105 Tent Building, Public Works Deputate, 18th and Herr Streets, Harrisburg, PA 17125.

SHERI PHILLIPS,
Secretary

(Editor's Note: Title 4 of the Pennsylvania Code is amended by adding statements of policy in §§ 66.1—66.9 to read as set forth in Annex A.)

Fiscal Note: 8-17. This action will not result in a loss of revenue to the Commonwealth or its political subdivisions. This program may increase program costs for the administration and enforcement; however, such costs will be offset by any civil penalties collected through the enforcement of the act.

Annex A

TITLE 4. ADMINISTRATION

PART III. DEPARTMENT OF GENERAL SERVICES

Subpart C. CONSTRUCTION AND PROCUREMENT

ARTICLE II. CONSTRUCTION

CHAPTER 66. EMPLOYMENT VERIFICATION—STATEMENT OF POLICY

Sec.

- 66.1. Background and purpose.
- 66.2. Scope of work subject to the act.
- 66.3. Definitions.
- 66.4. General requirements for public works contractors and subcontractors.
- 66.5. Specific requirements for public works contractors.
- 66.6. Specific requirements for public works subcontractors.
- 66.7. Public Works Employment Verification Form.
- 66.8. Violations.
- 66.9. Enforcement.

§ 66.1. Background and purpose.

(a) To prevent unauthorized employment, the Federal government created the EVP system to ensure that companies employ a legal workforce. The EVP system is an Internet-based system operated by the United States Department of Homeland Security that compares information from an employee's Form I-9, Employment Eligibility Verification, to data from United States Department of Homeland Security and Social Security Administration records to confirm employment eligibility.

(b) The purpose of this chapter is to set forth the Department's policy guidelines for the scope, administration and enforcement of the act.

(c) The Department is responsible to implement the Commonwealth's process of notification, investigation and compliance with the act. Contractors and subcontractors performing work on a public works project shall comply with the act as set forth in this chapter by utilizing the EVP.

§ 66.2. Scope of work subject to the act.

(a) The act applies to public works contractors and subcontractors performing on a public works contract paid for in whole or in part out of the funds of a public body when the cost of the total project is in excess of \$25,000.

(b) The cost of the total project must include the sum of prime contracts to be issued by the public body for the project.

(c) To the extent the cost of the total project is in excess of \$25,000, contracts and subcontracts, regardless of value, shall comply with the act.

(d) The act does not apply to work performed under a manpower or rehabilitation training program.

§ 66.3. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Act—The Public Works Employment Verification Act (43 P. S. §§ 167.1—167.11).

Contract—A type of written agreement, regardless of what it may be called, for the procurement of construction work.

Department—The Department of General Services of the Commonwealth.

EVP—E-Verify program—The program operated by the United States Department of Homeland Security that electronically verifies employment eligibility.

Employee—An individual hired by a public works contractor or a subcontractor after January 1, 2013, for whom a public works contractor or subcontractor is required by law to file a Form W-2 with the Internal Revenue Service.

Form—Public Works Employment Verification Form.

Maintenance work—Annual inspection or routine upkeep of an existing facility which does not alter the use or size of the facility.

Public body—The Commonwealth of Pennsylvania, its political subdivisions, authorities created by the General Assembly of the Commonwealth and instrumentalities or agencies of the Commonwealth.

Public works—

(i) The construction, reconstruction, demolition, alteration or repair work other than maintenance work done under contract and paid for in whole or in part out of the funds of a public body when the estimated cost of the total project is in excess of \$25,000.

(ii) The term does not include work performed under a manpower or rehabilitation training program.

Public works contractor—A contractor that provides work under a contract involving public works.

Secretary—The Secretary of the Department.

Subcontractor—

(i) A person, other than a natural person, including a staffing agency, that performs work for a public works contractor under a contract for public works.

(ii) The term includes subcontractors of every level, that is, sub-subcontractors, sub-sub-subcontractors, and the like.

(iii) The term does not include persons that supply materials for a project.

Willful—An action or conduct undertaken intentionally or with reckless disregard for or deliberate ignorance of the requirements and obligations established under the act.

§ 66.4. General requirements for public works contractors and subcontractors.

(a) Public works contractors and every subcontractor performing work under a public works contract shall utilize the EVP system to verify the employment eligibility of each new employee hired after January 1, 2013.

(b) Public works contractors and every subcontractor performing work under a public works contract shall submit the Form to the contracting public body to ensure compliance with the act.

(c) In addition to the Form, public works contractors and every subcontractor shall maintain documentation of continued compliance with the act by utilizing the EVP for new employees hired throughout the duration of the public work contract.

§ 66.5. Specific requirements for public works contractors.

(a) As a precondition to the award of a contract for public work, a public works contractor shall submit a completed Form to the public body that is bidding and awarding the public work contract. With respect to a contract that has been awarded but has not been fully executed as of January 1, 2013, a public works contractor is required to submit a completed Form to the contracting public body prior to contract execution. During a public works contract, a new employee hired by a public works contractor, regardless of whether he will be working onsite or offsite of a public work or otherwise, shall be verified within 5 business days of his start date.

(b) Subcontracts between a public works contractor and its subcontractors are required to contain notification of the applicability of the act, information regarding the use of EVP and reference to the Department's web site at www.dgs.state.pa.us to obtain a copy of the Form.

(c) A public works contractor shall cooperate with the Department during an investigation or audit arising under the act.

§ 66.6. Specific requirements for public works subcontractors.

(a) Prior to beginning either onsite or offsite work on a public works project when the public works contractor's contract was executed after January 1, 2013, every subcontractor shall submit a completed Form to the contracting public body. During a public works contract, a new employee hired by a public works subcontractor, regardless of whether he will be working onsite or offsite of a public work or otherwise, shall be verified within 5 business days of his start date.

(b) Subcontracts between a subcontractor and its subcontractors are required to contain notification of the applicability of the act, information regarding the use of EVP and reference to the Department's web site at www.dgs.state.pa.us to obtain a copy of the Form.

(c) A subcontractor shall cooperate with the Department during an investigation or audit arising under the act.

§ 66.7. Public Works Employment Verification Form.

(a) The Form for use by public bodies, public works contractors and subcontractors is posted on the Department's web site at www.dgs.state.pa.us. The Form may not be changed or altered.

(b) The Form shall be signed by an authorized representative of the public works contractor or subcontractor. The representative shall have sufficient knowledge to make the representations and certifications in the Form.

(c) The Department may require the public works contractor or subcontractor to provide supporting documentation that the representative signing the Form had authority to legally bind the public works contractor or subcontractor.

(d) The submitted Forms shall be retained by the public body for the duration of the public work contract.

§ 66.8. Violations.

A public works contractor or subcontractor violates the act if it does either of the following:

(1) Fails to verify the employment eligibility of a new employee hired after January 1, 2013, through EVP in accordance with the act and this chapter.

(2) Makes a false statement or misrepresentation in connection with the completion or submission of the Form to a public body.

§ 66.9. Enforcement.

The Department will enforce the act through investigations, audits, sanctions and civil penalties in accordance with the following guidelines.

(1) *Investigations of complaints.* The Department will accept, review and investigate timely and credible complaints filed on the Complaint Form posted on the Department's web site.

(i) A complaint must contain sufficient information to enable the Department to investigate the allegation. The Department reserves the right to reject complaints that do not provide sufficient information. The Department will consider the timeliness of the complaint in assessing its credibility.

(ii) Public bodies, public works contractors and subcontractors shall cooperate with the Department during the investigation of a complaint.

(2) *Audits.* The Department will conduct complaint-based and random audits of public works contractors and subcontractors performing a public works contract for a public body in this Commonwealth. The Department reserves the right to determine the time, place and nature of audits.

(i) Public bodies, public works contractors and subcontractors shall cooperate with the Department during an audit.

(ii) Upon an audit, the Department may request, and the public works contractors and subcontractors shall provide, the following:

(A) Documentation of the date of hire of all employees.

(B) Documentation of compliance with the act through the utilization of EVP.

(C) Other information required by the Department to ensure compliance with the act and utilization of EVP.

(3) *Sanctions.*

(i) If the Department's investigation determines that a public works contractor or subcontractor failed to verify an employee through the use of EVP in accordance with the act and this chapter, the Department will issue sanctions as follows:

(A) *First violation.* The Department will issue a warning letter to the public works contractor or subcontractor detailing the violation. This letter will be posted on the Department's E-Verify web site at www.dgs.state.pa.us. A violation by a public works contractor or subcontractor that occurs 10 years or more after a prior violation will be deemed to be a first violation for purposes of sanctions.

(B) *Second violation.* The Department will initiate debarment proceedings against the public works contractor or subcontractor. Once final, these proceedings will prevent a public works contractor or subcontractor from submitting a bid or being awarded a contract

or subcontract on a public works contract in this Commonwealth for 30 calendar days from the date of debarment.

(C) *Third and subsequent violations.* The Department will initiate debarment proceedings against the public works contractor or subcontractor. Once final, these proceedings will prevent a public work contractor or a subcontractor from submitting a bid or being awarded a contract or subcontract on a public works contract in this Commonwealth for not less than 180 days and not more than 1 year from the date of debarment.

(ii) *Willful violation.* If the Department investigates and forms a reasonable belief that there has been a willful violation of the act, the Secretary will file a petition in Commonwealth Court seeking the Court to issue a rule to show cause why a public works contractor or subcontractor did not engage in a willful violation of the act. If the Court finds that there was a willful violation, the Department will petition to have the public works contractor or subcontractor debarred from public work contracts for 3 years from the date of the Court's determination.

(4) *Civil penalties.* If the Secretary or a designee makes a written determination that the violation is for failing to submit a complete Form or making a false statement or misrepresentation in the Form, the Department will assess a civil penalty of not less than \$250 and not more than \$1,000 for each violation. The amount of the penalty is at the Department's discretion. The Department will consider the severity of the violation, and prior violations in imposing civil penalties.

(5) *Notice and appeal.* Sanctions or civil penalties imposed by the Department, other than those violations found to be willful, are subject to the notice, appeal and other provisions of 2 Pa.C.S. (relating to administrative law and procedure).

[Pa.B. Doc. No. 12-2525. Filed for public inspection December 28, 2012, 9:00 a.m.]

No part of the information on this site may be reproduced for profit or sold for profit.

This material has been drawn directly from the official *Pennsylvania Bulletin* full text database. Due to the limitations of HTML or differences in display capabilities of different browsers, this version may differ slightly from the official printed version.



webmaster@PaBulletin.com



COMMONWEALTH OF PENNSYLVANIA

PUBLIC WORKS EMPLOYMENT VERIFICATION FORM

Date _____

Business or Organization Name (Employer) _____

Address _____

City _____ State _____ Zip Code _____

☐ Contractor ☐ Subcontractor (check one)

Contracting Public Body _____

Contract/Project No _____

Project Description _____

Project Location _____

As a contractor/subcontractor for the above referenced public works contract, I hereby affirm that as of the above date, our company is in compliance with the Public Works Employment Verification Act ('the Act') through utilization of the federal E-Verify Program (EVP) operated by the United States Department of Homeland Security. To the best of my/our knowledge, all employees hired post January 1, 2013 are authorized to work in the United States.

It is also agreed to that all public works contractors/subcontractors will utilize the federal EVP to verify the employment eligibility of each new hire within five (5) business days of the employee start date throughout the duration of the public works contract. Documentation confirming the use of the federal EVP upon each new hire shall be maintained in the event of an investigation or audit.

I, _____, authorized representative of the company above, attest that the information contained in this verification form is true and correct and understand that the submission of false or misleading information in connection with the above verification shall be subject to sanctions provided by law.

Authorized Representative Signature

EMPLOYEE BACKGROUND CHECK

- A. All contractors are advised that the County of Delaware requires employee background checks in accordance with Act 34 of 1985 Background Clearance Procedures 24 PS1-111, as amended (Act 114 of 2006, Act 70 of 2004, Act 48 of 2003, Act 153 of 2002, Act 30 of 1997, and Act 211 of 1990) 22 PA Code Chapter 8, as amended, Act 43 Public Works Employment Verification Act 43 PS-167.1-167.11, and Act 151 of 1997 (Child Abuse), as amended. Contractor shall include in his bid all costs associated with obtaining and maintaining currency of these clearance reports.
- B. Information of the PA State Criminal History can be obtained via the PA State Police website at <http://www.psp.state.pa.us/psp/cwp/view.asp? A=4&0=48275>.
- C. Information on the Federal (FBI) Criminal History Report (as of March 30, 2007) can be found at www.pa.cogentid.com.
- D. Information on the Public Works Employment Verification Act can be obtained from the Department of General Services, Public Works Employment Verification Compliance Office, Room 105 Tent Building, Public Works Department, 18th & Herr Streets, Harrisburg, PA 17125.
- E. Child Abuse Reports Information can be obtained through the PA Department of Public Welfare at <http://www.dpw.state.pa.us/general/formspub/003671038.htm>.

APPENDIX O

Delaware County Political Contribution Disclosure Form

Background: Under Section 6-12.E of the Administrative Code of Delaware County, Contractors under certain Covered Contracts are required to provide this Disclosure Form in connection with consideration of approval of such Covered Contract by County Council. ***Definitions of Contractor, Covered Contract, and certain other terms used in this Disclosure Form, as well as additional instructions for its completion, are set forth in Exhibit A attached hereto.***

Political Contribution Disclosure: Within the past twenty-four (24) months, Contractor* has:

_____ **NOT** made any Reportable Contributions.

_____ made Reportable Contributions as set forth on Schedule A attached hereto.

**Includes entities and persons related to a Contractor whose contributions are also required to be reported, as further described in the definition of "reportable contribution" on Exhibit A.*

Type of Business Entity

Corporation _____	LLC _____	Sole Proprietorship _____	Other: _____ (describe)
Limited Partnership _____	Partnership _____	LLP _____	_____

Certification: In order for this Disclosure Form to be considered validly submitted, it must be properly signed by the Contractor or an officer or employee of the Contractor that is authorized to make this certification. Disclosure Forms that are not properly signed will not be considered as responsive to the requirements of the Delaware County Administrative Code.

By executing below, you:

- (1) Declare and certify that you are the Contractor or an employee or officer of the Contractor and duly authorized to execute this Disclosure Form.
- (2) Represent and warrant that, to the best of your knowledge after appropriate inquiry, all of the information and disclosures provided are true and contain no material misstatement or omissions.
- (3) Acknowledge and agree to comply with the provisions described in Exhibit A.

Name of Contractor: _____

By: _____

Name:

Title:

Date:

Exhibit A
Delaware County
Political Contribution Disclosure Form

Definitions and Instructions

Timing.

Contracts subject to an RFP/Q, Invitation to Bid or other Solicitation – the Solicitation will have explicit instructions on when and how to submit this Disclosure Form. Please follow those instructions.

Other Contracts -- Disclosure Forms must be received by the County at least eight (8) days prior to the County Council meeting at which the approval of a contract will be considered. They should be submitted by e-mail to CentralPurchasing@co.delaware.pa.us.

In either case, failure to timely provide this Disclosure Form may delay consideration of your contract by County Council.

Public Posting; Right to Know Law.

The Disclosure Form for the selected Contractor is sought will be posted on the County website prior to the County Council meeting at which approval of the Covered Contract will be considered and included in the Agenda materials for such meeting.

The County will also provide copies of Disclosure Forms (whether or not the Contractor is awarded a Covered Contract) in response to requests under the Pennsylvania Right to Know Law.

Ongoing Reporting.

By January 30 of each year, commencing January 1, 2023, each Covered Contractor under a Covered Contract with a term exceeding one year is required to provide the County Clerk with an updated Disclosure Form showing any reportable contributions in the prior year or indicating that there are none. If a Contractor does not provide the required disclosure form within thirty (30) days of written notification from the County Solicitor of its failure to timely provide such form, the applicable Covered Contract is subject to being voided by County Council.

Penalties.

Any Contractor which fails to provide the Disclosure Form or which submits a Disclosure Form which is materially inaccurate may be banned as a contractor or subcontractor to the County for a period of up to three (3) years, and/or, to the extent legally permitted, the covered contract in question may be terminated, in each case, by a majority vote of County Council following such investigation and consideration of such evidence as County Council deems appropriate or by action of such other entity or body as may be designated by resolution of County Council.

Definitions.

“Contractor” means any non-governmental person, corporation, partnership, association or other entity, whether or not for profit, and includes any subcontractor which is reasonably anticipated to receive compensation of \$50,000 or more under the applicable Covered Contract. ***See the definition of “Reportable Contribution” below for entities and persons related to a contractor whose contributions are also required to be reported.***

“Covered Candidate” means any individual who seeks nomination or election to the following offices by vote of the electorate (whether or not such individual is nominated or elected): (1) County Council, District Attorney, Sheriff, Controller or Register of Wills in Delaware County; (2) Judge of the Court of Common Pleas of Delaware County or the Magisterial District Courts of Delaware County; (3) any seat in the Pennsylvania General Assembly which represents residents of Delaware County; or (4) any state-wide office in Pennsylvania (non federal).

An individual shall be deemed to be seeking nomination or election to an office if such individual has:

- (1) received a contribution or made an expenditure or given consent for any other person or committee to receive a contribution or make an expenditure for the purpose of influencing his nomination or election to such office, whether or not the individual has announced the specific office for which he or she will seek nomination or election at the time the contribution is received or the expenditure is made; or
- (2) taken the action necessary under the laws of Pennsylvania to qualify for nomination or election to such office.

The term shall include individuals nominated or elected as write-in candidates unless they resign such nomination or elected office within 30 days of having been nominated or elected.

“Covered Contract” means any contract, agreement, memorandum of understanding or other arrangement which is (i) required to be approved by County Council and (ii) under which a Covered Contractor provides or leases goods, supplies, materials, equipment, consulting, professional or other services, and/or property to the County, whether or not payments under the Covered Contract are anticipated to be made from general revenues or another specified source of funds, but does not include grant agreements under which the County is the grantee.

“Political contribution” means any advance, conveyance, deposit, distribution, transfer of funds, loan, payment, pledge, purchase of a ticket to a testimonial or similar fund-raising affair, or subscription of money or anything of value, except volunteer services, in connection with a political campaign, and any contract, agreement, promise or other obligations, whether or not legally enforceable, to make a political contribution.

“Reportable Contribution” means a political contribution, to:

- (A) A Covered Candidate.
- (B) Any Pennsylvania state committee of a political party, any County committee of a political party or any committee of a political party established at the municipal level for a municipality in the County.
- (C) A contribution to a political action committee with the intent or expectation that some or all of such contribution will be directed to a covered candidate. This intent shall be presumed if a political action committee only supports one or more covered candidates.
- (D) A contribution to a political action committee controlled by a person or entity described in clauses (1) through (5) below.

Reportable contributions include contributions by: (1) a Contractor; (2) any corporate parent, subsidiary or other affiliate of a Contractor; (3) an officer or director of a Contractor; (4) a shareholder or partner of a Contractor with a 5% or greater ownership interest; and (5) the spouse of any person or entity listed in the preceding clauses; and shall also include any contribution reimbursed by a person or entity listed in clauses (1) through (5).

Questions.

Questions regarding the Disclosure Form may be directed to CentralPurchasing@co.delaware.pa.us.

**Schedule A
Delaware County
Political Contribution Disclosure Form**

Reportable Contributions within Past 24 Months

Name of Contractor: _____

Date: _____

<u>Contributor*</u>	<u>Candidate</u>	<u>Date</u>	<u>Amount</u>	<u>Relationship of Contributor to Contractor</u>

**Reporting required for Contractor and all other entities and persons related to Contractor whose contributions are also required to be reported, as further described in the definition of “reportable contribution” on Exhibit A.*

DIVERSITY BUSINESS ENTERPRISE PROGRAM (DBE) PROGRAM

For DBE tracking purposes, the County requests that prime contractors who are bidding, proposing, or submitting statements of qualifications record whether or not they plan to employ DBE's as sub-contractors or consultants. With that in mind, please fill out, sign and submit (with your bid/proposal) the following subcontractor/ consultant statement.

COUNTY OF DELAWARE DIVERSITY BUSINESS DEFINITIONS

Diversity Business Enterprise (DBE's) are minority-owned (MOB), women-owned (WOB), service disabled veteran-owned (SDVO), and small businesses (SB), who are impeded from normal entry into the economic mainstream because of past practices of discrimination based on race or ethnic background. These persons must own at least 51% of the entity and operate or control the business on a daily basis.

Minority: A person who is a citizen or lawful admitted permanent resident of the United States and who is a member of one (1) of the following groups:

- a. African American, persons having origins in any of the Black racial groups of Africa;
- b. Hispanic American, persons of Mexican, Puerto Rican, Cuban, Central or South American of either Indian or Hispanic origin, regardless of race;
- c. Native American or Alaskan native, persons who have origin in any of the original peoples of North America
- d. Asian American, person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

Minority-owned business (MOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or more minority individuals.

Woman-owned business (WOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or more women.

Service-Disabled Veteran-owned business (SDOV) is a continuing, independent, for profit business that performs a commercially useful function, owned by any person who served honorably on active duty in the armed forces of the United States with at least a twenty percent (20%) disability that is service connected. Meaning such disability was incurred or aggravated in the line of duty in the active military, naval or air service, and is at least fifty-one percent (51%) owned and controlled by one (1) or more service-disabled veteran.

Small Business (SB) is a continuing, independent, for profit business which performs a commercially useful function and has total gross receipts of not more than ten million dollars (\$10,000,000) average over a three-year period or employs no more than ninety-nine (99) persons on a full-time basis.

Subcontractor/Consultant Statement
(TO BE SUBMITTED IN THE BID/PROPOSAL ENVELOPE)

We _____ do certify that on the
(Bidder/Proposer Company Name)

(Project Name)

\$ _____
(Amount of Bid)

Please select one:

☐ **Option A: Intent to subcontract using Diversity Businesses**

A Diversity Business will be employed as subcontractor(s), vendor(s), supplier(s), or professional service(s). The estimated dollar value of the amount that we plan to pay is: \$ _____.
Estimated Amount of Subcontracted Service

Diversity Business Enterprise Utilization

Description of Work/Project	Amount	Diverse Classification (MOB, WOB, SB, SDOV)	Name of Diverse Business

☐ **Option B: Intent to perform work without using Diverse Businesses**

No Diversity Business will be employed as subcontractor(s), vendor(s), supplier(s), or professional service(s).

DATE: _____ COMPANY NAME: _____

SUBMITTED BY: _____ TITLE: _____
(Authorized Representative)

ADDRESS: _____

CITY/STATE/ZIP CODE: _____

TELEPHONE NO: _____