

Request for Sealed Bids

Reading Housing Authority (RHA) will receive **Multiple Prime** sealed bids for the improvements and renovations of the **Oakbrook Center for Early Education, located at 1000 Patton Ave.** until **11:00 A.M. on Tuesday, October 13, 2026**, on www.pennbid.net at which time all bids will be publicly opened on www.pennbid.net. Bids received after this time will not be considered. Bids shall be submitted on the basis of a stipulated sum. Bids will be received for separate General Construction, Plumbing Construction and Electrical Construction Contracts. The Owner also reserves the right to reject any and/or all bids for any reason or reasons whatsoever.

On **Wednesday, September 23, 2026, at 10:00 A.M.**, RHA will conduct an on-site pre-bid conference at the Willis Center for Administration, located at 400 Hancock Blvd., Reading, Pa 19611. All interested bidders are encouraged to attend both the pre-bid conference and site visit.

Copies of bidding documents are available to qualified contractors at pennbid.net. Questions about technical specifications can be asked on pennbid.net. Questions about HUD forms, bid forms, etc. or pennbid.net can be emailed to Purchasing Officer, Steve Notario, at contracts@readingha.org. All requests for information are to be submitted in writing on www.pennbid.net before **11:00 AM on Friday, October 2, 2026**.

Advertisement Dates

September 11 – Friday

September 14 – Monday

SPECIAL CONDITIONS

1. **PROPOSALS:** All bids must be submitted on www.pennbid.net and shall be subject to all requirements of the Specifications and the Instruction to Bidders form.
2. **ALTERNATE BIDS:** No alternate bids will be accepted, unless otherwise specified.
3. **VISIT TO SITE:** Contractor shall visit the site and familiarize itself with all conditions and limitations. The submission of a proposal is evidence that such an examination has been made and later claims or difficulties encountered that could have been foreseen if an examination had been made will not be recognized.
4. **WORKING HOURS:** Service under these specifications shall be performed during normal working hours - 8:00 a.m. to 4:30 p.m. and regular working days - Monday through Friday.
5. **PRECAUTIONS:** Provide such protections and precautions as might be required by any party having jurisdiction for protection of life and property such as barricades, lights, warning signs, guard, etc. Remove such precautions when directed. The contractor shall maintain such barricades satisfactory to the RHA to isolate the work in order that the continual operations of the facilities are interfered with as little as possible.
6. **SANITARY FACILITIES:** The RHA **will not** provide the contractor with facilities on this project at the Maintenance shop for each site. Contractor is responsible to maintain cleanliness of area being used.
7. **WORKMANSHIP AND CLEAN UP:** Work shall be performed in strict accordance with the covenants, terms and conditions of this Contract. All workmanship shall be first class following accepted trade standards.

During the course of the work, do not allow debris to accumulate, but have it removed at once. Removal shall be done in a manner to avoid spillage. Police the premises to maintain cleanliness. Premises shall be left in a condition acceptable to RHA. Any damage to exteriors or landscaping will be repaired or replaced by the contractor.

8. **SAFETY REQUIREMENTS:** Maintain project in accord with local safety codes. Hazard Control – store volatile wastes in covered metal containers and remove from premises daily. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws. Do not burn or bury rubbish and waste materials on project site.
9. **PARKING:** Parking is limited at these locations therefore designated parking cannot be assigned.
10. **PERMITS – LOCAL TAXES:** The contractor shall give all requisite notices, obtain and pay for all permits and pay for all fees or taxes imposed by the Local Governing Body for the completion of this project.
11. **VEHICULAR TRAFFIC:** Damages to sidewalks and landscaping are the responsibility of the contractor.
12. **TERMS OF PAYMENT:** The RHA shall make payments approximately every 30 days as the work proceeds. RHA will process payment within 30 days of approval of payment requests submitted on form Periodic Estimate for Partial Payment HUD-51001.

13. **INSURANCE:** The RHA is to be added as an additionally named insured to the Contractors Comprehensive General Liability of no less than \$1,000,000.00 and Automobile Liability Coverage of \$500,000.00.
14. The contractor is responsible for all damage or loss by fire, theft or otherwise, to their materials, tools, equipment and consumables, left on RHA property by the Contractor.
15. All disputes between the parties shall be resolved in accordance with the HUD General Conditions Form 5370.
16. This Agreement is considered a non-exclusive Agreement between the parties.
17. This Agreement is deemed to be under and shall be governed by, and construed according to, the laws of the State of Pennsylvania.
18. Any litigation arising out of this Agreement shall be had the Courts of Berks County, Pennsylvania
19. Questions regarding the job site and existing conditions:

Rory Ulrich, Maintenance Superintendent - 484-219-7586

Greg Snook, Assistant Maintenance Superintendent – 484-7942955

Questions regarding HUD Forms:

Steve Notario, Purchasing Officer - 610- 775-9430 x 1115, Direct line 484-878-2017.

Questions regarding technical information:

Dave Talarico, Vice President & Director of Facilities – 484-955-5150

Rory Ulrich, Maintenance Superintendent - 484-219-7586

BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we the undersigned,

_____ as "PRINCIPAL" and
_____ as "SURETY" are
held firmly and bound unto **READING HOUSING AUTHORITY**, Reading, Pennsylvania,
hereinafter called "RHA", in the penal sum of:
_____ dollars (\$_____), lawful money of
the United States, for the payment of which sum well and truly to be made, we bind
ourselves, our heirs, executors, administrators, successors and assigns, jointly and
severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has
submitted the accompanying bid, dated _____ 2____, for
_____.

NOW THEREFORE, if the Principal shall not withdraw said bid within the period specified
therein after the opening of the same, or, if no period be specified, within sixty (60) days
after the opening, and shall within the (10) days after the prescribed forms are presented
to him for signature, enter into a written contract with the RHA in accordance with the bid
as accepted, and give bond with good and sufficient surety or sureties, as may be
required, for the faithful performance and proper fulfillment of such contract; or in the event
of the withdrawal of said bid within the period specified, or the failure to enter into such
contract and give such bond within the time specified, if the Principal shall pay the RHA the
difference between the amount specified in said bid and the amount for which the RHA
may procure the required work or supplies or both, if the latter amount be in excess of the
former, then the above obligation shall be void and of no effect, otherwise to remain in full
force and virtue:

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under
their several seals this _____ day of _____, 2____, the name and seal of
each corporate party being hereto affixed and these presents duly signed, by its
undersigned representatives, pursuant to authority of its' governing body.

NOTE:

1. Date of Bond must not be prior to date of Bid Opening. If Contractor is Partnership, all partners should execute Bond.
2. Surety Companies executing bonds must appear on the Treasury Department's most current list (Circular 570) and be authorized to transact business in the state where the Project is located.

IN PRESENCE OF:

Attest: (Signature)

By:

Signature of Individual Principal

Title of Individual Principal

Company Name (Type or Print)

Business Address & Telephone No.

Attest: (Signature)

By:

Signature of Corporate Principal

Title of Corporate Principal

Company Name (Type or Print)

Business Address & Telephone No.

Affix Corporate Seal

Attest: (Signature)

Name of Corporate Surety

By:

Signature of Authorized Agent

Title of Authorized Agent

Affix Corporate Seal

(Power-of-Attorney for signing for Surety company must be attached to Bond.)

Bidder's Qualifications

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary add separate sheets for items requiring additional explanation. This information may be submitted in a separate stamp sealed envelope marked "Bidder's Qualifications and Financial Statement". In the event your bid is not selected for award, this envelope will be returned to the Contractor unopened.

1. Name of Bidder	2. Date organized
3. Permanent main office address	4. State incorporated
	5. How many years have you been engaged in the contracting business under your present firm name?

6. Listing of current contracts: (Schedule these, showing nature of the work, gross amount of each contract, anticipated dates for completion, name and telephone number of owner's representative).

7. General character of work usually performed by your company.

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

9. Have you ever defaulted on a contract?

10. List the three (3) most important structures recently completed by your company, stating approximate cost of each, month and year completed, name and telephone number of owner's representative.

11. List your major equipment available for use on this contract.

12. Experience in construction work similar in importance to this project.

13. Background and experience of the principal members of your firm, including the officers and proposed construction superintendent.

14. Credit available for administration of this contract, furnish written evidence.

15. Financial report not more than three (3) months old and containing a balance sheet providing at least the following information.

ASSETS

CURRENT ASSETS:

Cash
 Joint Venture Accounts
 Accounts Receivable
 Notes Receivable
 Accrued Interest on Notes
 Deposits
 Material and Prepaid Expense
 Total Current Assets

FIXED ASSETS - NET

OTHER ASSETS

TOTAL ASSETS:

LIABILITIES AND CAPITAL

CURRENT LIABILITIES

Accounts Payable
 Notes Payable
 Accrued Interest on Notes
 Provision for Income Taxes
 Advances Received from Owners
 Accrued Salaries
 Accrued Payroll Taxes
 Other
 Total Current Liabilities

OTHER LIABILITIES

CAPITAL

Capital Stock
 Authorized and Outstanding Shares,
 Par Value
 Earned Surplus

TOTAL LIABILITIES AND CAPITAL

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Reading Housing Authority in verification of the recitals comprising this Statement of Bidder's Qualifications.	
Signature of Bidder	Name of Bidder
Date	Title of Bidder

State of _____)ss. County of _____) _____ being duly sworn deposes and says that he is _____ of _____ and that the answers to the foregoing questions and all statements therein contained are true and correct. Sworn to before me this ____ day of _____, 20 ____	_____ Notary Public My Commission Expires _____
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**Certificate as to Corporate Principal
For Corporations Only**

For bidding corporation, the following certification must be made by Secretary of the corporation named as Principle in bond, attached to the Bid Bond and submitted with the bid.

I, _____, certify that I am the Secretary of the corporation named as Principle in the within bond.

That _____,
who signed the bond on behalf of the Principle, was then the _____ of
said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said bond was
duly signed, sealed, and attested to for and in behalf of said corporation by authority of its governing body.

Signature of Secretary of the Corporation	Name of Secretary of the Corporation
Date	Corporate Seal

**Reading Housing Authority
NON-COLLUSIVE AFFIDAVIT**

Note: Failure to submit this affidavit by the date specified in this solicitation may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

By submission of this bid or offer, each Vendor and each person signing on behalf of any Vendor certifies, and in the case of joint bids or offers each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his knowledge and belief.

1. The prices in this quotation have been arrived at independently without collusion, consultation, communications, or agreement for the purpose of restricting competition, as to any matter relating to such prices with any other bidder/offeror or any competitor;
2. Unless other wise required by law, the prices which have been offered in this bid/offer have not been knowingly disclosed by the bidder/offeror and will not knowingly be disclosed by the bidder/offeror, directly or indirectly to any other bidder/offeror or to any competitor;
3. No attempt has been made or will be made by the bidder/offeror to include any other person, partnership or corporation to submit or not to submit a bid/offer for the purpose of restricting competition;
4. No employee or Board member of the Reading Housing Authority or their consultants have received or will receive any payment or any other form of financial compensation from the bidder/offeror as a result of award of a contract or promise of award to the bidder/offeror.

Name: _____

Signature: _____

Title: _____

Company Name: _____

Date: _____

Subscribed and sworn to before me _____

This _____ day of _____, 20____.

My Commission expires _____, 20____.

Reading Housing Authority

SECTION 3 CERTIFICATIONS & COMPLIANCE AGREEMENT

Requirements for Compliance with Requirements of Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u) (Section 3) Part 135 - Economic Opportunities for Low- and Very Low-Income Persons.

Purpose: The purpose of Section 3 of the Housing and Urban Development of 1968 (12 U.S.C. 1701u) (Section

3) is to ensure that employment and other economic and business opportunities generated by HUD Financial Assistance shall be directed to Housing Authority Residents and other low- and very low-income persons, particularly those who are recipients of government housing assistance and to business concerns which provide economic opportunities to Housing Authority Residents and other low- and very low-income persons .

General Policy Statement: It is the declared policy of the Reading Housing Authority (RHA) that Equal Employment Opportunities shall be provided for every employee and applicant for employment regardless of race, color, religion, sex, national origin, handicap, or economic status; and, that through the award of contracts to contractors, vendors, and suppliers, that employment and business opportunities be created for residents of RHA

properties and other qualified low- and very low-income persons residing within the geographical boundaries of the City of Reading, PA This policy does not end with the mere prohibition of discriminatory practices by programs receiving HUD financial assistance or contractors, subcontractors, and vendors contracting with the Authority. The Authority recognizes its obligation as well as the obligation of potential contractors, subcontractors, and vendors, to develop practical steps to achieve the goal of providing meaningful, full-time permanent employment opportunities, as well as business opportunities to RHA Residents and other Section 3 eligible persons.

Such obligation shall be demonstrated not merely through inclusion of positive or "best effort" steps, but shall result in a reasonable level of success in the recruitment, employment, and utilization of Authority Residents and other Section 3 eligible persons and businesses in the workforce and subcontracting of work resulting out of the expenditure of HUD funding. The Authority's Board of Commission, through official resolution, shall examine and consider a contractor/vendor's success in providing employment and business opportunities to Authority Residents prior to acting on any proposed contract award.

Numerical Goals for Section 3 Compliance: Consistent with 24 CFR 85.36 (c)(2), Section 3 is a federal statute that expressly encourages, to the maximum extent feasible, a geographic preference in the evaluation of bids or proposals. To that end, the RHA has adopted the following numerical goals for meeting the greatest extent feasible requirement to provide economic opportunities to Section 3 Residents and Section 3 Business Concerns in the procurement and awarding of modernization-funded construction and professional service contracts:

Numerical Goals for Section 3 Compliance

Areas of Focus (Applies to all contracts)	Numerical Goal
Contractor and Sub-contractor Hiring (full-time, part-time, temporary, seasonal) applies to construction and professional service contracts.	30%
Contract Awards (applies to construction contracts).	30%
ALL Other Contract Awards (i.e., services, supplies, professional services)	30%

Recipients and Contractors may demonstrate compliance with the "greatest extent feasible" requirement of Section 3 by meeting the numerical goals set forth in this Section 3 Program for providing training, employment, and contracting opportunities to Section 3 Residents and Section Business Concerns. Efforts to employ Section 3 Residents to the greatest extent feasible should be made at all job levels.

The Authority, in its own operations, shall endeavor to achieve the goals of Section 3 and shall provide equal responsibility to its contractors, vendors, and suppliers to implement progressive efforts to also attain compliance. In doing so, the Authority shall evaluate contractors' compliance towards achieving the goals of Section 3 and ensure a system of leveling sanctions against contractor, vendor, or supplier for non-compliance and endeavor to take appropriate steps to ensure any such concern is not permitted to participate in future Authority procurement activities.

The numerical goals established above represent minimum numerical targets and all prospective contractors shall be advised and encouraged to seek Section 3 participation to the greatest extent feasible. Any contractor that meets the minimum numerical goals set forth above will be considered to have complied with the Section 3 requirements. Any contractor that does not meet the numerical goals set forth above has the burden of demonstrating why it was not feasible to meet the numerical goals. In the event no competing contractors were successful in meeting the minimum goals set forth above, the Authority shall consider documentation provided by the contractor evidencing impediments encountered despite actions taken to comply with the Section 3 Requirements. Such evidence shall be subject to the satisfaction of the Authority. Any contractor found to be in non-compliance with Section 3 shall be considered ineligible for award.

All contractors submitting bids/proposals to the RHA shall be required to complete certifications, as appropriate, as acknowledgment of the Section 3 contracting and employment provisions as required by this section. Such certifications shall be supported with adequate evidence to support representations made. The certifications required to be submitted with the bid/proposal consist of the following:

- Certification for business concerns seeking Section 3 preference.
- Contractor certification of efforts to fully comply with employment and training provisions of Section 3.

Prior to the award of any contract the contractor shall enter into negotiations with the Authority for the purpose of incorporating into the contract a provision for a specific number of Public Housing residents

or other Section 3 residents to be trained or employed on the contract. Such resulting provision shall obligate the contractor toward achieving not less than the numerical goals listed above and shall be based on a detailed workforce analysis to be compiled by the contractor and submitted to the Authority prior to award of contract.

Definitions:

Applicant means any entity which makes an application for section 3 covered assistance, and includes, but is not limited to, and State, unit of local government, public housing agency, Indian RHA, Indian tribe, or other public body, public or private nonprofit organization, private agency or institution, mortgagor, developer, limited dividend sponsor, builder, property manager, community housing development organization (CHOO), resident manage corporation, resident council, or cooperative association.

Contractor means any entity which contracts to perform work generated by the expenditure of section 3 covered assistance, or for work in connection with a section 3 covered project.

Department or HUD means the Department of Housing and Urban Development, including its Field Offices to which authority has been delegated to perform functions under this part.

Employment opportunities generated by section 3 covered assistance means all employment opportunities generated by the expenditure of section 3 covered public and Indian housing assistance (i.e., operating assistance, development assistance and modernization assistance, as described in § 135.3(a)(1)).

Housing development means low-income housing owned, developed, or operated by public housing agencies or Indian housing authorities in accordance with HUD's public and Indian housing program regulations codified in 24 CFR Chapter IX.

HUD Youthbuild programs means programs that receive assistance under subtitle D of Title IV of the National Affordable Housing Act, as amended by the Housing and Community Development Act of 1992 (42 U.S.C. 12699), and provide disadvantaged youth with opportunities of employment, education, leadership development, and training in the construction or rehabilitation of housing for homeless individuals and members of low- and very low- income families.

TPA means the Job Training Partnership Act (29 U.S.C. 1579(a)).

Metropolitan area means a metropolitan statistical area (MSA), as established by the Office of Management and Budget.

New hires means full-time employees for permanent, temporary or seasonal employment opportunities .

Other HUD programs means HUD programs, other than HUD public and Indian housing programs, that provide housing and community development assistance for "section 3 covered projects," as defined in this section.

Public housing resident has the meaning given this term in 24 CFR part 963.

Recipient means any entity which receives section 3 covered assistance, directly from HUD or from another recipient and includes, but is not limited to, any State, unit of local government, PHA, IHA, Indian tribe, or other public body, public or private nonprofit organization, private agency or

institution, mortgagor, developer, limited dividend sponsor, builder, property manager, community housing development organization, resident management corporation, resident council, or cooperative association.

Section 3 means section 3 of the Housing and Urban Development Act of 1968, as amended (12 U.S.C. 1701u).

Section 3 business concern means a business concern, as defined in this section:

- (1) That is 51 percent or more owned by section 3 residents; or
- (2) Whose permanent, full-time employees include persons, at least 30 percent of whom are currently section 3 residents, or within three years of the date of first employment with the business concern were section 3 residents; or
- (3) That provides evidence of a commitment to subcontract in excess of 25 percent of the dollar award of au subcontracts to be awarded to business concerns that meet the qualifications set forth in paragraphs (1) or (2) in this definition of "section 3 business concern."

Section 3 covered activity means any activity which is funded by section 3 covered assistance and Indian housing assistance.

Section 3 covered assistance means:

- (1) Public and Indian housing development assistance provided pursuant to section 5 of the 1937 Act;
- (2) Public and Indian housing operating assistance provided pursuant to section 9 of the 1937 Act;
- (3) Public and Indian housing modernization assistance provided pursuant to section 14 of the 1937 Act.

Section 3 covered contract means a contract or subcontract (including a professional service contract) awarded by a recipient or contractor for work generated by the expenditure of section 3 covered assistance, or for work arising in connection with a section 3 covered project.

Section 3 covered project means the construction, reconstruction, conversion, rehabilitation of housing (including reduction and abatement of lead-based paint hazards), other public construction which includes buildings or improvements (regardless of ownership) assisted with housing or community development assistance.

Section 3 resident means:

- (1) A public housing resident; or
- (2) An individual who resides in the metropolitan area or non-metropolitan county in which the section 3 covered assistance is expended, and who is:
 - a. A low-income person, as this term is defined in section 3(b)(2) of the 1937 Act (42 U.S.C. 1437a(b)(2)). Section 3(b)(2) of the 1937 Act defines this term to mean families (including single persons) whose incomes do not exceed 80% of the median income for the area, as determined by the Secretary, with adjustments for smaller and larger families, except that the Secretary may establish income ceilings higher or lower than 80% of the median for the area on the basis of the Secretary's findings that such variations are necessary because of prevailing levels of construction costs or unusually high or low- income families; or
 - b. A very low-income person, as this term is defined in section 3(b)(2) of the 1937 Act (42 U.S.C. 1437a(b)(2)). Section 3(b)(2) of the 1937 Act (42 U.S.C. 1437a(b)(2)) defines this to mean families (including single persons) whose incomes do not exceed 50% of the median

family income for the area, as determined by the Secretary with adjustments made for smaller or larger families, except that the Secretary may establish income ceilings higher or lower than 50% of the median for the area on the basis of the Secretary's findings that such variations are necessary because of unusually high or low family incomes.

- (3) A person seeking the training and employment preference provided by section 3 bears the responsibility of providing evidence (if requested) that the person is eligible for the preference.

Service area means the geographical area in which the persons benefiting from the section 3 covered project reside.

Subcontractor means any entity (other than a person who is an employee of the contractor) which has a contract with a contractor to undertake a portion of the contractor's obligation for the performance of work generated by the expenditure of section covered assistance, or arising in connection with a section 3 covered project.

Section 3 joint venture means an association of business concerns, one of which qualifies as a section 3 business concern, formed by written joint venture agreement to engage in and carry out a specific business venture for which purpose the business concerns combine their efforts, resources, and skills for joint profit, but not necessarily on a continuing or permanent basis for conducting business generally, and for which the section 3 business concern:

- (1) Is responsible for a clearly defined portion of the work to be performed and holds management responsibilities in the joint venture; and
- (2) Performs at least 25% of the work and is contractually entitled to compensation proportionate to its work.

Preference for Section 3 Business Concerns (Contracting). The RHA in accordance with Section 3 of the Housing and Urban Development Act of 1968, requires contractors and sub-contractors (including professional service contracts) to direct their efforts towards awarding contracts to Section 3 business concerns in the following order of priority and expend greatest extent feasible efforts to achieve, at minimum, the numerical goals established in this section:

- **1st Priority- Category 1 Section 3 Businesses**

Business concerns that are 51% or more owned by residents of the housing development(s) for which work is performed, or whose full-time, permanent workforce includes 30% of these persons as employees.

- **2nd Priority - Category 2 Section 3 Businesses**

Business concerns that are 51% or more owned by residents of other (Name) RHA Public Housing developments other than the development(s) where the work is performed or whose full-time permanent workforce includes 30% of these persons as employees.

- **3rd Priority - Category 3 Section 3 Businesses**

Business concerns that are designated HUD Youthbuild programs being carried out in the City of Reading.

- **4th Priority - Category 4 Section 3 Businesses**

Business concerns that are 51% or more owned by a Section 3 resident(s), or whose permanent, full-time workforce includes no less than 30% Section 3 residents (category 4 businesses), or that subcontract in excess of 25% of the total amount of sub-contracts to Section 3 business concerns.

Under this category, the bidder must submit clear documentation and certifications for the qualification claimed.

Preference for Section 3 Residents (Employment & Training) The RHA, in accordance with Section 3 of the Housing and Urban Development Act of 1968, requires contractors and sub-contractors (including professional service contracts) to direct their efforts toward providing training and employment opportunities to Section 3 residents in the following order of priority and expend greatest extent feasible efforts to achieve at minimum, the numerical goals established in this section:

- **1st Priority - Category 1 Section 3 Residents**
Residents of the development for which work is performed.
- **2nd Priority - Category 2 Section 3 Residents**
Residents of other Public Housing developments outside of the development(s) where the work is performed.
- **3rd Priority - Category 3 Section 3 Residents**
Residents of the City of Reading who are participants in HUD Youthbuild programs being carried out in the City.
- **4th Priority - Category 4 Section 3 Residents**
Other Section 3 Residents .

Certification Procedure. The RHA has its own program of self-certification for individuals and business concerns seeking recognition as a Section 3 resident or Section 3 business concern as defined in this Section 3 Program.

The Authority's Resident & Community Services department is charged with administering the Authority's Section 3 certification program. Any individual or business concern seeking Section 3 preferences in the awarding of contracts or purchase agreements shall complete appropriate certification forms and provide adequate documentation as evidence of eligibility for preference under the Section 3 program. An individual or business concern may apply for certification as a Section 3 resident or Section 3 business concern either prior to bidding for Authority work or during the actual bidding process. Any business concern that submits certification for preference after receipt of bid will not be considered eligible for Section 3 preference in the evaluation of that specific bid award. Certifications for Section 3 preference for business concerns must be received by the Authority prior to the submission of bids or along with the bid. Certifications for eligibility as a Section 3 resident may be made at any time. Individuals or business concerns seeking to file for Section 3 preference shall contact:

- A resident seeking preference in training and employment shall certify that he/she is a Section 3 resident by completing the appropriate certification form and attaching adequate proof of Section 3 eligibility.
- A business concern seeking preference in the awarding of a contract or purchase shall certify that the business concern is a Section 3 business by completing the appropriate certification form and attaching adequate proof of Section 3 eligibility as required.

Protest Procedure. The RHA desires to offer to concerned parties a procedure whereby complaints alleging non-compliance with the Section 3 Statute can receive prompt and equitable hearing and resolution. Protests surrounding the Authority's Section 3 program may be submitted in writing to the following person hereby designated as the Section 3 Coordinator:

All complaints of non-compliance with the Section 3 Statute shall conform with the following requirements:

- Complaints shall be filed in writing and shall contain the name, address, and phone number of the person filing the complaint, and a brief description of the alleged violation of the regulations.
- Complaints shall be filed within thirty (30) calendar days after the complainant becomes aware of the alleged violation.
- An investigation as may be appropriate, will follow the filing of a complaint. The investigation will be conducted by the Authority's Section 3 Coordinator. These rules contemplate informal, but thorough investigations, affording all interested persons and their representatives, if any, an opportunity to submit testimony and/or evidence as may be available and relevant to the complaint.
- Written documentation as to the validity of the complaint and a description of the findings or resolution, if any, will be issued by the Section 3 Coordinator no later than thirty (30) days after the filing of a complaint.

In cases where concerned parties wish to have its complaint considered outside of the Authority, a complaint may be filed with the Assistant Secretary for Fair Housing and Equal Opportunity, Department of Housing and Urban Development, Washington, D.C., 20410. A complaint must be received not later than 180 days from the date of the action or omission upon which the complaints based, unless the time for filing is extended by the Assistant Secretary for good cause shown.

Reading Housing Authority
SECTION 3 CERTIFICATIONS & COMPLIANCE AGREEMENT

**Contractor Certification of Efforts to Fully Comply with Employment and Training Provisions of
Section 3**

The bidder represents and certifies as part of its bid/offer the following:

- ☐ Is a Section 3 Business concern and has submitted the required certification with the bid.
A Section 3 Business concern means a business concern:
 1. That is 51% or more owned by Section 3 Resident(s); or
 2. Whose permanent, full-time employees include persons, at least 30% of whom are currently Section 3 residents, or within the last three years of the date of first employment with the business concern were Section 3 residents; or
 3. That provides evidence of a commitment to subcontract in excess of 25% of the dollar value of all subcontracts to be awarded to business concerns that meet the qualifications set forth in paragraphs 1 or 2 herein.
- ☐ Is Not a Section 3 Business concern but who has and will continue to seek compliance with Section 3 by certifying to the following efforts to be undertaken.

Efforts to award subcontractor to Section 3 concerns (check all that apply.)

- ☐ By contacting business assistance agencies, minority contractors associations and community organizations to inform them of the contracting opportunities and requesting their assistance in identifying Section 3 businesses which may solicit bids for a portion of the work.
- ☐ By advertising contracting opportunities by posting notices, which provide general information about the work to be contracted and where to obtain additional information, in the common areas of the applicable development(s) owned and managed by the Housing Authority.
- ☐ By providing written notice to all known Section 3 business concerns of contracting opportunities. This notice should be in sufficient time to allow the Section 3 business concerns to respond to bid invitations
- ☐ By following up with Section 3 business concerns that have expressed interest in the contracting opportunities
- ☐ By coordinating meetings at which Section 3 business concerns could be informed of specific elements of the work for which subcontract bids are being sought
- ☐ By conducting workshops on contracting procedures and specific contracting opportunities in a timely manner so that Section 3 business concerns can take advantage of contracting opportunities
- ☐ By advising Section 3 business concerns as to where they may seek assistance to overcome barriers such as inability to obtain bonding, lines of credit, financing, or insurance, and aiding Section 3 businesses in qualifying for such bonding, financing, insurance, etc.
- ☐ Where appropriate, by breaking out contract work into economically feasible units to facilitate participation by Section 3 businesses
- ☐ By developing and utilizing a list of eligible Section 3 business concerns
- ☐ By actively supporting and undertaking joint ventures with Section 3 businesses

Efforts to provide training and employment to section 3 residents

- ☐ By entering into a "first source" hiring agreement with organizations representing Section 3 residents.
- ☐ By establishing training programs, which are consistent with the requirements of the Department of Labor, specifically for Section 3 residents in the building tables.
- ☐ By advertising employment and training positions to dwelling units occupied by Category 1 and 2 residents
- ☐ By contacting resident councils and other resident organizations in the affected housing development to request assistance in notifying residents of the training and employment positions to be filled.
- ☐ By arranging interviews and conducting interviews on the job site.
- ☐ By undertaking such continued job training *efforts* as may be necessary to ensure the continued employment of Section 3 residents previously hired for employment opportunities.

Name _____

Signature _____

Title _____

Company Name _____

Date: _____

Subscribed and sworn to before me _____

This _____ day of _____, 20____.

My Commission expires _____, 20____.

Reading Housing Authority
CERTIFICATION FOR BUSINESS CONCERNS SEEKING SECTION 3
PREFERENCE IN CONTRACTING AND DEMONSTRATION OF CAPABILITY

Name & Address of Business _____

Type of Business _____

- Sole Proprietorship
- Partnership
- Joint Venture
- Corporation

Attached is the following documentation as evidence of status: _____

For business claiming status as a Section 3 resident-owned enterprise, attach:

- Copy of resident lease
- Copy of evidence of participation in a public assistance program
- Other evidence _____

For the business entity as applicable, attach:

- Copy of Articles of Incorporation
- Assumed Business Name Certificate
- List of owners/stockholders and % of each
- Organization chart with names and titles and brief functional statement
- Certificate of Good Standing
- Partnership Agreement
- Corporation Annual Report
- Latest Board minutes appointing officers
- Additional documentation _____

For business claiming Section 3 status by subcontracting 25 percent of the dollar awarded to qualified Section 3 business, attach:

- List of subcontracted Section 3 business with corresponding certifications and subcontract amount

For business claiming Section 3 status, claiming at least 30 percent of their workforce are currently Section 3 residents or were Section 3 eligible residents within 3 years of date of first employment with the business

- List of all current full time employees
- List of all employees claiming Section 3 status
- PHA/IHA Residential Lease (less than 3 years from date of employment)
- Other evidence of Section 3 status (less than 3 years from date of employment)

Evidence of ability to perform successfully under the terms and conditions of the proposed contract, attach:

- Current financial statement
- Statement of ability to comply with public policy
- List of owned equipment
- List of all contracts for past two years

Authorized Name _____ Signature _____ Date _____

Attested by _____ Signature _____ Date _____

Contractor's Reporting and Documentation Requirements

There are a variety of information submittals, form processing and report generation efforts required to award the contract and throughout the course of administering this contract. This part is intended to provide the potential bidder with a brief but thorough list of these requirements. You may request copies of reporting and documentation forms from the RHA during the bidding process by calling the RHA office at (610) 775-9430. The RHA reserves the right to revise the reporting and documentation requirements at any time.

Pre-Construction Administrative Requirements

- A. Assurance of Completion.** The successful bidder shall furnish an assurance of completion prior to the execution of any contract. The form of assurance of completion, as defined in Instruction to Bidders/Offerors, form HUD 5369 is required shall be submitted five (5) days prior to the execution of the contract. Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Free copies of the circular may be obtained by writing directly to: U.S. Department of Treasury, Financial Management Service, Surety Bond Branch, 401 14th Street, SW, 2nd Floor, West Wing, Washington, D.C. 20226.

Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the RHA may grant based upon reasons determined adequate by the RHA, shall render the bidder ineligible for award. The RHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The RHA may retain the ineligible bidder's bid guarantee.

- B. Preconstruction Conference.** Prior to the award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the RHA and its architect/engineer, and other interested parties convened by the RHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Section 3, Equal Employment Opportunity, Labor Standards). The RHA will provide the successful bidder with the date, time, and place of the conference. The Contract shall be executed within 3 days following the completion of the Preconstruction Conference.

Within 3 days following the completion of the Preconstruction Conference, the Contractor shall submit to the Contracting Officer, minutes of the Preconstruction Conference for the RHA's review.

- C. Certificates of Insurance.** In accordance with General Conditions, before commencing work, the contractor and each subcontractor shall furnish. The Reading Housing Authority is to be added as an additionally named insured to the Contractor's Comprehensive General Liability and Automobile Liability Coverage. The amount required is not less than \$1,000,000.00 per occurrence for General Liability and \$500,000.00 for Automobile Liability.

Additionally, before commencing work, the Contractor shall furnish the RHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the RHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the RHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the RHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the super-structure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the RHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the RHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or

Contractor's Reporting and Documentation Requirements

additions and where the RHA's existing fire and extended coverage policy can be endorsed to include such work. All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

Certificates of the Contractor's Insurance shall be filed with the Reading Housing Authority and shall be subject to their approval for adequacy of protection. These certificates shall contain a provision that coverage afforded under the policies will not be canceled without a minimum of thirty (30) days prior written notice to the Reading Housing Authority.

- D. Construction Progress Schedule.** A Construction Progress Schedule shall be submitted five (5) days prior to the scheduled preconstruction conference. The Contractor shall use **Construction Progress Schedule Form HUD-5372**. The Contractor shall submit for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.

The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the General Condition clause entitled *Inspection and Acceptance of Construction*, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the RHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not performing the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the **Default** clause of this contract.

- E. Contractors own forces work equivalent.** The Contractor shall perform on the site, and with its own forces work equivalent to at least 12% of the total amount of work to be performed under the contract. Five (5) days prior to the scheduled preconstruction conference, the Contractor shall submit a certification explaining how the Contractor will perform at least 12% of the total amount of work.
- F. Contractor's obligation to directly superintend the work.** At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor. Five (5) days prior to the scheduled preconstruction conference, the Contractor shall submit the following information for approval by the HA:

Superintendent's Name
Superintendent's Work History
Superintendent's Education

Contractor's Reporting and Documentation Requirements

- G. Form HUD-51000, Schedule of Amounts for Contract Payments.** Five (5) days prior to the scheduled preconstruction conference, the Contractor shall submit a completed and executed Form HUD-51000, Schedule of Amounts for Contract Payments. This form is only required to be completed once; thereafter, a copy shall accompany each Pay Request.

Construction Phase Reporting Requirements

The Contractor is advised of the following Reporting and Administrative requirements required during the course of construction activities:

A. Labor Provision Requirements

The Contractor is required to submit weekly Certified Payroll Form WH-347 for the General Contractor and each Subcontractor.

The Contractor is required to post in a conspicuous place the Secretary of Labor's Wage Poster and Wage Determination.

The Contractor is required to report in writing worker disputes that the Contractor cannot resolve informally.

B. Contract Progress Payments

1. **Schedule of Amounts for Contract Payments, form HUD-51000.** A copy of form HUD-51000, Schedule of Amounts for Contract Payments, previously approved by the RHA's Contracting Officer and/or the RHA architect.
2. **Periodical Estimate for Partial Payment, form HUD-51001,** is required to be completed and submitted for each Pay Request. Only one copy with original signatures need be submitted. Photocopies are **not** permitted.
3. **Contractor's Certification.** Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification on Contractor's letterhead, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:
 - (1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;
 - (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,
 - (3) This request for progress payments does not include any amounts, which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

Name:

Title:

Date:

4. **Schedule of Change Orders, form HUD-51002,** is required to be completed and submitted with each Pay Request only if there have been any approved change orders issued on the project. Once a Change Order has been issued, this form must accompany every subsequent Pay Request, even if no additional change orders are incurred.
5. **Schedule of Materials Stored, form HUD-51003,** is required to be completed and submitted with Pay Request only if the Contractor wishes to be paid for inventory purchased prior to that inventory being

Contractor's Reporting and Documentation Requirements

incorporated into the work. *Supporting invoices must accompany any Stored Materials Request.* The RHA representative will inspect the facility where the materials are stored to verify their existence. Once this form is submitted with a Pay Request, it must accompany each subsequent Pay Request thereafter until the project is completed. This form must also be completed by each Subcontractor requesting payment for materials stored.

6. **Summary of Materials Stored, form HUD-51004**, is required to be completed and submitted with each Pay Request, which has a completed HUD-51003 "Schedule of Materials Stored".
7. **Construction Progress Schedule Form HUD-5372**. The Contractor shall enter the actual progress on the chart as compared to the originally submitted and approved schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment).
8. **Contract and Subcontract Activity, form HUD-2516 (8/98)**. There is a 20% Minority and Women Business Enterprise participation goal for all Authority contracts. The Contractor is required to submit report form HUD-2516 (8/98), Contract and Subcontract Activity with each request for contract payments.
9. **Section 3 Summary Report, Economic Opportunities for Low- and Very Low-Income Persons, form HUD-60002**. The Contractor is required to submit report form HUD-60002, Section 3 Summary Report, Economic Opportunities for Low- and Very Low-Income Persons, with each request for contract payments. Please note that this is the same report used by the RHA to report annual accomplishments regarding employment and other economic opportunities provided to low- and very low-income persons under Section 3 of the Housing and Urban Development Act of 1968.
10. **Shop Drawing and Test Results**. "Shop drawings" means drawings, submitted to the RHA's Contracting Officer or its architect by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The RHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract. The Contractor shall submit shop drawings and test results at least 15 days before the scheduled installation or work concerning the shop drawing or test results. The Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the RHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract.

The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings will be retained by the RHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.

This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not in compliance with the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the **Default** clause of this contract.

11. **As-Built Drawings**. "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings." As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of

Contractor's Reporting and Documentation Requirements

permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.

This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not in compliance with the Contract. This will result in the RHA withholding from the Contractor's final payment and/or retention an amount of money sufficient to gather and/or reproduce the accurate information necessary to be used in the preparation of permanent as-built drawings.

12. **Approval of equipment and materials.** The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles, which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges pre-paid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.

Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.

Approval of a sample shall not constitute a waiver of the RHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.

13. **Use and Possession Prior to Completion.** The RHA shall have the right to take possession of or use any completed or partially completed part of the work. The request for Use and Possession Prior to Completion shall be made by the RHA in writing. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the RHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The RHA's possession or use shall not be deemed an acceptance of any work under the contract.

While the RHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the RHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas occupied without proper remuneration therefore. If prior possession or use by the RHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

There is a 20% Minority and Women Business Enterprise participation goal for all Authority contracts. The Contractor is required to submit report form HUD-2516 (7/96), Contract and Subcontract Activity with each request for contract payments.

Contractor's Reporting and Documentation Requirements

Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

The Contractor is required to submit report form HUD-60002, Section 3 Summary Report, Economic Opportunities for Low- and Very Low-Income Persons, with each request for contract payments. Please note that this is the same report used by the RHA to report annual accomplishments regarding employment and other economic opportunities provided to low- and very low-income persons under Section 3 of the Housing and Urban Development Act of 1968.

Contract Close-out Reporting Requirements

After the Contractor has completed all the items noted on the Authority-conducted punch list, the Contractor may submit closing documents to the Authority. Closing documents shall consist of the following:

1. The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the RHA will promptly arrange for the inspection.
2. Final Pay Request marked "FINAL" with all associated payment forms as explained above.
3. One original of the executed Final Waiver of Lien for the Contractor, each subcontractor and all material suppliers.
4. Certificate of Occupancy.
5. Any special warranty or guarantees required by the Technical Specifications. At a minimum, the Contractor is required to provide a one-year workmanship warranty, in accordance with General Conditions. This warranty may be in the form of a letter on company stationery, signed by an authorized individual establishing the coverage period and the method of notification for covered repairs. Other special equipment warranties shall be from the manufacturer.
6. Two original completed copies of the "Contractor's Certificate and Release". This form must be notarized.
7. Accurate and complete information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.

Reading Housing Authority

Prevailing Wage Rate

Every contract to which the Commonwealth, its political subdivisions, an authority created by the General Assembly of the Commonwealth including authorities created under the Municipality Authorities

Act of 1945 (53 P. S. §§ 301–401) and instrumentalities or agencies of the Commonwealth is a party, for construction, reconstruction, demolition, alteration or repair work other than maintenance work where the estimated cost of the total project is in excess of \$25,000, which requires or involves the employment by

a contractor or subcontractor of laborers, mechanics, skilled and semi-skilled laborers and apprentices in the performance of services directly upon the public work project shall include in its specifications a provision

stating the general prevailing minimum wage rates as determined by the Secretary which shall be paid for each craft or classification of workmen needed to perform the contract during the anticipated term thereof in the locality in which the public work is performed.

Every person paid by a contractor or a subcontractor in any manner for his labor in 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 except work performed under a rehabilitation program or manpower training programs is "employed" and "receiving wages."

Note: Failure to sign and submit this form by the date specified in the bid solicitation may render the bid nonresponsive. No contract award will be made without a properly executed form.

By signing this form, I certify that I have reviewed the requirements and supporting documents provided and I agree to all Prevailing Wage Rate requirements for this project.

CONTRACTOR'S SIGNATURE

DATE

"General Decision Number: PA20260076 05/18/2026

State: Pennsylvania

Construction Types: Building

Counties: Pennsylvania Counties of
Berks

Modification Number	Publication Date
1	01/09/2026
2	05/18/2026

ASBE0023-008 07/01/2024

Rates

Fringes

ASBESTOS WORKER/HEAT & FROST INSULATOR - MECHANICAL
(DUCT, PIPE & MECHANICAL SYSTEM INSULATION).....\$ 40.00
29.81

BOIL0013-008 01/01/2025

Rates

Fringes

BOILERMAKER.....\$ 55.00
35.48

BRPA0001-017 05/01/2022

Rates

Fringes

TILE FINISHER.....\$ 26.05
21.00
TILE SETTER.....\$ 51.36
30.02

BRPA0001-017 05/01/2024

Rates

Fringes

TILE FINISHER.....\$ 26.05
21.00
TILE SETTER.....\$ 51.36
30.02

BRPA0005-067 05/01/2022

Rates

Fringes

BRICKLAYER (INCLUDING POINTING, CAULKING, AND
CLEANING).....\$ 37.83
16.98

CARP0492-005 06/01/2025

Rates

Fringes

CARPENTER (INCLUDING DRYWALL HANGING, METAL STUD
INSTALLATION, FLOOR LAYING-VINYL, AND FORM WORK)....\$ 36.84
20.19

ELEC0743-014 09/01/2025

Rates

Fringes

ELECTRICIAN (INCLUDES ALARM INSTALLATION,
INSTALLATION OF SOUND AND COMMUNICATION SYSTEMS,
AND LOW VOLTAGE WIRING; EXCLUDES HVAC/TEMPERATURE
CONTROLS INSTALLATION).....\$ 46.02
27.98

ELEV0084-005 01/01/2025

Rates

Fringes

ELEVATOR MECHANIC FOOTNOTES: A. VACATION
CREDIT: EMPLOYER CONTRIBUTES 8% BASIC HOURLY RATE
FOR 5 YEARS OR MORE OF SERVICE AS VACATION PAY
CREDIT, AND 6% FOR 6 MONTHS TO 5 YEARS OF SERVICE.

B. EIGHT PAID HOLIDAYS (PROVIDED EMPLOYEE HAS
WORKED 5 CONSECUTIVE DAYS BEFORE AND THE WORKING
DAY AFTER THE HOLIDAY): NEW YEARS'S DAY; MEMORIAL
DAY; INDEPENDENCE DAY; LABOR DAY; VETERAN'S DAY;
THANKSGIVING DAY AND THE FRIDAY AFTER THANKSGIVING
DAY, AND CHRISTMAS DAY.....\$ 61.41
38.44

ENGI0066-004 06/01/2014

Rates

Fringes

POWER EQUIPMENT OPERATOR (MECHANIC).....\$ 32.59
18.10

ENGI0542-033 05/01/2020

Rates

Fringes

POWER EQUIPMENT OPERATOR: CRANE, GRADALL,
BULLDOZER, BOBCAT/SKID STEER/ SKID LOADER,
GRADER/BLADE, LOADER, PAVER (ASPHALT, AGGREGATE,
AND CONCRETE).....\$ 40.57
28.15

POWER EQUIPMENT OPERATOR (PUMP).....\$ 34.18
26.26

POWER EQUIPMENT OPERATOR (OILER).....\$ 32.86
25.86

POWER EQUIPMENT OPERATOR (HOIST (WITH TWO TOWERS),
FORKLIFT (20 FT AND OVER, EXCLUDES MASONRY WORK))...\$ 38.05
27.39

POWER EQUIPMENT OPERATOR (HOIST (SINGLE DRUM),

FORKLIFT (UNDER 20 FT., EXCLUDES MASONRY WORK))\$ 35.32
26.59

IRON0401-005 07/01/2025

Rates

Fringes

IRONWORKER, REINFORCING.....\$ 56.50
45.30

IRON0404-024 07/01/2024

Rates

Fringes

IRONWORKER, STRUCTURAL.....\$ 37.26
32.63

LABO0135-001 05/01/2024

Rates

Fringes

LABORER (MASON TENDER- BRICK).....\$ 36.37
25.32

LABO0413-009 05/01/2014

Rates

Fringes

LABORER (MASON TENDER- CEMENT/CONCRETE).....\$ 26.00
23.97

LABO1174-011 05/01/2017

Rates

Fringes

LABORER (FORKLIFT (MASONRY WORK ONLY)).....\$ 27.27
15.04

LABORER (CONCRETE SAW (HAND HELD/WALK BEHIND));

CONCRETE WORKER; FIRE WATCH)\$ 21.57
15.04

PAIN0021-036 05/01/2021

Rates

Fringes

PAINTER: SPRAY ONLY\$ 29.51
20.15

PLUM0420-011 05/01/2024

Rates

Fringes

PIPEFITTER: INCLUDING HVAC PIPE INSTALLATION\$ 59.65
42.78

ROOF0030-009 05/01/2021

Rates

Fringes

ELECTRICIAN (COMMUNICATION TECHNICIAN ONLY) ZONE
PAY ZONE A: 1-25 MILES - \$0.00 ZONE B: 25-55
MILES - \$7.00 ZONE C: OVER 55 MILES NNSS - \$7.00
ZONE D: NTTR - \$7.50\$ 40.33
32.62

SFPA0669-004 04/01/2025

Rates

Fringes

SPRINKLER FITTER (FIRE SPRINKLERS)\$ 49.75
28.96

SHEE0019-015 06/01/2024

Rates

Fringes

SHEET METAL WORKER: INCLUDES HVAC DUCT INSTALLATION

FOOTNOTE: PAID HOLIDAY: ELECTION DAY.....\$ 43.09
42.52

SUPA2011-034 08/20/2014

	Rates
Fringes	
TRUCK DRIVER: DUMP TRUCK.....	\$ 22.64
0.00	
PLUMBER.....	\$ 40.90
18.13	
PAINTER (BRUSH AND ROLLER ONLY).....	\$ 27.07
15.79	
OPERATOR: DRILL.....	\$ 28.55
15.78	
OPERATOR: BACKHOE/EXCAVATOR/TRACKHOE.....	\$ 34.34
15.47	
LABORER: COMMON OR GENERAL.....	\$ 19.43
8.63	
LABORER: ASBESTOS ABATEMENT (REMOVAL FROM FLOORS, WALLS, & CEILINGS).....	\$ 21.43
11.13	
IRONWORKER, ORNAMENTAL.....	\$ 34.27
22.55	
GLAZIER.....	\$ 41.14
3.94	
CEMENT MASON/CONCRETE FINISHER.....	\$ 24.95
16.78	

UAVGPA0017 01/01/2025

	Rates
Fringes	
ELECTRICIAN (HVAC/TEMPERATURE CONTROLS INSTALLATION ONLY).....	\$ 40.84
28.36	

WELDERS - Receive rate prescribed for craft performing

operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts

regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than
□SU□, □UAVG□, □SA□, or □SC□ denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to

reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The □SU□ identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

□SU□ wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The □SA□ identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007

01/03/2024. SA reflects that the rates are state adopted.
ME
refers to the State of Maine. 2023 is the year during which
the
state completed the survey on which the listed
classifications
and rates are based. The next number, 007 in the example,
is an
internal number used in producing the wage determination.
The date, 01/03/2024 in the example, reflects the date on
which
the classifications and rates under the "SA" identifier
took
effect under state law in the state from which the rates
were
adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This
can
be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a
position on
a wage determination matter
- d) an initial conformance (additional
classification
and rate) determination

On survey related matters, initial contact, including
requests
for summaries of surveys, should be directed to the WHD
Branch
of Wage Surveys. Requests can be submitted via email to
davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as
conformance decisions, requests for initial decisions
should be

directed to the WHD Branch of Construction Wage Determinations.

Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7).

Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

Reading Housing Authority

Build America, Buy America Act (BABA)

The Build America, Buy America Act (BABA) requires that all iron, steel, manufactured products, and construction materials used for federally funded infrastructure projects are produced in the United States, unless otherwise exempt or subject to an approved waiver. This requirement is known as the “Buy America Preference (BAP)” and the specific requirements are codified in 2 CFR § 184.

The awarded Grantee (RHA) and the awarded bidder (Contractor) must comply with the requirements of the Build America, Buy America (BABA) Act, 41 USC 8301 note, and all applicable rules and notices, as may be amended, if applicable to the Grantee’s infrastructure project. Pursuant to HUD’s Notice, “Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance” (88 FR 17001), any funds obligated by HUD on or after the applicable listed effective dates, are subject to BABA requirements, unless excepted by a waiver.

Note: Failure to sign and submit this form by the date specified in the bid solicitation may render the bid nonresponsive. No contract award will be made without a properly executed form.

By signing this form, I certify that I have reviewed the requirements and supporting documents provided and I agree to all BABA requirements for this project. As the Contractor, I understand that Reading Housing Authority will receive U.S. Department of Housing and Urban Development (HUD) funding for this project and that all contractors and subcontractors, must comply with the Build America, Buy America Act (BABA).

CONTRACTOR’S SIGNATURE

DATE



OFFICE OF COMMUNITY PLANNING
AND DEVELOPMENT

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-7000

Special Attention of:
All CPD Division Directors
HUD Field Offices
HUD Regional Offices
All CDBG Grantees
All CoC Grantees
All HOME Participating Jurisdictions
All HTF Grantees
All ESG Grantees
All HOPWA Grantees

NOTICE: **CPD-25-01**

Issued: **January 13, 2025**

Supersedes: CPD-2023-12

Expires: This Notice remains in effect until
amended, superseded, or rescinded.

Cross Reference:

Sections 70901-52 of Pub. L. No. 117-58

Subject: CPD Implementation Guidance for the Build America, Buy America Act's Buy America Preference.

Overview

This updated Community Planning and Development (CPD) Notice supersedes CPD Notice 2023-12 to provide clarified implementation guidance for the "Buy America Preference" (BAP) imposed by the Build America, Buy America Act (BABA) enacted under Division G, Title IX of the Infrastructure Investment and Jobs Act (IIJA, Pub. L. No. 117-58) signed into law on November 15, 2021. It describes how grantees can use covered CPD program funds for public infrastructure projects to bolster America's industrial base, protect national security, and support high-paying jobs.

The refreshing of this Notice is intended to provide greater clarity to grantees implementing BABA. Specifically, the Notice clarifies how the BAP applies to public infrastructure for housing projects. Projects with one- to four-units should be classified as private and not subject to BABA. Housing projects with five or more units should be considered as public infrastructure subject to BABA unless another BABA waiver or exemption applies. In addition, the Notice includes a reclassification of HOME-ARP to CPD programs not covered by the BAP, clarification on determining a project scope, BAP applicability to program income, additional recordkeeping considerations, guidance on using HUD's online project-specific waiver application website, and new resources to assist with compliance and determining when a project-specific waiver is appropriate.

This Notice also highlights issues that grantees will want to consider when preparing for

HUD’s full implementation of the BAP in FY2025, as described in “Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance” (88 Fed. Reg. 17001, effective March 15, 2023 (“Phased Implementation Waiver”), which establishes BAP implementation points according to a schedule across HUD programs.

More in-depth technical assistance related to both BABA compliance and best practices is available on the HUD Exchange and hud.gov websites. HUD also encourages grantees to contact their assigned local field offices to discuss issues and concerns within the regulatory framework. This Notice uses the term “grantee” generically to also include HOME participating jurisdictions. The guidance provided in this Notice is subject to change if the Office of Management and Budget (OMB) updates guidance on the application of BABA for Federal financial assistance (FFA) programs for infrastructure.

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I. The Build America, Buy America Act (BABA)

The Build America, Buy America Act (BABA) was signed into law by President Biden on November 15, 2021, as part of the Infrastructure Investment and Jobs Act (IIJA) as Sections 70901-52 of Pub. L. No. 117-58. In addition to providing funding for roads, bridges, rails, and high-speed internet access, it created an incentive to increase domestic manufacturing across the country through the inclusion of BABA's "Buy America Preference" (BAP). In general, the BAP requires that all iron, steel, manufactured products, and construction materials used in public infrastructure projects funded with Federal financial assistance (FFA), as outlined in Section 70914(a) of BABA, must be produced in the United States. The intent of the BAP is to stimulate private-sector investments in domestic manufacturing, bolster critical supply chains, and support the creation of well-paying jobs for people in the United States. The preference is also intended to bolster American firms' ability to compete and lead globally for years to come by requiring entities that receive Federal infrastructure funds to use American materials and products.

The BAP applies to all spending on public infrastructure projects by Federal agencies, including HUD. In BABA, and for purposes of this Notice, the Federal infrastructure spending with a BAP is referred to as "Federal financial assistance" or "FFA." Under Section 70912(7), FFA for public infrastructure "projects" includes the "construction, alteration, maintenance, or repair of infrastructure in the United States". Under Section 70914(a), the use of American iron and steel, construction materials, and manufactured products generally applies to funding from CPD programs for public infrastructure projects. However, the BAP does not apply to "pre and post disaster or emergency response expenditures" under Section 70912(4)(B). A list of CPD disaster or emergency funding meeting these criteria can be found in Section IV.

Effective May 14, 2022, the BAP applies to infrastructure spending unless an agency issues a waiver in three limited situations: 1) when applying the domestic content procurement preference would be inconsistent with the public interest, 2) when types of iron, steel, manufactured products or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality, or 3) where the inclusion of those products and materials will increase the cost of the overall project by more than 25 percent. Before issuing a waiver, HUD, must make a detailed written explanation for the proposed determination to issue the waiver publicly available and provide a period of not less than 15 days for public comment on the proposed waiver. Additional details on waivers can be found in Sections VIII and IX of this Notice.

A. Federal Government-wide Guidance on BABA

As a part of the Federal government's support of domestic production and manufacturing through infrastructure investments, OMB and HUD have taken several steps to implement the BAP by providing guidance and issuing HUD general waivers.

On August 23, 2023, OMB issued final rules for 2 CFR Parts 184 and 200 and provided further guidance on implementing the statutory requirements and improving FFA management and transparency (88 Fed. Reg. 57750, effective October 23, 2023). These government-wide regulations apply to HUD programs and provide direction on implementing a BAP waiver process. The new and revised regulations also provide additional guidance on construction material standards, the cost

components of manufactured products, and their definitions.

On October 25, 2023, OMB issued guidance to all Federal agencies on how to implement BABA consistently across the government. The [“Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure” \(M-24-02\)](#) (OMB Guidance) directs Federal agencies, including HUD, on how to apply the BAP and provides an overview of the BAP waiver requirements. OMB may also issue additional or updated guidance in the future, and HUD will update its guidance as necessary.

B. HUD Actions and Guidance on BABA

BABA is a new and complex statute that became effective in 2022. As such, establishing governmentwide guidance on these new statutory requirements has been an iterative process. Since the passage of BABA, HUD has worked diligently to implement the BAP for all HUD programs. Before the law became effective on May 14, 2022, HUD established a Department-wide BABA leadership committee. On June 1, 2022, HUD issued a Request for Information (RFI) to collect public comments on potential BABA implications for HUD grantees (87 FR 33193). To ease the transition in complying with the BAP, HUD proposed and received several general applicability waivers for covered FFA, which includes CPD programs. These waivers and other BABA information are available on HUD’s website at <https://www.hud.gov/baba>. Further details on these waivers and their application to CPD programs are provided in Section V of this Notice.

CPD has taken several actions to notify and communicate with stakeholders and grantees on BABA requirements and their impact on CPD programs. Since Fiscal Year (FY) 2022, all grant transmittal letters and notices of funding opportunities (NOFOs) have included a reference to the BAP under BABA. For the FY2023 and FY2024 funding allocations, all CPD grant agreements with covered FFA included a clause to require that the grantee must comply with BABA, as applicable, which will remain in place for future allocations. Throughout 2023 and 2024, CPD has held BABA information sessions for CPD grantees and operates a dedicated email box at CPDBABA@hud.gov to answer questions from individual grantees and stakeholders. In October 2023, CPD established a HUD Exchange page (hudexchange.info/programs/baba/) as a central resource for grantees. CPD has developed technical assistance products, including quick guides, webinars, and frequently asked questions (FAQs), that are available to CPD grantees on this site.

II. Definitions

CPD has aligned its definitions regarding policy interpretations of BABA with regulations at 2 CFR part 184 and Appendix 1 of OMB guidance M-24-02 as stated below.

1. Build America, Buy America Act is defined in 2 CFR § 184.3 and means division G, title IX, subtitle A, parts I–II, sections 70901 through 70927 of the Infrastructure Investment and Jobs Act (Pub. L. No. 117-58).
2. Buy America Preference is defined in 2 CFR § 184.3 and means the “domestic content procurement preference” set forth in section 70914 of BABA, which requires the head of each Federal agency to ensure that none of the funds made available for a Federal award for

an infrastructure project may be obligated unless all of the iron, steel, manufactured products, and construction materials incorporated into the project are produced in the United States.

3. Categorization of Articles. The term “categorization of articles” refers to the requirement that articles, materials, and supplies should only be classified into one of the following categories:
 - i. Iron or steel products;
 - ii. Manufactured products;
 - iii. Construction materials; or
 - iv. Section 70917(c) materials.

Each article, material, or supply should be classified in only one of the categories listed above. In some cases, an article, material, or supply may not fall under any of the categories listed in this paragraph. The classification of an article, material, or supply as falling into one of the categories listed in this paragraph must be made based on its status at the time it is brought to the work site for incorporation into an infrastructure project. In general, the work site is the location of the infrastructure project at which the iron, steel, manufactured products, and construction materials will be incorporated.

4. Component is defined in 2 CFR § 184.3 and means an article, material, or supply, whether manufactured or unmanufactured, incorporated directly into: a manufactured product; or, where applicable, an iron or steel product.
5. Construction Materials is defined in 2 CFR § 184.3 and means articles, materials, or supplies that consist of only one of the items listed in paragraph (1) of this definition, except as provided in paragraph (2) of this definition. To the extent one of the items listed in paragraph (1) contains as inputs other items listed in paragraph (1), it is nonetheless a construction material.
 - (1) The listed items are:
 - i. Non-ferrous metals;
 - ii. Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
 - iii. Glass (including optic glass);
 - iv. Fiber optic cable (including drop cable);
 - v. Optical fiber;
 - vi. Lumber;
 - vii. Engineered wood, and
 - viii. Drywall.
 - (2) Minor additions of articles, materials, supplies or binding agents to a construction material do not change the categorization of the construction material.
6. Covered Materials includes the following when used in connection with an Infrastructure Project:
 - (A) all iron and steel;

- (B) all Manufactured Products; and
- (C) all Construction Materials.

7. Covered CPD Programs. The term “covered CPD programs” means any Federal financial assistance administered by CPD that is used for public infrastructure projects, excepting expenditures related to pre and post disaster or emergency response.
8. Grantee. The term “grantee,” as defined at 24 CFR 5.100, means the person or legal entity to which a grant is awarded and that is accountable for the use of the funds provided.
9. Federal Financial Assistance (FFA) has the meaning given to the term in 2 CFR 200.1 (or successor regulations) and includes all expenditures by a Federal agency to a Non-Federal Entity for an Infrastructure Project, except that it does not include:
 - (A) expenditures for assistance authorized under section 402, 403, 404, 406, 408, or 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170a, 5170b, 5170c, 5172, 5174, or 5192) relating to a major disaster or emergency declared by the President under section 401 or 501, respectively, of such Act (42 U.S.C. 5170, 5191); or
 - (B) pre and post disaster or emergency response expenditures.
10. Infrastructure as described in 2 CFR 184.4(c), encompasses public infrastructure projects in the United States, which includes, at a minimum: the structures, facilities, and equipment for roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property; and structures, facilities, and equipment that generate, transport, and distribute energy including electric vehicle (EV) charging. See also 2 CFR 184.4(d).
11. Infrastructure Project The term “infrastructure project” is defined in 2 CFR 184.3 and means any activity related to the construction, alteration, maintenance, or repair of public infrastructure in the United States regardless of whether infrastructure is the primary purpose of the project. See also 2 CFR 184.4(c) and (d).
12. Iron and Steel Products The term “iron and steel products” is defined in 2 CFR 184.3 and means articles, materials, or supplies that consists wholly or predominantly of iron or steel, or a combination of both.
13. Predominantly of iron or steel or a combination of both is defined in 2 CFR 184.3 and means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.

14. Made in America Office. The term “Made in America Office” or “MIAO” means the office at the Office of Management and Budget, established by section 70923 of BABA, that is charged with implementing the BAP and establishing the procedures to review waiver requests.
15. Manufactured Products is defined in 2 CFR 184.3 and means:
- (1) Articles, materials, or supplies that have been:
 - (i) Processed into a specific form and shape; or
 - (ii) Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.
 - (2) If an item is classified as an iron or steel product, a construction material, or a section 70917(c) material under 2 CFR 184.4(e) and the definitions set forth in this section, then it is not a manufactured product. However, an article, material, or supply classified as a manufactured product under 2 CFR 184.4(e) and paragraph (1) of this definition may include components that are construction materials, iron or steel products, or section 70917(c) materials.
16. Manufacturer is defined in 2 CFR 184.3 and means the entity that performs the final manufacturing process that produces a manufactured product.
17. Non-Federal Entity means a State, local government, Indian tribe, Institution of Higher Education (IHE), or nonprofit organization that carries out a Federal award as a recipient or subrecipient., as provided in 2 CFR 200.1.
18. Not Listed Construction Materials The term “not listed construction materials” refers to the category of construction materials that are subject to the BAP, but not included in HUD’s specifically listed construction materials, as defined in the Phased Implementation Waiver. This includes:
- i. plastic and polymer-based products other than composite building materials or plastic and polymer-based pipe or tube;
 - ii. glass (including optic glass); and
 - iii. drywall.
19. Obligate means an action taken by HUD that creates a legal liability of the government for the payment of goods and services ordered or received or that administratively recognizes a legal duty on the part of the Agency that could mature into a legal liability by virtue of actions outside of HUD’s control. The milestone in the federal assistance award process that establishes the obligation date varies for each program, but for many CPD programs the obligation date occurs upon HUD’s execution of the grant agreement.
20. OMB Guidance. The term “OMB guidance” refers to 2 CFR Part 184, the "[Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure](#)" (M-24-02), issued October 25, 2023, by the Office of Management and Budget, and any subsequent guidance to rescind or replace M-24-02. This

guidance is applicable to the heads of all Federal agencies for the implementation of BABA's Buy America Preference.

21. Pre and Post Disaster or Emergency Response Expenditures. The term “pre and post disaster or emergency response expenditures” means Federal funding authorized under section 402, 403, 404, 406, 408, or 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) relating to a major disaster or emergency declared by the President under section 401 or 501, respectively. The BAP does not apply to pre- and post-disaster or emergency response expenditures authorized by statutes other than the Stafford Act and made in anticipation of or in response to an event that qualifies as an emergency or major disaster within the meaning of the Stafford Act.
22. Produced in the United States is defined in 2 CFR 184.3 and means:
- i. In the case of iron or steel products, all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
 - ii. In the case of manufactured products:
 - 1. The product was manufactured in the United States; and
 - 2. The cost of components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard that meets or exceeds this standard has been established under applicable law or regulation for determining the minimum amount of domestic content of the manufactured product. See 2 CFR 184.2(a). The costs of components of a manufactured product are determined according to 2 CFR 184.5.
 - iii. In the case of construction materials, all manufacturing processes for the construction material occurred in the United States. See 2 CFR 184.6 for more information on the meaning of “all manufacturing processes” for specific construction materials.
23. Section 70917(c) Materials. The term “section 70917(c) materials” is defined in 2 CFR 184.3 and means cement and cementitious materials; aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

The Federal Register Notice implementing new BABA regulations at 2 CFR 184 (88 FR 57787) clarifies that all categorizations of Covered Materials should be made based on the status of the material when it arrives at the work site. Section 70917(c) materials that are used at the work site, such as wet concrete or hot asphalt, are not subject to the BAP. However, Section 70917(c) materials may be components of manufactured products if, for example, they are used to produce precast concrete products before being transported to the work site.

24. Specifically listed construction materials. The term “specifically listed construction materials” for HUD programs includes:

- a. non-ferrous metals;
- b. lumber;
- c. composite building materials; and
- d. plastic and polymer-based pipe and tube.

III. Applicability of the BAP to CPD Programs and Projects

The BAP applies to the purchase of iron, steel, manufactured products, and construction materials for Covered CPD Programs when funds are used for the construction, alteration, maintenance, or repair of public infrastructure, as defined by BABA. This list of Covered CPD Programs is subject to change if there are any changes to the eligible uses of funds or the establishment of new programs that fund public infrastructure projects and are covered by BABA. Covered CPD Programs currently include:

- Community Development Block Grant Formula Programs (CDBG)
- Section 108 Loan Guarantee
- HOME Investment Partnerships Program (HOME)
- Housing Trust Fund (HTF)
- Recovery Housing Program (RHP)
- Emergency Solutions Grants (ESG)
- Continuum of Care (CoC)
- Housing Opportunities for Persons With AIDS (HOPWA)
- Self-Help Homeownership Opportunity Program (SHOP)
- Special NOFA for unsheltered and rural homeless
- Veterans Housing Rehabilitation and Modification Program (VHRMP)
- Community Project Funding (CPF)/Economic Development Initiatives (EDI)
- Section 4 Capacity Building
- Rural Capacity Building
- Pathways to Removing Obstacles to Housing (PRO Housing)
- Preservation and Reinvestment Initiative for Community Enhancement (PRICE)
- Continuum of Care Builds Notice of Funding Opportunity (CoCBuilds NOFO)

BABA applies to any project that involves the construction, alteration, maintenance, or repair of public infrastructure, regardless of whether infrastructure is the primary purpose of the project. Since the term “infrastructure” includes the structures, facilities, and equipment for “buildings and real property”, the BAP generally applies to Covered CPD Program funds provided for housing projects. OMB acknowledged at 2 CFR 184.4(d) that some projects may be “private” in nature and are not considered public infrastructure subject to BABA. An example OMB provided in M-24-02 is a project consisting solely of the purchase, construction, or improvement of a private single-family home for personal use.

Through this notice, CPD provides further clarification on when grantees should apply BABA’s requirements to housing projects as described in M-24-02.

1. Housing projects with one to four units are considered “private,” consistent with HUD’s definition of single-family housing. Housing projects with one to four units, including

onsite utilities and related activities are therefore not considered public infrastructure and are not subject to the BAP.

2. Housing projects with five or more units are considered public infrastructure. Housing projects with five or more units are therefore subject to the BAP unless another BABA waiver or exemption applies.

Covered Materials incorporated into the public infrastructure project are subject to the BAP, regardless of the specific project costs for which Covered CPD Program funds are expended. To determine the scope of an individual public infrastructure project for BABA purposes, grantees should use the definition of a project as determined by the Covered CPD Program in question. For example, 24 CFR 92.2 defines a HOME project as “a site or sites together with any building (including a manufactured housing unit) or buildings located on the site(s) that are under common ownership, management, and financing and are to be assisted with HOME funds as a single undertaking under this part. The project includes all the activities associated with the site and building.”¹

Where no program-specific definition of a project exists, grantees should use the definition of a “project” at 24 CFR 58 to assist with determining project scope: “an activity or group of integrally related activities designed by the recipient to accomplish, in whole or in part, a specific objective.” Grantees cannot split an infrastructure project to avoid application of the BAP to the project, such as by dividing procurements, subgrants, cooperative agreements, etc., into separate and smaller awards or contracts, particularly where the procurements, subgrants, cooperative agreements, etc., are integrally and proximately related to the whole.

IV. CPD Programs and Funding Not Covered by the BAP

The BAP does not apply to Federal funds for “pre and post disaster or emergency response.” The following list of CPD funds are administered for disaster or emergency-related purposes and therefore the BAP does not apply to them.

- Community Development Block Grant – Disaster Recovery Funds (CDBG-DR)
- Community Development Block Grant – Mitigation (CDBG-MIT)
- Community Development Block Grant – National Disaster Resilience Competition (CDBG-NDR)
- Community Development Block Grant CARES Act (CDBG-CV)
- HOME Investment Partnerships American Rescue Plan Program (HOME-ARP)
- Housing Opportunities for Persons With AIDS CARES Act (HOPWA-CV)
- Emergency Solutions Grants CARES Act (ESG-CV)
- Rapid Unsheltered Survivor Housing (RUSH)

In addition to the funding sources listed above, the BAP does not apply to projects funded solely with program income generated through any Covered CPD Program. Program income is not considered FFA.

¹ See also 24 CFR 93.2 for HTF, 24 CFR 578.3 for CoC, etc.

BABA does not apply to projects that do not include any construction, alteration, maintenance, or repair of public infrastructure. Equipment, tools, and supplies that are brought to a construction site and removed upon completion of the project or furnishings used within the finished project that are not permanently affixed to the public infrastructure project are not covered by the BAP.

V. HUD’s General Waivers Applicable to Covered CPD Programs

BABA requirements may be waived by HUD and OMB when applying the BAP would be inconsistent with the public interest, when Covered Materials are not reasonably available in sufficient quantities or quality, or if the inclusion of Covered Materials produced in the United States will increase the overall project by more than 25 percent. The term “general applicability waiver” refers to waivers that have broad applicability across multiple HUD programs. The general applicability waivers for HUD FFA that are currently in effect for all Covered CPD Programs as of publication of this Notice are listed below.

General public interest waivers may be applied to all or a portion of a project without prior approval from HUD when a project meets the conditions established by the waiver. Grantees should maintain documentation demonstrating that the project meets the conditions of each general waiver applied to the project. HUD is responsible for processing and reviewing all waivers, which may only apply prospectively to future expenditures incurred after the effective date of the final waiver. The table below is current as of the publication of this Notice. Details of all proposed and approved waivers can be found at HUD’s website at <https://www.hud.gov/baba>.

General Waiver Type	Purpose	Effective Dates
Public Interest Phased Implementation	HUD issued a public interest waiver, <i>“Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance”</i> to allow for orderly implementation of the BAP across HUD programs. The Phased Implementation Waiver establishes a schedule for the phased implementation of the BAP across CPD programs and infrastructure materials.	The public interest waiver was issued in March 2023 and established a phased implementation schedule for the application of the BAP to HUD programs through FY2025. The BAP has been in effect since November 15, 2022, for the use of iron and steel for infrastructure projects funded with newly obligated FFA through the CDBG program.
Exigent Circumstances	HUD issued a public interest waiver for exigent circumstances, <i>“Public Interest Waiver of Build America, Buy America Provisions for Exigent Circumstances as Applied to Certain Recipients of HUD Federal Financial Assistance”</i> . This waiver applies when there is an urgent need by a CPD grantee to immediately	The public interest waiver for exigent circumstances is effective from November 23, 2022, until November 23, 2027, or such shorter time as HUD may announce via Notice.

General Waiver Type	Purpose	Effective Dates
	complete an infrastructure project because of a threat to life, safety, or property of residents and the community.	
De Minimis and Small Grants	HUD issued a public interest titled “<u>Public Interest De Minimis and Small Grants Waiver of Build America, Buy America Provisions as Applied to Certain Recipients of HUD Federal Financial Assistance</u>”. This waives the BAP for all infrastructure projects whose total cost (from all funding sources) is equal to or less than the simplified acquisition threshold at 2 CFR 200.1, which is currently \$250,000. This Notice also waives the application of the BAP for a <i>de minimis</i> portion of an infrastructure project, meaning a cumulative total of no more than five percent of the total cost of the iron, steel, manufactured products, and construction materials used in and incorporated into the infrastructure project, up to a maximum of \$1 million.	The public interest <i>de minimis</i> , and small grants waiver is effective from November 23, 2022, until on November 23, 2027, or such shorter time as HUD may announce via Notice.
Tribal Recipients Waiver	HUD issued a public interest waiver, “ <u>Extension of Public Interest, General Applicability Waiver of Build America, Buy America Provisions as Applied to Tribal Recipients of HUD Federal Financial Assistance</u> ” for the BAP as it applies to Tribal recipients.	The waiver of the BAP as it applies to Tribal recipients was effective for FFA obligated by HUD from May 23, 2023, until September 30, 2024.
Pacific Island Territory Waiver	HUD issued a “ <u>Public Interest, General Applicability Waiver of Build America, Buy America Provisions as Applied to Pacific Island Territory Recipients of HUD Federal Financial Assistance: Final Notice</u> ” which waives the BAP for any FFA used for infrastructure projects in the Commonwealth of the Northern Mariana Islands, Guam, and American Samoa.	The waiver is effective from November 15, 2023, until February 15, 2025.

VI. Understanding HUD’s Public Interest Phased Implementation General Waiver

Under Section 70914(a), the BAP was required to be in effect for all FFA for public infrastructure projects no later than 180 days after it was signed into law. Thus, starting May 14, 2022, all new awards of covered FFA for infrastructure projects obligated by HUD would have been required to comply with the BAP. Due to the short implementation period of 180 days, and to allow for the domestic industry and FFA recipients to have the time and notice necessary to implement BABA efficiently and effectively, HUD issued a Phased Implementation Waiver. This waiver enabled HUD to implement the BAP in an incremental process, resulting in full compliance with the BAP for all HUD obligations in FY 2025.

Covered CPD Programs began applying the BAP to public infrastructure projects beginning with CDBG funds obligated by HUD on and after November 15, 2022. The table below outlines the timeline for applicability of the BAP to each classification of Covered Materials incorporated into public infrastructure projects undertaken with Covered CPD Program funds. The columns identify categories of Covered Materials subject to the BAP and the rows identify covered HUD FFA, some of which are Covered CPD Programs and some of which are FFA from other HUD offices that may contribute funding to CPD-funded projects. Note that HUD’s Phased Implementation Waiver divides the statutorily defined category of construction materials into two separate buckets for purposes of applying the BAP. See definitions of specifically listed and not listed construction materials in Section II.

To use the table, find the program(s) that funds the project under consideration, then identify which Covered Materials will be used in the project. The cell in the table where the applicable row and column intersect indicates the date on which the BAP will begin applying to each classification of Covered Materials used in the project. It is important to note that the date of obligation is typically the date on which HUD executed the legal instrument creating the relationship between HUD and the grantee for an award of FFA, commonly the date the grant agreement is signed by HUD. The date on which the grantee commits funds to a project or awards funds to a subrecipient does not impact applicability of the BAP.

For example, a grantee uses FY24 CDBG funding to build a new senior center and the HUD grant agreement was signed by the CPD Director on September 15, 2024. The grantee would use the phased implementation table to determine that:

- Since the funds were from FY24 appropriations and HUD executed the grant agreement after November 15, 2022, the BAP applies to all iron or steel materials and any specifically listed construction materials incorporated into the public infrastructure project; and
- Any not listed construction materials and manufactured products incorporated into the project are not subject to the BAP.
- However, if the grantee were to add funds from an FY25 CDBG grant in the future, then the BAP would apply to all Covered Materials used in the public infrastructure project.

A public infrastructure project may use funding from multiple Covered CPD Programs that impose the BAP to Covered Materials at different points in time. In that case, the procurement of Covered Materials for the project must comply with the program that applies the BAP most broadly.

For example, a public infrastructure project uses FY23 CDBG funding and FY24 HOME funding in the construction of a new multifamily housing development with 12 total units. HUD executed the CDBG grant agreement on September 15, 2023, and HUD executed the HOME grant agreement on September 12, 2024. The phased implementation table is used to determine that:

- HUD executed the CDBG grant agreement after November 15, 2022, but prior to FY24 appropriations. The BAP would apply to iron and steel products incorporated in the public infrastructure project.
- HUD executed the HOME grant agreement after August 23, 2024. The BAP would apply to iron and steel products, construction materials, and manufactured products (all Covered Materials) incorporated into the public infrastructure project.
- In this case, the HOME requirements are broader. Therefore, the procurement of all iron and steel products, construction materials, and manufactured products incorporated in the public infrastructure project must comply with the BAP.

Grantees who are considering adding Covered CPD Program funds for construction, maintenance, alteration, or repair of an infrastructure project that was not previously subject to BABA should contact their local CPD Field Office for technical assistance.

BAP will apply to...	Iron and Steel	Construction Materials – Specifically Listed	Construction Materials – Not Listed	Manufactured Products
CDBG Formula Grants	All funds obligated on or after November 15, 2022	As of the date HUD obligates new FFA from Fiscal Year 2024 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations
Choice Neighborhood, Lead Hazard Reduction, and Healthy Homes Production Grants	New FFA obligated by HUD on or after February 22, 2023	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024
Recovery Housing Program (RHP) Grants	New FFA obligated by HUD on or after August 23, 2023	As of the date HUD obligates new FFA from Fiscal Year 2024 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations
All other HUD FFA except HOME, Housing Trust Fund, and Public Housing FFA used for maintenance projects	New FFA obligated by HUD on or after February 22, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024
HOME, Housing Trust Fund, and Public Housing FFA used for maintenance projects	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024

VII. Applying the BAP and HUD General Waivers to Covered CPD Programs

Grantees should assess each project undertaken with Covered CPD Program funds to determine which Covered Materials incorporated into the project are subject to the BAP based on the effective dates in the Phased Implementation Waiver described above. This section describes the process grantees should follow to determine whether a project is subject to the BAP and if the project may be exempted in whole or in part by one of HUD’s general waivers.

As a part of its record-keeping, a CPD grantee should document its process to analyze if the

BAP applies to a public infrastructure project using the approach described below. An optional “Buy America Preference Applicability Checklist” is included in Appendix 2 of this Notice. Grantees may choose to use or adapt the tool to serve as a record of the analysis completed for each project.

Step 1: Type of project/activity

Determine if the project is a public infrastructure project as defined in Sections II and III of this Notice. If the project is a public infrastructure project, the analysis continues to step 2.

Step 2: Funding sources

Identify the source(s) of the project funding, including Covered CPD Programs, other HUD funds, or other Federal agency funding. If the project includes funding from a Covered CPD Program listed in this Notice, the analysis continues to Step 3.

Step 3: Covered Materials

Identify and classify all the materials that will be incorporated into the project. Each material should be classified into only one category: iron and steel, specifically listed construction materials, not listed construction materials, or manufactured products. It is important to classify all Covered Materials used in the project to accurately determine BAP applicability because the BAP may only apply to some Covered Materials used in the project under the Phased Implementation Waiver.

The classification must be made based on the material’s status at the time it is brought to the location for incorporation into a public infrastructure project. If the project contains any Covered Materials, continue to Step 4.

Step 4: Date of obligation

Use the phased implementation table provided in Section VI of this Notice to determine when the BAP applies to each classification of Covered Materials, based on the obligation date for the Covered CPD Program funds. If the project uses any Covered CPD Program funds subject to the BAP based on the HUD obligation date, identify which Covered Materials must be produced in the United States. The obligation date is generally the date that HUD makes a legal commitment for Covered CPD Program funds to the grantee. The date on which a grantee commits funds to a specific project does not impact the applicability of the BAP.

The obligation date is typically when HUD executes the grant agreement, but this may vary by program. For example, the obligation date for CDBG funds can be found in the CDBG grant agreement. Refer to Appendix 1 or contact your local CPD Field Office for assistance regarding the obligation date. If the project needs a waiver of the BAP for any Covered Materials, continue the analysis to Step 5.

Step 5: General waivers

Analyze each available HUD general waiver, based upon the specific requirements of that waiver. Public infrastructure projects that meet the conditions of a general waiver may be exempt in whole or in part from the BAP. Most HUD general waivers provide exemptions for an entire public infrastructure project that meets the waiver's conditions. Grantees that apply a general waiver to an entire project should maintain documentation in their project records.

The *De Minimis and Small Grants Waiver* is uniquely useful for public infrastructure projects that are not covered in their entirety by the other general waivers. The *De Minimis and Small Grants Waiver* offers flexibility to incorporate Covered Materials of foreign or unknown origin up to 5% of the total cost of Covered Materials used in the project or \$1 million, whichever is less. The total cost of Covered Materials includes all classifications of materials, regardless of whether they are subject to the BAP based on HUD's Phased Implementation Waiver. This waiver advances compliance with the BAP by reducing the administrative burden to grantees where the costs of compliance with the BAP could distract from the focus on higher value BAP-compliant items. When using the *De Minimis* waiver, the grantee should document which Covered Materials the waiver was applied to in the project records.

For example, if the total cost of Covered Materials in a project is \$100,000, then the grantee should calculate 5% of that total, which equals \$5,000. The grantee may use the *De Minimis* waiver to use Covered Materials from foreign or unknown sources up to \$5,000. This flexibility can be used towards a specific high-value item or multiple items with lesser values, up to a total of \$5,000.

Grantees should calculate this limit for all public infrastructure projects and maximize this flexibility before seeking project-/product-specific waivers. For projects where general waivers do not provide relief for Covered Materials that cannot be procured from domestic sources, a project-/product-specific waiver may be appropriate. Continue the analysis in Step 6.

Step 6: Project-/Product-Specific Waivers

If the BAP applies to a project and all general waiver flexibilities have been utilized, but there are remaining Covered Materials that can only be sourced from foreign or unknown sources, then a grantee may apply for a project-/product-specific waiver. Prior to submitting a project-/product-specific waiver, the grantee must conduct market research to demonstrate its efforts to procure domestic products. One optional resource for conducting market research is the National Institute of Standards and Technology Manufacturing Extension Partnership (NIST MEP) center in the grantee's state. Grantees are encouraged to collaborate with relevant members of the project team to identify Covered Materials that cannot be obtained from domestic sources as early as possible in the project life cycle. [NIST MEP's free supplier scouting resources](#) can attempt to identify a domestic manufacturer that can supply the necessary materials or conduct the necessary market research to support the need for a project-/product-specific waiver.

As a part of its record-keeping, a grantee should document its process to analyze how the

BAP applies to a public infrastructure project using the approach described in this section and in Appendix 2. Grantees may also consult their local CPD Field Office for assistance in confirming the analysis completed for a specific project before applying for a project-/product-specific waiver.

VIII. Federal Government-wide Guidance on Project-/Product-Specific Waivers

Once a grantee has completed the analysis described in Section VII and determined that a project-/product-specific waiver is required, the grantee should consider which type of project/product-specific waiver is appropriate, as described below.

The three types of project-/product-specific waivers for which a grantee may apply are described below.

1. A **nonavailability waiver** may be requested if the types of iron, steel, manufactured products, or construction materials required for the project are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality
2. An **unreasonable cost waiver** may be requested when the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent.
3. A **public interest waiver** may be requested if the use of American made products would be inconsistent with the public interest. Grantees should explain how waiving the BABA requirement for this project or covered material will serve the public interest and demonstrate definite impacts on the community if specific items, products, or materials are not utilized in an infrastructure project to support this waiver type.

A. Waivers for Infrastructure Projects Funded by Multiple Federal Agencies

If a waiver is required for a public infrastructure project funded by multiple Federal agencies, the Federal agency contributing the greatest amount of Federal funds for the project may be considered the Cognizant Agency for Made in America (“Cognizant Agency”) and may take responsibility for coordinating with the other Federal awarding agencies. Each Federal agency waiving the BAP must make its own waiver determination. A Cognizant Agency cannot independently issue a waiver that applies to other agencies. Grantees that fund public infrastructure projects with other Federal agencies should contact the local CPD office as early as possible to coordinate review with other Federal agencies in the event a project-/product-specific waiver is needed.

OMB guidance outlined the waiver review process for agencies to follow before issuing a waiver. Based on this guidance, HUD has developed a Department-wide project-/product-specific waiver submission process, described in Section IX.

IX. Applying for a HUD Specific Waiver

This section describes the process a grantee should follow to request a project-/product-specific waiver. Only the direct HUD recipient should submit a waiver request. Subrecipients and/or subcontractors may not submit a waiver request. The direct recipient should work with project partners to obtain necessary information. Project-/product-specific waivers cannot be approved retroactively for items that have already been purchased or incorporated into a project, so grantees should determine if a project-/product-specific waiver is needed as early as possible in the planning process.

1. Complete the BAP analysis described in Section VII of this Notice to confirm that the project is subject to the BAP and that the grantee has maximized the flexibility provided by HUD general waivers. Grantees may use the optional recordkeeping tool in Appendix 2 and contact the local CPD Field Office if technical assistance is needed.
 - a) This step should always include calculating the *De Minimis* limit allowed by HUD's *De Minimis* waiver and applying that flexibility to the products used in the project that cannot be procured from domestic manufacturers, as described in Section VII, Step 5.
2. Complete the necessary market research to support the need for a waiver. Market research may be completed by the grantee or the subrecipient/contractor who has been awarded funds and is purchasing the materials that will be incorporated into the infrastructure project. Acceptable market research strategies may include one or more of the following:
 - b) Document the report showing results of supplier scouting services provided by the NIST MEP, or similar supplier scouting service. For more information about the supplier scouting process, contact the [local MEP center](#).
 - c) Document that the purchaser has made a good faith effort to contact a minimum of three (3) manufacturers or suppliers to determine if a BABA-compliant material is available in sufficient quantity and satisfactory quality. Documentation may include PDF files or screenshots of Internet searches or email communications, or documentation of phone conversations that notes the date and time of the call, the contact person with whom the purchaser spoke, and a summary of the information received.
3. Collect the required information to complete a waiver application using HUD's [BABA Waiver Submission Site \(https://babawaiver.hud.gov/s/\)](https://babawaiver.hud.gov/s/). Access the [PDF version](#) of the application form to see questions ahead of time to assist with preparation. Once started, the application cannot be saved, so make sure all information has been collected in advance.
4. Submit a BABA waiver application through the BABA Waiver Submission Site. For help with completing the application, access the [Grantee User Manual](#) or view the [BABA Waiver System Training video](#). For additional technical assistance navigating the waiver system, please email BuildAmericaBuyAmerica@hud.gov.
5. HUD may contact the grantee for additional information as part of a review of the waiver application to validate the need for a waiver.

6. If an application is approved, HUD will post the proposed waiver in the Federal Register for a minimum 15-day public comment period and submit the request to the Made In America Office (MIAO). The MIAO will then review the proposed waiver and public comments for final approval, and communicate a final decision to HUD, which will communicate it to the grantee.

X. Documentation of Compliance with the BAP

This section describes documentation that grantees should maintain to demonstrate compliance with the BAP for Covered Materials, including required terms and conditions of subawards. Project records should describe the public infrastructure project, identify the Covered Materials subject to the BAP, and include documentation that all iron and steel, manufactured products, and construction materials were produced in the United States or evidence of how a waiver was applicable.

Grantees are encouraged to coordinate with relevant members of the public infrastructure project team to ensure that the Covered Materials delivered to the project site are accompanied by documentation that demonstrates compliance with the BAP. Early and frequent coordination, such as pre-bid meetings to identify any Covered Materials that may be a challenge to source domestically, are recommended.

Grantees must maintain documentation of compliance with the BAP in hard copy or electronic formats, or in grant management software and must make it available to HUD upon request for monitoring purposes. Records should be consistent with existing records retention requirements for each of the Covered CPD programs. If there are no CPD program-specific records requirements, the CPD grantee may follow “retention requirements for records,” under 2 CFR § 200.334 as applicable to Federal grants. The compliance documentation must support the following:

- Documentation of the determination of BAP applicability to the Covered Materials used in the public infrastructure project. Even if the project is determined to be exempt, documentation of that determination should be retained in the grant files to support the determination. See Section VII and the optional BAP Applicability Checklist in Appendix 2.
- If a project is subject to the BAP, documentation that all Covered Materials subject to the BAP were procured from BABA-compliant sources, as determined by HUD’s Phased Implementation Waiver.
- If a general waiver was applied to the project, documentation that supports that the project meets the conditions of the waiver.
- If a project-/product-specific waiver was obtained for the project, a copy of the approved waiver and market research supporting the need for the waiver.

CPD grantees are required to identify whether an activity is an infrastructure project, as defined by BABA, in the Integrated Disbursement and Information System (IDIS) or the Disaster Recovery Grant Reporting System (DRGR), depending on the covered CPD program. Grantees will be prompted to answer a question regarding BAP applicability when creating a new activity or adding new funds to an existing activity. Grantees should answer the question based on the analysis in Section VII.

If the project is subject to the BAP requirements, the following are examples of information and documentation that the grantee may retain to demonstrate compliance. This is not an exhaustive or mandatory list and simply provides examples of documentation that can be maintained to support the conditions outlined above.

- A. Project budget specifying the total project cost and the cost of Covered Materials.
- B. Procurement list(s) of Covered Materials purchased for the public infrastructure project, either by the grantee, subrecipient, or contractor. This list(s) should reflect, for example:
 - a. Type of covered material, (iron, steel, manufactured product, or construction material);
 - b. Product or Material;
 - c. FFA Source(s);
 - d. FFA Obligation Date(s);
 - e. Costs per unit;
 - f. Total cost of product purchase or contract;
 - g. Manufacturer or Vendor;
 - h. Actual purchaser (grantee, sub-recipient, contractor);
 - i. Special Quality Standards, if applicable; and
 - j. U.S. Made verification, if available (Made in the USA label, product specifications, vendor or contractor certification, etc.).
- C. Documentation supporting the Covered Materials incorporated into the public infrastructure were made in the United States, for example:
 - a. A copy of the label indicating the product was made in the United States;
 - b. A copy of the product description or technical specifications that provides sufficient detail to conclude that the Covered Materials comply with BABA;
 - c. A certificate or other documentation from the manufacturer demonstrating that the Covered Materials comply with BABA;
 - d. A signed certification from the contractor of a project certifying compliance with BABA. (See Appendix 3 for an example.);
 - e. A signed certification from the manufacturer of the Covered Materials certifying compliance with BABA.
- D. Results of market research and product sourcing to include, for example, the following:
 - a. Results of a supplier scouting search conducted by NIST MEP or another supplier scouting service;
 - b. Copies of web searches used (e.g., PDF/JPEG copies of web pages showing search terms and results including sources considered, eliminated, and chosen for further research);
 - c. Copies of email, fax, or mail correspondence with Covered Materials manufacturers or suppliers; and

- d. Records of phone communications with Covered Materials manufacturers or suppliers, including:
 - i. Dates and times of phone calls,
 - ii. Phone numbers used,
 - iii. Whether the phone communication was successful in making it possible to reach a staff person manufacturer or supplier able to respond to questions about BABA compliance, or whether the attempt at communication was 14 unsuccessful (e.g., left a message, phone line was busy, or phone line was disconnected),
 - iv. If the phone communication resulted in reaching someone, the name of the person contacted,
 - v. Notes describing the substance of the conversation (e.g., manufactured product is assembled in U.S., but the manufacturer is uncertain whether 55% of the value of the materials/components are sourced in the United States).

XI. Subrecipient Compliance with BABA Requirements

The terms and conditions of Federal awards attach to the FFA and flow down to subrecipients at all tiers. This means that all subgrantees, contractors, developers, etc., who receive Covered CPD Program funds through a CPD grantee must comply with BABA requirements. Language notifying subrecipients that the procurement of materials for public infrastructure projects must comply with the BAP must be included in all subawards, contracts, purchase orders, requests for proposals, and all other relevant procurement and bid documents. Sample language that grantees may use for this purpose is included below.

“Pursuant to the Build America, Buy America Act (BABA), enacted as part of the Infrastructure Investment and Jobs Act (IIJA). Pub. L. 117-58, 41 U.S.C. § 8301 note, the Federal Financial Assistance used to fund this infrastructure project is required to apply a domestic content procurement preference (the “Buy America Preference” or “BAP”) for all construction, alteration, maintenance, or repair of infrastructure, including buildings and real property, unless application of the BAP has been waived by HUD. Additional details on fulfilling the BABA requirements can be found at <https://www.hud.gov/baba>.

XII. Contact Information

Grantees that have questions on this Notice should contact their assigned CPD Field Office Representative or request technical assistance from CPD staff at CPDBABA@hud.gov.

Appendix 1 - Frequently Asked Questions

This Notice includes CPD-specific frequently asked questions (FAQs). For additional FAQs, please view the BABA HUDEXchange site, hudexchange.info/programs/baba.

1. What projects or activities does the BAP apply to?

The BAP applies to the Covered Materials used in construction, alteration, maintenance, or repair of public infrastructure projects funded by Covered CPD Programs. The term “infrastructure” includes the structures, facilities, and equipment for projects traditionally considered infrastructure, and buildings and real property. For CPD programs, this may include, but is not limited to, certain funding for:

- road and sidewalk improvement projects;
- water, sewer, and other utility projects;
- broadband infrastructure;
- affordable housing construction and rehabilitation of buildings with five or more units;
- community facility construction and rehabilitation;
- homeless shelter construction and rehabilitation; and
- other activities that are defined as public infrastructure according to BABA.

2. What projects or activities are not subject to the BAP?

The BAP does not apply to projects undertaken with Covered CPD Program funds that do not involve any construction, alteration, maintenance, or repair of public infrastructure. Examples of CPD-funded projects to which the BAP does not apply include planning, capacity building, program administration, public services, training, counseling, short-term rental assistance, land acquisition and demolition projects where there are no articles, materials or supplies that are consumed in, incorporated into, or affixed to infrastructure. The BAP does not apply to affordable housing development projects with one to four units.

3. How can I find products that are Made in the USA?

The Federal Trade Commission requires that products advertised or labeled as “Made in the USA” are generally assembled with parts and materials made of U.S. origin. Some manufacturers provide certification letters available on their website or upon request. HUD encourages grantees to coordinate with their local NIST [Manufacturing Extension Partnership \(MEP\)](#) center or similar supplier scouting service to find potential domestic manufacturers of items that cannot readily be sourced domestically.

4. If a project is already underway with funds not subject to the BAP and new funding is added that is subject to the BAP, does the entire project need to comply with the BAP?

Yes, if any funds subject to the BAP are included in a project, the entire project must comply with the BAP for Covered Materials based on HUD’s and any other applicable

general waivers, regardless of when the project was originally funded. Grantees who are considering adding Covered CPD Program funds for construction, maintenance, alteration or repair of an infrastructure project that was not previously subject to BABA requirements, should contact the local CPD Field Office for technical assistance.

5. How do I find the obligation date of my grant?

The obligation date is, in most cases, the date the grant agreement was signed by the CPD Director. You can locate this date by looking at the original grant agreement or navigating to IDIS or DRGR. For grants managed in IDIS, navigate to the View Grant screen and locate the date in the Obligation Date field. For grants managed in DRGR, navigate to the View Grant screen and locate the Contract Effective Date.

Appendix 2 - Optional Buy America Preference Applicability Checklist

This checklist is an optional tool that may be used or adapted to assist with determining if the Buy America Preference (BAP) applies to a public infrastructure project funded by a covered CPD program. This checklist follows the analysis steps as described in Section VII of Notice CPD-25-01 and may be retained for recordkeeping purposes.

Project Information

Grantee	
Grant Number	
Activity Name	
Activity Number (IDIS/DRGR)	

Step 1. Determine if the project is a public infrastructure project as defined in Sections II and III of Notice CPD-25-01.

☐ Yes	Continue to Step 2.
☐ No	The BAP does not apply. The BAP only applies to public infrastructure projects. Stop here.

Step 2. Is the project funded using a Covered CPD Program?

Check the box below for each CPD program funding this project.

Group A: Covered CPD Programs

☐	CDBG	☐	SHOP
☐	Section 108	☐	VHRMP
☐	HOME	☐	CPF/EDI
☐	HTF	☐	Section 4
☐	RHP	☐	Rural Capacity Building
☐	ESG	☐	PRO Housing
☐	CoC	☐	PRICE
☐	HOPWA	☐	FY23 PSH Funds

Group B: CPD Programs Not Covered by the BAP

☐	CDBG-DR	☐	CDBG-CV
☐	CDBG-MIT	☐	HOPWA-CV
☐	CDBG-NDR	☐	ESG-CV
☐	HOME-ARP		

If you selected **any** Group A programs (even if Group B programs are also selected), answer yes. If you selected **only** Group B programs, answer no.

☐ Yes	Continue to Step 3.
☐ No	The BAP does not apply to this project because it is not funded by a covered CPD program. Stop here.

Step 3. Will the project use Covered Materials?

Each material should be classified into only one category: iron and steel, specifically listed construction materials, not listed construction materials, or manufactured products. This classification is necessary to apply HUD's Phased Implementation Waiver.

Check the box below for each type of covered material incorporated into this infrastructure project.

☐	Iron or steel
☐	Specifically Listed Construction materials
☐	Not Listed Construction materials
☐	Manufactured products

If you checked any boxes above, answer yes.

☐ Yes	Continue to Step 4.
☐ No	The BAP does not apply to this project because it will not incorporate any Covered Materials. Stop here.

Analysis continues on next page.

Step 4. Based on the obligation date of the covered CPD program funds, does the BAP apply to the funding source and Covered Materials that will be used in the project?

Use the phased implementation table to determine whether the BAP applies based on the obligation date for the covered CPD program funds and classification of materials. The BAP may only apply to some Covered Materials used in the project.

The obligation date is generally the date that HUD executed the grant agreement for covered CPD program funds to the grantee. This date may be found in the grant agreement. The obligation date is not the date when the grantee commits funds to a project under a subrecipient agreement.

BAP will apply to...	Iron and Steel	Specifically Listed Construction Materials	Not Listed Construction Materials	Manufactured Products
CDBG	CDBG funds obligated on or after 11/15/22	Projects using FY24 CDBG funds	Projects using FY25 CDBG funds	Projects using FY25 funds.
RHP	RHP funds obligated on or after 8/23/23	RHP funds obligated on or after 8/23/24	RHP funds obligated on or after 8/23/24	RHP funds obligated on or after 8/23/24
All other CPD programs except HOME and HTF	Funds obligated on or after 2/22/24	Funds obligated on or after 8/23/24	Funds obligated on or after 8/23/24	Funds obligated on or after 8/23/24
HOME and HTF	HOME or HTF funds obligated on or after 8/23/24	HOME or HTF funds obligated on or after 8/23/24	HOME or HTF funds obligated on or after 8/23/24	HOME or HTF funds obligated on or after 8/23/24

☐ Yes	Indicate here which Covered Materials the BAP applies to and continue to Step 5: ☐ Iron and steel ☐ Specifically listed construction materials ☐ Not listed construction materials ☐ Manufactured products
☐ No	The BAP does not apply to this project because the funds were obligated before the effective date for the program/materials used in the project. Stop here.

Step 5. HUD has issued several general waivers. Check the box next to any conditions that apply to the project.

Public infrastructure projects that meet the conditions of a general waiver may be exempt in whole or in part from the BAP.

☐	The total cost of the project from all sources (Federal and non-Federal) is \$250,000 or less. If checked, the Small Grants Waiver applies, and the project is exempt from the BAP.
☐	There is an urgent need to immediately complete the project because of a threat to life, safety, or property. If checked, the Exigent Circumstances Waiver applies, and the project is exempt from the BAP.
☐	The project is in Guam, American Samoa, or the Northern Mariana Islands. If checked, the Pacific Island Territories Waiver applies, and the project is exempt from the BAP.
☐	The project is being funded by a Tribal recipient. If checked, the Tribal Recipients Waiver applies, and the project is exempt from the BAP.

If you checked any of the boxes above, answer yes below.

☐ Yes	The HUD general waiver selected above is being applied to this project, so the BAP does not apply to the entire project. Attach documentation of the conditions of the waiver and then stop here.
☐ No	Proceed to Step 5a.

Step 5a. Calculate the *De Minimis* limit for the project:

The total cost of all Covered Materials includes all iron and steel, construction materials, and manufactured products used in the project, regardless of whether the BAP currently applies under the Phased Implementation Waiver.

Enter the total cost of all Covered Materials:	
Multiply that amount by 0.05 (5%):	
Enter the lower of the number calculated in the row above or \$1,000,000:	

The amount in the third row above is the *De Minimis* limit for this project. The BAP can be waived for Covered Materials from foreign or unknown sources at a cost not to exceed the *De Minimis* limit of 5% of the total cost of materials or \$1,000,000 (whichever is less). The BAP

will still apply to other Covered Materials used in the project. **Attach a list of Covered Materials and their associated costs to which the *De Minimis* limit has been applied.**

Step 6. Is there a need for a project-/product-specific waiver?

If the BAP applies to a project and all general waiver flexibilities have been utilized, but there are remaining Covered Materials that can only be sourced from foreign or unknown sources, then a grantee may apply for a project-/product-specific waiver.

☐ Yes	Refer to guidance in Section VII Step 6 of Notice CPD 25-01.
☐ No	Stop here and retain this analysis in project records.

Completed by

Date Completed

Appendix 3 - Optional Buy America Preference Certification

Project Information

Grantee	
Grant Number	
Activity Name	
Activity Number (IDIS/DRGR)	

This “*Optional Buy America Preference Certification*” is used to certify that, as required by the Build America, Buy America (BABA) Act, all of the iron, steel, manufactured products, and construction materials incorporated into a public infrastructure project are produced in the United States, unless exempted by a HUD general waiver or a project-/product-specific waiver approved by HUD and the Made in America Office (MIAO) at the Office of Management and Budget (OMB).

For Covered Materials not otherwise exempted from the Buy America Preference (BAP), the undersigned certifies the following:

- All iron and steel used in the project are produced in the United States. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- All manufactured products used in the project are produced in the United States. This means the manufactured product was manufactured in the United States, and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard that meets or exceeds this standard has been established under applicable law or regulation for determining the minimum amount of domestic content of the manufactured product; and
- All construction materials used in the project are manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States.

Attach a list of all Covered Materials procured by the signatory and used in the project.

I/We, the undersigned, certify under penalty of perjury that the information provided above is true and correct. WARNING: Anyone who knowingly submits a false claim or makes a false statement is subject to criminal and/or civil penalties, including confinement for up to 5 years, fines, and civil and administrative penalties. (18 U.S.C. §§ 287, 1001, 1010, 1012, 1014; 31 U.S.C. §§ 3729, 3802).

Signature	Title/Organization	Date



**U. S. Department of Housing and Urban Development
Office of Community Planning and Development**

Special Attention of:

NOTICE: CPD-2023-12

All Secretary's Representatives
All State/Area Coordinators
All CPD Division Directors
HUD Field Offices
HUD Regional Offices

Issued: **November 2, 2023**

Expires: Effective until amended, superseded,
or rescinded

Cross Reference:

Sections 70901-52 of Pub. L. No. 117-58

Subject: CPD Implementation Guidance for the Build America, Buy America Act's domestic content procurement preference as part of the Infrastructure Investment and Jobs Act.

This Notice provides initial implementation guidance for programs administered by the U.S. Department of Housing and Urban Development's (HUD) Office of Community Planning and Development (CPD) for the "Buy America Preference" (BAP) imposed by the Build America, Buy America Act (BABA) enacted under Division G, Title IX of the Infrastructure Investment and Jobs Act (IIJA, Pub. L. No. 117-58) signed into law on November 15, 2021.

This Notice provides CPD grantees and participating jurisdictions, collectively referred to as grantees, an overview of BABA, including key terms, HUD actions to implement BABA, guidance on HUD's general waivers, the phased implementation schedule for the BAP on CPD programs, and proposed next steps. The attached addenda include answers to frequently asked questions, examples of when the BAP applies for CPD grantees, and sample BAP language for agreements.

Purpose of the Notice

This Notice is intended to notify grantees of the “Buy America Preference” (BAP) requirement under the Build America, Buy America Act (BABA) as they apply to CPD programs. This Notice identifies the CPD programs and activities that must comply with BABA along with the timeline for the application of the BAP. It also highlights issues that grantees will want to consider when preparing for HUD’s full implementation of the BAP, as described in “Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance” (88 Fed. Reg. 17001, effective March 15, 2023). This Notice refers to 88 Fed. Reg. 17001 as the “Phased Implementation Waiver” which establishes BAP implementation points according to a schedule across HUD programs.

Note: The guidance provided in this Notice is subject to change if the Office of Management and Budget (OMB) updates guidance on the application of BABA for Federal financial assistance (FFA) programs for infrastructure.

I. Overview of Build America, Buy America Act

The Build America, Buy America Act (BABA)

The Build America, Buy America Act (BABA) was signed into law by President Biden on November 15, 2021, as part of the Infrastructure Investment and Jobs Act (IIJA) as Sections 70901-52 of Pub. L. No. 117-58. In addition to providing funding for roads, bridges, rails, and high-speed internet access, it created an incentive to increase domestic manufacturing across the country through the inclusion of BABA’s “Buy America Preference” (BAP). In general, the BAP requires that all iron, steel, manufactured products, and construction materials used in infrastructure projects funded with Federal financial assistance (FFA), as outlined in Section 70914(a) of BABA, must be produced in the United States. The intent of the BAP in BABA is to stimulate private-sector investments in domestic manufacturing, bolster critical supply chains, and support the creation of well-paying jobs for people in the United States. The preference is also intended to bolster American firms’ ability to compete and lead globally for years to come by requiring entities that receive Federal infrastructure funds to use American materials and products.

The BABA preference for American materials and products applies to all spending on infrastructure projects by Federal agencies, including HUD. In BABA and for purposes of this Notice, the Federal infrastructure spending with a BAP is referred to as “Federal financial assistance” or “FFA.” Under Section 70912(7), FFA for infrastructure “projects” includes the “construction, alteration, maintenance, or repair of infrastructure in the United States”. Under Section 70914(a), the use of American iron and steel, construction materials, and manufactured products applies to funding from CPD programs for infrastructure projects. However, the BAP does not apply to “pre and post disaster or emergency response expenditures” under Section 70912(4)(B). A list of CPD disaster or emergency funding meeting these criteria can be found in Section III.

Effective May 14, 2022, the BAP applies to infrastructure spending unless an agency issues a waiver in three limited situations: 1) when applying the domestic content procurement preference

would be inconsistent with the public interest, 2) when types of iron, steel, manufactured products or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality, or 3) where the inclusion of those products and materials will increase the cost of the overall project by more than 25 percent. Before issuing a waiver, under Section 70914(c), the head of a Federal agency, including HUD, must make publicly available a detailed written explanation for the proposed determination to issue the waiver and provide a period of not less than 15 days for public comment on the proposed waiver. Additional details on waivers can be found in Section IV.

A. Federal Government-wide Guidance on BABA

As a part of the Federal government's support of domestic production and manufacturing through infrastructure investments, OMB and HUD have taken several steps to implement the BAP by providing guidance and issuing HUD general waivers.

On August 23, 2023, OMB issued final rules for 2 CFR Parts 184 and 200 and provided further guidance on implementing the statutory requirements and improving FFA management and transparency (88 Fed. Reg. 57750, effective October 23, 2023). These government-wide regulations apply to HUD programs and provide direction on implementing a BAP waiver process. The new and revised regulations also provide additional guidance on construction material standards, the cost components of manufactured products, and their definitions.

On October 25, 2023, OMB issued guidance to all Federal agencies on how to implement BABA consistently across the government. The [“Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure” \(M-24-02\)](#) (OMB Guidance) directs Federal agencies, including HUD, on how to apply the BAP and provides an overview of the BAP waiver requirements. OMB may also issue additional or updated guidance in the future, and HUD will update its guidance as necessary.

B. HUD Actions and Guidance on BABA

BABA is a new and complex statute, which became effective in 2022. As such, establishing governmentwide guidance on these new statutory requirements has been an iterative process. Since the passage of BABA, HUD has worked diligently to implement the BAP for all HUD programs. Before the law became effective on May 14, 2022, HUD established a Department-wide BABA leadership committee. Beginning in June 2022, HUD issued a Request for Information (RFI) and collected public comments on potential BABA implications for HUD grantees. Based on these comments and to ease the transition in complying with the BAP, HUD proposed and received four general waivers for covered FFA, which includes CPD programs. These waivers and other BABA information are available on HUD's website at [BABA | HUD.gov / U.S. Department of Housing and Urban Development \(HUD\)](#). Further details on these waivers and their application to CPD programs are provided in Section IV of this Notice.

CPD has taken several actions to notify and communicate with stakeholders and grantees on BABA requirements and their impact on CPD programs. All CPD Fiscal Year (FY) 2022 grant transmittal letters and notices of funding opportunities (NOFOs) included a reference to the BAP

under BABA. For the FY2023 funding allocations, all CPD grant agreements with covered FFA included a clause to require that the grantee must comply with BABA, as applicable. Throughout 2023, CPD has held BABA information sessions for CPD grantees and has a dedicated email box at CPDBABA@hud.gov to answer questions from individual grantees and stakeholders.

HUD is continuing to work towards implementing BABA across its covered FFA programs. Next steps include establishing a centralized waiver process for all HUD covered programs. CPD is incorporating BABA in its existing reporting systems and processes. To assist grantees, CPD is also developing additional guidance materials and support as the phased implementation of BABA progresses.

II. Definitions

Key terms that have relevance to the interpretation and implementation of the BAP for CPD programs are defined in the BABA statute and may be found in 2 CFR part 184 and OMB guidance.

- A. Build America, Buy America Act is defined in 2 CFR § 184.3 and means division G, title IX, subtitle A, parts I–II, sections 70901 through 70927 of the Infrastructure Investment and Jobs Act (Pub. L. No. 117-58)
- B. Buy America Preference is defined in 2 CFR § 184.3 and means the “domestic content procurement preference” set forth in section 70914 of BABA, which requires the head of each Federal agency to ensure that none of the funds made available for a Federal award for an infrastructure project may be obligated unless all of the iron, steel, manufactured products, and construction materials incorporated into the project are produced in the United States.
- C. Categorization of Articles. The term “categorization of articles” refers to the requirement that articles, materials, and supplies should only be classified into one of the following categories:
 - i. Iron or steel products;
 - ii. Manufactured products;
 - iii. Construction materials; or
 - iv. Section 70917(c) materials.

An article, material, or supply should not be classified into more than one category and must be made based on the status of the article, material, or supply upon arrival to the work site for use in an infrastructure project. Articles, materials, or supplies must meet the Buy America Preference for only the single category in which they are classified and, in some cases, may not fall under any of the categories listed above.

- D. Component is defined in 2 CFR § 184.3 and means an article, material, or supply, whether manufactured or unmanufactured, incorporated directly into: a manufactured product; or, where applicable, an iron or steel product.
- E. Construction Materials is defined in 2 CFR § 184.3 and means articles, materials, or

supplies that consist of only one of the items listed in paragraph (1) of this definition, except as provided in paragraph (2) of this definition. To the extent one of the items listed in paragraph (1) contains as inputs other items listed in paragraph (1), it is nonetheless a construction material.

(1) The listed items are:

- i. Non-ferrous metals;
- ii. Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- iii. Glass (including optic glass);
- iv. Fiber optic cable (including drop cable);
- v. Optical fiber;
- vi. Lumber;
- vii. Engineered wood, and
- viii. Drywall.

(2) Minor additions of articles, materials, supplies or binding agents to a construction material do not change the categorization of the construction material.

F. Covered Materials includes the following when used in connection with an Infrastructure Project:

- (A) all iron and steel;
- (B) all Manufactured Products; and
- (C) all Construction Materials.

G. Covered CPD Programs. The term “covered CPD programs” means any Federal financial assistance administered by CPD that is used for infrastructure purposes, excepting expenditures related to pre and post disaster or emergency response.

H. Grantee. The term “grantee,” as defined at 24 CFR 5.100, means the person or legal entity to which a grant is awarded and that is accountable for the use of the funds provided.

I. Federal Financial Assistance (FFA) has the meaning given to the term in 2 CFR 200.1 (or successor regulations) and includes all expenditures by a Federal agency to a Non-Federal Entity for an Infrastructure Project, except that it does not include:

(A) expenditures for assistance authorized under section 402, 403, 404, 406, 408, or 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170a, 5170b, 5170c, 5172, 5174, or 5192) relating to a major disaster or emergency declared by the President under section 401 or 501, respectively, of such Act (42 U.S.C. 5170, 5191); or

(B) pre and post disaster or emergency response expenditures.

J. Infrastructure is described in 2 CFR 184.4(c) and encompasses public infrastructure projects in the United States, which includes, at a minimum: the structures, facilities, and equipment for roads, highways, and bridges; public transportation; dams, ports, harbors, and other

maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property; and structures, facilities, and equipment that generate, transport, and distribute energy including electric vehicle (EV) charging. See also 2 CFR 184.4(d).

- K. Infrastructure Project. The term “infrastructure project” is defined in 2 CFR 184.3 and means any activity related to the construction, alteration, maintenance, or repair of infrastructure in the United States regardless of whether infrastructure is the primary purpose of the project.
- L. Iron and Steel Products. The term “iron and steel products” is defined in 2 CFR 184.3 and means an article, material, or supply that consists wholly or predominantly of iron or steel, or a combination of both.
- M. Predominantly of iron or steel or a combination of both is defined in 2 CFR 184.3 and means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.
- N. Made in America Office. The term “Made in America Office” or “MIAO” means the office at the Office of Management and Budget, established by section 70923 of BABA, that is charged with, among other things, enforcing compliance with the BAP and establishing the procedures to review waiver requests proposed by a Federal awarding agency.
- O. Manufactured Products is defined in 2 CFR 184.3 and means:
- (1) Articles, materials, or supplies that have been:
 - (i) Processed into a specific form and shape; or
 - (ii) Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.
 - (2) If an item is classified as an iron or steel product, a construction material, or a section 70917(c) material under 2 CFR 184.4(e) and the definitions set forth in this section, then it is not a manufactured product. However, an article, material, or supply classified as a manufactured product under 2 CFR 184.4(e) and paragraph (1) of this definition may include components that are construction materials, iron or steel products, or section 70917(c) materials.
- P. Manufacturer is defined in 2 CFR 184.3 and means the entity that performs the final manufacturing process that produces a manufactured product.
- Q. Non-Federal Entity means a State, local government, Indian Tribe, Institution of Higher Education (IHE), or nonprofit organization, as provided in 2 CFR 200.1. Public Housing Agencies are Non-Federal Entities.

- R. Not Listed Construction Materials. The term “not listed construction materials” refers to the category of construction materials that are subject to the BAP, but not included in HUD’s specifically listed construction materials, as defined in the Phased Implementation Waiver. This includes:
- i. plastic and polymer-based products other than composite building materials or plastic and polymer-based pipe or tube;
 - ii. glass (including optic glass); and
 - iii. drywall.
- S. Obligate. The term “obligate,” for purposes of HUD’s phased implementation of BABA, means the date that HUD executed the legal instrument creating the relationship between HUD and the grantee for an award of Federal financial assistance. The milestone that establishes an obligation date depends on each program but for many CPD programs, such as CDBG, the obligation date occurs upon HUD’s execution of the grant agreement.
- T. OMB Guidance. The term “OMB guidance” refers to 2 CFR Part 184, the "[Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure](#)" (M-24-02), issued October 25, 2023, by the Office of Management and Budget, and any subsequent guidance to rescind or replace M-24-02. This guidance is applicable to the heads of all Federal agencies for the implementation of BABA’s Buy America Preference.
- U. Pre and Post Disaster or Emergency Response Expenditures. The term “pre and post disaster or emergency response expenditures” means Federal funding authorized under section 402, 403, 404, 406, 408, or 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) relating to a major disaster or emergency declared by the President under section 401 or 501, respectively. The BAP does not apply to pre and post disaster or emergency response expenditures authorized by statutes other than the Stafford Act and made in anticipation of or in response to an event that qualifies as an emergency or major disaster within the meaning of the Stafford Act.
- V. Produced in the United States is defined in 2 CFR 184.3 and means:
- i. In the case of iron or steel products, all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
 - ii. In the case of manufactured products:
 1. The product was manufactured in the United States; and
 2. The cost of components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard that meets or exceeds this standard has been established under applicable law or regulation for determining the minimum amount of domestic content of the manufactured product. See 2 CFR 184.2(a). The costs of components of a manufactured product are determined according

to 2 CFR 184.5.

- iii. In the case of construction materials, all manufacturing processes for the construction material occurred in the United States. See 2 CFR 184.6 for more information on the meaning of “all manufacturing processes” for specific construction materials.

W. Project. The term “project” means the construction, alteration, maintenance, or repair of infrastructure in the United States. (Section 70912(7) of BABA).

X. Section 70917(c) Materials. The term “section 70917(c) materials” is defined in 2 CFR 184.3 and means cement and cementitious materials; aggregates such as stone, sand, or gravel, or aggregate binding agents or additives. These materials are not considered “construction materials” for the purpose of BABA implementation.

Y. Specifically listed construction materials. The term “specifically listed construction materials” for HUD programs includes:

- a. non-ferrous metals;
- b. lumber;
- c. composite building materials; and
- d. plastic and polymer-based pipe and tube.

III. Applicability of the BAP on CPD Programs

Under Sections 70912 and 70914, the BAP applies to the purchase of iron, steel, manufactured products, and construction materials for Covered CPD Programs when funds are used for the construction, alteration, maintenance, or repair of infrastructure, as defined by BABA. Covered CPD Programs currently include:

- Community Development Block Grant Formula Programs (CDBG)
- Section 108 Loan Guarantee
- HOME Investment Partnerships Program (HOME)
- HOME Investment Partnerships American Rescue Plan Program (HOME-ARP)
- Housing Trust Fund (HTF)
- Recovery Housing Program (RHP)
- Emergency Solutions Grants (ESG)
- Continuum of Care (CoC)
- Housing Opportunities for Persons With AIDS (HOPWA)
- Self-Help Homeownership Opportunity Program (SHOP)
- Special NOFA for unsheltered and rural homeless
- Veterans Housing Rehabilitation and Modification Program (VHRMP)
- Community Project Funding (CPF)/Economic Development Initiatives (EDI)
- Section 4 Capacity Building
- Rural Capacity Building
- Pathways to Removing Obstacles to Housing (PRO Housing)
- Preservation and Reinvestment Initiative for Community Enhancement (PRICE)

- FY23 Permanent Supportive Housing (PSH) Funds

This list of Covered CPD Programs is subject to change if there are any changes to the eligible uses of funds or the establishment of new programs that fund infrastructure and are covered by BABA.

CPD Programs Not Covered by BAP:

Under Section 70912(4)(B), the BAP does not apply to Federal funds for “pre and post disaster or emergency response.” The following CPD funds are administered for disaster or emergency-related purposes and therefore the BAP does not apply:

- Community Development Block Grant – Disaster Recovery Funds (CDBG-DR)
- Community Development Block Grant – Mitigation (CDBG-MIT)
- Community Development Block Grant – National Disaster Resilience Competition (CDBG-NDR)
- Community Development Block Grant CARES Act (CDBG-CV)
- Housing Opportunities for Persons With AIDS CARES Act (HOPWA-CV)
- Emergency Solutions Grants CARES Act (ESG-CV)

Additionally, the Community Compass Technical Assistance program is excluded from the BAP as the program does not fund any covered infrastructure activities.

IV. Buy America Preference Waivers Currently in Effect for HUD Programs

Under Section 70914(b), HUD is able to issue, after consultation with OMB’s MIAO, general waivers, and project-specific waivers to the BAP if it is determined that a waiver falls into one of the following three categories: 1) when applying the domestic content procurement preference would be inconsistent with the public interest, 2) when types of iron, steel, manufactured product or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality, or 3) where the inclusion of those products and materials will increase the cost of the overall project by more than 25 percent. In order for HUD to consider either a general or project specific waiver request and be able to review it with OMB, the waiver must include a detailed written explanation and allow for the public to comment for at least 15 days, as required under Section 70914(c).

HUD’s General Waivers Applicable to Covered CPD Programs

Four general applicability waivers are currently in effect for HUD programs and apply to all Covered CPD Programs. Each waiver is outlined below.

General Waiver Type	Purpose	Effective Dates
Public Interest Phased Implementation	HUD issued a public interest waiver, <u>“Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance”</u> to allow for orderly implementation of the BAP across HUD programs. The Phased Implementation Waiver establishes a schedule for the phased implementation of the BAP across CPD programs and infrastructure materials.	The public interest waiver was issued in March 2023 and established a phased implementation schedule for the application of the BAP to HUD programs through FY2025. The BAP has been in effect since November 15, 2022, for the use of iron and steel for infrastructure projects funded with newly obligated FFA through the CDBG program.
Exigent Circumstances	HUD issued a public interest waiver for exigent circumstances, <u>“Public Interest Waiver of Build America, Buy America Provisions for Exigent Circumstances as Applied to Certain Recipients of HUD Federal Financial Assistance”</u> . This waiver applies when there is an urgent need by a CPD grantee to immediately complete an infrastructure project because of a threat to life, safety, or property of residents and the community.	The public interest waiver for exigent circumstances is effective from November 23, 2022, for a period of five years ending on November 23, 2027, or such shorter time as HUD may announce via Notice.
De Minimis, Small Grants, and Minor Components	HUD issued a public interest <i>de minimis</i> , small grants, and minor components waiver titled <u>“Public Interest De Minimis and Small Grants Waiver of Build America, Buy America Provisions as Applied to Certain Recipients of HUD Federal Financial Assistance”</u> . This waives the BAP for all infrastructure projects whose total cost (from all funding sources) is equal to or less than the simplified acquisition threshold at 2 CFR 200.1 which is currently \$250,000. This Notice also waives the application of the BAP for a	The public interest <i>de minimis</i> , small grants, and minor components waiver is effective from November 23, 2022, for a period of five years ending on November 23, 2027, or such shorter time as HUD may announce via Notice.

General Waiver Type	Purpose	Effective Dates
	<i>de minimis</i> portion of an infrastructure project, meaning a cumulative total of no more than five percent of the total cost of the iron, steel, manufactured products, and construction materials used in and incorporated into the infrastructure project, up to a maximum of \$1 million.	
Tribal Recipients Waiver	HUD issued a public interest waiver, <u>“Extension of Public Interest, General Applicability Waiver of Build America, Buy America Provisions as Applied to Tribal Recipients of HUD Federal Financial Assistance: Final Notice”</u> for the BAP as it applies to Tribal recipients. HUD will consult with Tribally Designated Housing Entities and other Tribal Entities on how to apply the BAP.	The waiver of the BAP as it applies to Tribal recipients is effective from May 23, 2023, until May 23, 2024.

HUD Project-Specific Waivers

Additionally, a CPD grantee may request a project-specific waiver from the BAP for covered FFA on a limited, case-by-case basis. HUD may grant a project specific waiver after consultation and review with the OMB’s MIAO. As with the general waivers, under Section 70914(b) HUD may issue a project-specific waiver to the BAP if it is determined that a waiver falls into one of the following three categories: 1) when applying the domestic content procurement preference would be inconsistent with the public interest, 2) when types of iron, steel, manufactured product or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality, or 3) where the inclusion of those products and materials will increase the cost of the overall project by more than 25 percent. A waiver for a specific project may vary depending upon the circumstances of the project, and specific items, products, or materials in question.

Understanding HUD’s Phased Implementation Approach

Under Section 70914(a), the BAP for covered FFA infrastructure projects, including those funded by CPD programs, was required to be in effect no later than 180 days after it was signed into law. Thus, starting May 14, 2022, all new awards of covered FFA for infrastructure projects obligated by HUD would have had a BAP under BABA. Due to the short implementation period of 180 days, and to allow for the domestic industry and FFA recipients to have the time and notice necessary to implement BABA efficiently and effectively, HUD issued several general public

interest waivers, including a Phased Implementation Waiver. Over the course of two years, under this waiver, HUD will implement the BAP in an incremental process for all HUD programs, including CPD programs, to come into compliance with BABA. This phased approach is also intended to reduce the burden on grantees due to the uncertain costs of compliance with the BAP. This approach is also intended to provide transparency concerning the full implementation plans in connection with HUD infrastructure projects. HUD wants to avoid any unnecessary and undue hardships that could jeopardize the timely and cost-effective completion of projects that previously were not subject to a BAP and to allow time for grantees to come into full compliance.

In the table below, the columns identify four separate categories of covered materials subject to the BAP (iron and steel, specifically listed construction materials, not listed construction materials, and manufactured products) and the rows identify covered HUD programs. To use the table, find the program that funds the project under consideration, then find the covered materials that will be used in the project. The cell in the table where the applicable row and column intersect indicates the date on which the BAP will begin applying to the specific materials used in the project under consideration. It is important to note that the date of obligation is the date on which HUD executed the legal instrument creating the relationship between HUD and the grantee for an award of FFA, commonly the date the grant agreement is signed by HUD.

Phased Implementation Schedule for HUD Programs

The table below outlines the phased implementation timeline for HUD’s covered programs published in the Phased Implementation Waiver.

BAP will apply to...	Iron and Steel	Construction Materials – Specifically Listed	Construction Materials – Not Listed	Manufactured Products
CDBG Formula Grants	All funds obligated on or after November 15, 2022	As of the date HUD obligates new FFA from Fiscal Year 2024 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations
Choice Neighborhood, Lead Hazard Reduction, and Healthy Homes Production Grants	New FFA obligated by HUD on or after February 22, 2023	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024
Recovery Housing Program (RHP) Grants	New FFA obligated by HUD on or after August 23, 2023	As of the date HUD obligates new FFA from Fiscal Year 2024 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations
All HUD other FFA except HOME, Housing Trust Fund, and Public Housing FFA used for maintenance projects	New FFA obligated by HUD on or after February 22, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024
HOME, Housing Trust Fund, and Public Housing FFA used for maintenance projects	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024

Phased Implementation Schedule for CPD Programs

Covered CPD programs began applying the BAP for infrastructure projects not covered under a general waiver for specific materials in phases beginning on November 15, 2022, and through FY2025. This section describes when the BAP applies to specific Covered CPD programs in accordance with HUD's Phased Implementation Waiver.

Iron or Steel		
CPD Program	BAP Effective Date	Implementation Examples
CDBG	The BAP first applied to CDBG funds, obligated on or after November 15, 2022, and that will be used to purchase iron and steel for infrastructure projects.	This means CDBG grants obligated via a CDBG grant agreement signed by HUD on or after November 15, 2022, are subject to the BAP. CDBG grants obligated via a CDBG grant agreement signed by HUD prior to November 15, 2022, are not subject to the BAP.
RHP	The BAP will apply to RHP funds obligated on or after August 23, 2023, used to purchase iron or steel for infrastructure projects.	This means RHP grants obligated via a RHP grant agreement signed by HUD on or after August 23, 2023, are subject to the BAP. A RHP grant obligated via a grant agreement signed by HUD prior to August 23, 2023, is not subject to the BAP.
ESG, CoC, HOPWA, SHOP, VHRMP, CPF/EDI, Section 4, Rural Capacity Building, Pro Housing, PRICE, PSH, and NOFOs	The BAP will apply to funds from all other covered CPD programs, except HOME and HTF, obligated on or after February 22, 2024, used to purchase iron or steel for infrastructure projects.	Grantees should identify the execution date by HUD on the grant agreement or other legal instrument. The BAP applies to funds obligated by HUD on or after February 22, 2024. For HOPWA competitive grants, obligation is the date the award letter is signed. HOPWA competitive grantees should compare the date on its award letter to the February 22, 2024, to determine if its grant is subject to the BAP. EDI Community Project Funding has a different obligation determination. Grantees should consult their Congressional Grant Officer for more information.
HOME & HTF	The BAP will apply to HOME and HTF funds obligated on or after August 23, 2024, used to purchase iron or steel for infrastructure projects.	This means HOME and HTF grants obligated via grant agreements signed by HUD on or after August 23, 2024, are subject to the BAP. A HOME or HTF grant obligated via a grant agreement signed by HUD prior to August 23, 2024, is not subject to the BAP.

Materials Other Than Iron or Steel		
	CDBG & RHP Programs	All Other Covered CPD Programs
Specifically Listed Construction Materials (Non-Ferrous Metals, Lumber, Composite Building Materials, Plastic and Polymer Based Pipe and Tube)	The BAP will apply to FY2024 and subsequent CDBG and RHP awards used to purchase specifically listed construction materials as well as to purchase iron and steel.	The BAP will apply to funds from all other Covered CPD programs obligated on or after August 23, 2024, used for the purchase of specifically listed construction materials as well as iron and steel for infrastructure projects.
Not Listed Construction Materials	The BAP will apply to FY2025 and subsequent CDBG and RHP awards used to purchase not listed construction materials for infrastructure projects.	The BAP will apply to all Covered CPD program (except CDBG and RHP) funds obligated on or after August 23, 2024, used for the purchase of not listed construction materials, as well as specifically listed construction materials and iron and steel, for infrastructure projects.
Manufactured Products	The BAP will apply to FY2025 and subsequent CDBG and RHP awards used to purchase manufactured products as well as specifically listed construction materials and iron and steel, for infrastructure projects.	The BAP will apply to all Covered CPD program funds (except CDBG and RHP) obligated on or after August 23, 2024, used for the purchase of manufactured products for infrastructure projects.

Applying the BAP and HUD Waivers to CPD Programs

Once the BAP applies to an infrastructure project, a grantee must:

1. Comply with the BAP, or
2. Utilize one of HUD's general waivers, or
3. Obtain a project-specific waiver to exclude the project from the BAP.

As a part of its record keeping, a CPD grantee should document its process to analyze if the BAP applies to a project using the approach below:

Step 1: Type of project/activity

Are the funds being used for an infrastructure project, as defined by BABA and explained in this notice?

- If yes, proceed to step 2.
- If no, the BAP does not apply. The BAP only applies to infrastructure projects.

Step 2: Funding source

Identify the source(s) of the project funding, including CPD funding, HUD funding or other Federal agency funding that must comply with BABA. Does the project funding include any Covered CPD Programs listed in this notice? (Note: The BAP does not apply to funds that are for pre- or post-disaster or emergency response.)

- If yes, and HUD contributes the largest portion of Federal funds to the project, proceed to step 3.
- If yes, and another Federal agency contributes the largest portion of Federal funds to the project, that Federal agency is the “Cognizant Agency for Made in America”, and the grantee should follow that agency’s guidance for applicability of the BAP to the project.
- If no, then the project does not need to comply with the BAP for CPD funds but may need to comply with the BAP due to the inclusion of other HUD or Federal funding sources.

Step 3: Materials

Identify the materials that will be used in this infrastructure project. Does the project use materials subject to the BAP (iron or steel, specifically listed construction materials, not listed construction materials, or manufactured products), identified in this Notice?

- If yes, proceed to step 4.
- If no, then the BAP does not apply. The BAP only applies to covered materials.

Step 4: Date of obligation

Consult the Phased Implementation Waiver schedule table. Identify the cell that corresponds to the Covered CPD Program funding and materials used in your project. This cell identifies the date on which the BAP will apply for the Covered CPD Program and the materials. Based on the date of obligation of the Covered CPD Program funds, does the BAP apply to the funding source and materials that will be used in your project?

- If yes, proceed to step 5.
- If no, the BAP does not apply.

Step 5: General waivers

Consider the available HUD General Waivers. As of this Notice, there are three general waivers that may be utilized as an alternative to compliance with the BAP under the Phased Implementation Waiver: 1) Exigent Circumstances Waiver, 2) the De Minimis, Small Grants, and Minor Components Waiver, and 3) the Tribal Recipients Waiver. Analyze each available HUD general waiver, based upon the specific requirements of that waiver.

1. *Exigent Circumstances Waiver*: Is there an urgent need to immediately complete the project because of a threat to life, safety, or property of residents and the community?
 - If yes, the Exigent Circumstances Waiver may apply, and the project would not be subject to the BAP.
2. *De Minimis, Small Grants, and Minor Components Waiver*: Is the total cost of the project equal to or less than \$250,000?
 - If yes, the *De Minimis*, Small Grants, and Minor Components Waiver may apply, and the project would not be subject to the BAP.

OR

This waiver can be applied to a portion of the products used in an infrastructure project if the cumulative cost of those products does not exceed five percent of the total cost of covered products used in the project (up to \$1 million).

- In that case, the BAP would be waived for part of the project, but the rest of the project would still need to comply with the BAP.

3. *Tribal Recipients Waiver:* Is the project being funded by a Tribal recipient?

- If yes, the Tribal Recipients Waiver may apply, and the project would not be subject to the BAP. (This is rare for CPD programs.)
- If no to General Waiver questions 1, 2, and 3, proceed to Step 6.

Step 6: Project-specific waivers

Consider the criteria for project-specific waivers. Project-specific waivers to the BAP may be available if it is determined that a waiver falls into one of the following three categories: 1) when applying the domestic content procurement preference would be inconsistent with the public interest, 2) when types of iron, steel, manufactured product or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality, or 3) where the inclusion of those products and materials will increase the cost of the overall project by more than 25 percent. Project-specific waivers are available on a limited, case-by-case basis, after HUD's consultation and review with OMB's MIAO.

1. Would applying the BAP to the project be inconsistent with the public interest?
 - If yes, a project-specific waiver may be considered.
2. Are the types of iron, steel, manufactured products, or construction materials used in the project not produced in the United States in sufficient and reasonable available quantities or of a satisfactory quality?
 - If yes, a project-specific waiver may be considered.
3. Would the inclusion of iron, steel, manufactured products, or construction materials produced in the United States increase the cost of the overall project by more than 25 percent?
 - If yes, a project-specific waiver may be considered.
 - If no to Project specific waiver questions 1, 2, and 3, the BAP likely applies to the project and the project should comply with the requirements of the BAP.

Grantees should consult the entirety of this Notice and other applicable BABA guidance before making a determination on BAP applicability to a specific project. Grantees should reach out to their local CPD field office if they require additional assistance with determining BAP applicability.

Federal Government-wide Guidance on Project/Product-Specific Waivers

Under Section 70914(b), BABA allows a Federal agency, such as HUD, to waive the BAP for covered FFA in three instances: 1) when applying the domestic content procurement preference would be inconsistent with the public interest, 2) when types of iron, steel, manufactured product or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality, or 3) where the inclusion of those products and materials will increase the cost of the overall project by more than 25 percent. To direct Federal agencies on how to implement this waiver process, OMB issued guidance that HUD will follow when reviewing a waiver request from a CPD grantee. According to OMB, agencies may reject or grant waivers in whole or in part. When an agency is considering a waiver, it should, to the greatest extent possible, be issued at the project level and be product specific. When that is not possible, an agency may issue a broader waiver. The agency should follow three principles before issuing any type of waiver:

- 1) The waiver may be time-limited, meaning it is issued for a certain period of time, rather than for a specific project. For example, a time-limited waiver may apply when an item that is “nonavailable” is widely used in projects funded by a particular program.
- 2) The waiver should be targeted, meaning it should only apply to specific item(s), product(s), or material(s) or category(ies) of item(s), product(s), or material(s).
- 3) The waiver may be conditional with conditions that support the policies of BABA.

OMB guidance outlined the waiver review process for agencies to follow before issuing a waiver. Based on this guidance, HUD is developing its Department-wide project-specific waiver process. For HUD to consider a project or product-specific waiver it must:

- Have a detailed justification for the use of goods, products, or materials mined, produced, or manufactured outside the United States.
- A certification that there was a good faith effort to solicit bids for domestic products supported by terms included in requests for proposals, contracts, and nonproprietary communications with potential suppliers.
- In addition, at a minimum and to the greatest extent practicable, each proposed waiver submitted for consideration by the MIAO should include the following information, as applicable:
 - Waiver type (nonavailability, unreasonable cost, or public interest).
 - Recipient name and Unique Entity Identifier (UEI).
 - Federal awarding agency organizational information (e.g., Common Government-wide Accounting Classification (CGAC) Agency Code).
 - Financial assistance listing name and number.
 - Federal financial assistance program name.
 - Federal Award Identification Number (FAIN) (if available).
 - Federal financial assistance funding amount.

- Total estimated infrastructure expenditures, including all Federal and non-Federal funds (to the extent known).
- Infrastructure project description and location (to the extent known).
- List of iron or steel item(s), manufactured products, and construction material(s) proposed to be excepted from Buy America requirements, including name, cost, country(ies) of origin (if known), and relevant PSC and NAICS code for each.
- A certification that the Federal official or assistance recipient made a good faith effort to solicit bids for domestic products supported by terms included in requests for proposals, contracts, and nonproprietary communications with the prime contractor.
- A statement of waiver justification, including a description of efforts made (e.g., market research, industry outreach), by the Federal awarding agency and, in the case of a project or award specific waiver, by the recipient, in an attempt to avoid the need for a waiver. Such a justification may cite, if applicable, the absence of any Buy America-compliant bids received in response to a solicitation.
- Anticipated impact if no waiver is issued.
- Any relevant comments received through the public comment period.

The purpose of the information is to ensure that HUD has adequate information to perform due diligence, that MIAO has sufficient information to determine whether the proposed waiver is consistent with law and policy, and that sufficient information is available for public review. Information provided for public review should help interested manufacturers gauge the demand for products for which agencies are considering waiving a Buy America preference.

Once HUD has reviewed all required information, it will notify OMB's MIAO. The purpose of this consultation is for the MIAO to identify any opportunities to structure the waiver to maximize the use of goods, products, and materials produced in the United States to the greatest extent possible consistent with law. Following this consultation with MIAO, HUD is required to post the proposed waiver on its BABA website with a detailed written explanation of the proposed determination to issue the waiver and must provide at least 15 days for public comment. General applicability waivers require a minimum 30-day public comment period. Once the public comment period ends, HUD will submit the proposed waiver to MIAO to determine if the waiver is consistent with applicable law and policy. The MIAO will notify the agency of its determination of the proposed waiver. Only after this process has been completed may the HUD issue the waiver.

Applying for a HUD Specific Waiver

Prior to seeking a waiver, grantees should determine if and how BABA applies and follow measures to maximize compliance with the BAP based on the above guidance. At this time, HUD's BABA waiver process is as follows:

1. Contact CPDBABA@hud.gov for BABA technical assistance as needed.
2. Prepare a "[Build America Buy America Waiver Request](#)" with the information required by the MIAO.

3. Submit a waiver application with all necessary information to HUD at BuildAmericaBuyAmerica@hud.gov.
 - HUD is currently using email while an automated process is under development.
4. Provide additional information as requested by HUD during the review process to proceed with public comment in the Federal Register, and final approval by MIAO.
5. HUD reviews waivers before they are posted to the Federal Register for public comment and sent to the MIAO for approval. If approved, the waiver is posted on MadeInAmerica.gov.

CPD Grantees Receiving Funds from Multiple Federal Agencies

For CPD grantees that receive funds from multiple Federal agencies for an infrastructure project, the Federal agency contributing the greatest amount of covered FFA for the project will be considered the “Cognizant Agency for Made in America,” according to OMB Guidance. This lead agency should take responsibility for coordinating with the other Federal awarding agencies. Such coordination will provide uniform waiver criteria and adjudication processes, minimize duplicative efforts among Federal agencies, and reduce burdens on recipients. The Cognizant Agency for Made in America shall be responsible for consulting with the other Federal awarding agencies, publicizing the proposed joint waiver, and submitting the proposed joint waiver for review to MIAO.

CPD Record Keeping Requirements

To comply with BABA, the BAP must be included in the terms and conditions of all federal awards including subawards, contracts, and purchase orders for the work performed or products supplied for infrastructure projects. CPD grantees should document the process to analyze if the BAP applies to a project using the approach in this Notice and collect records to demonstrate compliance with BABA requirements. Records should be consistent with existing records retention requirements for each of the Covered CPD programs. If there are no CPD program-specific records requirements, the CPD grantee may follow “retention requirements for records,” under 2 CFR § 200.334 as applicable to Federal grants.

HUD will issue guidance about reporting on BABA required activities under 24 CFR 91.520, at a later date. At this time, CPD is working to include the BAP into its existing CPD systems (Integrated Disbursement and Information System, Disaster Recovery Grant Reporting System) for grantees to generate reports to track progress and compliance with BABA. Additional details on record keeping requirements will be determined by HUD and shared with CPD grantees as it is available.

V. Contact Information

Grantees that have questions on this Notice should contact their assigned HUD Field Office Representative or send their request directly to CPDBABA@hud.gov. CPD Field Offices should direct inquiries and comments to their program desk officer.

Addendum 1

Frequently Asked Questions

General Information

1. What is BABA? What is the “Buy America Preference”?

The Build America, Buy America (BABA) Act was enacted on November 15, 2021, as part of the Infrastructure Investment and Jobs Act (IIJA) (Pub. L. No. 117-58) also known as the Bipartisan Infrastructure Law. BABA establishes a domestic content procurement preference known as the “Buy America Preference” (BAP) for Federal infrastructure spending. The BAP requires that all iron, steel, manufactured products, and construction materials used in infrastructure projects funded with Federal financial assistance must be produced in the United States.

2. What types of Federal financial assistance (FFA) are subject to the BAP?

FFA subject to BABA includes all expenditures by a Federal agency to a non-Federal entity for an infrastructure project, including grants, cooperative agreements, non-cash contributions or donations of property, direct assistance, loans, loan guarantees, and other types of financial assistance.

3. What projects or activities does the BAP apply to?

The BAP applies to the iron, steel, construction materials, and manufactured products used in infrastructure projects funded by Federal financial assistance (FFA), which includes covered materials and covered activities. Infrastructure projects include construction, alteration, maintenance, or repair of any infrastructure in the United States as defined in the next paragraph and in the Definitions section of this Notice.

The term “infrastructure” includes the structures, facilities, and equipment for projects traditionally considered infrastructure, including buildings and real property. For CPD programs, this may include, but is not limited to, certain funding for:

- road and sidewalk improvement projects;
- water, sewer, and other utility projects;
- broadband infrastructure;
- housing construction and rehabilitation;
- community facility construction and rehabilitation;
- homeless shelter construction and rehabilitation;
- and other CPD-funded activities that are defined as infrastructure according to BABA (section 70912(5)).

4. What materials does the BAP apply to?

The BAP requires that all iron, steel, manufactured products, and construction materials used in infrastructure projects funded with Federal financial assistance must be produced in the United States.

5. What does “produced in the United States” mean for materials to which the BAP applies?

The term “produced in the United States,” as defined in 2 CFR 184.3, means:

- in the case of iron or steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
- in the case of manufactured products that:
 - the product was manufactured in the United States; and
 - the cost of components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard that meets or exceeds this standard has been established under applicable law or regulation for determining the minimum amount of domestic content of the manufactured product; and
- in the case of construction materials, that all manufacturing processes for the construction material occurred in the United States.

CPD Program Specific

6. Which CPD programs are subject to the BAP?

Any CPD program that can be used for the purpose of infrastructure as defined by BABA. These programs are considered Covered CPD programs.

7. Which CPD funds or programs are NOT subject to the BAP?

The BAP does not apply to Federal funds for “pre and post disaster or emergency response” according to BABA. Therefore, at the time of publication of this notice, the BAP does not apply to the following CPD funds or programs that administer disaster related FFA:

- Community Development Block Grant Disaster Recovery Funds (CDBG-DR)
- Community Development Block Grant Mitigation (CDBG-MIT)
- Community Development Block Grant – National Disaster Resilience Competition (CDBG-NDR)
- Community Development Block Grant CARES Act (CDBG-CV)
- Housing Opportunities for Persons With AIDS CARES Act (HOPWA-CV)
- Emergency Solutions Grants CARES Act (ESG-CV)

The Community Compass Technical Assistance program is also excluded from the BAP as the program does not fund any covered infrastructure activities.

- 8. I am funding a project with CDBG funds that were obligated (i.e., the grant agreement was signed by HUD) before November 15, 2022. Does the BAP apply?**

No, the BAP does not apply to HUD funds that were obligated before November 15, 2022. HUD defines the date of obligation as the date that HUD signed the agreement with the grantee. The BAP will apply to CDBG funds used for iron or steel that were obligated on or after November 15, 2022.

There is an additional consideration. If FY funds for which BABA applies are added to this infrastructure project, BABA then will apply to the entire project.

- 9. I am a grantee funding a project with CDBG funds that were obligated (i.e., the grant agreement was signed by HUD) on or after November 15, 2022. Does the BAP apply?**

If the CDBG funds used in your infrastructure project were obligated on or after November 15, 2022, the BAP will apply to all iron or steel used in the project, unless a waiver applies to the project. If these BABA funds are applied to an infrastructure project that does not have a BAP, the addition of these funds will attach BABA to the entire project. BABA would apply as described in HUD's Phased Implementation Waiver unless there is a project-specific waiver approved by the MIAO.

- 10. I am funding a public facilities project with total FFA of \$2,500,000. \$400,000 of CDBG funds are being used for engineering and administration fees of a project. Other federal funding will pay for the remaining construction activities. Is the BAP applicable to this project?**

Yes, the total project cost is over \$250,000 and the project is construction of an infrastructure project. The total cost of a project must not exceed \$250,000 from all sources to qualify for an exemption of the BAP under HUD's general waiver for small projects.

Documentation and Grant Management

- 11. Does the BAP apply to subrecipients or contractors?**

In most cases, yes, the BAP requirements apply to subgrantees, including subrecipients, contractors, and developers who are awarded Federal financial assistance for use in public infrastructure projects. The BAP requirements apply to all FFA and do not distinguish between the end user of the federal funds. The BAP applies as long as the funding is derived from a Federal agency, even if they are a pass-through entity unless a particular section of the terms and conditions of the Federal award specifically indicates otherwise.

12. Is there standard language grantees can include in subrecipient/bid contract documents?

Grantees should include the BABA language from their grant agreement in any subrecipient and bid contract documents to ensure BABA compliance by subrecipients, developers and/or contractors. Please refer to Addendum 3 for the language used in CPD grant agreements.

Waivers

13. Are there any waivers available for the BAP?

There are currently four general applicability waivers in effect for HUD programs that apply to CPD programs: 1) Phased Implementation Waiver, 2) Exigent Circumstances Waiver, 3) *De Minimis*, Small Grants, and Minor Components Waiver, and 4) Tribal Recipients Waiver. The details of each of these waivers can be found in Section IV of this Notice, or by visiting HUD's BABA website to see the latest available HUD waivers at: https://www.hud.gov/program_offices/general_counsel/baba. Waivers, as they are approved by the MIAO, will be updated on HUD's website.

14. Will there be project or product specific waivers of the BAP?

In addition to HUD's general waivers, HUD may also grant "project-specific" waivers from the BAP for covered FFA on a limited, case-by-case basis, after consultation and review with the MIAO at OMB. HUD may issue a project-specific waiver to the BAP if it is determined that a waiver falls into one of the following three categories: 1) when applying the domestic content procurement preference would be inconsistent with the public interest, 2) when types of iron, steel, manufactured product or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality, or 3) where the inclusion of those products and materials will increase the cost of the overall project by more than 25 percent. A waiver for a specific project may vary depending upon the circumstances of the project, and specific items, products, or materials in question. HUD is currently developing the process through which a grantee may request a waiver. More information will be made available once that process is developed.

Addendum 2

Examples of BAP for CPD Programs

This appendix provides a selection of illustrative examples to assist grantees in determining if the BAP applies to their projects.

Example 1: A grantee funds a water and sewer project containing iron and steel. The project is funded using \$1 million in FY23 CDBG funding. The total Federal financial assistance for the project is \$3 million.

The BAP applies to this project because it is a CDBG project using funding obligated on or after November 15, 2022, the project contains iron or steel, and the total cost of the project is greater than the simplified acquisition threshold at 2 CFR 200.1 which is currently \$250,000.

Example 2: A grantee funds a water and sewer project containing iron and steel. The project is funded using \$100,000 in FY23 CDBG funding. The total Federal financial assistance for the project is \$2 million.

The BAP applies to this project because it is a CDBG project using funding obligated on or after November 15, 2022, the project contains iron or steel, and the total cost of the project is greater than \$250,000.

Example 3: A participating jurisdiction contributes \$2 million in HOME funds for construction of a multi-unit residential building, which includes iron or steel. The funds are obligated by HUD on July 15, 2023.

The BAP does not apply to this project because the BAP will not apply to HOME funds used for iron or steel until August 23, 2024.

Example 4: A participating jurisdiction contributes \$2 million in HOME funds for the construction of a multi-unit residential building, using iron or steel. The funds are obligated by HUD after August 23, 2024.

The BAP applies to this project because the project includes iron or steel, the total cost of the project is greater than \$250,000, and the project uses HOME funds obligated after the date on which the BAP begins to apply to HOME funds used for iron or steel.

Example 5: A grantee funds acquisition of land using \$300,000 in Recovery Housing Program (RHP) funds that were obligated on September 1, 2023. The acquisition is part of a multifamily housing construction project containing iron or steel.

The BAP applies because the purpose of the funding is a covered activity (construction) that includes iron or steel. The total cost of the project from all sources is greater than \$250,000 and the funds are obligated after the date on which the BAP applies to RHP funds used for iron or steel.

Example 6: A grantee purchases a fire engine which will serve a low- to -moderate-income neighborhood. The grantees uses \$300,000 in FY23 CDBG funding for the purchase.

The BAP does not apply because the funding is not used for a covered activity (construction, alteration, maintenance, or repair) for an infrastructure project.

Example 7: A grantee uses \$400,000 in Recovery Housing Program (RHP) funds to rehabilitate a multi-unit residential building, using iron or steel. The funds are obligated by HUD after August 23, 2023.

The BAP applies to this project because it uses iron or steel, the total cost of the project is greater than \$250,000, and the project uses RHP funding that is obligated after the date on which the BAP begins to apply to RHP funds used for iron or steel (August 23, 2023).

Addendum 3

Sample BABA Language in Grant Agreements

The language below is included in all CPD program NOFOs and grant agreements. Similar to other cross cutting requirements, grantees should include the following BABA language in all contracts and agreements with subrecipients, contractors, developers and subgrantees. Grantees and subrecipients should include this language in any NOFOs and procurement bid/contract documents to ensure BABA compliance by subgrantees, developers and/or contractors.

The Grantee must comply with the requirements of the Build America, Buy America (BABA) Act, 41 USC 8301 note, and all applicable rules and notices, as may be amended, if applicable to the Grantee's infrastructure project. Pursuant to HUD's Notice, "Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance" (88 FR 17001), any funds obligated by HUD on or after the applicable listed effective dates, are subject to BABA requirements, unless excepted by a waiver.

BABA Listing and Material Classification of Unique Items

This listing contains a listing of unique items or materials that may be included on ODOT construction projects and a determination as to their BABA classification.

- The Contractor will still need to submit all the quality compliance documents. These documents are outlined in the Non Field-Tested Materials Acceptance Guide (NFTMAG) and the Contract Plans and Specifications.
- Definition of Manufactured products and Construction Materials are covered under 00160.20(d).
- ODOT determines whether or not items included in this list are to be classified as Construction Material or Manufactured Product. Not the Contractor.

Disclaimer: This listing is to be used as a guide to help determine the BABA classification of unique installed materials. The classification of the specific product installed may differ from the classification listed on this guide. Refer to the manufacturer's information to determine the proper classification of the specific product. This Guide will be updated and amended as needed. Refer to SP00160.20 Preferences for Materials for additional information.

BUILDING ITEMS

Architectural items

Material Description	Classification
Ceiling grid components	Manufactured Product
Garage door openers	Manufactured Product
Doorknobs, levers, and push bars	Manufactured Product
Door hinges	Manufactured Product
Door closers	Manufactured Product
Drywall corner bead	Manufactured Product
Light gage wire	Manufactured Product
Window frames	Manufactured Product
Operable partitions	Manufactured Product
Window coverings	Manufactured Product
Access panels	Manufactured Product
Flashing	Iron or Steel - Buy America Tin is a BABA Construction Material (CM)
Rain gutters and downspouts	Iron or Steel - Buy America Tin is a BABA Construction Material (CM)
Louvers	Manufactured Product
Shelving	Manufactured Product
Cabinets and hardware	Manufactured Product
Ladders	Manufactured Product Permanent – CM or I/S
Signs	Manufactured Product
Handrail	Manufactured Product

Appliances	Manufactured Product
Lockers	Manufactured Product
Fire extinguishers	Manufactured Product
Drinking fountains	Manufactured Product
Bulletin boards and dry erase boards	Manufactured Product
Locks	Manufactured Product
Hand dryers	Manufactured Product
Paper towel dispensers	Manufactured Product

Mechanical

Material Description	Classification
Air Handling Units	Manufactured Product
Fan Coil Units	Manufactured Product
Chillers	Manufactured Product
Heat Pumps	Manufactured Product
Furnaces	Manufactured Product
Boilers	Manufactured Product
HVAC equipment	Manufactured Product
HVAC controls	Manufactured Product
Water heaters	Manufactured Product
Generators	Manufactured Product
Elevator and equipment	Manufactured Product
Air compressors	Manufactured Product
Vacuums	Manufactured Product

Plumbing

Material Description	Classification
Water faucets	Manufactured Product
Toilet valves	Manufactured Product
Shower heads	Manufactured Product
ADA grab-bars	Manufactured Product Iron or Steel - Buy America Aluminum is a CM
Floor Drains	Manufactured Product
Irrigation controls and systems	Manufactured Product
Fire sprinklers and equipment	Manufactured Product

Electrical

Material Description	Classification
Exhaust fans	Manufactured Product
Light switches	Manufactured Product
Electrical outlets	Manufactured Product
Electrical wiring	Manufactured Product
Conduit connectors	Manufactured Product

Light fixtures	Manufactured Product
Light bulbs	Manufactured Product
Intercom systems	Manufactured Product
Access control systems	Manufactured Product
Security cameras	Manufactured Product
Motion sensors	Manufactured Product
Light sensors	Manufactured Product
Solar panels	Manufactured Product
Electrical Panels and circuit boards	Manufactured Product
Phone and data wiring	Manufactured Product
Phone and data equipment	Manufactured Product
Wire trays and baskets	Manufactured Product
Vehicle charging stations	Manufactured Product
Video screens and televisions	Manufactured Product
Projectors	Manufactured Product
Projector screens	Manufactured Product
Audio systems (speakers, amplifiers, microphones, etc.)	Manufactured Product
Fire alarms	Manufactured Product

BRIDGE ITEMS

Cathodic protection power/control cabinets

Material Description	Classification
Power supplies/rectifiers	Manufactured Product
Data Loggers	Manufactured Product
Diodes	Manufactured Product
Shunts	Manufactured Product
Relays	Manufactured Product
Cell Modems	Manufactured Product
Weather Station Sensors	Manufactured Product
Hall Effect dual Over-Speed Relays	Manufactured Product

Magnetic Shaft Motor Encoders	Manufactured Product
Frequency to Voltage Converters	Manufactured Product
Instrument Voltage & Current Transformers	Manufactured Product
Dry Transformers (General Purpose)	Manufactured Product
Control Power Transformers	Manufactured Product
Rail Mounted Terminal Blocks	Manufactured Product
Rail Mounted Switching Power Supplies	Manufactured Product
Power Quality Relays	Manufactured Product
Power Quality Monitors	Manufactured Product
Bar Graph Meters	Manufactured Product
Analog Voltage and Current Meters	Manufactured Product
Digital Voltage and Current Meters	Manufactured Product
Analog RPM and Elevation Meters	Manufactured Product
Analog Isolation, Conversion & Repeater Modules	Manufactured Product
Analog Signal Splitters	Manufactured Product
Rotary Analog Output Transducers	Manufactured Product
Absolute Resolvers with Instrument Electronics	Manufactured Product
Harmonic Mitigation Filters	Manufactured Product
Motor Protection Filters	Manufactured Product
TVSS Surge Protection Devices	Manufactured Product
Rotary Cam Switches	Manufactured Product

Inductive Proximity Switches	Manufactured Product
Photo-Electric Switches	Manufactured Product
Thermal Imaging Security Alarms	Manufactured Product
Mechanical Latching Relays	Manufactured Product
Timing Relays	Manufactured Product
Direct Drive Industrial Control Relays	Manufactured Product
Rail Mounted Fuse Holders	Manufactured Product
Panel Mounted Fuse Holders	Manufactured Product
Rail Mounted Supplementary Overcurrent Devices	Manufactured Product
Rail Mounted Temperature	Manufactured Product
Switches	Manufactured Product
NEMA 4X Pushbuttons, Switches, Indicator Lights	Manufactured Product
Dynamic Braking Resistors	Manufactured Product
PhotoVoltaic Charge Controllers	Manufactured Product
Gell Cell Solar Storage Batteries	Manufactured Product
Spread Spectrum Wireless I/O Radios	Manufactured Product
VHF & UHF Wireless Network Radio Modems	Manufactured Product
VHF & UHF Antennas (for wireless radio networks)	Manufactured Product
12V Flashers	Manufactured Product
RTD indoor Temp & Humidity Sensors	Manufactured Product
RTD Outdoor Temp/Humidity Transmitters	Manufactured Product

Wind Speed Sensors	Manufactured Product
4-20 Ma Temperature and Pressure transmitters	Manufactured Product
Inclinometers	Manufactured Product
Water Elevation sensors	Manufactured Product
Analog Wireless Video Systems	Manufactured Product
NEMA 4X indicator lights, switches	Manufactured Product
Micro-Controllers with integral Displays	Manufactured Product
FAA approved LED Obstruction Lights	Manufactured Product
FAA approved Aviation Beacons	Manufactured Product
FAA approved Beacon Flashers	Manufactured Product
Coast Guard Approved Bascule Navigation Lights	Manufactured Product
Warning Sirens	Manufactured Product
Air Horns	Manufactured Product
Hydraulic and Pneumatic Electrically actuated Valves	Manufactured Product
Linear Actuators	Manufactured Product
Rotary Actuators	Manufactured Product
Enclosure Heaters and Ventilation Fans	Manufactured Product
Fiber Optic Analog Transmitters and Receivers	Manufactured Product
Fiber Optic Multi-Channel Digital I/O Multiplexers	Manufactured Product
Industrial Control Fiber Optic Network Modules	Manufactured Product
Fiber Optic Patch Panels	Manufactured Product
Fiber Optic Patch Panel Cords	Manufactured Product

RAILROAD ITEMS

Material Description	Classification
Railroad Gates	Manufactured Product
Railroad Cantilevers	Manufactured Product

ITS

ITS Anticipated Items Procured Using Federal Funds on Construction Projects

Material Description	Classification
Industrial Network and Radio Equipment: Network switches, routers, radios, media converters	Manufactured Product
Variable Message Signs: Variety of variable message signs and their traffic cabinet assemblies. Sign housing and cabinet are constructed from aluminum.	Manufactured Product
Traffic Sensor Station: Microwave radar sensor and miscellaneous electronic components and mounting assemblies.	Manufactured Product
Advanced Transportation Controller: Traffic controller. Miscellaneous electronic components.	Manufactured Product

Video Equipment: Video encoders, decoders, cameras, mounts, power supplies, PC.	Manufactured Product
Road and Weather Information Station Equipment (Replacement of Existing Equipment): Atmospheric sensors, pavement sensors, mounts, computer, power supply	Manufactured Product
Other: Cellular antennas and cellular router not on contract	Manufactured Product
Commerce and Compliance Division–Weigh in Motion Equipment: Cabinet assemblies, controllers, cameras, sensors, power supplies, mounts.	Manufactured Product
BlueTooth Mac Address Reader	Manufactured Product

Items Specified in ITS Construction Specifications

Material Description	Classification
Camera Lowering System	Manufactured Product
RWIS Equipment (for new sites): Remote processing unit, anemometer, temperature/humidity sensor, visibility sensor, precipitation sensor, pavement sensor, media converter.	Manufactured Product
Forward Facing Radar: Decatur radar unit used for curve warning applications	Manufactured Product

Items Procured Using Federal Funds for NON-Construction Activities (ITS Software Systems)

Material Description	Classification
Servers, PCs, office grade network equipment, monitors	Manufactured Product

**U.S. Department of Housing and
Urban Development**
Office of Public and Indian Housing

**Instructions to Bidders for Contracts
Public and Indian Housing Programs**

Instructions to Bidders for Contracts

Public and Indian Housing Programs

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1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

- (1) Integrity;
- (2) Compliance with public policy;
- (3) Record of past performance; and
- (4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

9. Bid Guarantee (applicable to construction and equipment contracts exceeding \$25,000)

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

10. Assurance of Completion

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

[] (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

[] (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

[] (3) a 20 percent cash escrow;

[] (4) a 25 percent irrevocable letter of credit; or,

[] (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website <http://www.fms.treas.gov/c570/index.html>, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

11. Preconstruction Conference (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

12. Indian Preference Requirements (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including

corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to be used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA [] does [] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.

Supplement to form HUD-5369, Instructions to Bidders/Offerors

Form HUD-5369, Instructions to Bidders/Offerors is supplemented as follows:

A. ADD: To be responsive, the bidder must submit the following documents in a sealed envelop marked on its face with the correct bidding information with his/her bid:

1. Form HUD-5369, Representations, Certifications, and Other Statements of Bidders
2. Non-collusive Affidavit
3. Section 3 Preference Certification completed and certified **OR** marked NA if the bidder is not claiming Section 3 preference.
4. Bidder's Qualifications including a Financial Statement and a certificate of authority to do business in Pennsylvania.
5. Bidder's Section 3 Certifications and Compliance Agreement
6. Bid Form
7. Bid Bond and Certificates

The RHA shall reject a bid as non-responsive any bid that does not include each of the above documents, fully completed and properly executed.

B. Bid Submission: The above shall be submitted to the HA at the time and place stated in the Invitation for Bid in a sealed envelope marked on its face with the correct bidding information. The correct bidding information may be found on the Cover and Title Page of the bid package and is:

Date of Reference (Issue Date)
FOR THE PROJECT TITLED
Name of facility where the work is located
Project Number
Date and time of bid opening
Contractor's name and address

If the bidder's chooses, he/she may submit the required Bidder's Qualifications and Financial Statement in a separate sealed envelop. If the bidder is not the low bidder, the sealed envelope will be returned unopened. The Bidder's Qualifications and Financial Statement sealed envelope must be marked on its face with the correct information:

Date of Reference (Issue Date)
FOR THE PROJECT TITLED
Name of facility where the Work is located
Project Number
Date and time of bid opening
Contractor's name and address

Bidder's Qualifications and Financial Statement

C. ADD the Statement: Board Approval. Any contract is subject to cancellation and rejection by the members of the RHA, without liability therefore, at their next regularly scheduled, properly convened meeting, following the date hereof, notwithstanding any contrary statements or representations of any member, officer, or employee of the RHA. The contractor recognizes that no member, officer or employee of the RHA has the power or **authority to waive or limit the effect of this Paragraph nor the control of the members** of the RHA over the approval of any contract. In the event that the members of the RHA cancel **or reject this contract at their next regularly scheduled, properly convened** meeting, as aforesaid, this contract shall be null and void and of no effect as to the RHA, and there shall be no liability on the part of the RHA hereunder.

Supplement to form HUD-5369, Instructions to Bidders/Offerors

D. DELETE: Section 4, Responsibility of Prospective Contractor. Paragraph (b):

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder non-responsible and ineligible for award.

REPLACE WITH: Section 4, Responsibility of Prospective Contractor. Paragraph (b):

(b) The bidder shall submit the completed Bidder's Qualifications with the bid for the purpose of assisting the RHA to determine responsibility. The RHA may rely on sources of information other than the bidder's qualifications to determine responsibility. The failure of the bidder to submit the qualifications shall render the bidder non-responsible and ineligible for award.

Supplement to form HUD 5369a, Representation, Certifications, And Other Statements of Bidders

This is a supplement to the form HUD-5369-a, Representations, Certifications, and Other Statements of Bidders. The supplement amends the HUD form as follows:

1. ADD the statement:

This form HUD 5369-a, Representations, Certifications, and Other Statements of Bidders **must** be with the bid with all information completed and certified by the bidder as being accurate, complete, and current. Failure to submit this certification properly completed and executed will render the bidder non-responsive.

2. ADD the statement:

Contractor must be organized under the laws of the Commonwealth of Pennsylvania, or licensed to do business in the Commonwealth. RHA may request a copy of documents evidencing such organization or license prior to the execution of a contract.

3. DELETE Section 1. Certificate of Independent Price Determination, paragraph (d), (d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding \$50,000)

And replace with:

(d) Non-collusive affidavit. (applicable to all contracts for construction and equipment) Each person, firm or agency submitting a bid/proposal shall execute an affidavit, in the form provided in the package, to the effect that he/she has not colluded with any other person, firm, or corporation in regard to any proposal submitted. Additionally, at the HA determination, the bidder may be required to submit a non-collusive affidavit for each of his/her subcontractors.

4. DELETE Section 12. Previous Participation Certificate (applicable to construction and equipment contracts exceeding \$50,000) (a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid non-responsive. No contract award will be made without a properly executed certificate. (b) A fully executed "Previous Participation Certificate" [] is, [] is not included with the bid.

REPLACE with:

12. Previous Participation Certificate. A Previous Participation Certificate is not required to be submitted for this contract.

As additional requirements for certification of form HUD 5369a, Representations, Certifications, and Other Statements of Bidders, the bidder shall complete and execute the following certifications.

5. Non-collusive Affidavit form.
6. Certification for Business Concerns Seeking Section 3 Preference in Contracting and Demonstration of Capability.

**U.S. Department of Housing
and Urban Development**
Office of Public and Indian Housing

**Representations, Certifications,
and Other Statements of Bidders**
Public and Indian Housing Programs

Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

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1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

[insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

[] [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding \$50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit" [] is, [] is not included with the bid.

2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [] has, [] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [] has, [] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding \$100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

- (a) Result in an unfair competitive advantage to the bidder; or,
(b) Impair the bidder's objectivity in performing the contract work.
[] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [Contracting Officer insert time period] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [] is, [] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) [] is, [] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [] is, [] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

- | | |
|------------------------|------------------------------|
| [] Black Americans | [] Asian Pacific Americans |
| [] Hispanic Americans | [] Asian Indian Americans |
| [] Native Americans | [] Hasidic Jewish Americans |

8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

(a) [] is, [] is not an Indian-owned economic enterprise. "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [] is, [] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or

community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

9. Certification of Eligibility Under the Davis-Bacon Act (applicable to construction contracts exceeding \$2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

10. Certification of Nonsegregated Facilities (applicable to contracts exceeding \$10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed \$10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

(1) Obtain identical certifications from the proposed subcontractors;

(2) Retain the certifications in its files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Note: The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

11. Clean Air and Water Certification (applicable to contracts exceeding \$100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [] is, [] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

12. Previous Participation Certificate (applicable to construction and equipment contracts exceeding \$50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate" [] is, [] is not included with the bid.

13. Bidder's Signature

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

(Signature and Date)

(Typed or Printed Name)

(Title)

(Company Name)

(Company Address)

General Conditions for Construction Contracts - Public Housing Programs

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing
OMB Approval No. 2577-0157 (exp. 1/31/2017)

Applicability. This form is applicable to any construction/development contract greater than \$100,000.

This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 24 CFR 85.36, and those requirements set forth in Section 3 of the Housing and Urban Development Act of 1968 and its amendment by the Housing and Community Development Act of 1992, implemented by HUD at 24 CFR Part 135. The form is required for construction contracts awarded by Public Housing Agencies (PHAs).

The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, HAs would be unable to enforce their contracts.

Public reporting burden for this collection of information is estimated to average 1.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Responses to the collection of information are required to obtain a benefit or to retain a benefit.

The information requested does not lend itself to confidentiality.

HUD may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB number.

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1. Definitions

- (a) "Architect" means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.
- (b) "Contract" means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5370), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from the U.S. Department of Labor, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.
- (c) "Contracting Officer" means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.
- (d) "Contractor" means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.
- (e) "Drawings" means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled Specifications and Drawings for Construction herein.
- (f) "HUD" means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an Annual Contributions Contract (ACC), to provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.
- (g) "Project" means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract.
- (h) "PHA" means the Public Housing Agency organized under applicable state laws which is a party to this contract.
- (i) "Specifications" means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the requirements are met.
- (l) "Work" means materials, workmanship, and manufacture and fabrication of components.
- (a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled Availability and Use of Utility Services herein.
- (b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least [] (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.
- (c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.
- (d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.
- (e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.
- (f) The Contractor shall confine all operations (including storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.
- (g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.
- (h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

3. Architect's Duties, Responsibilities, and Authority

- (a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

2. Contractor's Responsibility for Work

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- (b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the Changes clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.
- (c) The Architect's duties and responsibilities may include but shall not be limited to:
- (1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;
 - (2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;
 - (3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,
 - (4) Assisting in inspections, signing Certificates of Completion, and making recommendations with respect to acceptance of work completed under the contract.

4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees

Construction Requirements

5. Pre-construction Conference and Notice to Proceed

- (a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.
- (b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

6. Construction Progress Schedule

- (a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.
- (b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.
- (c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

7. Site Investigation and Conditions Affecting the Work

- (a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is

reasonably ascertainable from an inspection of the site, including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

- (b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

8. Differing Site Conditions

- (a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.
- (b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.
- (c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.
- (d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

9. Specifications and Drawings for Construction

- (a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be

promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

- (b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.
- (c) Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place" that is "furnished and installed".
- (d) "Shop drawings" means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.
- (e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.
- (f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.
- (g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be

required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

- (h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.
- (i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

10. As-Built Drawings

- (a) "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings."
- (b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.
- (c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

11. Material and Workmanship

- (a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.
- (b) Approval of equipment and materials.
 - (1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the

machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

- (2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.
- (3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.
- (4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.
- (5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of materials with the specifications. The Contractor will assume all costs of retesting materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.
- (6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.
- (c) Requirements concerning lead-based paint. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

12. Permits and Codes

- (a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any

waivers. Before installing the work, the Contractor shall examine the drawings and the specifications for compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled Changes herein to conform to the code or regulation.

- (b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.

13. Health, Safety, and Accident Prevention

- (a) In performing this contract, the Contractor shall:
 - (1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;
 - (2) Protect the lives, health, and safety of other persons;
 - (3) Prevent damage to property, materials, supplies, and equipment; and,
 - (4) Avoid work interruptions.
- (b) For these purposes, the Contractor shall:
 - (1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96), 40 U.S.C. 3701 et seq.; and
 - (2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.
- (c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904.
- (d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.
- (e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

14. Temporary Heating

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

15. Availability and Use of Utility Services

- (a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or, where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.
- (b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

- (a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.
- (b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.
- (c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.
- (d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.
- (e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

- (f) New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the specifications.
- (g) No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.
- (h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.
- (i) The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.
- (j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.
- (k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

17. Temporary Buildings and Transportation of Materials

- (a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
- (b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

18. Clean Air and Water

The contractor shall comply with the Clean Air Act, as amended, 42 USC 7401 et seq., the Federal Water Pollution Control Water Act, as amended, 33 U.S.C. 1251 et seq., and standards issued pursuant thereto in the facilities in which this contract is to be performed.

19. Energy Efficiency

The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

20. Inspection and Acceptance of Construction

- (a) Definitions. As used in this clause -
 - (1) "Acceptance" means the act of an authorized representative of the PHA by which the PHA approves and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.
 - (2) "Inspection" means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.
 - (3) "Testing" means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.
- (b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
- (c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the completed work under paragraph (j) below.
- (d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer's written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.
- (e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

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- (f) The PHA may conduct routine inspections of the construction site on a daily basis.
 - (g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.
 - (h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.
 - (i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.
 - (j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

21. Use and Possession Prior to Completion

- (a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.
- (b) While the PHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas

occupied without proper remuneration therefore. If prior possession or use by the PHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

22. Warranty of Title

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

23. Warranty of Construction

- (a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of _____ (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.
- (b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—
 - (1) The Contractor's failure to conform to contract requirements; or
 - (2) Any defects of equipment, material, workmanship or design furnished by the Contractor.
- (c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.
- (d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.
- (e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.
- (f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
 - (1) Obtain all warranties that would be given in normal commercial practice;
 - (2) Require all warranties to be executed in writing, for the benefit of the PHA; and,
 - (3) Enforce all warranties for the benefit of the PHA.
- (g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

- (h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the repair of any damage that results from any defect in PHA furnished material or design.
- (i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.
- (j) This warranty shall not limit the PHA's rights under the Inspection and Acceptance of Construction clause of this contract with respect to latent defects, gross mistakes or fraud.

24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

Administrative Requirements

25. Contract Period

this contract within _____ calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

26. Order of Provisions

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

27. Payments

- (a) The PHA shall pay the Contractor the price as provided in this contract.
- (b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.
- (c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a

basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

- (d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved submitted not later than _____ days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.
- (e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:
 - (1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;
 - (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,
 - (3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

Name: _____

Title: _____

Date: _____

- (f) Except as otherwise provided in State law, the PHA shall retain ten (10) percent of the amount of progress payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.
- (g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments.

Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

- (h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.
- (i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.
- (j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.
- (k) The PHA shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bonds furnished under this contract.

28. Contract Modifications

- (a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.
- (b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or

responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

- (c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

29. Changes

- (a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:
 - (1) In the specifications (including drawings and designs);
 - (2) In the method or manner of performance of the work;
 - (3) PHA-furnished facilities, equipment, materials, services, or site; or,
 - (4) Directing the acceleration in the performance of the work.
- (b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.
- (c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.
- (d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.
- (e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.
- (f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

-
- (1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/ or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs when size of change warrants revision.
 - (2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.
 - (3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change. The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.
 - (g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.
 - (h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.
 - (i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.
 - (j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

30. Suspension of Work

- (a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the PHA.
- (b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have

been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

- (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

31. Disputes

- (a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.
- (b) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.
- (c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.
- (d) The Contracting Officer shall, within 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.
- (e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.
- (f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

32. Default

- (a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to

proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

- (b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—
 - (1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and
 - (2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes clause of this contract.
- (c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

33. Liquidated Damages

- (a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of \$ _____ [Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.
- (b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final

completion of the work together with any increased costs occasioned the PHA in completing the work.

- (c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

34. Termination for Convenience

- (a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.
- (b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.
- (c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.
- (d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

35. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

36. Insurance

- (a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:
 - (1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.
 - (2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than \$ _____ [Contracting Officer insert amount]

per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims-made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

- (3) Automobile Liability on owned and non-owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than \$ _____ [Contracting Officer insert amount] per occurrence.

- (b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.
- (c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

37. Subcontracts

- (a) Definitions. As used in this contract -
- (1) "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

- (2) "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.

- (b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work under this contract is to be performed.
- (c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.
- (d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.
- (e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:

- (a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- (b) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;
- (c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;
- (d) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and
- (e) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies.

39. Equal Employment Opportunity

During the performance of this contract, the Contractor agrees as follows:

- (a) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or handicap.
- (b) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, or handicap. Such action shall include, but not be limited to, (1) employment, (2) upgrading, (3) demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship.

- (c) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.
- (d) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or handicap.
- (e) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.
- (f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.
- (g) The Contractor shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (h) In the event of a determination that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts, or Federally assisted construction contracts under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.
- (i) The Contractor shall include the terms and conditions of this clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontract or purchase order as the Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.
- (j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the Indian Preference clause of this contract.

40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

- (a) The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- (b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.
- (c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
- (d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.
- (e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.
- (f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
- (g) With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

41. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

43. Limitations on Payments made to Influence Certain Federal Financial Transactions

- (a) The Contractor agrees to comply with Section 1352 of Title 31, United States Code which prohibits the use of Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

44. Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

45. Examination and Retention of Contractor's Records

- (a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.
- (b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding \$10,000.
- (c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the Disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

46. Labor Standards - Davis-Bacon and Related Acts

If the total amount of this contract exceeds \$2,000, the Federal labor standards set forth in the clause below shall apply to the development or construction work to be performed under the contract.

- (a) Minimum Wages.
 - (1) All laborers and mechanics employed under this contract in the development or construction of the project(s) involved will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall

be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- (2) (i) Any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met: (A) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (B) The classification is utilized in the area by the construction industry; and (C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in classification.
- (3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- (4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the

amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

- (b) Withholding of funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.
- (c) Payrolls and basic records.
 - (1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

- (2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)
- (ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c) (1) of this clause and that such information is correct and complete;
- (B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and
- (C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- (iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.
- (iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.
- (3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to

make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

- (d) (1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship and Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under

- the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (3) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.
- (e) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.
- (f) Contract termination; debarment. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.
- (g) Compliance with Davis-Bacon and related Act requirements. All rulings and interpretations of the Davis-Bacon and related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
- (h) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.
- (i) Certification of eligibility.
- (1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
- (2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
- (3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.
- (j) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.
- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic (including watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause.
- (3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.
- (k) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

47. Non-Federal Prevailing Wage Rates

- (a) Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State or tribal law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate exceeds:
 - (1) The applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 3141 et seq.) to be prevailing in the locality with respect to such trade;
- (b) An applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor (DOL) or a DOL-recognized State Apprenticeship Agency; or
- (c) An applicable trainee wage rate based thereon specified in a DOL-certified trainee program.

48. Procurement of Recovered Materials.

- (a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an unreasonable price.
- (b) Paragraph (a) of this clause shall apply to items purchased under this contract where: (1) the Contractor purchases in excess of \$10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of \$10,000 of the item both under and outside that contract.

Schedule of Amounts for
Contract Payments

U.S. Department of Housing
and Urban Development
Office of Public and Indian Housing

OMB Approval No. 2577-0157
(Exp. 1/31/2027)

No progress payments shall be made to the contractor unless a schedule of amounts
for contract payments in accordance with the construction contract is received.

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources,
gathering and maintaining the data needed, and completing and reviewing the collection of information. HUD may not conduct or sponsor, and an applicant is not required to
respond to a collection of information unless it displays a currently valid OMB control number. Comments regarding the accuracy of this burden estimate and any suggestions for
reducing this burden can be sent to the Reports Management Officer, Office of Policy Development and Research, REE, Department of Housing and Urban Development, 451 7th
St SW, Room 4176, Washington, DC 20410-5000. When providing comments, please refer to OMB Approval No. 2577-0157. Construction practices and HUD administrative
requirements establish the need that HAs maintain certain records or submit certain documents in conjunction with the oversight of the award of construction contracts for the
construction of new low-income housing developments or modernization of existing developments. These forms are used by HAs to provide information on the construction
progress schedule and schedule of amounts for contract payments. Responses to the collection of information are required to obtain a benefit or to retain a benefit. The
information requested does not lend itself to confidentiality.

Project Name and Location
Project Number

Name, Address, and Zip Code of Contractor

Nature of Contract
Contract Number

Approved for Contractor by
Title
Date (mm/dd/yyyy)

Approved for Architect by
Title
Date (mm/dd/yyyy)

Approved for Owner by
Title
Date (mm/dd/yyyy)

Table with 7 columns: Item No. (1), Description of Item (2), Quantity (3), Unit of Measure (4), Unit Price in Place (5), Amount of Sub-Item (6), Amount of Principal Item (7)

Total Amount of Contract or Carried Forward
\$

To the best of my knowledge, all the information stated herein, as well as any information provided in the accompaniment herewith, is true and accurate.
Warning: HUD will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties. (18 U.S.C. 1001, 1010, 1012; 31 U.S.C. 3729, 3802)

Signature of authorized representative
Date signed (mm/dd/yyyy)

Instructions for Preparation of form HUD-51000

1. A separate breakdown is required for each project and prime contract instructions for preparation are given below.
 - a. **Heading.** Enter all identifying information required for both forms.
 - b. **Columns 1 and 2.** In column 1, enter the item numbers starting with No. 1, and in column 2 enter each principal division of work incorporated in the contract work.
 - (1) **Master List.** The Master list contains the basic items into which any construction contract may be subdivided for the purpose of preparing the Construction Progress Schedule and the Periodical Estimates for Partial Payments. Only those items shall be selected which apply to the particular contract. To ensure uniformity, no change shall be made in the item numbers. Generally, about 25 to 40 major items appear in a contract.
 - (2) **Items Subdivided.** In the Contractor's breakdown, against which all periodical estimates will be checked prior to payment, each major item must be subdivided into sub-items pertinent to the project involved and in agreement with the Contractor's intended basis for requesting monthly payments.
 - c. **Column 3.** Enter the total quantity for each sub-item of each principal division of work listed in the breakdown.
 - d. **Column 4.** Enter the appropriate unit of measure for each sub-item of work opposite the quantities described in column 3, such as "sq. ft.," "cu. yd.," "tons," "lb.," "lumber per M/BM," "brickwork per M," etc., applicable to the particular sub-item. Items shown on "lump sum" or equivalent basis will be paid for only on completion of the whole item and not on a percentage of completion basis.
 - e. **Column 5.** Enter the unit price, in place, of each sub-item of work.
 - f. **Column 6.** Enter the amount of each sub-item obtained by multiplying the quantities in column 3 by the corresponding unit prices in column 5.
 - g. **Column 7.** Enter the amount of principal item only, obtained by adding the amounts of all sub-items of each principal division of work listed in column 6. Continue with the breakdown on form HUD-51000.
 - h. The "Schedule of Amounts for Contract Payments" shall be signed and dated in the space provided at the bottom of each sheet of the form by the individual who prepared the breakdown for the Contractor.
2. The minimum number of copies required for each submission for approval is an original and two copies. When approved, one fully approved copy will be returned to the Contractor.

Master List of Items

Item No.	Division of Work	Item No.	Division of Work	Item No.	Division of Work
1	Bond	20	Rough Carpentry		Site Improvements
2	General Conditions	21	Metal Bucks	44	Retaining Walls
3	Demolition & Clearing	22	Caulking	45	Storm Sewers
	Structures	23	Weatherstripping	46	Sanitary Sewers
4	General Excavation	24	Lath & Plastering-Drywall	47	Water Distribution System
5	Footing Excavation	25	Stucco	48	Gas Distribution System
6	Backfill	26	Finish Carpentry	49	Electrical Distribution System
7	Foundation Piles & Caissons	27	Finish Hardware	50	Street & Yard Lighting
8	Concrete Foundations	28	Glass & Glazing	51	Fire & Police Alarm System
9	Concrete Superstructures	29	Metal Doors	52	Fire Protection System
10	Reinforcing Steel	30	Metal Base & Trim	53	Street Work
11	Waterproofing & Dampproofing	31	Toilet Partitions	54	Yard Work
12	Spandrel Waterproofing	32	Floors	55	(Other)
13	Structural Steel	33	Painting & Decorating	56	(Other)
14	Masonry	34	Screens		Equipment
15	Stonework	35	Plumbing	57	Shades & Drapery Rods
16	Miscellaneous & Ornamental Metal	36	Heating	58	Ranges
17	Metal Windows	37	Ventilating System	59	Refrigerators
18	Roofing	38	Electrical	60	Kitchen Cabinets & Work Tables
19	Sheet Metal	39	Elevators	61	Laundry Equipment
		40	Elevator Enclosures—Metal	62	(Other)
		41	Incinerators—Masonry & Parts		Punch List ¹ / ₂
		42	(Other)	63	Lawns & Planting
		43	(Other)	64	

¹ General Conditions should be 3% to 5% of contract amount.

² Punch List should be approximately 1/2 of 1% or \$30 per dwelling unit, whichever is greater.

Periodic Estimate
for Partial Payment

U.S. Department of Housing
and Urban Development
Office of Public and Indian Housing

OMB Approval No. 2577-015
7 (exp. 1/31/2027)

Submit original and one copy to the Public Housing Agency.
Complete instructions are on the back of this form.

Public reporting burden for this collection of information is estimated to average 3.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. HUD may not conduct or sponsor, and an applicant is not required to respond to a collection of information unless it displays a currently valid OMB control number. Comments regarding the accuracy of this burden estimate and any suggestions for reducing this burden can be sent to the Reports Management Officer, Office of Policy Development and Research, REE, Department of Housing and Urban Development, 451 7th St SW, Room 4176, Washington, DC 20410-5000. When providing comments, please refer to OMB Approval No. 2577-0157. This information is collected under the authority of Section 6(c) of the U.S Housing Act of 1937 and HUD regulations. HAs are responsible for contract administration to ensure that the work for project development is done in accordance with State laws and HUD requirements. The contractor/subcontractor reports provide details and summaries on payments, change orders, and schedule of materials stored for the project. The information will be used to ensure that the total development costs, identified in the ACC, are kept as low as possible and consistent with HUD construction requirements. Responses to the collection are necessary to obtain a benefit. The information requested does not lend itself to confidentiality.

Name of Public Housing Agency		Periodic Estimate Number	Period From (mm/dd/yyyy) To (mm/dd/yyyy)
Location of Project			Project Number
Name of Contractor			Contract Number
Item Number (1)	Description of Item (2)	Completed to Date (3)	
		\$	
Value of Contract Work Completed to Date (Transfer this total to line 5 on back of this sheet)			\$

Instructions

Headings. Enter all identifying data required. Periodic estimates must be numbered in sequence beginning with the number 1.

Columns 1 and 2. The "Item Number" and "Description of Item" must correspond to the number and descriptive title assigned to each principal division of work in the "Schedule of Amounts for Contract Payments", form HUD-51000.

Column 3. Enter the accumulated value of each principal division of work completed as of the closing date of the periodic estimate. Enter the total in the space provided.

Certifications. The certification of the contractor includes the analysis of amounts used to determine the net balance due. In the first paragraph, enter the name of the Public Housing Agency, the contractor, and the date of the contract. Enter the calculations used in arriving at the "Balance Due This Payment" on lines 1 through 16.

Enter the contractor's name and signature in the certification following line 16.

The latter portion of this certification relating to payment of legal rates of wages, is required by the contract before any payment may be made. However, if the contractor does not choose to certify on behalf of his/her subcontractors to wage payments made by them, he/she may modify the language to cover only himself /herself and attach a list of all subcontractors who employed labor on the site during the period covered by the Periodic Estimate, together with the individual certifications of each.

Certification of the Contractor or Duly Authorized Representative

According to the best of my knowledge and belief, I certify that all items and amounts shown on the other side of this form are correct; that all work has been performed and material supplied in full accordance with the items and conditions of the contract between the (name of owner)

_____ and (contractor) _____
dated (mm/dd/yyyy) _____, and duly authorized deviations, substitutions, alterations, and additions; that the following is a true and correct statement of the Contract Account up to and including the last day of the period covered by this estimate, and that no part of the "Balance Due This Payment" has been received.

1. Original Contract Amount \$ _____

Approved Change Orders:

2. Additions (Total from Col. 3, form HUD-51002) \$ _____
3. Deductions (Total from Col. 5, form HUD-51002) \$ _____ (net) \$ _____
4. Current Adjusted Contract Amount (line 1 plus or minus net) \$ _____

Computation of Balance Due this Payment

5. Value of Original Contract work completed to date (from other side of this form) \$ _____

Completed Under Approved Change Orders

6. Additions (from Col. 4, form HUD-51002) \$ _____
7. Deductions (from Col. 5, form HUD-51002) \$ _____ (net) \$ _____
8. Total Value of Work in Place (line 5 plus or minus net line 7) \$ _____
9. **Less:** Retainage, _____ % \$ _____
10. Net amount earned to date (line 8 less line 9) \$ _____
11. **Less:** Previously earned (line 10, last Periodic Estimate) \$ _____
12. Net amount due, work in place (line 10 less line 11) \$ _____

Value of Materials Properly Stored

13. At close of this period (from form HUD-51004) \$ _____
14. **Less:** Allowed last period \$ _____
15. Increase (decrease) from amount allowed last period \$ _____
16. **Balance Due This Payment** \$ _____

I further certify that all just and lawful bills against the undersigned and his/her subcontractors for labor, material, and equipment employed in the performance of this contract have been paid in full in accordance with the terms and conditions of this contract, and that the undersigned and his/her subcontractors have complied with, or that there is an honest dispute with respect to, the labor provisions of this contract.

Name of Contractor	Signature of Authorized Representative	Title	Date (mm/dd/yyyy)
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Certificate of Authorized Project Representative and of Contracting Officer

Each of us certifies that he/she has checked and verified this Periodic Estimate No. _____; that to the best of his/her knowledge and belief it is a true statement of the value of work performed and material supplied by the contractor; that all work and material included in this estimate has been inspected by him/her or by his/her authorized assistants; and that such work has been performed or supplied in full accordance with the drawings and specifications, all applicable accessibility requirements (including Section 504 and Title II of the Americans with Disabilities Act; and the Fair Housing Act and Title III of the Americans with Disabilities Act, if applicable), the terms and conditions of the contract, and duly authorized deviations, substitutions, alterations, and additions, all of which have been duly approved.

We, therefore, approve as the "Balance Due this Payment" the amount of \$ _____

Authorized Project Representative	Date (mm/dd/yyyy)	Contracting Officer	Date (mm/dd/yyyy)
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I certify the information on this form and in any accompanying documentation is true and accurate. I acknowledge making, presenting, or submitting a false, fictitious, or fraudulent statement, representation, or certification may result in criminal, civil, and/or administrative sanctions, including fines, penalties, and confinement for up to 5 years, (18 U.S.C. §§ 287, 1001 and 31 U.S.C. § 3729)

**U.S. Department of Housing
and Urban Development**
Office of Public and Indian Housing

OMB Approval No. 2577-0157 (exp.12/31/2011)

**Contract Provisions Required by Federal Law
or Owner Contract with the
U.S. Department of Housing and Urban Development**

Contract Provisions Required by Federal Law or Owner Contract with the U.S. Department of Housing and Urban Development

U. S. Department of Housing
and Urban Development
Office of Public and Indian Housing

OMB Approval No. 2577-0157
(exp.3/31/2010)

Public reporting burden for this collection of information is estimated to average 3 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless that collection displays a valid OMB control number.

These contracts between a HUD grantee (housing agency (HA)) and an architect/engineer (A/E) for design and construction services do not require either party to submit any materials to HUD. The forms provide a contractual agreement for the services to be provided by the A/E and establishes responsibilities of both parties pursuant to the contract. The regulatory authority is 24 CFR 85.36. These contractual agreements are required by Federal law or regulation pursuant to 24 CFR Part 85.36. Signing of the contracts is required to obtain or retain benefits. The contracts do not lend themselves to confidentiality.

1.0 Contract Provisions Required by Federal Law or Owner Contract with the U.S. Department of Housing and Urban Development (HUD).

1.1 Contract Adjustments. Notwithstanding any other term or condition of this Agreement, any settlement or equitable adjustment due to termination, suspension or delays by the Owner shall be negotiated based on the cost principles stated at 48 CFR Subpart 31.2 and conform to the Contract pricing provisions of 24 CFR 85.36 (f).

1.2 Additional Services. The Owner shall perform a cost or price analysis as required by 24 CFR 85.36 (F) prior to the issuance of a contract modification/amendment for Additional Services. Such Additional Services shall be within the general scope of services covered by this Agreement. The Design Professional shall provide supporting cost information in sufficient detail to permit the Owner to perform the required cost or price analysis.

1.3 Restrictive Drawings and Specifications. In accordance with 24 CFR 85.36(c)(3)(i) and contract agreements between the Owner and HUD, the Design Professional shall not require the use of materials, products, or services that unduly restrict competition.

1.4 Design Certification. Where the Owner is required by federal regulations to provide HUD a Design Professional certification regarding the design of the Projects (24 CFR 968.235), the Design Professional shall provide such a certification to the Owner.

1.5 Retention and Inspection of Records. Pursuant to 24 CFR 85.26(i)(10) and (11), access shall be given by the Design Professional to the Owner, HUD, the Comptroller General of the United States, or any of their duly authorized representatives, to any books, documents, papers, and records of the Design Professional which are directly pertinent to that specific Contract for the purpose of making an audit, examination, excerpts, and transcriptions. All required records shall be retained for three years after the Owner or Design Professional and other subgrantees make final payments and all other pending matters are closed.

1.6 Copyrights and Rights in Data. HUD has no regulations pertaining to copyrights or rights in data as provided in 24 CFR 85.36. HUD requirements, Article 45 of the General Conditions to the Contract for Construction (form HUD-5370) requires that contractors pay all royalties and license fees. All drawings and specifications prepared by the Design Professional pursuant to this contract will identify any applicable patents to enable the general contractor to fulfil the requirements of the construction contract.

1.7 Conflicts of Interest. Based in part on federal regulations (24 CFR 85.36(b)) and Contract agreement between the Owner and HUD, no employee, officer, or agent of the Owner (HUD grantee) shall participate in selection, or in the award or administration of a contract supported by Federal funds if a conflict of interest, real or apparent, would be involved.

Such a conflict would arise when:

- (i) The employee, officer or agent,
- (ii) Any member of his or her immediate family,
- (iii) His or her partner, or

(iv) An organization that employs, or is about to employ, any of the above, has a financial or other interest in the firm selected for award. The grantee's or subgrantee's officers, employees or agents will neither solicit nor accept gratuities, favors or anything of monetary value from Contractors, or parties to sub-agreements. Grantees and subgrantees may set minimum rules where the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by State or local law or regulations, such standards or conduct will provide for penalties, sanctions, or other disciplinary actions for violations of such standards by the grantee's and subgrantee's officers, employees, or agents or by Contractors or their agents. The awarding agency may in regulation provide additional prohibitions relative to real, apparent, or potential conflicts of interest.

Neither the Owner nor any of its contractors or their subcontractors shall enter into any Contract, subcontract, or agreement, in connection with any Project or any property included or planned to be included in any Project, in which any member, officer, or employee of the Owner, or any member of the governing body of the locality in which the Project is situated, or any member of the governing body of the locality in which the Owner was activated, or in any other public official of such locality or localities who exercises any responsibilities or functions with respect to the Project during his/her tenure or for one year thereafter has any interest, direct or indirect. If any such present or former member, officer, or employee of the Owner, or any such governing body member or such other public official of such locality or localities involuntarily acquires or had acquired prior to the beginning of his/her tenure any such interest, and if such interest is immediately disclosed to the Owner and such disclosure is entered upon the minutes of the Owner, the Owner, with the prior approval of the Government, may waive the prohibition contained in this subsection: Provided, That any such present member, officer, or employee of the Owner shall not participate in any action by the Owner relating to such contract, subcontract, or arrangement.

No member, officer, or employee of the Owner, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the Owner was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, during his/her tenure or for one year thereafter, shall have any interest, direct or indirect, in this contract or the proceeds thereof.

1.8 Disputes. In part because of HUD regulations (24 CFR 85.36(i)(1)), this Design Professional Agreement, unless it is a small purchase contract, has administrative, contractual, or legal remedies for instances where the Design Professional violates or breaches Agreement terms, and provide for such sanctions and penalties as may be appropriate.

1.9 Termination. In part because of HUD regulations (24 CFR 85.36(i)(2)), this Design Professional Agreement, unless it is for an amount of \$10,000 or less, has requirements regarding termination by the Owner when for cause or convenience. These include the manner by which the termination will be effected and basis for settlement.

1.10 Interest of Members of Congress. Because of Contract agreement between the Owner and HUD, no member of or delegate to the Congress of the United States of America or Resident Commissioner shall be admitted to any share or part of this Contract or to any benefit to arise from it.

1.11 Limitation of Payments to Influence Certain Federal Transaction. The Limitation on Use of Appropriated Funds to Influence Certain Federal Contracting and Financial Transactions Act, Section 1352 of Title 31 U.S.C., provides in part that no appropriated funds may be expended by recipient of a federal contract, grant, loan, or cooperative agreement to pay any person, including the Design Professional, for influencing or attempting to influence an officer or employee of Congress in connection with any of the following covered Federal actions: the awarding of any federal contract, the making of any Federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

1.12 Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

A. The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

F. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

G. Reserved.

H. Reserved.

1.13 Reserved.

1.14 Clean Air and Water. (Applicable to contracts in excess of \$100,000). Because of 24 CFR 85.36(i)(12) and federal law, the Design Professional shall comply with applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. § 1857h-4 transferred to 42 USC § 7607, section 508 of the Clean Water Act (33 U.S.C. § 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15), on all contracts, subcontracts, and subgrants of amounts in excess of \$100,000.

1.15 Energy Efficiency. Pursuant to Federal regulations (24 C.F.R 85.36(i)(13)) and Federal law, except when working on an Indian housing authority Project on an Indian reservation, the Design Professional shall comply with the mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163 codified at 42 U.S.C.A. § 6321 et. seq.).

1.16 Prevailing Wages. In accordance with Section 12 of the U.S. Housing Act of 1937 (42 U.S.C. 1437j) the Design Professional shall pay not less than the wages prevailing in the locality, as determined by or adopted (subsequent to a determination under applicable State or local law) by the Secretary of HUD, to all architects, technical engineers, draftsmen, and technicians.

1.17 Non-applicability of Fair Housing Requirements in Indian Housing Authority Contracts. Pursuant to 24 CFR section 905.115(b) title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d-2000d-4), which prohibits discrimination on the basis of race, color or national origin in federally assisted programs, and the Fair Housing Act (42 U.S.C. 3601-3620), which prohibits discrimination based on race, color, religion, sex, national origin, handicap, or familial status in the sale or rental of housing do not apply to Indian Housing Authorities established by exercise of a Tribe's powers of self-government.

1.18 Prohibition Against Liens. The Design professional is Prohibited from placing a lien on the Owner's property. This prohibition shall be placed in all design professional subcontracts.

TECHINICAL SPECIFICATIONS & ATTACHMENTS

for

PLAYGROUND IMPROVEMENTS

for

READING HOUSING AUTHORITY

HAMMEL ASSOCIATES ARCHITECTS, LLC

25 East Grant Street, Suite 102

Lancaster, PA 17602

717-393-3713

DURST & TAYLOR STRUCTURAL ENGINEERING

Lancaster, PA

717-371-3318

GREEN BUILDING ENGINEERS

York, PA

717-554-0153

DAUTRICH ENGINEERING

WERNERSVILLE, PA

610-413-0624

SEPTEMBER 2026

Architect's Project Number 2532

TECHNICAL SPECIFICATIONS & ATTACHMENTS

PLAYGROUND IMPROVEMENTS OAKBROOK HOMES

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Bid Information	
Project Number: RHA-XXXX	Submit bid to: Reading Housing Authority 400 Hancock Boulevard Reading, Pennsylvania 19611 Attention: Stacey Keppen, Executive Director
Bid Opening Date: October 13, 2026	
Bid Opening Time: 11:00 A.M.	
Project Title: RHA - Oakbrook Playground Improvements and Renovations	
Project Description: General, Plumbing, and Electrical Construction for the Renovations and Improvements of Oakbrook Playground.	
Contract Completion Timeline: Substantial completion: 6 months: May 1, 2027 Final completion: 7 months: June 1, 2027	
Amount of Liquidated Damages: \$500 per calendar day	

Bidder's Information	
<i>BID FOR (SELECT ONE PRIME CONTRACT BY CHECKING THE BOX BELOW):</i>	
☐ GENERAL CONSTRUCTION ☐ ELECTRICAL CONSTRUCTION ☐ PLUMBING CONSTRUCTION	
Name of Company	FEIN
	Bidder's Telephone Number
Bidder's Address	Bidder's Fax Number
	Name of Person Submitting the Bid
	Title of Person Submitting the Bid

Bidder's Acknowledgments	
This is to acknowledge that an authorized representative(s) of the above named company has familiarized himself/herself/themselves with the local conditions affecting the cost of the work, all instructions, General and Supplemental Conditions, Contractor's compliance and reporting requirements, the specifications, drawings, and addenda. The Reading Housing Authority requires a minimum acceptance period of 60 calendar days. "Acceptance period," as used in this provision, means the number of calendar days available to the Reading Housing Authority for awarding a contract from the date specified in this solicitation for receipt of bids. By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1). In submitting this bid, it is understood that the right is reserved by the Reading Housing Authority to reject any and all bids.	
Acknowledgment of Addenda: The bidder acknowledges the following addenda: (Failure to acknowledge may cause bid rejection.)	
Addenda No.	Addenda Date
Addenda No.	Addenda Date

Required Submissions	
To be responsive, the bidder must submit the following documents with the correct bidding information as part of the bid:	
Bid Form Unit price schedule Bid Bond and Certificates Form HUD-5369A, Representations, Certifications, and other Statements of bidders Non-collusive Affidavit	Section 3 Preference Certification completed and certified OR marked NA if the bidder is not claiming Section 3 preference Bidder's Qualifications including a Financial Statement and a certificate of authority to do business in Pennsylvania Bidder's Section 3 Certifications and Compliance Agreement BAA/BABA Acknowledgement statement

The RHA shall reject any bid as non-responsive that does not include each of the above documents, fully completed and properly executed.

GENERAL CONSTRUCTION Base Bid

The bidder hereby proposes to furnish all labor, materials, equipment and services required to complete the construction contract as per the requirements of the construction documents, all in accordance therewith, for the sum of:

_____ DOLLARS (\$ _____)

☐	Prime Contract Base bid	\$
☐	Deduct alternate #1 - PAVILION	\$
☐	Deduct alternate #2 – BACKUP GENERATOR	\$
☐	Deduct alternate #3 – SPLASH PAD	\$
☐	Deduct alternate #4 – GAS-STRUT WINDOW	\$
☐	Deduct alternate #5	
	1 – 30'-9" x 24'9" x 12'-0" Structure	\$
	2 – 18'-11" x 18'1" x 13'-4" Structure	\$
	3 – 13'2" x 13'8" x 9" Structure	\$
	4 – 4 bay swing	\$
	5 – Curved Balance Beam	\$
	6 – Ridge grip spinner	\$
	7- Truck	\$
	8 – Graden sensory panel	\$
	9 – Canoe	\$
	10 – Infant fun center	\$
	11 - Fish	\$
	12 – Turtle	\$
	13 – spin cup	\$
	14 – Unity ring	\$
	15 – Turn & Twist	\$
	16 – T-Swing	\$
	17 – Quattro Seesaw	\$

ELECTRICAL CONSTRUCTION Base Bid		
The bidder hereby proposes to furnish all labor, materials, equipment and services required to complete the construction contract as per the requirements of the construction documents, all in accordance therewith, for the sum of:		
_____ DOLLARS (\$ _____)		
☐	Prime Contract Base bid	\$
☐	Deduct alternate #1 - PAVILION	\$
☐	Deduct alternate #2 - BACKUP GENERATOR	\$
☐	Deduct alternate #3 – SPLASH PAD	\$
☐	Deduct alternate #4 – GAS-STRUT WINDOW	\$
☐	Deduct alternate #5	\$

PLUMBING CONSTRUCTION Base Bid		
The bidder hereby proposes to furnish all labor, materials, equipment and services required to complete the construction contract as per the requirements of the construction documents, all in accordance therewith, for the sum of:		
_____ DOLLARS (\$ _____)		
☐	Prime Contract Base bid	\$
☐	Deduct alternate #1 - PAVILION	\$
☐	Deduct alternate #2 - BACKUP GENERATOR	\$
☐	Deduct alternate #3 – SPLASH PAD	\$
☐	Deduct alternate #4 – GAS-STRUT WINDOW	\$
☐	Deduct alternate #5	\$

The RHA ☒ is ☐ is not requesting deductive alternates for this bid. To offer a bid the bidder is requested to breakout the following items from the base bid. Each item shall include all labor, materials, equipment and services required to complete item. The RHA is listing deductive alternates in inverse priority order so that in case of a budget overrun, they may be taken in numerical order as listed until the award can be made within available funds.

Partnership Bidder

Name of Partnership If fictitious trade name is employed in the conduct of business, insert such name and complete, as appropriate. This foregoing fictitious or trade name ☐ is ☐ is not registered under Pennsylvania Law.	Bidder's Signature _____ Date _____
Name of person submitting the bid	Witness Witness Name _____
Business address	Witness Signature _____ Date _____

Corporate Bidder

Name of Corporation	Corporate's Signature _____ Title _____ Date _____
Name of person submitting the bid	Certificate as to Corporate Principal I, _____ , certify that I am the Secretary of the corporation named as Principal in the within bond: That _____, who signed the bond on behalf of the Principal, was then _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of its governing body. _____ (Corporate Seal)
Business address	

UNIT PRICE SCHEDULE				
GENERAL CONSTRUCTION				
Item #	Item Description	Quantity	Unit	
			Measure	Price
GC-1	Labor and Material to prepare ground and install 5" Concrete slab on gravel per project specifications	1	SF	
GC-2	Labor and Material to install asphalt per project specifications	1	SF	
GC-3	Rock Removal.	1	CY	
GC-4	Soil replacement or backfill	1	CY	
GC-5	Additional excavation	1	CY	
GC-6	Additional fencing	5	LF	

UNIT PRICE SCHEDULE				
ELECTRICAL CONSTRUCTION				
Item #	Item Description	Quantity	Unit	
			Measure	Price
EC-1	Provide an additional duplex or data receptacle assembly. Include 20A, 120V duplex receptacle, backbox, cover plate, ¾" conduit/raceway with 2 #12 conductors and 1 #12 ground wire to a point of authorized connection up to 30 feet, necessary wall penetration cutting and patching, terminations, and labeling. Perform in accordance with applicable Division 26 Sections and drawing requirements for similar work. (or CAT6 for data)	1	EA	
EC-2:	Exit sign and wiring	1	EA	
EC-3:	Light fixture and wiring	1	EA	

UNIT PRICE SCHEDULE				
PLUMBING CONSTRUCTION				
Item #	Item Description	Quantity	Unit	
			Measure	Price
PC-1	Provide and install 5/8" copper piping	1	LF	
PC-2	¾" Copper piping:	1	LF	
PC-3	7/8" Copper piping:	1	LF	
PC-4	Provide and install ½" domestic water pipe with insulation.	1	LF	
PC-5	Provide and install ¾" domestic water pipe with insulation.	1	LF	
PC-6	Provide and install 1" domestic water pipe with insulation.	1	LF	
PC-7	Provide and install 1 ¼" domestic water pipe with insulation.	1	LF	
PC-8	Provide and install 2" sanitary pipe.	1	LF	
PC-9	Provide and install 3" sanitary pipe.	1	LF	
PC-10	Provide and install 4" sanitary pipe.	1	LF	
PC-11	Provide and install 4" gas piping	1	LF	

Reading Housing Authority
Oakbrook Homes Center for Early Education Project

Build America, Buy America Act (BABA)

The Build America, Buy America Act (BABA) requires that all iron and steel used for federally funded infrastructure projects are produced in the United States, unless otherwise exempt or subject to an approved waiver. This requirement is known as the “Buy America Preference (BAP)” and the specific requirements are codified in 2 CFR § 184.

The awarded Grantee (RHA) and the awarded bidder (Contractor) must comply with the requirements of the Build America, Buy America (BABA) Act, 41 USC 8301 note, and all applicable rules and notices, as may be amended, if applicable to the Grantee’s infrastructure project. Pursuant to HUD’s Notice, “Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance” (88 FR 17001), any funds obligated by HUD on or after the applicable listed effective dates, are subject to BABA requirements, unless excepted by a waiver.

Note: Failure to sign and submit this form by the date specified in the bid solicitation may render the bid nonresponsive. No contract award will be made without a properly executed form.

By signing this form, I certify that I have reviewed the requirements and supporting documents provided and I agree to all BABA requirements for this project. As the Contractor, I understand that Reading Housing Authority will receive U.S. Department of Housing and Urban Development (HUD) funding for this project and that all contractors and subcontractors, must comply with the Build America, Buy America Act (BABA).

CONTRACTOR’S SIGNATURE

DATE

Build America, Buy America Act: Buy America Preference for CDBG Grantees



Overview of the Buy America Preference

The Build America, Buy America Act (BABA) requires that all iron, steel, manufactured products, and construction materials used for federally funded infrastructure projects are produced in the United States, unless otherwise exempt or subject to an approved waiver. This requirement is known as the “**Buy America Preference (BAP)**” and the specific requirements are codified in 2 CFR § 184.

For more information on BABA and the BAP, [visit the BABA page](#) on the HUD Exchange.

This BABA CDBG Quick Guide is intended to assist grantees in determining when an infrastructure project must comply with the BAP requirements. It is structured into three sections:



PLANNING



PROJECT
IMPLEMENTATION AND
RECORDKEEPING



PROJECT
COMPLETION



See the [BABA CPD Overview Quick Guide](#) for information on the applicability, definitions, and requirements of the BAP.



Planning

What projects are subject to the BAP?

In the planning phase of any CDBG-funded project, grantees should determine whether or not the project is subject to the BAP and if so, for which classification(s) of products. The following process outlines the criteria for CDBG projects subject to the BAP, with four potential outcomes:

1. Complies with the BAP according to HUD's Phased Implementation Waiver, or
2. The BAP is not applicable to the entire project because it is not an infrastructure project, or
3. The BAP is not applicable to the project due to one of HUD's general waivers, or
4. The BAP is not applicable because a project- or product-specific waiver was reviewed by HUD and approved by the Office of Management and Budget's Made In America Office (MIAO).

Step 1: Type of project/activity

Are the funds being used for an infrastructure project, as defined by BABA?

- **If yes, proceed to step 2.**
- If no, the BAP does not apply. The BAP only applies to infrastructure projects.

Examples of CDBG projects that are considered infrastructure projects, according to BABA, include:

- Rehabilitation, maintenance, and reconstruction of buildings and real property, including housing, and
- Construction and repair of public facilities and improvements, such as water, sewer, or other utilities, roads, bridges, sidewalks, homeless shelters, or broadband infrastructure.

Step 2: Funding source

Identify the source(s) of the project funding, including HUD funding or other Federal agency funding that must comply with the BAP. Does the project funding include CDBG funding?

- **If yes, proceed to step 3.**
- If no, then the grantee does not need to comply with the BAP for CDBG funding but may need to comply with the BAP for other HUD or Federal funding sources.

Step 3: Materials

Identify and classify the products that will be used in each infrastructure project. Does the project use products subject to the BAP (iron, steel, construction materials, or manufactured products)?

- **If yes, proceed to step 4.**
- If no, then the BAP does not apply. The BAP only applies to covered materials.

For more guidance on covered products, see the [BABA CPD Overview Quick Guide](#).

Step 4: Date of obligation

Identify the obligation date of the CDBG funds, which is the date HUD executed the CDBG grant agreement. For each classification of products required to complete the infrastructure project, determine whether the date of obligation for CDBG funds falls on or after the effective date of the BAP (see table on the right).

- **If yes, proceed to step 5.**
- If no, the BAP does not apply to covered products before the effective date.

Covered Product	Obligation Date
Iron and Steel	The BAP applies to the purchase of iron and steel for infrastructure projects using CDBG funds obligated on or after November 15, 2022.
Specifically Listed Construction Materials (non-ferrous metals; lumber; and plastic- and polymer-based composite building materials, pipe, and tube)	The BAP will apply to the purchase of specifically listed construction materials beginning with funding obligations from FY2024 CDBG funds, as well as iron and steel.
Not Listed Construction Materials (all other plastic- and polymer-based products, glass, fiber optic cable, optical fiber, engineered wood, and drywall) Manufactured Products	The BAP will apply to the purchase of not listed construction materials and manufactured products beginning with funding obligations from FY2025 CDBG funds, as well as specifically listed construction materials, iron, and steel.

Step 5: General waivers

Consider the available HUD General Waivers and determine if all or a portion of the project is covered by any of the following waivers:

1. **Exigent Circumstances Waiver:** Is there an urgent need to immediately complete the project because of a threat to life, safety, or property of residents and the community?
 - If yes, the *Exigent Circumstances Waiver* may apply, and the project would not be subject to the BAP.
2. **De Minimis, Small Grants, and Minor Components Waiver:**
 - Is the total cost of the project from all sources equal to or less than \$250,000?
 - If yes, the *De Minimis, Small Grants, and Minor Components Waiver* may apply, and the project would not be subject to the BAP.

- OR -

This waiver can be applied to a portion of the products used in an infrastructure project if the cumulative cost of those products does not exceed five percent of the total cost of covered products used in the project (up to \$1 million). In such cases, the BAP would be waived for part of the project, but the rest would still need to comply with the BAP.

3. **Tribal Recipients Waiver:** Is the project being funded by a Tribal recipient?
 - If yes, the *Tribal Recipients Waiver* may apply and the project would not be subject to the BAP. Note that this is atypical for CPD programs.

If no to General Waiver questions 1, 2, and 3, proceed to Step 6.

Step 6: Project-specific waivers

Consider the criteria for project-specific waivers and determine if the project is eligible for a waiver due to the public interest, nonavailability of materials, or unreasonable cost.

1. Is applying the BAP to the project inconsistent with the public interest?
 - If yes, a project-/product-specific waiver may be considered.
2. Are the materials used in the project not produced in the United States or not available in sufficient quantities?
 - If yes, a project-/product-specific waiver may be considered.
3. Would the inclusion of domestically produced materials increase the cost of the overall project by more than 25 percent?
 - If yes, a project-/product-specific waiver may be considered.

If no to project-/product-specific waiver questions 1, 2, and 3, the BAP likely applies and the project documentation should demonstrate that materials were procured from domestic sources in compliance with the BAP.

Project-/product-specific waivers are available on a limited, case-by-case basis, after HUD's review, a public comment period, and final approval from the MIAO. If more than one Federal agency is funding an infrastructure project, project-/product-specific waivers will require coordination among those Federal agencies prior to a determination by the MIAO.

Example Projects



Community Center Development

In September 2023, a grantee awarded \$1 million in FY23 CDBG funds for the construction of a community center in a low- to moderate-income census tract.

- The project is an infrastructure project because it is funding construction of a building.
- The grant funds were obligated after November 15, 2022.
- The project's total budget is \$1 million.

Does the BAP apply to this project?

The BAP applies to any iron or steel used in this project. The project is not using FY2024 or later grant funds; therefore, the BAP does not apply to construction materials or manufactured products used in this project.



Community Park Rehabilitation

In September 2023, a grantee awarded \$1 million in FY23 CDBG funds for the construction of a community center in a low- to moderate-income census tract.

- The grant funds were obligated after November 15, 2022.
- The project's total budget is \$500,000 even though it is only using \$200,000 in CDBG funds.
- The project is an infrastructure project.

Does the BAP apply to this project?

Yes, the BAP applies to any iron, steel, or specifically listed construction materials used in this project. The BAP does not apply to not listed construction materials and manufactured products because the CDBG funds were obligated prior to the effective date for those products.



Owner-Occupied Rehab Program

A grantee operates an owner-occupied rehabilitation program using FY2024 and FY2025 CDBG funds. The maximum allowable rehabilitation budget for each property is \$100,000.

- The grant funds were obligated after November 15, 2022.
- The per property budget does not exceed \$250,000.

Does the BAP apply to this project?

No, the BAP does not apply to this program because the budget for each property (i.e., project) does not exceed \$100,000 and thus each individual project is exempt from the BAP under the De Minimis and Small Grants Waiver.

Procurement and Subrecipient Selection

For projects using CDBG funds obligated by HUD on or after November 15, 2022, review existing procurement policies and procedures to ensure that new administrative steps are developed to implement the BAP requirements.

When revising administrative documents, make sure to incorporate the BAP into the terms and conditions of all CDBG awards for infrastructure projects. Additionally, it is recommended to assess whether any projects that are currently underway or in the planning stages are subject to the BAP for iron, steel or other classifications of products.

CDBG grantees engaging in infrastructure projects must comply with the BAP conditions in the FY2023 HUD grant agreement. Since the terms and conditions of the BAP flow down to subrecipients, the BAP language found in the “Special Conditions” section should be incorporated into all agreements, even if the BAP does not yet apply based on the phased implementation date. The BAP must be included in all subawards, contracts, and purchase orders for the products supplied to complete the work under a CDBG award.



Project Implementation and Recordkeeping

CDBG grantees should ensure that all relevant stakeholders are informed about the BAP requirements and determine whether a project is subject to the BAP and, if so, for which classification(s) of materials.

Grantees must maintain documentation in accordance with applicable program requirements for recordkeeping and record retention. It is the grantee’s responsibility to ensure that all records related to BABA compliance are properly maintained, including any records kept by third parties (subrecipients, contractors, etc.).



Project Completion

CDBG grantees must retain supporting documentation from subrecipients, contractors, and vendors to develop records demonstrating compliance with the BABA requirements on a project and material level basis, regardless of whether infrastructure is the primary purpose of the project.

For HUD to consider a project/product-specific waiver the CDBG grantee must provide the following details as required by the MIAO:

- A detailed justification for the use of materials produced or manufactured outside the United States with a description of efforts made (e.g., market research, industry outreach) to avoid the need for a waiver
- A certification of a good faith effort to source domestically produced products supported by terms contained in requests for proposals, contracts, and other communications with potential vendors
- Waiver type (nonavailability, unreasonable cost, or public interest)
- Recipient name and Unique Entity Identifier
- Federal financial assistance program name
- Federal financial assistance funding amount
- Financial assistance listing name and number
- Federal Award Identification Number (FAIN) (if available)
- Federal awarding agency organizational information (e.g., Common Government-wide Accounting Classification (CGAC) Agency Code)
- Total cost of infrastructure expenditures, including all Federal and non-Federal sources (as known)
- Infrastructure project description and location (as known)
- List of iron or steel item(s), manufactured products, and construction material(s) proposed to be excepted from the BAP, including name, cost, country(ies) of origin (if known), and PSC and NAICS code for each
- Anticipated impact if no waiver is issued
- Any relevant comments received during the public comment period

BAP documentation should be maintained in compliance with CDBG's record retention requirements.

Additional Resources

- [BABA CPD Overview Quick Guide](#)
- [BABA on HUD Exchange](#)
- [BABA on HUD.gov](#)
- [2 CFR 184](#)
- [2 CFR 200.322](#)
- [What is Build America, Buy America Factsheet \(OMB\)](#)
- [Made in America \(OMB\)](#)



QUICK GUIDE

Build America, Buy America Act: Buy America Preference for CDBG Grantees

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Build America, Buy America Act: Buy America Preference Overview for CPD Programs



What is the Buy America Preference?

The Build America, Buy America Act (BABA) requires that all iron, steel, manufactured products, and construction materials used for federally funded infrastructure projects are produced in the United States, unless otherwise exempt or subject to an approved waiver. This requirement is known as the “**Buy America Preference (BAP)**” and the specific requirements are codified in 2 CFR § 184.

The BAP establishes a domestic preference for construction materials. For more information: hudexchange.info

This BABA CPD Overview Quick Guide provides grantees with the following details about the BAP:

- Products Covered by the BAP
- BAP Applicability to CPD-funded Projects and Activities
- When the BAP *Doesn't* Apply
- BAP Implementation Timeline for CPD Programs
- Project/Product-Specific Waivers
- Project Implementation and Recordkeeping

Products Covered by the BAP

Products covered under the BAP include:

1. Iron and steel
2. Construction materials
3. Manufactured products

Products should be classified into just one of these categories. The classification must be made based on the product's status when brought to the work site.

Grantees are encouraged to work closely with subrecipients, developers, and contractors to ensure that products used in federally funded infrastructure projects are produced in the United States as required. Federal financial assistance includes grants, cooperative agreements, non-cash contributions or donations, direct assistance, loans and loan guarantees, and other financial assistance.

Iron and Steel

What is it?

Items that consist completely or predominantly of iron, steel, or a combination of both. "Predominantly" means the cost of the iron and steel content exceeds 50% of the total cost of all the item's components.

Production Requirements

All manufacturing processes, starting from the initial melting stage and continuing through the application of coatings, must occur in the United States.



Photo by Scott Webb on Pexels

Construction Materials

What is it?

Articles, materials, or supplies used for construction activities that consist of only one of the items described below. For the purposes of the HUD Phased Implementation Waiver timeline described below, construction materials are divided into two categories: specifically listed construction materials and not listed construction materials.

Specifically Listed Construction Materials: Items include (1) non-ferrous metals; (2) lumber; and (3) plastic- and polymer-based composite building materials, pipe, and tube.

Not Listed Construction Materials: Items include (1) all other plastic- and polymer-based materials (such as polymers used in fiber optic cables), (2) glass, (3) fiber optic cable, (4) optical fiber, (5) engineered wood, and (6) drywall.

Construction Material Standards (2 CFR 184.6)

All manufacturing processes for the construction material must occur in the United States.



Minor additions of materials, supplies, or binding agents to a construction material (such as the binding agent used in engineered wood) do not change the categorization of the construction material.

Manufactured Products¹

What is it?

Manufactured products include articles, materials, or supplies that have either been:

1. Processed into a specific form or shape, or
2. Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

A manufactured product may include components that are construction materials or iron and steel products, unless the manufactured product also meets the definition of iron and steel or construction materials. In such instances, the product should be recategorized in the appropriate category.

Determining the Cost of Components for Manufactured Products (2 CFR 184.5)

Manufactured products must meet two production requirements. First, the final product must be manufactured in the United States. Second, at least 55% of the cost of the components making up the manufactured product must be associated with components that were mined, produced, or manufactured in the United States.

What materials and activities aren't covered by the BAP?

1. Temporary products and materials that are removed at or before project completion, such as temporary scaffolding, equipment, or tools
2. Equipment and furnishings such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of or permanently affixed to the structure
3. Technical assistance and management costs
4. Design and planning costs, project scoping, or advance assistance. However, domestic preferences must be considered in planning to ensure compliance for construction projects e.g., design-build contracts
5. Acquisition and demolition projects where there are no articles, materials, or supplies that are incorporated into an infrastructure project

¹ Cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives (collectively known as Section 70917(c) materials) are generally exempt from the BAP. However, Section 70917(c) materials may be used to produce a manufactured product, such as pre-cast concrete. Manufactured products that incorporate Section 70917(c) components are subject to the BAP.



Photo by Pixabayon Pexels



Photo by Marissa Daeger on Unsplash



Photo by Freepik



BAP Applicability to CPD-funded Projects and Activities

CPD-funded infrastructure projects, as broadly defined by 2 CFR 184, are subject to the BAP once the obligation date has passed according to HUD's Phased Implementation Waiver (see section below), unless the project is covered by another general waiver. For the purposes of the BAP, an infrastructure project is defined as any project that includes construction, alteration, maintenance, or repair of infrastructure regardless of whether infrastructure is the primary purpose of the project.

Examples of CPD-funded activities that may be subject to the BAP:	Examples of CPD-funded activities that may NOT be subject to the BAP:
• Rehabilitation of buildings and real property • Construction of public facilities and improvements, such as water and sewer facilities, streets, sidewalks, neighborhood centers, and the conversion of buildings for eligible purposes • Utility installation or improvements • Water systems (drinking water and wastewater) • Electrical transmission facilities and systems • Broadband infrastructure • Transportation infrastructure	• Acquisition of real property • Relocation and demolition • Public services • Shelter or public facility operating expenses • Supportive services • Short-term payments to prevent homelessness • Special economic development activities • Administrative activities • Disaster and emergency response



Projects that exclusively use CDBG-DR, CDBG-MIT, CDBG-CV, ESG-CV, and/or HOPWA-CV funding are not subject to the BAP because funds for disaster and emergency purposes are exempt from the BAP.

When the BAP Doesn't Apply

In addition to the Phased Implementation Waiver described in the section below, HUD has approved three Department-wide public interest general waivers for BAP applicability. If all the conditions for a general waiver are met, the BAP requirements may be waived for that project, or a portion of the materials used in a project.

CPD grantees can employ these waivers without the need for a formal request to HUD and should maintain records to substantiate the waiver's application to a project. For example, a grantee may write a memo to the project file documenting how it determined that a general waiver applied to a specific project.

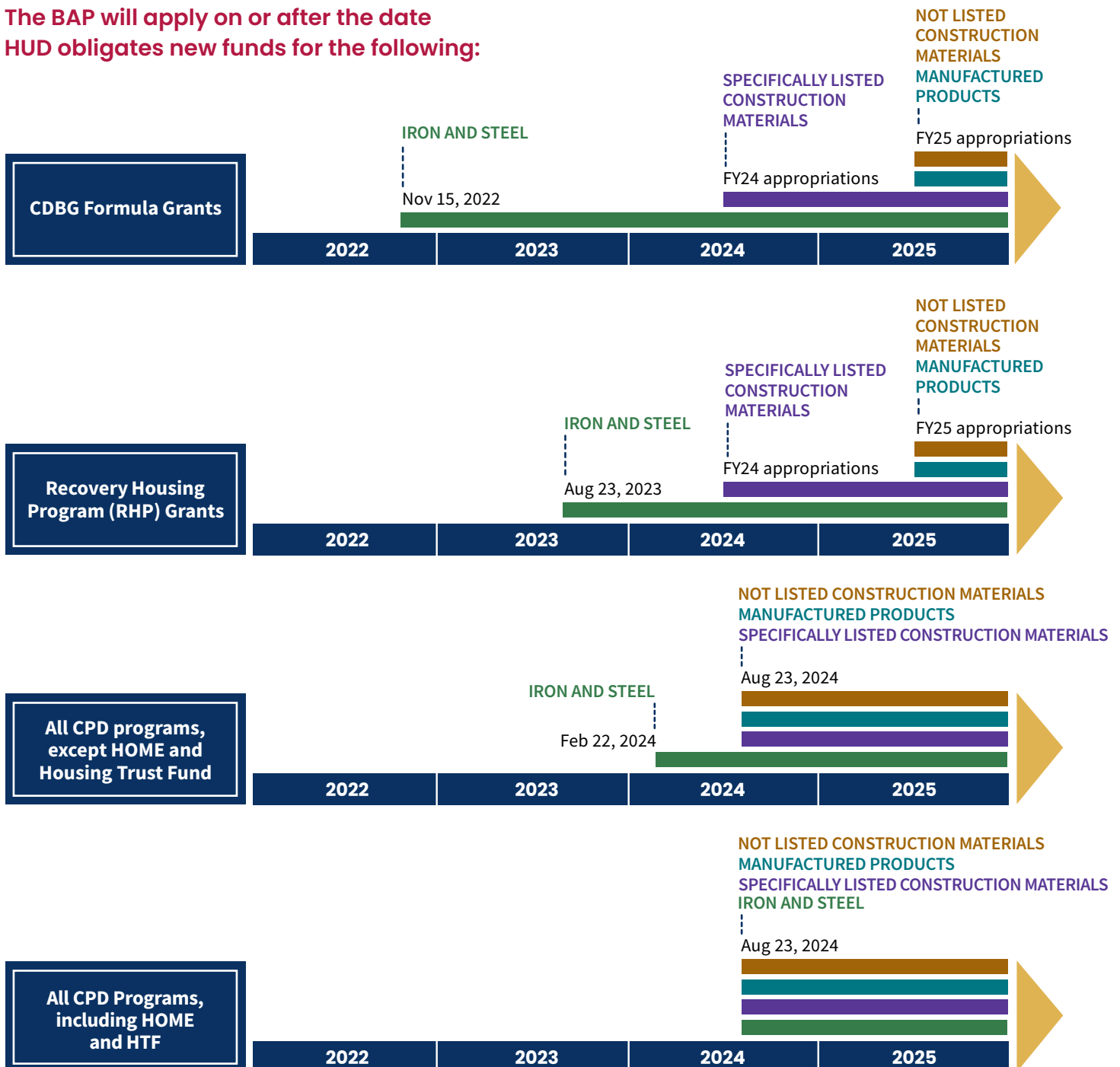
HUD General Waivers	What is it?	Examples
Exigent Circumstances	This public interest general waiver is effective through November 23, 2027, for projects that must be completed immediately to protect life, ensure safety, or prevent the destruction of property	A HOME-funded multi-family rental development is damaged by a burst hot water pipe in the middle of winter. Repairs to the damaged structure must be completed immediately to protect the life, safety, and property of the residents of the housing development. Following a tornado, CDBG funds are used to repair public facilities made structurally unsound during the disaster. Stabilizing these buildings is critical to prevent further destruction of property.
De Minimis and Small Grants	This public interest general waiver is effective through November 23, 2027, for projects whose total cost (from all sources) does not exceed the simplified acquisition threshold value (\$250,000), OR If covered BAP materials for a portion of the project comprise no more than 5 percent of the total cost of covered materials used in a project (not to exceed \$1 million), the BAP can be waived for that portion of the project.	A homeless service provider is rehabilitating an emergency shelter to update bathroom facilities. The provider is using \$100,000 in ESG funding for the project and a State grant is contributing an additional \$100,000. Because the total project cost does not exceed \$250,000, the BAP does not apply. A city is using CDBG funds for construction of a playground. The total cost of materials used in the project is \$1 million. The city can source domestic materials for nearly all the items needed for the playground but cannot find a domestically produced equivalent of a particular slide. The slide costs \$20,000. Because this is less than 5% of the total cost of materials used in the project, the city can use the De Minimis Waiver to waive the BAP for the slide. The other materials used in the project still must comply with the BAP.
Tribal Recipients	The BAP does not apply for HUD funds to Tribes, Tribally Designated Housing Entities, and other Tribal Entities covered by this public interest general waiver effective until May 23, 2024.	After receiving Tribal feedback, HUD will implement the BAP through an approach that does not serve as a major barrier to Tribal community efforts to develop infrastructure. HUD's Phased Implementation Waiver does not apply to funds awarded to Tribes.
Pacific Island/Territory Recipients	HUD accepted public comment on a <i>proposed</i> general waiver for Pacific Island/Territory recipients through September 1, 2023.	HUD will consider the public comments received and base its decision for adoption of the BAP in Pacific Island/Territory Communities in a future general waiver published in the Federal Register.

BAP Implementation Timeline for CPD Programs

To facilitate a smooth transition to the BAP requirements, HUD established a Phased Implementation Waiver for its programs based on the date when funds are obligated (i.e., typically the date when HUD executes the grant agreement). As illustrated below, the BAP is phased both by program and the type of product (iron and steel, construction materials, and manufactured products).

HUD chose to initially implement the BAP for all iron and steel products used in CDBG infrastructure projects using funding obligated on or after November 15, 2022. The specific focus on iron and steel in infrastructure projects will gradually extend to encompass the full implementation of the BAP across all HUD programs.

The BAP will apply on or after the date HUD obligates new funds for the following:



Project Examples



Senior Center New Construction

A grantee is using FY2023 CDBG funds (grant agreement executed by HUD in September 2023) to construct a new senior center. Because the project is using funds obligated after November 15, 2022, the grantee must ensure that the iron and steel used in the project complies with the BAP requirements. However, the project does not need to comply with the BAP requirements for construction materials or manufactured products because the funds do not include funding obligated from FY24 or FY25 appropriations.



Single-Family Owner-Occupied Rehab Program

A participating jurisdiction (PJ) operates a single-family owner-occupied rehabilitation program using HOME funds obligated after August 23, 2024. The PJ determines that since the total project costs from all sources for each activity do not exceed \$250,000, individual rehabilitation activities are covered by the Small Grant Waiver and do not need to comply with the BAP.



Project/Product-Specific Waivers

Project/product-specific waivers are available on a limited, case-by-case basis, after HUD's review, a public comment period, and final approval from the Office of Management and Budget's Made In America Office (MIAO). Project-specific waivers are generally available for three reasons:

- **Public interest:** Adhering to the BAP would be inconsistent with the public interest.
- **Nonavailability:** Covered materials are not produced in the USA in sufficient and reasonably available quantities or of a satisfactory quality.

- **Unreasonable cost:** Inclusion of domestically produced covered materials will increase the cost of the overall project by more than 25 percent.

If more than one Federal agency is funding an infrastructure project, project-specific waivers will require coordination among those Federal agencies prior to a determination by the MIAO.

Project Implementation and Recordkeeping

CPD grantees engaging in infrastructure projects must comply with the BAP. Since the terms and conditions of the BAP flow down to subrecipients, the BAP language found in the "Special Conditions" section should be incorporated into all agreements, even if the BAP does not yet apply based on the phased implementation date.

Grantees may want to use activity by grant expenditure reports to help identify which projects might be subject to BAP requirements. In some instances, grantees may need to amend existing agreements or other award documents.

The BAP requirements must be included in the terms and conditions for subrecipient agreements, contracts, subawards, and purchase orders for all infrastructure projects. Grantees must maintain documentation of compliance with BAP requirements or exemption due to a waiver in accordance with program-specific recordkeeping requirements and 2 CFR § 200.334 as applicable to Federal grants.



CPD grantees should retain documentation that demonstrates:

1. *All the iron, steel, manufactured products, and construction materials used in infrastructure projects are produced in the United States in accordance with HUD's Phased Implementation Waiver, or*
2. *The project is covered by a HUD general waiver and is therefore exempt from the BAP, or*
3. *A project/product-specific waiver was reviewed by HUD and approved by the MIAO.*

Additional Resources

- [BABA on HUD Exchange](#)
- [BABA on HUD.gov](#)
- [2 CFR 184](#)
- [2 CFR 200.322](#)
- [What is Build America, Buy America Factsheet \(OMB\)](#)
- [Made in America \(OMB\)](#)



QUICK GUIDE

Build America, Buy America Act: Buy America Preference for CDBG Grantees

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SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work under separate contracts.
5. Access to site.
6. Coordination with occupants.
7. Work restrictions.
8. Specification and Drawing conventions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: RHA - Oakbrook Homes Playground Improvement

1. Project Location:

B. Owner: Reading Housing Authority,

- a) 400 Hancock Blvd, Reading, PA 19611
- b) 1001 Scott Street, Reading PA 19611

1. Owner's Representative: Dave Talarico, Director of Capital Improvements

C. Architect:

1. Hammel Associates Architects, LLC, 25 East Grant Street, Suite 102, Lancaster PA, 17602.

D. Project Coordinator for Multiple Contracts: **The General Construction Contractor** has been designated by Owner to serve as Project coordinator.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

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

- a. Project is subject to BABA / BAP requirements

- b. This project is a comprehensive renovation of the last remaining part related to the recreation area, covering the playground, splash pad and water features. Minor renovations to the athletic support building, with various site improvements such as fencing, walkways, concrete and asphalt pads, retaining walls and added lighting, and security features.

The playground is expanded and resurfaced with poured-in-place rubber, bounded by a new perimeter curb and a new aluminum fence matching the existing, small areas these salvaged fences are reused. Site paving includes new concrete walkways, an asphalt replacement, and a new driveway seal at perimeter edge and a 20x34 pavilion building

The splash pad and water features are fully rebuilt: a new 6" custom-colored concrete splash pad, updated controls with watertight tie-ins, two new water features, and modified supply lines and junction boxes.

The existing CMU support/building receives new door and openings reconfigurations to accommodate, a relocated overhead door, a gas-strut concession window, 2 new ADA restrooms restroom

New site amenities include a 34'x20' pavilion with integral lighting, an emergency generator, benches, tables, trash cans, and a shadow-box fence.

Throughout, the work requires verifying field conditions, coordinating footings and connections with existing underground utilities, and salvaging materials for reuse where indicated.

B. Type of Contract:

- 1. Project will be constructed under coordinated, concurrent multiple contracts. See Section 011200 "Multiple Contract Summary" for a description of work included under each of the multiple contracts and for the responsibilities of Project coordinator. Contracts for this Project include the following:
 - a. General Construction Contract
 - b. Electrical Construction Contract
 - c. Plumbing Construction Contract

1.4 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Preceding Work: Prior to commencement of this project the Owner will complete the following work:

1. Removal of loose furnishings and personal belongings from the building
- C. Concurrent Work: Owner & Owners tenant (in phase 4) will provide and install the following systems and perform the following construction operations at Project site. Those operations will be conducted simultaneously with Work under this Contract.
 1. Furniture, including movable desks, tables and chairs
 2. Modular movable office workstations
 3. Filing cabinets
 4. Copy machines
 5. TV monitors
 6. Refrigerators,

1.5 PROJECT SCHEDULE

- A. The project Schedule is as follows:
 1. Starting bid period: September 11, 2026
 2. Owner advertisement dates September 11 and 14, 2026
 3. Pre-Bid date: Wednesday 23, 2026 – 1000 AM – 400 Hancock Blvd – site visit after.
 4. Question deadline October 2, 2026: Time TBD: See pennbid
 5. Final Addendum October 5, 2026:
 6. Bids due: October 13, 2026: 11.00AM
 7. Award / Anticipated notice to Proceed: October 27, 2026 -
 8. Start construction: November 1, 2026
 9. Substantial completion: May 1, 2027
 10. Final completion : June 1st, 2027

1.6 ACCESS TO SITE

- A. General: Each Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner and owners representatives, city officials' right to perform work or to retain other contractors on portions of Project.
- B. 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.
- 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.

1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:30 a.m. to 4:30 p.m., Monday through Friday, unless otherwise indicated.
- C. Restricted Substances: Use of tobacco products and other controlled substances within the building or any property owned and operated by Reading Housing Authority is not permitted

1.8 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 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 011200 - MULTIPLE CONTRACT SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.
- B. Specific requirements for Work of each contract are also indicated in individual Specification Sections and on Drawings.
- C. Related Requirements:
 - 1. Section 011000 "Summary" for the Work covered by the Contract Documents, restrictions on use of Project site, coordination with occupants, and work restrictions.
 - 2. Section 013100 "Project Management and Coordination" for general coordination requirements.

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, the condition at which roofing is insulated and weathertight; exterior walls are insulated and weathertight; and openings are closed with permanent construction or substantial temporary closures equivalent in weather protection to permanent construction.

1.4 PROJECT COORDINATOR

- A. Project coordinator shall be responsible for coordination between the General Construction & Electrical Contract
 - 1. The **General Construction Contract** is responsible for project coordinator
- B. Project coordinator shall coordinate all primes
- C. Project coordinator shall be MEPFP coordinator

1.5 PROJECT COORDINATOR RESPONSIBILITIES

- A. Project coordinator shall perform Project coordination activities for the multiple contracts, including, but not limited to, the following:

1. Conduct **bi-weekly** job progress meetings between the Owner, Architect and all Prime Contractors, as well as prepare and distribute meeting minutes, 3 week look ahead construction schedules as well as maintain overall project schedule.
 2. Provide typical overall coordination of the Work.
 3. Coordinate shared access to workspaces.
 4. Provide overall coordination of temporary facilities and controls.
 5. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
 6. Coordinate construction and operations of the Work with work performed by each Contract.
 7. Coordinate sequencing and scheduling of the Work. Include the following:
 - a. Initial Coordination Meeting: At earliest possible date, arrange and conduct a meeting with contractors for sequencing and coordinating the Work; negotiate reasonable adjustments to schedules.
 - b. Prepare combined Contractors' Construction Schedule for entire Project. Base schedule on preliminary construction schedule. Secure time commitments for performing critical construction activities from contractors. Show activities of each contract on a separate sheet. Prepare a simplified summary sheet indicating combined construction activities of contracts.
 - 1) Submit schedules for approval.
 - 2) Distribute copies of approved schedules to contractors.
 8. Locate existing permanent benchmarks, control points, and similar reference points, and establish permanent benchmarks on Project site.
 9. Coordinate progress cleaning of areas or pieces of equipment where more than one contractor has worked.
 10. Coordinate cutting and patching.
 11. Coordinate protection of the Work.
 12. Coordinate firestopping.
 13. Coordinate completion of interrelated punch list items.
 14. Coordinate preparation of Project Record Documents if information from more than one contractor is to be integrated with information from other contractors to form one combined record.
 15. Collect record Specification Sections from contractors, collate Sections into numeric order, and submit complete set.
 16. Coordinate preparation of operation and maintenance manuals if information from more than one contractor is to be integrated with information from other contractors to form one combined record.
 17. Temporary facilities, including the following:
 - a. Site enclosure fencing
- B. MEPFP Coordinator: Coordination activities of MEPFP coordinator include, but are not limited to, the following:
1. Coordinate the preparation and resolution of coordination drawings.
 2. Schedule and sequence mechanical and electrical activities.
 3. Coordinate sharing access to workspaces by mechanical and electrical contractors.
 4. Coordinate integration of mechanical and electrical work into limited spaces.
 5. Coordinate protection of mechanical and electrical contractors' work.
 6. Coordinate cutting and patching for mechanical and electrical work.

7. Prepare mechanical and electrical coordination drawings.
8. Coordinate tests and inspections for mechanical and electrical work.
9. Coordinate mechanical and electrical temporary services and facilities.

1.6 GENERAL REQUIREMENTS OF CONTRACTS

- A. Extent of Contract: Unless the Agreement contains a more specific description of the Work of each Contract, requirements indicated on Drawings and in Specification Sections determine which contract includes a specific element of Project.

1. **General, Electrical and Plumbing contractor should familiarize themselves with drawings of other trades. Information needed for each trade is spread through civil/structural/arch/MEP drawings.**
2. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
3. Each contractor is responsible to obtain and pay for all required permits and plan review fees for its own work.
4. Exterior trenches and other excavation for the work of each contract shall be the work of the Each contract for their own work.
5. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of each contract for its own work.
6. Furnishing of access panels for the work of each contract shall be the work of each contract for its own work. Installation of access panels shall be the work of each contract for its own work. All access panels must be provided by the same manufacturer,
7. Interior equipment pads for the work of each contract shall be the work of each contract for its own work.
8. Painting for the work of each contract shall be the work of each contract for its own work.
9. Coordinate product selections for compatibility shall be the work of each contract for its own work.
10. Provide photographic documentation of existing conditions shall be the work of each contract for its own work.
11. Providing storage and office trailers for each contractor shall be the work of each contractor, including connection and disconnection of utilities.
12. Provide quality-assurance and quality-control services specified in Section 014000 "Quality Requirements" shall be the work of each contract for its own work.
13. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections shall be the work of each contract for its own work.
14. Provide information necessary to adjust, move, or relocate existing utility structures affected by construction shall be the work of each contract for its own work.
15. Prepare coordination drawings in collaboration with each contractor to coordinate work by more than one contract shall be the work of each contract for its own work.
16. Cutting and Patching: Provided by the General Construction Contract. General contractor shall be responsible to review mechanical, electrical, plumbing and sprinkler drawings to determine the location and extent of all cutting and patching.
17. Through-penetration firestopping for the work of each contract shall be provided by each contract for its own work.

18. Contractors' Startup Construction Schedule: Within five working days after startup horizontal bar-chart-type construction schedule submittal has been received from Project coordinator, submit a matching startup horizontal bar-chart schedule showing construction operations sequenced and coordinated with overall construction.
 - B. Substitutions: Each contractor shall cooperate with other contractors involved to coordinate approved substitutions with remainder of the work.
 1. Project coordinator shall coordinate substitutions.
 - C. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Section 015000 "Temporary Facilities and Controls," each contractor is responsible for the following:
 1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
 2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
 3. Its own field office, complete with necessary furniture, utilities, and telephone service.
 4. Its own storage and fabrication sheds.
 5. Temporary enclosures for its own construction activities.
 6. Staging and scaffolding for its own construction activities.
 7. General hoisting facilities for its own construction activities, up to 2 tons (2000 kg).
 8. Progress cleaning of work areas affected by its operations on a daily basis.
 9. Secure lockup of its own tools, materials, and equipment.
 10. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
 - D. Temporary Heating, Cooling, and Ventilation: The **General Construction Contract** is responsible for temporary heating, cooling, and ventilation before weathertight enclosure of building is complete. The **General Construction Contract** is responsible for temporary heating, cooling, and ventilation after permanent enclosure of building is complete. (since HVAC is not a separate prime)
- 1.7 GENERAL CONSTRUCTION CONTRACT
- A. Work of the General Construction Contract includes, but is not limited to, the following:
 1. Remaining work not identified as work under other contracts.
 2. Site preparation, including clearing, earthwork, grading, asphalt and concrete paving and similar work.
 3. Site improvements, including, pedestrian paving, site development furnishings and equipment, and landscaping.
 4. Traffic controls related to sitework and improvements along streets
 5. Selective demolition.
 6. Cutting and patching of concrete /asphalt slab for the work of this contract and all other contracts
 7. Interior trenching, excavation and concrete patching for utilities required by other contracts

8. Foundations, including footings, foundation walls and underpinning.
9. Slabs-on-grade, including earthwork, and insulation.
10. Railings, stairs and guardrails
11. Below-grade building construction, including excavation, backfill, and insulation and water/dampproofing.
12. Steel structure, including floor and roof and canopy work
13. Masonry construction include concrete masonry units.
14. Exterior closure, including walls, parapets, doors, and windows.
15. Cast-in-place concrete work
16. Roofing, including roof insulation, coverings, flashings, gutters and downspouts. Includes EPDM
17. Interior construction, including partitions, doors, interior glazed openings, and fittings.
18. Hollow metal doors and frames
19. Wood doors
20. Door hardware
21. Interior & Exterior stairs, including railings and finishes.
22. Interior finishes finish carpentry architectural woodwork interior specialties, wall, floor and ceiling finishes.
23. Wood casework.
24. Interior and exterior painting
25. Exterior concrete slabs required for equipment provided by other contracts
26. Hydraulic elevator conveyance systems.
27. Site furnishings, sitework, finishes, equipment
28. Sprinkler system working drawing/shop drawings coordination with utilities and permit coordination where required
29. Coordination of sprinkler heads and piping with architectural, structural, mechanical, electrical drawings, and field conditions.
30. Playground field equipment & furnishings including retaining walls, fences and finishes
31. Pavilion and all footers – cut outs for electric
32. Unpiped toilet fixtures
33. Supply and Install operator on existing relocated garage door.
34. All excavating and boring all boring under roads and pathways where indicated to serve MEP

B. Temporary facilities and controls in the General Construction Contract include, but are not limited to, the following:

1. Temporary facilities and controls that are not otherwise specifically assigned to the Plumbing Contract, HVAC Contract, Electrical Contract and Sprinkler Contract.
2. General waste disposal facilities, including collection and legal disposal of hazardous, dangerous, unsanitary, or other harmful waste materials for all prime contracts.
3. Sediment and erosion control.
4. Unpiped sewers and drainage, including drainage ditches, dry wells, stabilization ponds, and containers.
5. Stormwater control.
6. Unpiped temporary toilet fixtures, wash facilities, and drinking water facilities, including disposable supplies. A minimum of 2 temporary toilets shall be provided and maintained throughout the duration of the construction period.
7. Temporary enclosure for building exterior, except as indicated.

8. Temporary roads and paved areas.
9. Dewatering facilities and drains.
10. Excavation support and protection, unless required solely for the Work of another contract.
11. Temporary signs.
12. Pest control.
13. Protection of permanent stairs used by all prime contractors during construction
14. Temporary fire-protection facilities.
15. Covered walkways.
16. Security enclosure and lockup.
17. Environmental protection.
18. Maintenance and restoration of Owner's existing facilities used as temporary facilities.
19. Perform all work assigned in accordance with OSHA regulations.
20. Coordinating, verifying and providing documentation of background checks for all employees and subcontractors working on the jobsite.

C. PLUMBING CONTRACTOR SCOPE

D. Work of the Plumbing Contract includes, but is not limited to, the following:

1. Gas piping
2. Plumbing fixtures material and equipment. (sink + toilet)
3. Domestic water distribution.
4. Sanitary waste drains and vent systems.
5. Water heater system
6. Plumbing connections to equipment furnished by the General Construction Contract, Plumbing Contract, Mechanical Contract and Electrical Contract and Sprinkler contract.
7. ~~Excavation, trenching, patching of asphalt paving and/or concrete walks, seeding and other associated site restoration required for installation of exterior utilities associated with this contract~~
8. Exterior splashpad fountain features including water control device.
9. Misc plumbing rework near splash pad
10. Exhaust piping for bathroom exhaust fans

E. Temporary facilities and controls in the Plumbing Contract include, but are not limited to, the following:

1. Piped sewerage and drainage.
2. Piped gas service.
3. Piped water service.
4. Perform all work assigned in accordance with OSHA regulations.
5. Coordinating, verifying and providing documentation of background checks for all employees and subcontractors working on the jobsite.

~~F. MECHANICAL DUTIES UNDER GENERALS CONTRACTOR SCOPE~~

~~G. Work of the Mechanical Contract includes, but is not limited to, the following:~~

- ~~1. Energy supply, including heating and cooling systems.~~
- ~~2. HVAC systems and equipment.~~
- ~~3. HVAC instrumentation and controls.~~
- ~~4. HVAC testing, adjusting, and balancing.~~

- ~~5. Radiant heating systems and equipment~~
- ~~6. Automatic Temperature control.~~
- ~~7. Mechanical connections to existing and new equipment furnished by the General Construction Contract Plumbing Contract HVAC Contract and Electrical Contract.~~
- ~~8. Excavation, trenching, patching of asphalt paving and/or concrete walks, seeding and other associated site restoration required for installation of exterior utilities associated with this contract~~

H. Temporary facilities and controls in the Mechanical SUB-Contract (And Therefore the General contractor) include, but are not limited to, the following:

1. Temporary heat required after the building is enclosed.
2. Perform all work assigned in accordance with OSHA regulations.
3. Coordinating, verifying and providing documentation of background checks for all employees and subcontractors working on the jobsite

1.8 ELECTRICAL CONTRACT

A. Work of the Electrical Contract includes, but is not limited to, the following:

1. Site electrical distribution.
- ~~2. Excavation, trenching, patching of asphalt paving and/or concrete walks, seeding and other associated site restoration required for installation of exterior utilities~~
3. Exterior and interior lighting.
4. Electrical items related to backup generator, ATS & Wiring
5. Communication and security, including conduit with pull string and boxes for communications systems to be provided and installed by owner.
6. Access control systems, including card reader.
7. Fire alarm system.

Electrical connections to equipment furnished by the General Construction Contract, Plumbing Contract, ~~HVAC Contract, Electrical Contract and Sprinkler Contract.~~

8. Coordinating, verifying and providing documentation of background checks for all employees and subcontractors working on the jobsite
9. Security cameras & IT wiring
10. Provide and coordinate existing security provider.
- ~~11. Bring Power all electronic hardware components. Power up the power supply, incl batteries and wiring. Power up all the elec components and bring cable to center point. Coordinate installation and programming with owners building security provider~~
12. Coordinate and install internet / data cables, equipment and power, coordinate locations with owner & elec drawings.
13. Install and wire all interior & exterior cameras and speakers. Coordinate with owners building security about hook-up. EC to bring all cables to hook-up points
14. Coordinate powering up of IT equipment with owners building service provider
15. Hook up controls fountain control feature
16. Misc electric rework near splash pad

17. Wire operator for relocated existing garage door operator
18. bathroom exhaust fan and associated wiring.
19. Adjusting heights of existing electrical vault boxes on site

B. Temporary facilities and controls in the Electrical Contract include, but are not limited to, the following:

1. Electric power service and distribution.
2. General OSHA compliant construction lighting, including site lighting.
3. Electrical connections to existing systems and temporary facilities and controls furnished by the General Construction Contract, Plumbing Contract, HVAC Contract, Electrical Contract and Sprinkler Contract.
4. Perform all work assigned in accordance with OSHA regulations.

1.9 FIRE PROTECTION CONTRACT – NOT APPLICABLE

~~A. Work of the Fire Protection Contract includes, but is not limited to, the following:~~

- ~~1. Sprinkler system working drawing/shop drawings and coordination with utilities and permits where required~~
- ~~2. Coordination of sprinkler heads and piping with architectural, structural, mechanical, electrical drawings, and field conditions.~~
- ~~3. Wet and/or Dry sprinkler system~~
- ~~4. Concrete slabs required for the equipment provided under this contract~~

~~B. Temporary facilities and controls in the Fire Protection Contract include, but are not limited to, the following:~~

- ~~1. Perform all work assigned in accordance with OSHA regulations.~~
- ~~2. Coordinating, verifying and providing documentation of background checks for all employees and subcontractors working on the jobsite~~

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011200

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS:

- A. All drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this section.

1.3 DEFINITIONS

- A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

- A. Unit Price GC-1: CONCRETE SLAB
 - 1. Labor and Material to prepare ground and install 5" Concrete slab on gravel per project specifications
 - 2. Unit of Measurement: Square foot
- B. Unit Price GC-2: ASPHALT
 - 1. Labor and Material to install asphalt per project specifications
 - 2. Unit of Measurement: Square foot
- C. Unit Price GC-3: ROCK REMOVAL.
 - 1. Description: Rock Removal.
 - 2. : Cubic yard of rock removed, based on survey of volume removed.
- D. Unit Price #GC-4: SOIL REPLACEMENT OR BACKFILL OUT OF SCOPE / EXCAVATION
 - 1. Removal and replacement of unsatisfactory soil:
 - 2. Unit of Measurement: Cubic yard
- E. Unit Price #GC-5: ADDITIONAL EXCAVATION (OUTSIDE BASE SCOPE)
 - 1. Removal of additional soil:
 - 2. Unit of Measurement: Cubic yard
- F. Unit Price #GC-6: ADDITIONAL FENCING
 - 1. Installation of 5 ft aluminum fence, 2 footers (1 each post) and black alum to match existing
 - 2. Unit of Measurement: 5 LF
- G. Unit Price PC-1: 5/8" Copper piping:
 - 1. Description: Provide and install 5/8" copper piping with insulation
 - 2. Unit of Measurement: Per linear foot
- H. Unit Price PC-2: 3/4" Copper piping:
 - 1. Description: Provide and install 3/4" copper piping with insulation
 - 2. Unit of Measurement: Per linear foot
- I. Unit Price PC-3: 7/8" Copper piping:
 - 1. Description: Provide and install 7/8" copper piping with insulation
 - 2. Unit of Measurement: Per linear foot
- J. Unit Price PC-4: Domestic Water 1/2" Pipe Installation:
 - 1. Description: Provide and install 1/2" domestic water pipe with insulation.
 - 2. Unit of Measurement: Per linear foot
- K. Unit Price PC-5: Domestic Water 3/4" Pipe Installation:
 - 1. Description: Provide and install 3/4" domestic water pipe with insulation.

- 2. Unit of Measurement: Per linear foot
- L. Unit Price PC-6: Domestic Water 1" Pipe Installation:
 - 1. Description: Provide and install 1" domestic water pipe with insulation.
 - 2. Unit of Measurement: Per linear foot
- M. Unit Price PC-7: Domestic Water 1 1/4" Pipe Installation:
 - 1. Description: Provide and install 1 1/4" domestic water pipe with insulation.
 - 2. Unit of Measurement: Per linear foot
- N. Unit Price PC-8: 2" sanitary pipe Installation:
 - 1. Description: Provide and install 2" sanitary pipe.
 - 2. Unit of Measurement: Per linear foot
- O. Unit Price PC-9: 3" sanitary pipe Installation:
 - 1. Description: Provide and install 3" sanitary pipe.
 - 2. Unit of Measurement: Per linear foot
- P. Unit Price PC-10: 4" sanitary pipe Installation:
 - 1. Description: Provide and install 4" sanitary pipe.
 - 2. Unit of Measurement: Per linear foot
- Q. Unit Price PC-11: 4" gas pipe Installation:
 - 1. Description: Provide and install 4" gas pipe. Materials per MEP specifications
 - 2. Unit of Measurement: Per linear foot
- R. Unit Price EC-1 – Duplex Receptacle & Wiring:
 - 1. Description: Provide an additional duplex receptacle assembly. Include 20A, 120V duplex receptacle, backbox, cover plate, 3/4" conduit/raceway with 2 #12 conductors and 1 #12 ground wire to a point of authorized connection up to 30 feet, necessary wall penetration cutting and patching, terminations, and labeling. Perform in accordance with applicable Division 26 Sections and drawing requirements for similar work.
 - 2. Unit of Measurement: Per assembly
- S. Unit Price EC-2: Exit sign and wiring:
 - 1. Description: Provide and Exit sign and wiring:
 - 2. Unit of Measurement: per assembly
- T. Unit Price EC-3: Light fixture and wiring:
 - 1. Description: Provide and install Light fixture and wiring: (include 10 feet wiring)
 - 2. Unit of Measurement: per assembly

END OF SECTION 012200

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS:

- A. All drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 RELATED DOCUMENTS

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

1.4 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.5 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

BASE BID: WHOLE PACKAGE: ALL MEP/STRUCTURAL/CIVIL PER INDIVIDUAL TRADE

Reading Housing Authority may utilize any combination Deduct alternatives
Any deduct value should be listed individually

DEDUCT ALTERNATE 1: PAVILION BUILDING

1. GENERAL CONSTRUCTION - DEDUCT ALTERNATE 1:
 - a. Delete the cost of supply and install pavilion building as indicated on drawings; Including footers and slab underneath the pavilion
 - b. Delete the cost of supply and install 4 tables underneath the pavilion.
 - c. Delete the cost of excavation and boring as required for the Electrical and Plumbing contractor.
2. ELECTRICAL DEDUCT ALTERNATE 1:
 - a. Delete the cost of supply and installation any electrical equipment inside the pavilion building: wiring, additional conduits, camera or speaker .
 - b. Relocating / adjusting adjacent electrical vaults to accommodate grading is to be kept in scope.
 - c. Excavation & Boring is by general contractor
3. PLUMBING DEDUCT ALTERNATE 1:
 - a. There is no plumbing deduct associated with Pavilion building

DEDUCT ALTERNATE 2: BACKUP GENERATOR

4. GENERAL CONSTRUCTION - DEDUCT ALTERNATE 2:
 - a. Delete the cost of supply and install concrete pad & fencing around the electrical generator.
 - b. Delete the cost of excavation and boring as required for the Electrical and Plumbing contractor.
5. ELECTRICAL DEDUCT ALTERNATE 2:
 - a. Delete the cost of supply and installation of electrical generator backup generator, associated wiring for both buildings including ATS and other modifications required.
 - b. Any adjacent demo work near the generator, or work related transformers is to remain in base bid

- c. Contractor is required to familiarize itself with the buildings and electrical diagrams in such matter that any deviations or assumptions made with this electrical deduct may not result in a non functional facility
 - d. Excavation & Boring is by general contractor
- 6. PLUMBING DEDUCT ALTERNATE 2:
 - a. Delete the cost of supply and installation gas supply line serving backup generator
 - b. Excavation & Boring is by general contractor

DEDUCT ALTERNATE 3: SPLASH PAD

- 7. GENERAL CONSTRUCTION - DEDUCT ALTERNATE 3:
 - a. Delete the cost of supply and install of new concrete slab & coating. Including the approximate 5x5 patch on the east side of the splash pad.
 - b. Keep the original pad as is in its current condition. Remove demo from scope
 - c. Eliminate the cost of required excavation for Electrical & Plumbing contractors
- 8. ELECTRICAL DEDUCT ALTERNATE 3:
 - a. Delete the cost any electrical work related to the splashpad area including but not limited to:
 - 1) Demo of existing wiring
 - 2) New electrical feed required for control of fountain
 - 3) Install electrical vault box and intercept and replace existing electrical lines
 - b. In surrounding coordination for any work associated with the backup generator should not be included or excluded in this alternate.
 - c. Excavation & Boring is by general contractor
- 9. PLUMBING DEDUCT ALTERNATE 3:
 - a. Delete the cost any plumbing work related to the splashpad area including but not limited to:
 - 1) Demo of existing supply lines
 - 2) Install plumbing vault box and intercept and replace water electrical lines
 - 3) Demo and replacement existing water lines
 - 4) Demo and replacement of existing water features
 - b. Excavation & Boring is by general contractor

DEDUCT ALTERNATE 4: GAS STRUT WINDOW

- 10. GENERAL CONSTRUCTION - DEDUCT ALTERNATE 4:
 - a. Delete the cost of supply and install gas strut window at concession building
 - b. Delete the cost of supply and install polycarbon screen and removal clips
- 11. ELECTRICAL DEDUCT ALTERNATE 4:
 - a. There is no Electrical deduct associated with Gas-Strut window
- 12. PLUMBING DEDUCT ALTERNATE 4:
 - a. There is no plumbing deduct associated with Gas-Strut window

DEDUCT ALTERNATE 5: PLAYGROUND EQUIPMENT

13. GENERAL CONSTRUCTION - DEDUCT ALTERNATE 5:
- General contractor is to provide a deduct value for individual items:
 - Deduct number are mapped on duplicate playground drawing in set, marked in blue
 - Removing pieces of equipment may result in shifting few features around more optimal. Coordination of shifting should not bear any cost
 - Item list below:
 - Poured in place rubber should be accounted for the full area filled.

1 – 30'-9" x 24'9" x 12'-0" Structure
2 – 18'-11" x 18'1" x 13'-4" Structure
3 – 13'2" x 13'8" x 9" Structure
4 – 4 bay swing
5 – Curved Balance Beam
6 – Ridge grip spinner
7- Truck
8 – Graden sensory panel
9 – Canoe
10 – Infant fun center
11 - Fish
12 – Turtle
13 – spin cup
14 – Unity ring
15 – Turn & Twist
16 – T-Swing
17 – Quattro Seesaw

14. ELECTRICAL DEDUCT ALTERNATE 5:
- There is no plumbing deduct associated with this deduct alternate.
15. PLUMBING DEDUCT ALTERNATE 5:
- There is no plumbing deduct associated with this deduct alternate.

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS:

- A. All drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this section.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information that will be necessary to accommodate proposed substitution, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual

- effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - i. Cost information, including a proposal of change, if any, in the Contract Sum.
 - j. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - k. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Any and all proposed substitutions of materials or methods of execution must be approved by the Architect **prior to submission of the Bid.**
- B. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- C. Substitutions for Convenience:
 - 1. Not allowed unless proposed substitution meets all conditions outlined in this Section below.
 - 2. Architect will consider requests for substitution if received during the Bid period. Requests received after that time may be considered or rejected at discretion of Architect.
 - 3. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.

- g. Requested substitution is compatible with other portions of the Work.
- h. Requested substitution has been coordinated with other portions of the Work.
- i. Requested substitution provides specified warranty.
- j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

Substitution Submittal Request Form

Contractor:	
Date:	
Substitution Request No:	

Reason for Request:	
☐ CAUSE – submitted 15 days prior to related submittals	☐ CONVENIENCE – submitted within 60 days after commencement of work
Reason for not providing specified item:	

Specification Title:	
Description:	
Section:	
Page:	
Article/Paragraph:	
Drawing No/Titles:	

Proposed Substitution:	
Manufacturer:	
Trade Name:	
Model No.:	
Warranty:	
Installer:	
Differences between proposed substitution and specified product:	
Proposed substitution affects other parts of Work:	☐ No ☐ Yes, explain:
☐ Point-by-point Comparative Data attached – REQUIRED Include chart providing line by line comparison of key product attributes. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements.	

Cost Savings to Owner:	\$
Changes to Contract Time:	☐ No ☐ Yes [Add] [Deduct] _____ days

Supporting Documents Attached:	☐ Coordination Information (including list of changes/revisions to other work) ☐ Product Data ☐ Drawings ☐ Samples ☐ Tests ☐ Reports ☐ Certificates ☐ _____
---------------------------------------	--

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, are available.
- Proposed substitution will have no adverse effect on other trades.
- Proposed substitution does not affect dimensions and functional clearances.
- No additional costs will be incurred for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____

Signature: _____ Date: _____

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 Architect's standard forms

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. 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.
 - e. Quotation Form: Use Contractor's standard forms acceptable to Architect.
- B. Contractor-Initiated Proposal Requests: 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 Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Work Change Proposal Request Form: Use Contractor's standard form acceptable to Architect.

1.4 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Division 01 Section "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Division 01 Section "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, the Owner will issue a Change Order for signatures of Owner, Architect and Contractor on form included in Project Manual.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on Architect's standard forms that 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 RELATED DOCUMENTS

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

1.3 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 other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. 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.
 - 3. Sub-schedules for Phased Work: Where the Work is separated into phases requiring separately-phased payments, provide sub-schedules showing values coordinated with each phase of 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. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange schedule of values consistent with format of HUD form for Applications for Payment

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. 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.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: Submit Application for Payment to Architect by the 25th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
- C. Application for Payment Forms: Use standard HUD 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 of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 3. Certified Payroll Forms must be submitted with each Application for Payment.

- E. Transmittal: Submit four signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. 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. 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. Schedule of unit prices.
 - 5. Submittal schedule (preliminary if not final).
 - 6. List of Contractor's staff assignments.
 - 7. List of Contractor's principal consultants.
 - 8. Copies of building permits.
 - 9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 - 10. Initial progress report.
 - 11. Report of preconstruction conference.
 - 12. Certificates of insurance and insurance policies.
- G. 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 Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- H. 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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination drawings.
 - 2. Requests for Information (RFIs).
 - 3. Project meetings.

1.2 RELATED DOCUMENTS

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

1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information required by, or clarifications of, the Contract Documents.

1.4 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, and telephone number 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.

1.5 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. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors 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. Pre-installation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections where installation is not completely shown on Shop Drawings; where limited space availability necessitates coordination; or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components
 - b. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - c. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.

- e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
- f. Indicate required installation sequences.

1.7 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 - 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 - 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. Project name.
 - 2. Project number.
 - 3. Date.
 - 4. Name of Contractor.
 - 5. Name of Architect.
 - 6. RFI number, numbered sequentially, by Prime Contract.
 - 7. RFI subject.
 - 8. Specification Section number and title and related paragraphs, as appropriate.
 - 9. Drawing number and detail references, as appropriate.
 - 10. Field dimensions and conditions, as appropriate.
 - 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - 12. Contractor's signature.
 - 13. 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: On contractor's standard forms, acceptable to Architect.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow 10 working 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 RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. 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 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 Division 01 Section "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 10 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.
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were dropped and not submitted.
 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 seven days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.8 PROJECT MEETINGS

- A. General: General Construction Contractor is responsible to schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Contractor will prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: General Construction Contractor will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within five days of the meeting.
- B. Pre-construction Conference: Architect will 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. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for processing Applications for Payment.
 - h. Submittal procedures.
 - i. Preparation of record documents.
 - j. Use of the premises.
 - k. Work restrictions.
 - l. Working hours.
 - m. Owner's occupancy requirements.
 - n. Responsibility for temporary facilities and controls.
 - o. Procedures for disruptions and shutdowns.
 - p. Construction waste management and recycling.
 - q. Office, work, and storage areas.
 - r. Equipment deliveries and priorities.
 - s. Security.
 - t. Progress cleaning.
 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Related RFIs.
 - c. Related Change Orders.
 - d. Deliveries.
 - e. Submittals.
 - f. Review of mockups.
 - g. Time schedules.
 - h. Weather limitations.
 - i. Manufacturer's written instructions.
 - j. Warranty requirements.
 - k. Compatibility of materials.
 - l. Acceptability of substrates.

- m. Temporary facilities and controls.
 - n. Space and access limitations.
 - o. Regulations of authorities having jurisdiction.
 - p. Testing and inspecting requirements.
 - q. Installation procedures.
 - r. Coordination with other work.
 - s. Required performance results.
 - t. Protection of adjacent work.
 - u. Protection of construction and personnel.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: General Construction Contractor will conduct progress meetings at bi-weekly intervals.
- 1. Attendees: In addition to representatives of Owner and 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.
 - 2. 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) Sequence of operations.
 - 2) Status of submittals.
 - 3) Deliveries.
 - 4) Access.
 - 5) Site utilization.
 - 6) Temporary facilities and controls.
 - 7) Progress cleaning.
 - 8) Quality and work standards.
 - 9) Status of correction of deficient items.
 - 10) Field observations.
 - 11) Status of RFIs.

- 12) Status of proposal requests.
 - 13) Pending changes.
 - 14) Status of Change Orders.
 - 15) Pending claims and disputes.
 - 16) Documentation of information for payment requests.
3. Minutes: General Construction Contractor will record and distribute the meeting minutes to each party present and to parties requiring information.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Daily construction reports.
 - 3. Site condition reports.

1.2 RELATED DOCUMENTS

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

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Float: The measure of leeway in starting and completing an activity.

1.4 INFORMATIONAL SUBMITTALS

- A. The Prime Contractor is required to submit with their bid a proposed construction schedule
- B. The General Construction Contractor is required to submit a revised schedule to the Architect/Owner for review and comments no later than ten (10) days after The Letter of Intent for the Work is issued

- C. Format for Submittals: Submit required submittals in the following format:
 - 1. One digital copy.
- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
- E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
 - 3. Total Float Report: List of all activities sorted in ascending order of total float.
- F. Construction Schedule Updating Reports: Submit at monthly intervals.
- G. Daily Construction Reports: Submit at monthly intervals.
- H. Site Condition Reports: Submit at time of discovery of differing conditions.

1.5 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each phase as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 30 days, unless specifically allowed by Architect.
 2. Procurement Activities: Include procurement process activities for the long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
 4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Seasonal variations.
 - g. Environmental control.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion, and the following interim milestones:
1. Completion dates of phased construction.
- E. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule.
- 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)
- A. General: Prepare network diagrams using AON (activity-on-node) format.
 - B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
 - C. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
 2. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 3. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Fabrication.
 - f. Utility interruptions.
 - g. Installation.
 - h. Testing.
 - i. Punch list and final completion.
 - j. Activities occurring following final completion.
 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Sub-networks on separate sheets are permissible for activities clearly off the critical path.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Main events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.

G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

2.3 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events.
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Services connected and disconnected.
16. Equipment or system tests and startups.
17. Partial completions and occupancies.
18. Substantial Completions authorized.

B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities.
 - 1. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 2. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Periodic construction photographs.

1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit unaltered, original, full-size image files within 7 days of taking photographs.
 1. Digital Camera: Minimum sensor resolution of 8 megapixels.
 2. Identification: Provide the following information with each image description in file metadata tag:
 - a. Date photograph was taken.
 - b. Description of vantage point, indicating location, direction (by compass point), and phase of construction.

1.4 QUALITY ASSURANCE

- A. Photographer Qualifications: The Architect reserves the right to reject photographs not deemed adequate for purposes of documenting project conditions, and require Contractor to take additional photographs as required, and replace photographer with alternate personnel.

1.5 USAGE RIGHTS

- A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in JPG format, with minimum size of 8 megapixels.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs using the maximum range of depth of field, provide proper light exposure and that are in focus, to clearly show the Work. Photographs which are dark, light, with blurry or out-of-focus areas will not be accepted.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - 1. Date and Time: Include date and time in file name or time and date stamp on each photograph for each image. Organize photographs in dated folders.
- D. Preconstruction Photographs: Before commencement of demolition or beginning any construction or staging activities, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
- E. Periodic Construction Photographs: Take 25 photographs weekly, to show general progress of construction. Select vantage points to show status of construction and progress since last photographs were taken.

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.
- 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.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule 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 modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- B. Processing Time: Allow time for submittal review, including time for re-submittals, 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 re-submittals.
1. Initial Review: Allow 15 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. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Re-submittal Review: Allow 15 days for review of each re-submittal.
- C. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Name of subcontractor.
 - f. Name of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Other necessary identification.
- D. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Use Contractor's standard form.
 2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- E. Options: Identify options requiring selection by the Architect.

- F. Deviations: Identify deviations from the Contract Documents on submittals.
- G. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- H. 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.
- I. Use for Construction: Use only final submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements:
 - 1. Submit digital copies of all submittals.
- B. 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 not suitable 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. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. Submit Product Data before or concurrent with Samples.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

- a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (750 by 1067 mm).
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one (1) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing

color, texture, and pattern; color range sets; and components used for independent testing and inspection.

- a. Number of Samples: Submit three (3) sets of Samples. Architect will retain two (2) Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project record sample.
 - 1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three (3) sets of paired units that show approximate limits of variations.
- E. Fire Prevention Plan: Prepare plan for fire protection and management within the historic building.
- F. Dust Control Plan: Plan prepared to document contractors plan for dust control during phased construction of an occupied building.
- G. 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.
- H. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- I. 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.
- J. 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.
- K. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- L. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- M. 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.
- N. Product Test Reports: Submit written reports indicating 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.

- O. 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.
- P. 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 primers and substrate preparation needed for adhesion.
- Q. Field Test Reports: Submit 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.
- R. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- S. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit three (3) paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action 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 and field dimensions. Mark with approval stamp before submitting to Architect.

- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, 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. With submitting the submittal to the Architect the Contactor acknowledges the product is available with a reasonable timeline. Any delay after submission date will not result in a delay or change order

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. 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.
- D. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
- D. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

- E. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- F. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- G. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.6 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.

8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 5. Other required items indicated in individual Specification Sections.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. When testing is complete, remove test specimens, assemblies and mockups do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 - 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed unless otherwise indicated.

1.8 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least 24 hours in advance, or as required by testing agency, of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.9 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, including the following:
1. Structural steel inspections
 2. Structural Concrete Inspections
 3. Load Bearing Masonry Inspections
 4. Elevator Shaft Construction Inspections

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS:

- A. All drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall be defined as indicated on drawing CS1.1 or shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 - 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 - 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 - 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 - 7. ABMA - American Boiler Manufacturers Association; www.abma.com.
 - 8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org
 - 9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
 - 10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
 - 11. AF&PA - American Forest & Paper Association; www.afandpa.org.
 - 12. AGA - American Gas Association; www.aga.org.
 - 13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 - 14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 - 15. AI - Asphalt Institute; www.asphaltinstitute.org.
 - 16. AIA - American Institute of Architects (The); www.aia.org.
 - 17. AISC - American Institute of Steel Construction; www.aisc.org.
 - 18. AISI - American Iron and Steel Institute; www.steel.org.
 - 19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
 - 20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
 - 21. ANSI - American National Standards Institute; www.ansi.org.
 - 22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
 - 23. APA - APA - The Engineered Wood Association; www.apawood.org.
 - 24. APA - Architectural Precast Association; www.archprecast.org.
 - 25. API - American Petroleum Institute; www.api.org.
 - 26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).

27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWPA - American Wood Protection Association; www.awpa.com.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CE - Conformite Europeenne; <http://ec.europa.eu/growth/single-market/ce-marking/>
51. CEA - Canadian Electricity Association; www.electricity.ca.
52. CEA - Consumer Electronics Association; www.ce.org.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.pbmdf.com.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - Canadian Standards Association; www.csa.ca.
65. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
66. CSI - Construction Specifications Institute (The); www.csinet.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.

71. DHI - Door and Hardware Institute; www.dhi.org.
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; www.eciaonline.org.
75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; www.eima.com.
77. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
78. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
79. ESTA - Entertainment Services and Technology Association; (See PLASA).
80. ETL - Intertek (See Intertek); www.intertek.com.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsintstitute.org.
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
85. FM Approvals - FM Approvals LLC; www.fmglobal.com.
86. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarooft.com.
88. FSA - Fluid Sealing Association; www.fluidsealing.com.
89. FSC - Forest Stewardship Council U.S.; www.fscus.org.
90. GA - Gypsum Association; www.gypsum.org.
91. GANA - Glass Association of North America; www.glasswebsite.com.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.
94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
97. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
98. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
99. IAS - International Accreditation Service; www.iasonline.org.
100. IAS - International Approval Services; (See CSA).
101. ICBO - International Conference of Building Officials; (See ICC).
102. ICC - International Code Council; www.iccsafe.org.
103. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
104. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
105. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
106. IEC - International Electrotechnical Commission; www.iec.ch.
107. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
108. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
109. IESNA - Illuminating Engineering Society of North America; (See IES).
110. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
111. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
112. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
113. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
114. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.

115. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
116. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
117. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
118. ISO - International Organization for Standardization; www.iso.org.
119. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
120. ITU - International Telecommunication Union; www.itu.int/home.
121. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
122. LMA - Laminating Materials Association; (See CPA).
123. LPI - Lightning Protection Institute; www.lightning.org.
124. MBMA - Metal Building Manufacturers Association; www.mbma.com.
125. MCA - Metal Construction Association; www.metalconstruction.org.
126. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
127. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
128. MHIA - Material Handling Industry of America; www.mhia.org.
129. MIA - Marble Institute of America; www.marble-institute.com.
130. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
131. MPI - Master Painters Institute; www.paintinfo.com.
132. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
133. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
134. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
135. NADCA - National Air Duct Cleaners Association; www.nadca.com.
136. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
137. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
138. NBI - New Buildings Institute; www.newbuildings.org.
139. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
140. NCMA - National Concrete Masonry Association; www.ncma.org.
141. NEBB - National Environmental Balancing Bureau; www.nebb.org.
142. NECA - National Electrical Contractors Association; www.necanet.org.
143. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
144. NEMA - National Electrical Manufacturers Association; www.nema.org.
145. NETA - InterNational Electrical Testing Association; www.netaworld.org.
146. NFHS - National Federation of State High School Associations; www.nfhs.org.
147. NFPA - National Fire Protection Association; www.nfpa.org.
148. NFPA - NFPA International; (See NFPA).
149. NFRC - National Fenestration Rating Council; www.nfrc.org.
150. NHLA - National Hardwood Lumber Association; www.nhla.com.
151. NLGA - National Lumber Grades Authority; www.nlga.org.
152. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
153. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
154. NRCA - National Roofing Contractors Association; www.nrca.net.
155. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
156. NSF - NSF International; www.nsf.org.
157. NSPE - National Society of Professional Engineers; www.nspe.org.
158. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
159. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
160. NWFA - National Wood Flooring Association; www.nwfa.org.

161. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
162. PDI - Plumbing & Drainage Institute; www.pdionline.org.
163. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); <http://www.plasa.org>.
164. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
165. RFCI - Resilient Floor Covering Institute; www.rfci.com.
166. RIS - Redwood Inspection Service; www.redwoodinspection.com.
167. SAE - SAE International; www.sae.org.
168. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
169. SDI - Steel Deck Institute; www.sdi.org.
170. SDI - Steel Door Institute; www.steeldoor.org.
171. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
172. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
173. SIA - Security Industry Association; www.siaonline.org.
174. SJI - Steel Joist Institute; www.steeljoist.org.
175. SMA - Screen Manufacturers Association; www.smainfo.org.
176. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
177. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
178. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
179. SPIB - Southern Pine Inspection Bureau; www.spib.org.
180. SPRI - Single Ply Roofing Industry; www.spri.org.
181. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
182. SSINA - Specialty Steel Industry of North America; www.ssina.com.
183. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
184. STI - Steel Tank Institute; www.steeltank.com.
185. SWI - Steel Window Institute; www.steelwindows.com.
186. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
187. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
188. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
189. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
190. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
191. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
192. TMS - The Masonry Society; www.masonrysociety.org.
193. TPI - Truss Plate Institute; www.tpinst.org.
194. TPI - Turfgrass Producers International; www.turfgrasssod.org.
195. TRI - Tile Roofing Institute; www.tilerroofing.org.
196. UL - Underwriters Laboratories Inc.; <http://www.ul.com>.
197. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
198. USAV - USA Volleyball; www.usavolleyball.org.
199. USGBC - U.S. Green Building Council; www.usgbc.org.
200. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
201. WASTEC - Waste Equipment Technology Association; www.wastec.org.
202. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
203. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
204. WDMA - Window & Door Manufacturers Association; www.wdma.com.
205. WI - Woodwork Institute; www.wicnet.org.

206. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
 207. WWPA - Western Wood Products Association; www.wwpa.org.
- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
 2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
 3. ICC - International Code Council; www.iccsafe.org.
 4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
1. COE - Army Corps of Engineers; www.usace.army.mil.
 2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
 3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
 4. DOD - Department of Defense; www.quicksearch.dla.mil.
 5. DOE - Department of Energy; www.energy.gov.
 6. EPA - Environmental Protection Agency; www.epa.gov.
 7. FAA - Federal Aviation Administration; www.faa.gov.
 8. FG - Federal Government Publications; www.gpo.gov/fdsys.
 9. GSA - General Services Administration; www.gsa.gov.
 10. HUD - Department of Housing and Urban Development; www.hud.gov.
 11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
 12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
 13. SD - Department of State; www.state.gov.
 14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
 15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
 16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
 17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
 18. USP - U.S. Pharmacopeial Convention; www.usp.org.
 19. USPS - United States Postal Service; www.usps.com.
- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
 2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.

3. DSCC - Defense Supply Center Columbus; (See FS).
 4. FED-STD - Federal Standard; (See FS).
 5. FS - Federal Specification; Available from DLA Document Services;
www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
 6. MILSPEC - Military Specification and Standards; (See DOD).
 7. USAB - United States Access Board; www.access-board.gov.
 8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
 2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
 3. CDHS; California Department of Health Services; (See CDPH).
 4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
 5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
 6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
 7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservation.tamu.edu.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes 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.

1.3 USE CHARGES

- A. General: Installation and removal of 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, Owner, owner's designated representatives,, Architect, 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.

1.4 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.

1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats minimum 36 by 60 inches (914 by 1524 mm).

2.2 EQUIPMENT

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

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. The owner will designate areas in which parking of vehicles/equipment and storage of materials and equipment may be located and shall set the conditions that must be adhered to. Restore all areas to original conditions after project is sufficiently completed or Contractor no longer needs offices, sheds or parking.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Water Service: The Contractor requiring water shall make prior arrangements with the Owner for access to the existing systems at the site and may only access utilities located in mechanical space. No utility usage from rentable spaces will be permitted. The Owner will provide a reasonable amount of water for construction use. Maintain equipment in a condition acceptable to Owner. Owner's facilities are to be returned to pre-existing conditions at the completion of construction.
- C. Sanitary Facilities: Sanitary Facilities for all sites: Each Prime Contractor shall provide temporary toilets, wash 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. Fixtures must be provided at each site where work is being conducted.

- D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
- E. Electric Power Service: Each Prime Contractor shall provide for their own equipment to access the existing electrical system and, where required, make arrangements with the Owner to permit the extension of a temporary system of wiring capable of providing power where required by work, by safety and within fifty (50) feet of all portions of the work. Provide all necessary maintenance and supervision; remove daily. Maintain equipment in a condition acceptable to Owner. Contractor may only access utilities located in mechanical space. No utility usage from tenant spaces will be permitted.

3.3 SUPPORT FACILITIES INSTALLATION

- A. 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.
- B. Parking:
 - 1. Contractor to utilize on street parking at each site for construction personnel. Parking fees, if applicable are the responsibility of the contractor.
- C. Project Signs: Unauthorized signs are not permitted.
- D. 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."
- E. Lifts and Hoists: Each Prime Contractor is to provide facilities necessary for hoisting materials and personnel.
- F. 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.

3.4 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.

- B. 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.
- C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- D. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- E. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.
- F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- G. 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.
 - 1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 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.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- 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. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. 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 RELATED DOCUMENTS

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

1.2 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.

1.3 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 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 specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify 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 one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "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 Division 01 Section "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. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

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. Store products to allow for inspection and measurement of quantity or counting of units.
 2. Store materials in a manner that will not endanger Project structure.

3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

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 Divisions 02 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

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 not in conflict with 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.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. 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.
2. 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.
3. Products:
 - a. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
4. Manufacturers:
 - a. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
5. 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.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.

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: 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 the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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 engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
 - 9. Correction of the Work.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 15 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be

relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

- a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Mechanical systems and piping.
 - c. Control systems.
 - d. Communication systems.
 - e. Fire-detection and -alarm systems.
 - f. Electrical wiring systems.
 3. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. 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. 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. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. 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 roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. 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.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. 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 Division 01 Section "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- C. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- B. Benchmarks: Establish and maintain a minimum of permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 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.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- 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: Do not use tools or equipment that produce harmful 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 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.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- 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. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Division 01 Section "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- G. 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. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill. Additional limitations contained in other specification sections and drawings for removal of mortar for repointing of masonry do not permit use of rotary or power tools.
 - 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 5. Proceed with patching after construction operations requiring cutting are complete.
- H. 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.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 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 (27 deg C).
 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. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- H. 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.
- I. 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.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.9 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. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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. Warranties.
 - 4. Final cleaning.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 8. Complete startup testing of systems.
 - 9. Submit test/adjust/balance records.
 - 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 11. Advise Owner of changeover in heat and other utilities.
 - 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. 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. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. 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. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

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.

1. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

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. General: 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 portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

- b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Remove snow and ice to provide safe access to building.
 - e. 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.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Sweep concrete floors broom clean in unoccupied spaces.
 - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - j. Remove labels that are not permanent.
 - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.
 - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
 - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - q. Leave Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS:

- A. All drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Systems and equipment operation manuals.
 - 4. Systems and equipment maintenance manuals.
 - 5. Product maintenance manuals.

1.3 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect and Commissioning Authority will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:
 - 1. Submit one paper copy, bound in a 3-ring binder
 - 2. Submit 3 copies on digital media acceptable to Architect. Enable reviewer comments on draft submittals.
- C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments.
 - 1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.

- D. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.4 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
 - 1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - 2. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.5 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.

5. Name and contact information for Contractor.
 6. Name and contact information for Construction Manager.
 7. Name and contact information for Architect.
 8. Name and contact information for Commissioning Authority.
 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.6 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.
 6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

1.7 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- C. Descriptions: Include the following:
 1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- D. Operating Procedures: Include the following, as applicable:
 1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.

8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.8 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds, as described below.
- C. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 3. Identification and nomenclature of parts and components.
 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.

- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.
- H. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1.9 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up Record Prints.
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
 - 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 prepare the 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. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 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. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

- A. 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.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office 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.

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- A. All drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Instruction in operation and maintenance of systems, subsystems, and equipment.
 - 2. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
 - 1. At completion of training, submit complete training manual(s) for Owner's use prepared in same paper and PDF file format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.7 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Systems and equipment operation manuals.
 - c. Systems and equipment maintenance manuals.
 - d. Product maintenance manuals.
 - e. Project Record Documents.
 - f. Identification systems.

- g. Warranties and bonds.
 - h. Maintenance service agreements and similar continuing commitments.
- 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
- 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning.
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
- 8. Repairs: Include the following:

- a. Diagnosis instructions.
- b. Repair instructions.
- c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
- d. Instructions for identifying parts and components.
- e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

1.9 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
- C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 1. Schedule training with Owner, through Architect, with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 1. At beginning of each training module, record each chart containing learning objective and lesson outline.

- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode with vibration reduction technology.
 - 1. Submit video recordings on CD-ROM or thumb drive.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
- E. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017900

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 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control. 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.

1.4 CLOSEOUT SUBMITTALS

- A. Inventory of items that have been removed and salvaged.

1.5 FIELD CONDITIONS

- A. Owner may occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
1. Before selective demolition, Owner will remove loose furnishings, equipment and per:
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Previous hazardous materials abatement activities have been completed on this site. A current asbestos study was commissioned by the owner and did not detect any further asbestos containing materials.
 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.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. 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 ASSE 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. 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. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.

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. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
- C. 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. Maintain fire watch during and for at least 12 hours after flame-cutting operations.
 5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 6. Dispose of demolished items and materials promptly. Comply with requirements in Division 1 Section "Information Regarding Proper Disposal of Construction Demolition Waste."
- 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. 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.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

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 and recycle or dispose of them according to Division 1 Section "Information Regarding Proper Disposal of Construction Demolition Waste."
1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 4. Comply with requirements specified in Division 1 Section "Information Regarding Proper Disposal of Construction Demolition Waste."
- 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 03 3000 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 DESCRIPTION

A. The work of this section includes but is not limited to:

1. Concrete mixes.
2. Cast-in-place plain and reinforced concrete.
3. Formwork.
4. Reinforcement.
5. Miscellaneous accessories.

B. Related work specified elsewhere:

1. Painting and Finishing: Section 099000

1.2 QUALITY ASSURANCE

A. Reference Standards:

1. American Society for Testing and Materials (ASTM), latest revision:

A184	Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement
A615	Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
A618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
A706	Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
A775	Standard Specification for Epoxy-Coated Reinforcing Steel Bars
A1064	Standard Specification for Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
C31	Practice for Making and Curing Concrete Test Specimens in the Field
C33	Specification for Concrete Aggregates
C39	Test Method for Compressive Strength of Cylindrical Concrete Specimens
C42	Test Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
C94	Specification for Ready-Mixed Concrete
C109	Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 inch Cube Specimens)
C143	Test Method for Slump of Hydraulic Cement Concrete
C150	Specification for Portland Cement
C171	Specification for Sheet Materials for Curing Concrete
C173	Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
C231	Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

- C260 Specification for Air-Entraining Admixtures for Concrete
 - C309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete
 - C330 Standard Specification for Lightweight Aggregates for Structural Concrete
 - C494 Specification for Chemical Admixtures for Concrete
 - C567 Standard Test Method for Determining Density of Structural Lightweight Concrete
 - C595 Specification for Blended Hydraulic Cement
 - C920 Specification for Elastomeric Joint Sealants
 - C989 Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars
 - C1064 Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
 - C1107 Specification for Packaged Dry Hydraulic Cement Grout (Non-Shrink)
 - C1116 Specification for Fiber-Reinforced Concrete and Shotcrete
 - D994 Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)
 - D1751 Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding & Resilient Bituminous Types)
 - D2240 Test Method for Rubber Property –Durometer Hardness
 - E329 Specification for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction
 - E543 Standard Practice for Agencies Performing Non-Destructive Testing
 - E1155 Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers
 - E1745 Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs
2. American Concrete Institute (ACI), latest revision:
- ACI 301 Specifications for Structural Concrete
 - ACI 306.1 Standard Specifications for Cold-Weather Concreting
 - ACI 308.1 Standard Specifications for Curing Concrete
3. Portland Cement Association (PCA), latest revision:
- ST 26 Specifications for Vibrating Concrete
4. Concrete Reinforcing Steel Institute (CRSI):
- CRSI 63 Recommended Practice for Placing Reinforcing Bars
 - CRSI 65 Recommended Practice for Placing Bar Supports, Specifications and Nomenclature
 - CRSI Manual of Standard Practice
5. National Bureau of Standards, Product Standards (PS):
- USPS 1 Construction and Industrial Plywood
 - USPS 20 The American Softwood Lumber Standard
6. American Plywood Association (APA):
- APA Grade- Trademark
7. Western Wood Products Association (WWPA):

Catalog "A" Product Use Manual

8. Southern Pine Inspection Bureau (SPIB):

Standard Grading Rules for Southern Pine

9. Federal Specifications (FS):

FS SS-S-200D Sealing Compound, Two Component

FS HH-F-341F Fillers, Expansion Joint: Bituminous (Asphalt and Tar) and Non-Bituminous

FS QQ-W-461G Wire, Steel, Carbon (Round, Bare and Coated)

10. American Welding Society (AWS):

D12.1 Welding Reinforcement Steel, Metal Inserts and Connections in Reinforced Concrete Construction

1.3 SUBMITTALS

A. Shop drawings, product data, samples and certification.

B. Mix Design: Submit proposed mix design and corresponding backup test data, and obtain approval by Engineer prior to commencement of work.

C. Ready-Mix Delivery Tickets: ASTM C94.

D. Shop Drawings: Prior to fabrication and delivery, submit shop drawings clearly indicating:

1. Reinforcing bar sizes, spacing, location, and quantities of reinforcing steel bending and cutting schedules, and supporting and spacing devices.
2. Reinforcement Details: Details, splices, and lengths of laps shall be in accordance with ACI 315; CRSI- Manual of Standard Practice; and in accordance with Contract Drawing requirements.
3. Construction and control joints, whether or not they are shown on the drawings.
4. The shop drawings and interpretations of and are supplemental to the Contract Drawings and Specifications. Their intent shall demonstrate that the Contractor understands the design concept, and to provide the detailed information necessary for the fabrication, assembly, and installation of the products or materials specified. Neither the shop drawings nor comments placed on them by the Engineer shall be construed as being "change orders." If any deviations, discrepancies or conflicts between the Shop Drawings and the Contract Drawings and Specifications are discovered, either "prior to" or "after" the shop drawings have been reviewed, the Contract Drawings and Specifications shall have control and shall be implemented.
5. Product Data: Submit manufacturer's descriptive literature and application/installation instructions and recommended procedures for curing compounds, sealers, hardeners, joint materials, waterstops, and all other accessories.
6. Samples: Submit reinforcement accessories for approval.

7. Certification: Submit certified copies of mill test reports of reinforcement materials analysis.
8. Welder's Certificates: Submit Certificates certifying that each welder employed on the Work has been certified in accordance with AWS for the type of welding in this Work within the previous 12 months.

1.4 STORAGE OF MATERIALS

- A. Cement: Store to prevent deterioration or contamination. Cement which has become caked, partially set, or otherwise deteriorated, damaged, or contaminated shall not be used.
- B. Aggregates: Store and handle to preserve gradation and cleanliness. Integration of grades and/or contamination are cause for rejection, and such rejected material shall be removed and not used.
- C. Reinforcement: Shall be blocked up from the ground at least 4" and piled neatly and compactly. Where required, it shall be placed under cover, as directed.

1.5 TESTING AND INSPECTION

- A. Independent Testing Agency: Owner shall hire a Testing Agency to provide qualified inspectors to perform field testing and inspection of the Work of this Section to the extent noted in Section 3.9 of this specification. Testing Agency shall prepare test reports and submit to the engineer, as appropriate.
 1. The Testing Agency will conform to applicable provisions of ASTM E329 and ASTM E543.
 2. Testing Agency shall employ inspectors qualified in accordance with the Building Code and with the Specifications.
 3. Testing Agency will conduct and interpret tests and state in each report whether tested work complies with or deviates from requirements.
- B. Access to Documents: The Contractor shall furnish promptly to the testing agency one copy each of all mix designs, back-up test data, accepted shop drawings, and product data for any admixture, if applicable. The Contractor shall also furnish reasonable office space(s) in which the testing agency can work conveniently with project documents as well as maintain project records and prepare project reports.
- C. Access to Facilities and Materials: The Contractor shall provide free and convenient access to all areas of the work for the Engineer and for the authorized personal of the testing agency. The Contractor shall, in addition, provide reasonable amounts of casual labor, hoisting, power, and provisions to expedite testing and inspection services required by the Building Code, specified herein, and as directed by the Engineer. This requirement applies at all locations where the work of this section is conducted.
- D. Notification: The Contractor shall notify the Engineer and the Testing Agency a minimum of 7 working days prior to beginning of work or preparatory work subject to inspection. This requirement applies to each location at which work will be performed and to the resumption of work after each interruption or suspension of work.

- E. Performance or waiving by Engineer or Owner of inspection, testing, or surveillance for a given portion of the work will not relieve the Contractor from responsibility to conform strictly to the requirements of the Contract Documents.
- F. Correct deficiencies in or remove and replace concrete that inspection and test reports indicate do not comply with specified requirements.
- G. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

PART 2 PRODUCTS

2.1 FORMWORK MATERIALS

- A. Form Work: Conform with requirements of ACI 347, Chapter 3, Materials and Form Work.
 - 1. Material:
 - a. Use either steel forms, designed specifically for the purpose, or wood forms of plywood or lumber not less than 3/4" thick.
 - b. Architectural Concrete: Exposed surfaces of forms shall be of steel, or wood lined with hardboard processed to resist moisture, or medium density plywood overlaid on side.
 - c. Non-Architectural Concrete: Unlined lumber or plywood may be used.
- B. Lumber Material:
 - 1. Form Framing, Sheathing, Struts, Braces and Shoring: Shall conform to WWPA Catalog A or SPIB Grading rules.
 - 2. Rough Structural or Dimensional Lumber: Provide lumber of allowable species surfaced four sides as applicable, not less than 3/4" thick, and grade stamped with the appropriate WWPA or SPIB stamp indicating compliance with PS-20.
 - a. Lumber shall be free of material defects that would impair, deform or otherwise be detrimental to the finished concrete product.
 - 3. Plywood: Not less than 5/8" thick, APA B-B PLYFORM, Class I or II, conforming to U.S. Product Standard PS-1.
 - a. Use Class II only on non-architectural concrete surfaces not exposed to view.
- C. Prefabricated Forms:
 - 1. Preformed Metal Forms: Minimum 16 gauge steel, matched tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surface.
 - 2. Glass Fiber Fabric Reinforced Plastic Forms: Matched tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.

3. Pan Type Forms: Steel or glass fiber, of size and profile required.

2.2 FORMWORK ACCESSORIES

- A. Form Ties: Provide factory fabricated, adjustable length, removable or snap-off ties conforming to ACI 347, carbon steel where not exposed and stainless steel for exterior or exposed concrete.
 1. Removable ties that leave holes larger than 1" are not permitted.
 2. Snap-off ties with ends that break less than 1-1/2" from face of wall are not permitted.
 3. Field formed, wire ties, or flat bands are not permitted.
- B. Corner Formers (when applicable): 3/4" chamfer or profile indicated, made of plastic, rubber or wood.
- C. Form Release Agent: Colorless mineral or oil that will not stain concrete, or absorb moisture, or impair natural bonding or color characteristics of coating to be used, and intended for use on concrete. Coating must be applied prior to placement of reinforcement.
- D. Ties: Snap type, carbon steel where not exposed and stainless steel for exterior or exposed concrete.
- E. Nails, Spikes, Lag Bolts, Through Bolts, Anchors: Sized as required; of sufficient strength and character to maintain formwork in place while pouring and curing concrete.

2.3 STEEL REINFORCING AND ACCESSORIES

- A. Reinforcing bars – ASTM A615, Grade 60, deformed, billet steel unless ASTM A706 bars are noted on the plans. Epoxy-coated bars conforming to ASTM A775 shall be provided for exterior concrete roadways and/or access drives.
- B. Plain steel welded wire reinforcement – ASTM A1064. All welded wire reinforcement shall be provided as sheets not rolls.
- C. Cold-drawn wire – ASTM A1064.
- D. Fabricated steel bar or rod mats – ASTM A184.
- E. Bar supports, chairs, bolsters, spacers – CRSI type. Accessories shall be plastic tipped or galvanized with turned-up ends for reinforcement at all faces of exposed concrete, interior or exterior.
- F. Tie Wire: FS QQ-W-461, annealed black steel, 16 gauge minimum. Epoxy coated ties shall be used where epoxy-coated reinforcing is used.
- G. Portion of any or all bars or accessories that come within 3/4" of the concrete surface shall be stainless steel, and the bars shall be tied with stainless steel wire.

2.4 CONCRETE MATERIALS

- A. Portland Cement: ASTM C150, Types I and II, or Types IA or IIA. Upon approval of the Engineer, other types and/or kinds will be permitted.

- B. Fine Aggregate: ASTM C33, washed, hard sand. No river gravel shall be used and no slag aggregate will be permitted in exposed work.
- C. Coarse Aggregate: Normal-weight aggregate, conforming to ASTM C33, uniformly graded, not exceeding 1-1/2" nominal size.
- D. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- E. Lightweight Aggregate: ASTM C330, uniformly graded, not exceeding 1" nominal size.
- F. Water: The water shall be clean, potable, and free from deleterious substances.
- G. Admixture: Admixtures for increasing the plasticity and workability of concrete may be used, provided the minimum cement content is maintained and approval for use for such admixture is secured from the Engineer. The proportions of sand and water will be adjusted to the amount and type of admixture used. Admixtures containing chloride shall not be used.
- H. Slag: Ground granulated blast furnace slag conforming to the requirements of ASTM C989.
- I. Fly Ash: Fly ash or natural pozzolan conforming to the requirements of ASTM C618.

2.5 ADMIXTURES

- A. Synthetic Fibrous Concrete Reinforcement: ASTM C1116, monofilament synthetic polypropylene fibers manufactured specifically for use in concrete and added at the manufacturer's required rate.
- B. Water Reducing Admixture: ASTM C494, Type A, containing no more chloride ions than present in municipal drinking water.
- C. Water Reducing Retarding Admixture: ASTM C494, Type D, containing not more chloride ions than present in municipal drinking water.
- D. High Range Water Reducing Admixture (Superplasticizer): ASTM C494, Type F or G, containing no more chloride ions than present in municipal drinking water.
- E. Non-Corrosive, Non-Chloride Accelerator: ASTM C494, Type C or E, containing no more chloride ions than present in municipal drinking water. The admixture manufacturer must have long-term, non-corrosive test data from an independent testing laboratory (of at least 1 year duration) using an acceptable accelerated corrosion test method such as that using electrical potential measures.
- F. Air Entrainment Admixture: ASTM C260.
- G. Prohibited Admixtures: Calcium chloride, thiocyanates or admixtures containing more than 0.05% chloride ions are not permitted.
- H. Certification: Written conformance with the above-mentioned requirements and the chloride ion content of the admixture will be required from the admixture manufacturer prior to mix design review by the Engineer.

2.6 CONCRETE MIXES

- A. General: All mixes must be approved by the Engineer prior to use on the job. No deviations from the approved mixes will be permitted without prior approval from the Engineer.
- B. Composition: Portland cement, supplemental cementitious materials, fine aggregate, coarse aggregate and water, homogeneously mixed, readily placeable and uniformly workable; designed to attain properties of strength, slump and rate of hardening specified herein.
- C. Structural Lightweight Concrete shall have a calculated equilibrium weight of 120 PCF.
- D. Maximum Size of Coarse Aggregate: Not larger than 1-1/2" for normal-weight aggregate or 1" for lightweight aggregate, nor larger than one-fifth the narrowest dimension between the sides of the forms of the member for which the concrete is to be used, nor larger than three-fourths the minimum clear spacing between reinforcing bars.
- E. Strengths and Slumps: Concrete mixes shall attain the minimum compressive strength given below at 28 days, and shall not exceed the maximum slump given below unless a high-range, water-reducing admixture is added.

TYPE OF CONSTRUCTION	MIN. 28-DAY COMP. STRENGTH	SLUMP RANGE
(1) Foundation, Interior slabs-on-grade and slabs-on-deck	3000 PSI	3"-6"
(2) Exterior slabs, walls, beams, column & piers	4500 PSI	3"-6"

- F. Maximum Water/Cement Ratio:

0.45 for 4500 psi concrete and 0.53 for 3000 psi concrete.
- G. Maximum Supplemental Cementitious Materials: The weight of fly ash and slag shall not exceed 50% of the total weight of cementitious materials. The weight of fly ash shall not exceed 25% of the total weight of cementitious materials.
- H. Rate of Hardening of Concretes: Separate mixes shall be designed to produce the rate of hardening for the climatic conditions.

Climatic Conditions

Require Rate of Hardening

Over 90°F and low humidity

Retarded

Under 50°F

Accelerated

- I. Selection of Proportions: Prior to concreting operations, the Contractor shall establish, based on laboratory mix designs, minimum standards of proportions for all the types of concrete to be used. Concreting operation shall proceed with these mix designs; but if at any time the tests of concrete

indicate failure to meet the strength, slump, and rate of hardening requirements, the Contractor shall be required to change the proportions to meet the requirements.

- J. Air Content: Air content shall be maintained at 4% to 7% for all air-entrained concrete (all exposed concrete, all footings and where otherwise noted). Slabs receiving a surface floor hardener shall have an air content that does not exceed 3%. Interior floor slabs and slabs receiving a trowel finish shall not be air entrained.
- K. Slabs-On-Grade: Concrete shall meet the requirements given above except for the following.
 - 1. Fine aggregate must be natural sand.
 - 2. Air-entraining admixtures are not permitted unless the slab will be exposed to freezing temperatures.
 - 3. Interior Slabs-On-Grade $\leq 4''$ thick, fibrous reinforcement, when used, shall be Fibermesh 300 or approved equal, meeting ASTM C1116, added at the manufacturer's required rate.
 - 4. Interior Slabs-On-Grade $> 4''$ thick, fibrous reinforcement, when used, shall be Novomesh 950 or approved equal, meeting ASTM C1116, added at the manufacturer's required rate.

2.7 ACCESSORIES

- A. Vapor Retarder: ASTM E1745, Class A, not less than 15 mils thick with permeance of less than 0.01 perms. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include:
 - a. Raven Industries Inc.: Vapor Block 15.
 - b. Reef Industries, Inc.; Griffolyn 15 Mil Green.
 - c. Stego Industries, LLC; Stego Wrap, 15 Mil.
 - d. W.R. Meadows, Perminator 15.
- B. Isolation Joint Filler Material: Preformed, non-extruding, resilient-type, ASTM D1751.
- C. Bonding Materials:
 - 1. Bonding Compound: ASTM C1059, Type II, Armatec 110 by Sika Chemical Corporation or approved equal.
 - 2. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows Types IV, load bearing.
- D. Repairing Materials:

1. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch) and that can be feathered at edges to match adjacent floor elevations.
 - a. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - b. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 - c. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
 - d. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C 109/C 109M.
2. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
 - a. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - b. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 - c. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
 - d. Compressive Strength: Not less than [5000 psi (34.5 MPa)] at 28 days when tested according to ASTM C 109/C 109M.
 - e. Bond Strenth: Not less than 1000 psi at 28 days when tested according to ASTM C1042.
- E. Non-Shrink Cement Grout: Non-staining, positive expansion, flowable and self-leveling, high strength, conforming to ASTM C1107.
 1. Use: For grouting of structural column bases, heavy machinery and equipment, securing dowels and anchors not cast-in-place, for setting of steel grid floors and bearing plates, as required or indicated on the drawings.
 2. Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 9000 PSI in 28 days.
- F. High Flow Grout: Where high fluidity and/or increased placing time is required, use “Euco Hi-Flow Grout” by the Euclid Chemical Company or “Masterflow 928” by Master Builders or approved equal. The grout shall conform to ASTM C1107.
- G. Waterstop (as applicable): Rubber or polyvinylchloride; type and width as indicated by maximum possible lengths, with electrically welded splice joints. All corners shall be shop welded.

2.8 CURING, SEALING, AND HARDENING MATERIAL

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M182, Class 2 burlap cloth.
- C. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- D. Clear, Waterborne, Membrane-Forming Curing/Sealing Compound: ASTM C309, Type 1, Class B. "Diamond Clear" by Euclid Chemical Company or approved equal.
- E. Hardener: Clear, Liquid Densifier and Sealer. "Euco Diamond Hard" by Euclid Chemical Company or approved equal.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Construct forms to line, shape and dimension of members as called for on drawings; sufficiently tight to prevent leakage; securely braced and tied to prevent displacement and support construction loads. Where the bottom of forms are inaccessible from within, provide access opening to allow thorough removal of all extraneous matter before placing concrete.
- B. Forms shall be accurately constructed to the established lines, grades, and dimensions within the following tolerance:
 - 1. Variation from plumb: 1/8 inch in 10 feet.
 - 2. Variation from level or established grade: 1/4 inch in 10 feet.
 - 3. Exposed lintels, sills and conspicuous lines: 1/4 inch in 20 feet.
 - 4. In cross-sectional dimensions of columns, beams, and thickness of slabs, or walls; minus 1/4 inch, plus 1/2 inch.
 - 5. Variation in footing dimensions: minus 1/2 inch, plus 2 inch.
 - 6. Variation in size and location of sleeves and floor and wall openings: 1/4 inch.
- C. Placement:
 - 1. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to over stressing by construction loads.
 - 2. Arrange and assemble formwork so as to permit easy dismantling and stripping, so that concrete is not damaged during its removal.
 - 3. Align form joints and make watertight, to prevent leakage of mortar and disfigured appearance of concrete. Keep form joints to minimum.

4. Obtain Engineer's approval for use of earth forms. When using earth forms, hand-trim sides and bottoms, and remove loose dirt prior to placing concrete.
5. Apply form release agent on formwork in accordance with manufacturer's recommendations. Apply prior to placing reinforcing steel, anchoring devices and embedded parts. Do not apply form release agent where concrete surfaces are to receive special finishes or applied covering which are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

D. Cleaning Forms:

1. Clean forms as erection proceeds, to remove foreign matter. Remove cuttings, shavings and debris from within forms.
2. Flush completely with water to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
3. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out completed forms, unless formwork and concrete construction proceed within a heated enclosure. Use compressed air or other means to remove foreign matter.

E. Form Removal:

1. Do not remove forms, shores and bracing until concrete has gained sufficient strength to carry its own weight, construction loads, and design loads that are liable to be imposed on it. Verify strength of concrete by field cured compressive test results.
2. Remove formwork progressively and in accordance with code requirements and so that no shock loads or unbalanced loads are imposed on structure.
3. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against concrete surfaces.
4. Reshore structural members where required due to design requirements or construction conditions and as required to permit progressive construction. Remove load supporting forms only after concrete has attained 75% of required 28 day compressive strength, provided construction is reshored.
5. Remove forms not directly supporting weight of concrete as soon as stripping operations will not damage concrete.
6. Backfilling: Do not backfill against concrete walls for a minimum of seven days, or until the concrete has reached 100% of its design strength.

3.2 REINFORCEMENT

- A. Shop Drawings for the fabrication and placement of reinforcing steel shall be submitted to and approved by the Engineer before fabrication commences.

- B. **Cleaning and Bending Reinforcement:** Reinforcement shall be free from rust, scale, or other coatings that will destroy or reduce the bond. All bars shall be bent cold. Bends for stirrups and ties shall be made around a 1-1/2" minimum diameter pin; for other bars 7/8" diameter or smaller, six times the thickness, for larger bars, eight times the thickness. Bars improperly fabricated or with kinks shall not be used, but shall be returned to the fabricator and new materials provided at no additional cost to the Owner.
- C. **Concrete cover for reinforcement:** Provide a minimum of concrete cover as follows:
 - 1. Footings: 3" earth face, 2" all others.
 - 2. Concrete Walls, Beams, and Piers: 2" earth face, 1-1/2" all others.
 - 3. Slabs-On-Grade: Place welded wire fabric 1-1/2" below top of slab.
- D. **Placing Reinforcement:** Reinforcement shall be accurately placed and adequately secured in position by concrete or metal chairs and spacers. In no case shall the clear distance between bars be less than the nominal diameter of the bars, nor 1", nor less than one and one-third times the maximum size of the coarse aggregate. Where reinforcement in beams or girders is placed in two or more layers, the clear distance between layers shall not be less than 1", and the bars in the upper layers shall be placed directly above those in the bottom layer.
- E. **Splices in Reinforcement:** Necessary splices not shown on drawings shall be lapped with Class B splices. The bars shall be securely wired. Splices in adjacent bars shall be staggered. All such splices are subject to Engineer's approval. Adjacent sheets of wire mesh shall be lapped at least 6" and securely wired. The clear distance between bars shall also apply to the clear distance between a contact splice and adjacent contact splices or bars.
- F. **Concrete Protection for Reinforcement:** The reinforcement of footing and other principal structural members in which the concrete is deposited against the ground shall have not less than 3" of concrete between it and the ground contact surface.

3.3 PREPARATION OF EQUIPMENT AND PLACE OF DEPOSIT

- A. Before placing concrete, all equipment for mixing and transporting the concrete shall be cleaned, all debris and ice shall be removed from the spaces to be occupied by the concrete, forms shall be thoroughly wetted (except where the surrounding atmosphere is below 40°F) or oiled, and the reinforcement shall be thoroughly cleaned of ice or other coatings. Water shall be removed from place of deposit before concrete is placed. All reinforcement, forms, ground and other surfaces with which the concrete is to come in contact shall be free from frost. Concrete shall not be deposited during rain unless adequately protected and in any case, preparations shall be on hand to protect newly placed concrete from rain until it has hardened sufficiently so that it will not be damaged.
- B. Schedule the pouring of foundations on the same day as excavation is complete.

3.4 MIXING

- A. **Mixer:** Unless otherwise authorized, mixing shall be done in a batch mixer of approved AGC type or in ready-mix equipment conforming to ASTM C94. Total volume for each batch shall not exceed the rated capacity of the mixer.

- B. Mixing Time: Concrete shall be mixed until there is a uniform distribution of the materials and shall be discharged completely before the mixer is recharged.
- C. When concrete arrives at the project with slump below that suitable for placing, water may be added only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded. The water shall be incorporated by additional mixing equal to at least half of the total mixing required.
- D. Discharge of the concrete shall be completed within 1-1/2 hours, or before the truck drum has revolved 300 revolutions, whichever comes first, after the introduction of the mixing water to the cement and aggregates or the introduction of the cement to the aggregates. Truck batch slips must include time of batching, total drum revolutions upon arrival at the site, and quantity of water (in gallons) per cubic yard available to be added to attain the maximum design water-cement ratio.
- E. Depositing: Deposit at slumps not greater than those specified as nearly as practicable in its final position, so as to avoid segregation due to rehandling or flowing. Concreting shall be carried on at such rate that the concrete is at all times plastic and flows readily into the spaces between the bars. No concrete that has partially hardened or been contaminated by foreign matter shall be deposited, nor shall retempered concrete be used.
 - 1. Vibrating Concrete: Mechanically vibrate concrete except that slabs-on-grade need only be vibrated around floor ducts and other embedded items. Vibrate tops of drilled piers.
 - 2. Maximum free drop of any concrete = 5'-0".
 - 3. All exposed concrete edges shall be chamfered 3/4" x 3/4", unless noted otherwise.
 - 4. No aluminum of any type shall be allowed in the concrete work unless coated to prevent aluminum-concrete reaction.
- F. Time Schedule: Once concreting is started, it shall be carried on as a continuous operation until the placing of the panel or section is completed. Fresh concrete shall not be deposited on concrete which has hardened sufficiently to cause formation of seams and planes of weakness within the section.
- G. Compaction: All concrete shall be thoroughly compacted by suitable means during placement and shall be thoroughly worked around the reinforcement, embedded fixtures and into the corners of the forms.
- H. Cold-Weather Concrete: When the temperature is below 40°F or is likely to fall below 40°F during the 24-hour period after placement, adequate equipment shall be provided for heating the concrete materials.
- I. Concrete Floor Slabs and Slabs-On-Grade:
 - 1. Unless otherwise directed, all interior and exterior concrete floor slabs on grade shall be placed upon a well-compacted subbase. Exterior slabs shall have a minimum of 4" crushed limestone, slag, or gravel not larger than AASHTO No. 57 aggregate, unless indicated otherwise on the Drawings. Interior slabs shall, in addition, have a permanent vapor retarder placed immediately under the slab atop the sub-base. Vapor retarder to be installed in strict

accordance with the manufacturer's most current Installation Instructions and Recommendation.

2. Finishing: Slab finishing operations shall meet ACI Class 5 floor requirements in accordance with ACI 302.1R. Floors receiving a surface hardener must be finished in accordance with ACI Class 6 floor requirements. All floor slabs shall be finished per the floor manufacturer's recommendations.
3. Floor Flatness/Levelness: A minimum floor flatness/levelness tolerance meeting $F_F 35/F_L 25$ requirements shall be achieved through placing and finishing the slab per guidelines set forth in table 8.15.3.a of ACI 302.1R.
4. Curing of slabs shall begin as soon as finishing operations are complete by either water curing, wet covering, or liquid membrane-forming curing compound in accordance with Chapter 9 of ACI 302.1R for a period of seven (7) days.
5. Saw Cut Joints: Must be completed within 1 to 4 hours of finishing and to a minimum of $1/4$ the slab thickness ($1/3$ for fiber-reinforced floors). Provide joints at a maximum of 15'-0" o.c.
6. Slab Joint Sealant: Shall be a two-component, epoxy resin with a minimum shore A hardness of 80 in accordance with ASTM D2240.
7. Do not allow construction equipment on newly placed slabs for a minimum of seven (7) days.
8. When strip pouring, allow seven (7) days before placing adjacent slab sections.
9. A Slab-On-Grade pre-construction conference involving the Owner, Contractor and Engineer is recommended to review the installation procedures and requirements.

3.7 JOINTS

- A. Slab-On-Grade Construction (Control) Joints: Provide contraction joints for sectioning concrete into areas to eliminate shrinkage and thermal cracking per typical details shown on Structural Drawings and as specified below.
 1. Sawed Joints: Form joints by using a power saw equipped with shatterproof or diamond-rimmed blades. Cut joints into hardened concrete as soon as surface will not be torn, abraded, or otherwise damaged by the cutting action.
 - a. Saw cut within 1 to 4 hours of finishing to a depth of $1/4$ slab thickness ($1/3$ for fiber reinforced floors).
 - b. Immediately after saw cutting, clean and dry joints, place joint filler, and apply sealant in accordance with manufacturer's instructions.
 2. Place construction joints, whether shown on Drawings or not, at column centerlines and/or at 15 ft. on center maximum spacing each direction.
- B. Slab-On-Grade Construction Joints:

1. Provide construction joints per typical details shown on structural drawings. Locate and install so as not to impair strength or appearance of concrete, at locations indicated or approved by the Engineer. Provide doveled joints when pouring adjacent to an existing slab.
- C. Wall Construction Joints: A cold joint in the concrete with the surfaces bonded together, allowing tension forces to transfer through the joint.
1. Clean and roughen surface of hardened concrete and remove laitance.
 2. Dampen surface, if required. Surface shall be prepared in accordance with the bonding material manufacturer's directions.
 3. Bonding compound, bonding admixture, or epoxy adhesive shall be approved by the Engineer and used in strict accordance with the directions of the manufacturer.
 4. Fresh concrete shall be placed after bonding compound has dried and while bonding admixture grout or epoxy adhesive is still tacky.
 5. Place vertical wall construction joints as shown on the plans or at maximum 30 ft. intervals. Continue horizontal reinforcement through joints.

D. Isolation Joints:

1. Install joint filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations as indicated.
2. Isolate structural columns by forming diamond-shaped isolation joints.
 - a. Install joint filler around diamond-shaped formwork, pouring floor slab before pouring diamond around column.
 - b. Extend joint filler from bottom of slab to within 1/4"± of finished slab surface.

3.8 SLEEVES AND INSERTS

- A. Do not place pipes, ducts, reglets, or chases in structural concrete or composite floor systems without approval of the structural Engineer.
- B. The Contractor shall leave all recesses, chases, slots, and openings required by other trades or sub-contractors, and shall cooperate with the several trades in the location of same in the forms. Trades desiring such preparatory work shall check and verify same before concrete is poured.
- C. All sleeves, inserts, pipes, anchors and all other embedded items required by other trades or sub-contractors shall, except as otherwise specified, be furnished and placed by them, but the Contractor placing concrete shall be responsible for maintaining the position of all such inserts until the concrete is placed.
- D. All Contractors shall be given ample notice and opportunity to introduce embedded items before the concrete is placed.

3.9 TESTING AND INSPECTION

- A. Tests on random batches shall be made by an independent testing agency approved by the Engineer. Provide testing and special inspection services, including the sampling of the concrete and preparation and handling of test specimens. All testing and inspection data shall be furnished directly to the Engineer and the Building Official.
- B. Testing agency representative shall periodically inspect the placement of all reinforcement for compliance with the approved Construction Documents.
- C. Testing agency representative shall continuously inspect the welding of reinforcing steel in accordance with AWS D1.4 and ACI 318.
- D. Testing agency representative shall continuously inspect the installation of bolts and headed anchor studs prior to and during placement of concrete.
- E. Testing agency representative shall periodically verify the use of approved concrete design mixtures.
- F. Testing agency representative shall continuously inspect the placement of concrete for proper application techniques.
- G. Testing agency representative shall periodically verify the maintenance of curing temperature and techniques.
- H. Test Cylinders of Hardened Concrete:
 - 1. Six (6) 6 inch x 12 inch test cylinders of fresh concrete for each 50 cubic yards of concrete placed on any given day shall be molded for compressive tests in conformance with ASTM C31 and requirements on the Contract Drawings. Two (2) cylinders shall be tested at seven (7) days and two (2) cylinders shall be tested at twenty-eight (28) days for verification of concrete design strength in accordance with ASTM C39 with two (2) cylinders remaining as spares.
 - 2. Strength Test Conformance of Molded Specimens: The average strength of laboratory-cured specimens representing each class of concrete as well as the average of any five consecutive strength tests representing each class of concrete shall be equal to or greater than the specified strength, and not more than one strength test in ten shall have an average value less than 90% of the specified strength.
 - 3. Alternate Strength Tests: Where there is a question as to the quality of concrete in the structure because of strength-test failure, approval may be given by the Engineer to Contractor-sponsored alternate strength tests made on specimens secured from the structure in accordance with ASTM C42, or to actual load tests. Basis of acceptance (or rejection) of the quality of the concrete by these alternative tests shall be agreed upon by the Engineer and the Contractor at the time of the testing. Test shall be submitted in duplicate.
- I. Slump Tests on Fresh Concrete: Perform one slump test for each 50 cubic yards of each class of concrete (or major fraction thereof) placed in any one day and in any event, not less than one test for each class of concrete each day it is used. Slump shall be determined in accordance with ASTM C143 and shall be performed in the presence of the Inspector and/or Engineer.

- J. Air Content Test: Determine air content of normal-weight concrete for each strength test in accordance with ASTM C231 for normal weight concrete or ASTM C173 for lightweight concrete.
- K. Concrete Temperature Test: Determine concrete temperature for each strength test in accordance with ASTM C1064. When the air temperature is 40 degrees F and below and when 80 degrees and above, one temperature test shall be performed per hour.
- L. Unit Weight Test: Determine the fresh unit weight of structural lightweight concrete for each strength test in accordance with ASTM C567.
- M. At the end of each week, during concreting operations, inspection and testing agency shall submit to the Engineer a record showing the results of all slump and air tests made during the previous week. Record shall indicate the location in the project where each tested batch of concrete was placed.
- N. Testing agency shall continuously inspect the installation of all post-installed adhesive anchors for conformity with the manufacturers installation instructions.

3.10 FINISHING

A. Formed Surfaces:

- 1. Smooth Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Completely remove all projections.
 - a. Apply to concrete surfaces exposed to public view to be covered with a coating or covering material applied directly to concrete, such as water proofing, damp-proofing, veneer plaster, or painting.
 - b. Do not apply rubbed finish to smooth-formed finish. Apply a rubbed finish only to walls, as indicated.
- 2. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces.

B. Rough-Form Finish: Apply to concrete surfaces not exposed to public view.

- C. Concrete Surfaces Receiving Waterproofing: The surface shall be prepared per the requirements of the waterproofing manufacturer. This preparation shall include but not be limited to removing all burrs and sharp protrusions, filling all bugholes and unconsolidated areas of concrete larger than a dime and/or deeper than 1/4" to provide a float finish.

D. Unformed Surfaces:

- 1. Comply with ACI 302.1R for screeding, restraightening and finishing operations for concrete surfaces. Do not wet concrete surfaces.

2. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or derbies to form a uniform and open-textured surface plan before excess moisture or bleed water appears on the surface.
3. Scratch Finish: Apply scratch finish to surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, Portland cement terrazzo, and other bonded cementitious floor finish, unless otherwise indicated.
4. Trowel Finish: Apply a hard trowel finish to surfaces indicated and to typical commercial/industrial floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.
5. Nonslip Broom Finish: Apply a nonslip broom finish to surfaces indicated and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle perpendicular to main traffic route.
6. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surface indicated and to surface where ceramic or quarry tile is to be installed by either thickset or thin-set methods. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.

3.11 PROTECTION, CURING, SEALING AND HARDENING

- A. Cure all concrete in accordance with accepted ACI standards for worst case weather conditions anticipated during the curing period. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection, and follow recommendations in ACI 305R for hot-weather protection during curing.
- B. Curing of slabs shall begin as soon as finishing operations are completed.
- 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 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. Curing Methods: Cure formed and unformed concrete for at least seven days by moisture curing, moisture-retaining cover curing, curing compound, or a combination of these in accordance with Chapter 9 of ACI 302.1R.
 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surface and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining Cover: Cover concrete surfaces and edges with 12-inch lap over adjacent covers to inhibit moisture loss and to reduce temperature rise in concrete exposed to radiation from the sun.
 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
- E. Surface Hardener: Apply by broom or low pressure sprayer according to manufacturer's written instruction where indicated on Contract Drawings.
1. Floors to receive hardener shall be clean and dry and approved by the Engineer before application. Allow concrete to air dry a minimum of 24 hours prior to application. Coverage shall not be less than manufacturer's recommendations.
 2. The manufacturer of the hardener material used shall furnish a written bond guaranteeing performance of the material for a period of three years.

3.11 DEFECTIVE CONCRETE

- A. With prior approval of Engineer, as to method and procedures, all repair of defective areas shall conform to ACI 301, Chapter 9, except bond shall be achieved by use of one of the specified bonding materials.
- B. The specified patching mortar may be used in lieu of the above-mentioned method when color match of the adjacent concrete is not required. Prior approval by Engineer is required.
- C. All structural repairs shall be made only with prior approval of Engineer, as to method and procedures, shall be made by use of the specified epoxy adhesive and/or epoxy mortar.
- D. Leveling of floor for subsequent finishes shall be achieved by use of the specified underlayment materials.
- E. All exposed floors shall be leveled, where required, with the hereinbefore specified self-leveling repair topping.

3.13 CONCRETE BASES

- A. Install all concrete equipment foundations and housekeeping bases required for mechanical and electrical equipment furnished under other contracts in accordance with details shown on Contract Drawings.

END OF SECTION

SECTION 042200 - CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Decorative concrete masonry units.
3. Steel reinforcing bars.

1.2 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For reinforcing steel. Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315.
- C. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- D. Samples: For each type and color of the following:
1. Exposed Decorative CMUs.
 2. Pigmented mortar.

1.4 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type and size of product. For masonry units, include data on material properties, and material test reports substantiating compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Sample Panels: 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 in sizes approximately 48 inches long by 36 inches high.

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/ACI 530.1/ASCE 6.
- B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, 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.
- C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.
 - 1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

2.2 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
- B. Integral Water Repellent: Provide units made with liquid polymeric, integral water repellent admixture that does not reduce flexural bond strength for exposed units.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

- a. ACM Chemistries, Inc.; RainBloc.
- b. BASF Aktiengesellschaft; Rheopel Plus.
- c. Grace Construction Products, W. R. Grace & Co. - Conn.; Dry-Block.

C. CMUs: ASTM C 90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 3,050 psi, such that the compressive strength of masonry (f'm) is a minimum of 2,000 psi.
2. Density Classification: Normal weight.

D. Decorative CMUs: ASTM C 90.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Nitterhouse Masonry Products, LLC
 - 1) Ground Face - Polished Block
2. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi.
3. Density Classification: Normal weight.
4. Pattern and Texture, as indicated on drawings:
5. Sealer: All ground FACE CMU's are to be factory saeled with a VOC compliant water based acrylic resin sealer and conforms to ASTM C-744 standards. Second coat of sealer to be applied after finals wash down to seal the entire wall
6. Integral Water repallant: All Architectural CMU's are produced with integral water repallant.

2.3 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150/C 150M, 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.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C 91/C 91M.
- E. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979/C 979M. 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. Aggregate for Mortar: ASTM C 144.

1. White-Mortar Aggregates: Natural white sand or crushed white stone.
 2. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
- H. Aggregate for Grout: ASTM C 404.
- I. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
- J. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.
- K. Water: Potable.

2.4 REINFORCEMENT

- A. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M, Grade 60.
- B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
- C. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.
1. Interior Walls: Hot-dip galvanized, carbon steel.
 2. Exterior Walls: Hot-dip galvanized carbon steel.
 3. Wire Size for Side Rods: 0.148-inch diameter.
 4. Wire Size for Cross Rods: 0.148-inch diameter.
 5. Spacing of Cross Rods: Not more than 16 inches.
 6. Provide in lengths of not less than 10 feet with prefabricated corner and tee units.
- D. Masonry-Joint Reinforcement for Multiwythe Masonry:
1. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum horizontal play of 1/16 inch (1.5 mm) and maximum vertical adjustment of 1-1/4 inches (32 mm). Size ties to extend at least halfway through facing wythe but with at least 5/8-inch (16-mm) cover on outside face.

2.5 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 153/A 153M, Class B-2 coating.
 2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.
 3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

- B. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
 - 1. Connector Section: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from 0.060-inch-thick steel sheet, galvanized after fabrication.
 - 2. Tie Section: Triangular-shaped wire tie made from 0.187-inch-diameter, hot-dip galvanized-steel wire.
- C. Adjustable Masonry-Veneer Anchors:
 - 1. General: Provide anchors that allow vertical adjustment but resist a 100-lbf (445-N) load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of 1/16 inch (1.5 mm).
 - 2. Fabricate wire ties from minimum 0.114-inch- (9 gage-) diameter, hot-dip galvanized-steel wire unless otherwise indicated.

2.6 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing complying with Section 076200 "Sheet Metal Flashing and Trim"
- B. Single-Wythe CMU Flashing System: System of CMU cell flashing pans and interlocking CMU web covers made from UV-resistant, high-density polyethylene. Cell flashing pans have integral weep spouts designed to be built into mortar bed joints and that extend into the cell to prevent clogging with mortar.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Sandell Manufacturing Co., Inc.; Blok-Flash.
- C. Flexible Flashing for Multi-Wythe Walls: Use the following unless otherwise indicated:
 - 1. Copper-Laminated Flashing: 7-oz./sq. ft. (2-kg/sq. m) copper sheet bonded between two layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.
- D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.7 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D 226/D 226M, Type I (No. 15 asphalt felt).

- D. Weep/Cavity Vent Products: Use one of the following unless otherwise indicated:
 - 1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch (3 mm) less than depth of outer wythe, in color selected from manufacturer's standard.
 - 2. Mesh Weep/Vent: Free-draining mesh; made from polyethylene strands, full height and width of head joint and depth 1/8 inch (3 mm) less than depth of outer wythe; in color selected from manufacturer's standard.
- E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
 - 1. Configuration: Provide one of the following:
 - a. Strips, full depth of cavity and 10 inches (250 mm) high, with dovetail shaped notches 7 inches (175 mm) deep that prevent clogging with mortar droppings.

2.8 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. Use portland cement-lime or masonry cement mortar unless otherwise indicated.
 - 3. For exterior masonry, use portland cement-lime or masonry cement mortar.
 - 4. For reinforced masonry, use portland cement-lime or masonry cement mortar.
 - 5. 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 C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
 - 1. For masonry below grade or in contact with earth, use Type M or Type S.
 - 2. For reinforced masonry, use Type S.
 - 3. For mortar parge coats, use Type S or Type N.
 - 4. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type N.
- D. Pigmented Mortar: Use colored cement product
 - 1. Pigments shall not exceed 10 percent of portland cement by weight.
 - 2. Pigments shall not exceed 5 percent of masonry cement by weight.
 - 3. Application: Use pigmented mortar for exposed mortar joints with the following units:

- a. Decorative CMUs.
- E. Colored-Aggregate Mortar: Produce required mortar color by using colored aggregates and natural color or white cement as necessary to produce required mortar color.
 - 1. Application: Use colored-aggregate mortar for exposed mortar joints with the following units:
 - a. Decorative CMUs.
- F. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
 - 2. Proportion grout in accordance with ASTM C 476, Table 1.
 - 3. Provide grout with a slump of 8 to 11 inches, provided by water content (do not use water-reducing admixtures) as measured according to ASTM C 143/C 143M.

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.

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 (12 mm) or minus 1/4 inch (6 mm).
 - 2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
 - 3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 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 feet (6 mm in 3 m), or 1/2-inch (12-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 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
 - 3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-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 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 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: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch (100-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.
- D. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- E. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.
- F. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.4 MORTAR BEDDING AND JOINTING

- A. Lay hollow CMUs as follows:
 1. Bed face shells in mortar and make head joints of depth equal to bed joints.
 2. Bed webs in mortar in all courses of piers, columns, and pilasters.
 3. Bed webs in mortar in grouted masonry, including starting course on footings.
 4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
- B. Lay solid CMUs 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.

- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.5 MASONRY-JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
 - 1. Space reinforcement not more than 16 inches o.c.
 - 2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
 - 3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.

3.6 ANCHORING MASONRY TO CONCRETE

- A. Anchor masonry to concrete, where masonry abuts or faces concrete, to comply with the following:
 - 1. Provide an open space not less than 1/2 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
 - 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
 - 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 16 inches o.c. horizontally.

3.7 FLASHING

- A. General: Install embedded flashing at ledges and other obstructions to downward flow of water in wall 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 as recommended by flashing manufacturer.
 - 2. 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.

3. 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 single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer's written instructions. Install CMU cell pans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.

3.8 REINFORCED UNIT MASONRY INSTALLATION

- A. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.
- B. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
 2. Limit height of vertical grout pours to not more than 60 inches.

3.9 CAVITY WALLS

- A. Bond wythes of cavity walls together as follows:
 1. Individual Metal Ties: Provide ties as shown installed in horizontal joints, but not less than one metal tie for 24 inches (610 mm) o.c. horizontally and 16 inches (406 mm) o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches (305 mm) of openings and space not more than 24 inches (610 mm) apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24 inches (610 mm) o.c. vertically.
 2. Masonry-Joint Reinforcement: Installed in horizontal mortar joints.
 - a. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable-type (two-piece-type) reinforcement to allow for differential movement regardless of whether bed joints align.
- B. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.
- C. Installing Cavity Wall Insulation: Place small dabs of adhesive, spaced approximately 12 inches (300 mm) o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.

3.10 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. Install cavity vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, 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 as recommended by flashing manufacturer.
 - 2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches (200 mm), and through inner wythe to within 1/2 inch (13 mm) of the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches (50 mm) on interior face.
 - 3. At lintels and shelf angles, extend flashing a minimum of 6 inches (150 mm) into masonry at each end. At heads and sills, extend flashing 6 inches (150 mm) at ends and turn up not less than 2 inches (50 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 specified weep/cavity vent products to form weep holes.
 - 2. Space weep holes 24 inches (600 mm) o.c. unless otherwise indicated.
 - 3. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.
- D. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.
- E. Install cavity vents in head joints in exterior wythes at spacing indicated. Use specified weep/cavity vent products to form cavity vents.
 - 1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

3.11 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform

tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

- B. Inspections: Special inspections according to Level 1 in TMS 402/ACI 530/ASCE 5.
 - 1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
 - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
 - 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One set of tests.
- D. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.
- F. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.
- G. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.
- H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

3.12 PARGING

- A. Parge exterior faces of below-grade masonry walls, where indicated, in two uniform coats to a total thickness of 3/4 inch (19 mm). Dampen wall before applying first coat, and scarify first coat to ensure full bond to subsequent coat.
- B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot (3 mm per 300 mm). Form a wash at top of parging and a cove at bottom.
- C. Damp-cure parging for at least 24 hours and protect parging until cured.

3.13 REPAIRING, POINTING, AND 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. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
 - 2. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

3.14 MASONRY WASTE DISPOSAL

- A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
 - 1. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- B. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.
- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042200

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Wood blocking.
 - 2. Wood nailers.
 - 3. Plywood backing panels.
 - 4. Rooftop equipment and support curbs.

1.3 SUBMITTALS

- A. Product Data for engineered wood products, underlayment, insulating sheathing, air-infiltration barriers, metal framing anchors, and construction adhesives.
- B. Material certificates for dimension lumber specified to comply with minimum allowable unit stresses.
- C. Wood treatment data, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood framing members that are less than 18 inches (460 mm) above the ground.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Wood-Preservative-Treated Materials: Comply with applicable requirements of AWPAC2 (lumber) and AWPAC9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.
 - 1. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft.. After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items and the following:
 - a. Wood sills, blocking, and similar concealed members in contact with masonry or concrete, or wood framing members less than 18 inches above grade.
 - 2. Pressure treat wood members in contact with ground or freshwater with waterborne preservatives to a minimum retention of 0.40 lb/cu. ft..
 - 3. Complete fabrication of treated items before treatment, where possible. If cut after treatment, apply field treatment complying with AWPAC4 to cut surfaces. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

2.3 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Power-Driven Fasteners: NES NER-272.
- C. Screws for Fastening to Metal Framing: length as recommended by screw manufacturer for material being fastened.
 - 1. .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

- B. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- C. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. CABO NER-272 for power-driven staples, P-nails, and allied fasteners.
 - 2. Published requirements of metal framing anchor manufacturer.
 - 3. "Recommended Nailing Schedule" of referenced framing standard and with AFPA's "National Design Specifications for Wood Construction."
 - 4. "Table 2305.2--Fastening Schedule" of the BOCA National Building Code.
 - 5. Table 2304.9.3.2 and 2304.10.7 of IBC
- D. Use finishing nails for exposed work, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
- E. Use hot-dip galvanized or stainless-steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.
- F. Framing Standard: Comply with AFPA's "Manual for Wood Frame Construction," unless otherwise indicated.
- G. Apply sheathing tape to joints between sheathing panels and at items penetrating sheathing. Apply at upstanding flashing to overlap both flashing and sheathing.

END OF SECTION 061000

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes sealants for the following:
 - 1. Exterior joints in vertical surfaces and nontraffic horizontal surfaces.
 - 2. Exterior joints in horizontal traffic surfaces.
 - 3. Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1.3 SUBMITTALS

- A. Product Data: For each joint sealant product indicated.
- B. Samples: Cured Samples For each joint sealant product indicated including color selection charts.
- C. Sealant compatibility and adhesion test reports.
- D. Preconstruction field-adhesion test reports.
- E. Product certificates.

1.4 QUALITY ASSURANCE

- A. Sealant Compatibility and Adhesion Testing: Use sealant manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- B. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to joint substrates. Coordinate with mockups where required that include sealant joints.
- C. Mockups: Before installing joint sealants, apply elastomeric sealants to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.
 - 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 WARRANTY

- A. Special Installer's Warranty: Written warranty in which Installer agrees to repair or replace elastomeric joint sealants that do not meet requirements specified in this Section or fail in adhesion within specified warranty period two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.

2.2 MATERIALS, 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 sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by architect from manufacturer's standard selection of a minimum of thirty different colors.

2.3 ELASTOMERIC JOINT SEALANTS

- A. Low-Modulus Nonacid-Curing Silicone Sealant (ES-1):
 - 1. Products:
 - a. Dow Corning; 790.
 - b. GE Silicones; UltraPruf SCS2300.
 - c. NUCO Industries, Inc.; NuFlex 309
 - d. Ohio Sealants, Inc.; VP 275.
 - e. Pecora Corporation; 890.
 - f. Polymeric Systems, Inc.; PSI-641.
 - g. Sonneborn Building Products Div., ChemRex Inc.; Omniseal.
 - h. Tremco; Spectrem 1.
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Class: 25.
 - 4. Additional Movement Capability: Capable of 50 percent movement in extension and 50 percent movement in compression when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719.
 - 5. Exposure: Use NT (nontraffic).
 - 6. Substrates: Uses M, G, A, and, as applicable to joint substrates indicated, O.
 - 7. Nonstaining to porous substrates when testing per ASTM C 1248 for substrates indicated.

B. Multicomponent Pourable Urethane Sealant (ES-2):

1. Products:

- a. Bostik Inc.; Chem-Calk 550.
- b. Mameco International; Vulkem 255.
- c. Meadows, W. R., Inc.; Pourthane.
- d. Pacific Polymers, Inc.; Elasto-Thane 920 Pourable.
- e. Pecora Corporation; NR-300 Urexpan, Type M.
- f. Polymeric Systems, Inc.; PSI-551/RC-2
- g. Sika Corporation; Sikaflex - 2c SL.
- h. Sonneborn Building Products Div., ChemRex Inc.; SL 2.
- i. Tremco; THC-900.

2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 25.
4. Exposure: Use T (traffic) and NT (nontraffic).
5. Substrates: Uses M,G, A, and, as applicable to joint substrates indicated, O.

2.4 ACRYLIC EMULSION JOINT SEALANTS: (LS)

- a. Painter's caulk: INTERIOR JOINTS IN FIELD-PAINTED VERTICAL AND OVERHEAD SURFACES AT PERIMETER OF HOLLOW METAL DOOR FRAMES; IN GYPSUM DRYWALL, PLASTER AND CONCRETE OR CONCRETE MASONRY; AND ALL OTHER INTERIOR JOINTS NOT INDICATED OTHERWISE.

2.5 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 1. Type: C, (closed-cell material with a surface skin) O, (open-cell material) B, (bicellular material with a surface skin). Use C, O, or B in accordance with sealant manufacturer's written recommendations.
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
- D. 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 where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

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

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.
 - 1. Remove foreign material from joint substrates that could interfere with adhesion of joint sealant.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, 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 from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues could interfere with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. 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 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.
- D. Sealant Installation: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

- E. Install sealant backings to support sealants during application and at position required to produce 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.
- F. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- G. Place sealants so they directly contact and fully wet joint substrates.
 - 1. Completely fill recesses provided for each joint configuration.
 - 2. Produce uniform, cross-sectional shapes and depths that allow optimum sealant movement capability.
- H. Clean excess sealants or sealant smears adjacent to joints as installation progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.2 JOINT SEALANT SCHEDULE

- A. See CS1.1 for sealant schedule and recommended uses. INSTALL JOINT SEALANTS IN ACCORDANCE WITH DESCRIPTIONS AND LOCATIONS LISTED, AND IN LOCATIONS IDENTIFIED ON DRAWINGS BY DRAWING DESIGNATIONS LISTED ABOVE.

END OF SECTION 079200

SECTION 08 71 00 – DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components
3. Field verification, preparation and modification of existing doors and frames to receive new door hardware.

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 Section "Alternates" for alternates affecting this section.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
 - a. "Metal Doors and Frames"
 - b. "Flush Wood Doors"
 - c. "Stile and Rail Wood Doors"
 - d. "Interior Aluminum Doors and Frames"
 - e. "Aluminum-Framed Entrances and Storefronts"
 - f. "Stainless Steel Doors and Frames"
 - g. "Special Function Doors"
 - h. "Entrances"
6. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
7. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
8. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL, LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies

4. UL 305 - Panic Hardware
- B. DHI - Door and Hardware Institute
 1. Sequence and Format for the Hardware Schedule
 2. Recommended Locations for Builders Hardware
 3. Keying Systems and Nomenclature
 4. Installation Guide for Doors and Hardware
- C. NFPA – National Fire Protection Association
 1. NFPA 70 – National Electric Code
 2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
 3. NFPA 101 – Life Safety Code
 4. NFPA 105 – Smoke and Draft Control Door Assemblies
 5. NFPA 252 – Fire Tests of Door Assemblies
- D. ANSI - American National Standards Institute
 1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
 2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
 3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
 4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
 5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
 - a. Comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.
 - b. Review drawings and Sections from related trades to verify compatibility with specified hardware.
 - c. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Door Hardware Schedule:
 - a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
 - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with

hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.

- c. Indicate complete designations of each item required for each opening, include:
 - 1) Door Index: door number, heading number, and Architect's hardware set number.
 - 2) Quantity, type, style, function, size, and finish of each hardware item.
 - 3) Name and manufacturer of each item.
 - 4) Fastenings and other pertinent information.
 - 5) Location of each hardware set cross-referenced to indications on Drawings.
 - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for hardware.
 - 8) Door and frame sizes and materials.
 - 9) Degree of door swing and handing.
 - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

3. Key Schedule:

- a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
- b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
- c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
- d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
- e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
- f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Final approved hardware schedule edited to reflect conditions as installed.
 - d. Final keying schedule
 - e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
 - f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
 - a. fire door assemblies, in compliance with NFPA 80.
 - b. required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:
 - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
 - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
2. Smoke and Draft Control Door Assemblies:
 - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
 - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

3. Electrified Door Hardware
 - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
 4. Accessibility Requirements:
 - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.
- C. Pre-Installation Meetings
1. Keying Conference
 - a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.
 - 4) Requirements for access control.
 - 5) Address for delivery of keys.
 2. Pre-installation Conference
 - a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Inspect and discuss preparatory work performed by other trades.
 - c. Inspect and discuss electrical roughing-in for electrified door hardware.
 - d. Review sequence of operation for each type of electrified door hardware.
 - e. Review required testing, inspecting, and certifying procedures.
 - f. Review questions or concerns related to proper installation and adjustment of door hardware.
 3. Electrified Hardware Coordination Conference:
 - a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping.
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.

- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

1.07 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
 - 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
 - 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
 - a. Mechanical Warranty
 - 1) Locks
 - a) Schlage L Series: 3 years
 - b) Schlage ND Series: 10 years
 - 2) Exit Devices
 - a) Von Duprin: 3 years
 - 3) Closers
 - a) LCN 4000 Series: 30 years
 - 4) Automatic Operators
 - a) LCN: 2 years
 - b. Electrical Warranty
 - 1) Locks
 - a) Schlage: 1 year
 - 2) Exit Devices

a) Von Duprin: 1 year

1.08 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance in section 01 25 00.
- B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

- A. Fabrication
 - 1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.
 - 2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
 - 3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.
- B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.
 - 1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
 - 2. Use materials which match materials of adjacent modified areas.
 - 3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.

- C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
 - 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.
- D. Cable and Connectors:
 - 1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
 - 2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
 - 3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
- 2. Acceptable Manufacturers and Products:

- a. ~~Hager BB1101/1270 series~~
- b. ~~PBB BB series~~
- c. ~~Ives 5BB series~~
- d. **McKINNEY**

B. Requirements:

- 1. Provide hinges conforming to ANSI/BHMA A156.1.
- 2. Provide five knuckle, ball bearing hinges.
- 3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
- 4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
- 5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
- 6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
- 7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
- 8. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
- 9. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins

- c. Out-Swinging Exterior Doors: Non-removable pins
- d. Out-Swinging Interior Lockable Doors: Non-removable pins
- e. Interior Non-lockable Doors: Non-rising pins

10. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.04 MORTISE LOCKS

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
- 2. Acceptable Manufacturers and Products:

- a. ~~Accurate 9000/9100 series~~
- b. ~~Sargent 8200 series~~
- c. **Schlage L9000 series**

B. Requirements:

- 1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
- 2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
- 3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
- 4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
- 5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
- 6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
- 7. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches. Provide motor based electrified locksets that comply with the following requirements:
 - a. Universal input voltage – single chassis accepts 12 or 24VDC to allow for changes in the field without changing lock chassis.
 - b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
 - c. Low maximum current draw – maximum 0.4 amps to allow for multiple locks on a single power supply.
 - d. Low holding current – maximum 0.01 amps to produce minimal heat, eliminate "hot levers" in electrically locked applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
 - e. Connections – provide quick-connect Molex system standard.
- 8. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
 - a. Lever Design: 07A

2.05 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:

- a. Schlage ND series

~~2. Acceptable Manufacturers and Products:~~

- ~~a. Sargent 11 Line~~
- ~~b. Corbin Russwin CL3100 series~~

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets.
8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.

- a. Lever Design: ATHENS

2.06 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer and Product:

- a. **Schlage Everest 29T or match existing**

2. Acceptable Manufacturers and Products:

- a. No Substitute

B. Requirements:

1. Provide interchangeable cylinders/cores to match Owner's existing key system, compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.

2.07 KEYING

A. Scheduled System:

1. Existing factory registered system:

- a. Provide cylinders/cores keyed into Owner's existing factory registered keying system. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Construction Keying:

- a. Replaceable Construction Cores.
 - 1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - a) 3 construction control keys
 - b) 12 construction change (day) keys.
 - 2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2. Permanent Keying:

- a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - 1) Master Keying system as directed by the Owner.
- b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
- c. Provide keys with the following features:
 - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
- d. Identification:
 - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - 2) Identification stamping provisions must be approved by the Architect and Owner.
 - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
- e. Quantity: Furnish in the following quantities.
 - 1) Change (Day) Keys: 3 per cylinder/core.
 - 2) Permanent Control Keys: 3.
 - 3) Master Keys: 6.

2.08 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
2. Acceptable Manufacturers and Products:

- ~~a. Corbin Russwin DC8000 series~~
- ~~b. LCN 4040XP series~~

c. **Sargent 281 series**

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards. Provide snap-on cover clip, with plastic covers, that secures cover to spring tube.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck. Provide graphically labelled instructions on the closer body adjacent to each adjustment valve. Provide positive stop on reg valve that prevents reg screw from being backed out.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.09 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
2. Acceptable Manufacturers:
 - a. ~~Elmes~~
 - b. ~~Trimco~~
 - c. ~~Burns~~
 - d. ~~Ives~~
 - e. **Rockwood / Assa Abloy**

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.10 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
2. Acceptable Manufacturers:
 - a. ~~Burns~~
 - b. ~~Trimco~~
 - c. ~~Ives~~
 - d. **Rockwood / Assa Abloy**
 - e.

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Size plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.11 EDGE GUARDS

A. Manufacturers:

1. Scheduled Manufacturer:
2. Acceptable Manufacturers:
 - a. ~~Trimco~~
 - b. ~~Don Jo~~
 - c. ~~Ives~~
 - d. **Rockwood / Assa Abloy**
 - e.

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick.
2. Furnish with sheet metal or wood screws, finished to match plates.
3. At fire rated doors, edge guards with UL label.
4. Provide edge guards sized for the full height of the door and to suit door edge conditions.
5. Provide edge guards mortised for the edge mounted hardware specified in the associated hardware group.

2.12 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
2. Acceptable Manufacturers:
 - a. ~~Rixson~~
 - b. ~~ABH~~
 - c. ~~Glynn Johnson~~
 - d. **Rockwood / Assa Abloy**

e.

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.
2. Provide friction type at doors without closer and positive type at doors with closer.

2.13 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
2. Acceptable Manufacturers:
 - a. ~~Trimec~~
 - b. ~~Burns~~
 - c. ~~Ives~~
 - d. **Rockwood / Assa Abloy**

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.14 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Zero International
2. Acceptable Manufacturers:
 - a. National Guard
 - b. Reese
 - c. DHSI
 - d. Legacy

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.15 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
2. Acceptable Manufacturers:
 - a. ~~Burns~~
 - b. ~~Trimco~~
 - c. ~~Ives~~
 - d. **Rockwood / Assa Abloy**
 - e.

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.16 FINISHES

A. Finish: BHMA 643e/716 (US11); except:

1. Door Closers: Powder Coat to Match.
2. Weatherstripping: Dark Bronze Anodized Aluminum.
3. Thresholds: Mill Aluminum

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Where on-site modification of doors and frames is required:
 - 1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
 - 2. Field modify and prepare existing doors and frames for new hardware being installed.
 - 3. When modifications are exposed to view, use concealed fasteners, when possible.
 - 4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
 - a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
 - b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
 - c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.03 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
 - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- I. Lock Cylinders:
 - 1. Install construction cores to secure building and areas during construction period.
 - 2. Replace construction cores with permanent cores as indicated in keying section.
 - 3. Furnish permanent cores to Owner for installation.

- J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Connections to panel interface modules, controllers, and gateways.
 - 6. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- M. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- N. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- O. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- P. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- Q. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- R. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- S. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.04 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
 - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.05 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.06 DOOR HARDWARE SCHEDULE

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

END OF SECTION

SCHEMATIC HARDWARE SETS

ALL HARDWARE BY MCCKINNEY, PEMKO, SECURITON, ROCKWOOD, SARGENT, HES, NORTON
ALL CYLINDERS SCHLAGE PRIMUS

SET 1

EXTERIOR STORAGE: (NON-FERROUS)

- 3 HEAVY DUTY HINGES
- 1 STORAGE LOCKSET WITH LEVER HANDLES
- 1 SURFACE MOUNTED OVERHEAD STOP
- 2 KICK PLATE (1 EACH SIDE)
- 1 GASKET
- 1 DOOR SWEEP
- 1 CLOSER
- 1 DRIP CAP
- 1 ADA THRESHOLD

SET 2

EXTERIOR RESTROOM: (NON-FERROUS)

- 1 SET STAINLESS CONTINUOUS HINGES
- 1 MORTISE LOCK W/ OCCUPANCY INDICATOR & DEADBOLT & EMERGENCY RELEASE
- 1 MORTISE CYLINDER + CORE
- 1 BATHROOM LOCKSET WITH LEVER HANDLES
- 1 SURFACE MOUNTED OVERHEAD STOP
- 2 KICK PLATE (1 EACH SIDE)
- 1 GASKET
- 1 DOOR SWEEP
- 1 CLOSER
- 1 DRIP CAP
- 1 ADA THRESHOLD

All tamper-resistant fasteners

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard and custom hollow metal doors and frames.
2. Steel sidelight, borrowed lite and transom frames.
3. Louvers installed in hollow metal doors.
4. Light frames and glazing installed in hollow metal doors.

B. Related Sections:

1. Division 04 Section "Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
2. Division 08 Section "Flush Wood Doors".
3. Division 08 Section "Glazing" for glass view panels in hollow metal doors.
4. Division 08 Section "Door Hardware".
5. Division 09 Sections "Exterior Painting" and "Interior Painting" for field painting hollow metal doors and frames.
6. Division 26 "Electrical" Sections for electrical connections including conduit and wiring for door controls and operators installed on frames with factory installed electrical knock out boxes.
7. Division 28 Section "Access Control" for access control devices installed at door openings and provided as part of a security access control system.

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
3. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
4. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
5. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
6. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
7. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
8. ANSI/BHMA A156.115 - Hardware Preparation in Steel Doors and Frames.
9. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
10. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.

11. ANSI/NFPA 105: Standard for the Installation of Smoke Door Assemblies.
12. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
13. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
14. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.
- B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.
- C. Shop Drawings: Include the following:
 1. Elevations of each door design.
 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.
 4. Locations of reinforcement and preparations for hardware.
 5. Details of anchorages, joints, field splices, and connections.
 6. Details of accessories.
 7. Details of moldings, removable stops, and glazing.
 8. Details of conduit and preparations for power, signal, and control systems.
- D. Samples for Verification:
 1. Samples are only required by request of the architect and for manufacturers that are not current members of the Steel Door Institute.

1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.
- B. Quality Standard: In addition to requirements specified, comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".
- C. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 (neutral pressure at 40" above sill) or UL 10C.
 1. Oversize Fire-Rated Door Assemblies Construction: For units exceeding sizes of tested assemblies, attach construction label certifying doors are built to standard construction requirements for tested and labeled fire rated door assemblies except for size.
 2. Temperature-Rise Limit: Where indicated and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted

temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

3. Smoke Control Door Assemblies: Comply with NFPA 105.

- a. Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.

D. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257. Provide labeled glazing material.

E. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing hollow metal doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.

- 1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.6 COORDINATION

A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

- B. Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. CECO Door Products.
 - 2. Curries Company.
 - 3. Steelcraft.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.
- C. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

2.3 HOLLOW METAL DOORS

- A. General: Provide 1-3/4 inch thick doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.
- B. Exterior Doors: Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
 - 1. Design: Flush panel.
 - 2. Core Construction: Manufacturer's standard vertical steel-stiffener core. Minimum 22 gauge steel-stiffeners at 6 inches on-center construction attached by spot welds spaced not more than 5" on centers. Spaces between stiffeners filled with fiberglass insulation (minimum density 0.8#/cubic ft.).
 - 3. Level/Model: Level 2 and Physical Performance Level B (Heavy Duty), Minimum 18 gauge (0.042-inch - 1.0-mm) thick steel, Model 2.
 - 4. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.

5. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
 6. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- C. Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
1. Design: Flush panel.
 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, or one-piece polystyrene core, securely bonded to both faces.
 - a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
 3. Level/Model: Level 2 and Physical Performance Level B (Heavy Duty), Minimum 18 gauge (0.042-inch - 1.0-mm) thick steel, Model 2.
 4. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet.
 5. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
 6. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- D. Basis of Design:
1. Curries Company Polystyrene Core: 707 Series.
 2. Curries Company Steel-Stiffened: 747 Series.

2.4 HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
- B. Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.
1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
 2. Frames: Minimum 16 gauge (0.053-inch -1.3-mm) thick steel sheet.
 3. Basis of Design:
 - a. Curries Company – M CM Series.
- C. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.
1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
 2. Frames: Minimum 16 gauge (0.053-inch -1.3-mm) thick steel sheet.

3. Manufacturers Basis of Design:

- a. Curries Company CM Series.
- b. Curries Company M Series.

- D. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.
- E. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

A. Jamb Anchors:

- 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from A60 metallic coated material, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
- 2. Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick.

- B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.

- C. Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.6 LIGHT OPENINGS AND GLAZING

- A. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator's shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.

- B. Moldings for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.

- C. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure side of interior doors and frames.

- D. Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

2.7 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

- B. Grout Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.8 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.
- C. Hollow Metal Doors:
 - 1. Exterior Doors: Provide optional weep-hole openings in bottom of exterior doors to permit moisture to escape where specified.
 - 2. Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.
 - 3. Astragals: Provide overlapping astragals as noted in door hardware sets in Division 08 Section "Door Hardware" on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.
 - 4. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge strap for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".
- D. Hollow Metal Frames:
 - 1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 2. High Frequency Hinge Reinforcement: Provide high frequency hinge reinforcements at door openings 48-inches and wider with mortise butt type hinges at top hinge locations.
 - 3. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge straps for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".
 - 4. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
 - 5. Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.
 - 6. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 - 7. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb from 60 to 90 inches high.
 - 2) Four anchors per jamb from 90 to 120 inches high.
 - b. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Four anchors per jamb from 60 to 90 inches high.

- 2) Five anchors per jamb from 90 to 96 inches high.
 - 3) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - 4) Two anchors per head for frames above 42 inches wide and mounted in metal stud partitions.
8. Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".
- E. Hardware Preparation: Factory prepare hollow metal work to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
 1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
 2. Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.
 3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
 4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

2.9 STEEL FINISHES

- A. Prime Finishes: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.
 1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 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.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.
- C. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."
- D. Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire rated openings.
 - 1. Set frames accurately in position, plumbed, leveled, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
 - 3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.
 - 4. Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
 - 1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
 - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.
 - 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
- D. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow metal work immediately after installation.
- C. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

END OF SECTION 081113

SECTION 092200 - METAL FRAMING FOR PARTITIONS AND CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Steel framing systems for interior partitions.
 - 2. Steel framing systems for interior ceilings and soffits.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
 - 2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.
 - 3. Provide shop drawings and calculations signed and sealed by a structural engineer registered in Pennsylvania.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Allied American Studco, Inc.
 - 2. Clark Steel Framing Industries.
 - 3. Consolidated Systems, Inc.
 - 4. Dale Industries, Inc.
 - 5. Knorr Steel Framing Systems.
 - 6. Scaeco Corp.
 - 7. Steel Constructions Systems.
 - 8. United Metal Products.

2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated. Provide 33 ksi steel for 20 gauge studs.
 - 2. Protective Coating: ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized.
- B. Studs, Joists and Runners: ASTM C 645.
 - 1. Steel Studs, Ceiling Joists and Runners:
 - a. Minimum Base-Metal Thickness: As indicated on Drawings and as required by performance requirements for horizontal deflection. Provide minimum 20 gauge steel for all 6" interior stud walls and all stud walls supporting a ceramic tile finish on either side.
 - b. Depth: As indicated on Drawings.
- C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 - 1. Minimum Base-Metal Thickness: As indicated on Drawings.
- D. Cold-Rolled Channel Bridging: Steel, 0.0538-inch (1.367-mm) minimum base-metal thickness, with minimum 1/2-inch- (13-mm-) wide flanges.
 - 1. Depth: As indicated on Drawings.
 - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38 by 38 mm), 0.068-inch- (1.72-mm-) thick, galvanized steel.
- E. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 - 1. Minimum Base-Metal Thickness: As indicated on Drawings.
 - 2. Depth: 7/8 inch (22.2 mm).
- F. Resilient Furring Channels: 2 1/2-inch-deep, steel sheet members designed to reduce sound transmission.
 - 1. Configuration: hat shaped.

2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 - 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
 - 1. Gypsum Board Assemblies: Comply with requirements in ASTM C 840 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 FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- B. Install studs so flanges within framing system point in same direction.
- C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
 - 1. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (13-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 - 2. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 - 3. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- D. Direct Furring:
 - 1. Attach to masonry with screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.

E. GWB Ceilings:

1. Install framing to comply with drawing notes and as required to support ceiling construction. Space framing members 16" o.c. maximum.
2. Show perimeter supports on shop drawings.

END OF SECTION 092200

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.
2. Exterior gypsum board.

B. Related Requirements:

1. Section 054000 "Cold Formed Metal Framing" for metal stud framing requirements.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INTERIOR GYPSUM BOARD

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. American Gypsum.
2. Georgia-Pacific Gypsum LLC.
3. USG Corporation.

B. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch (15.9 mm).
2. Long Edges: Tapered.

C. Gypsum Ceiling Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch (15.9 mm)
2. Long Edges: Tapered.

1.4 EXTERIOR GYPSUM BOARD

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. American Gypsum.
2. Georgia-Pacific Gypsum LLC.
3. USG Corporation.

- B. Glass-Mat Gypsum Sheathing Board: ASTM C 1177/C 1177M, with fiberglass mat laminated to both sides and with manufacturer's standard edges.
 - 1. Core: 5/8 inch (15.9 mm), Type X.

1.5 TRIM ACCESSORIES

- A. *Interior Trim: ASTM C 1047.*
 - 1. *Material: Plastic.*
 - 2. *Shapes:*
 - a. *Cornerbead.*
 - b. *LC-Bead: J-shaped; exposed long flange receives joint compound.*
 - c. *L-Bead: L-shaped; exposed long flange receives joint compound.*
 - d. *U-Bead: J-shaped; exposed short flange does not receive joint compound.*
 - e. *Expansion (control) joint.*
 - f. *Curved-Edge Cornerbead: With notched or flexible flanges.*

1.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 - 1. Interior Gypsum Board: Paper.
- 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.

1.7 AUXILIARY MATERIALS

- A. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
- B. Sound-Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- C. Acoustical Joint Sealant: ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings as demonstrated by testing according to ASTM E 90.
 - 1. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."

PART 2 - EXECUTION

2.1 APPLYING AND FINISHING PANELS

- A. Comply with ASTM C 840.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. 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. Install 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.
- E. Prefill open joints and damaged surface areas.
- F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - 2. Level 2: Panels that are substrate for tile.
 - 3. Level 3: At panel surfaces above the ceiling plane or unoccupied spaces.
 - 4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
- H. Protect adjacent surfaces from drywall compound and texture finishes and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- I. Remove and replace panels that are wet, moisture damaged, and mold damaged.
- J. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.

2.2 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners.
 - 2. LC-Bead: Use at exposed panel edges.

3. L-Bead: Use where indicated.
4. U-Bead: Use at exposed panel edges.

END OF SECTION 092900

SECTION 09 67 23-RESINOUS FLOORING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Resinous flooring system as shown on the drawings and in schedules.
- B. Related sections include the following:
 - 1. Cast-in-Place Concrete, section 03 30 00
 - 2. Concrete Curing, section 03 39 00

1.3 SYSTEM DESCRIPTION

- A. System Description: Fluid-applied, seamless epoxy flake flooring system consisting of:
 - 1. Primer (optional, as needed, or integrated into the system).
 - 2. 100% solids epoxy resin binder.
 - 3. Decorative polymer flakes.
 - 4. Clear epoxy or polyurethane sealer/topcoat.

1.4 SUBMITTALS

- A. Product Data: Latest edition of Manufacturer's literature including performance data and installation procedures.
- B. Manufacturer's Safety Data Sheet (SDS) for each product being used.
- C. Samples: A 3 x 3 inch square sample of the proposed system. Color, texture, and thickness shall be representative of overall appearance of finished system subject to normal tolerances.

1.5 QUALITY ASSURANCE

- A. The Manufacturer shall have a minimum of 10 years experience in the production, sales, and technical support of epoxy and urethane industrial flooring and related materials.
- B. The Applicator shall have experience in installation of the flooring system as confirmed by the manufacturer in all phases of surface preparation and application of the product specified.
- C. No requests for substitutions shall be considered that would change the generic type of the specified System.
- D. System shall be in compliance with requirements of United States Department of Agriculture (USDA), Food, Drug Administration (FDA), and local Health Department.
- E. System shall be in compliance with the Indoor Air Quality requirements of California section 01350 as verified by a qualified independent testing laboratory.
- F. A pre-installation conference shall be held between Applicator, General Contractor and the Owner for review and clarification of this specification, application procedure, quality control, inspection and acceptance criteria and production schedule.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping

1. All components of the system shall be delivered to the site in the Manufacturer's packaging, clearly identified with the product type and batch number.

B. Storage and Protection

1. The Applicator shall be provided with a dry storage area for all components. The area shall be between 60 F and 85 F, dry, out of direct sunlight and in accordance with the Manufacturer's recommendations and relevant health and safety regulations.
2. Copies of Safety Data Sheets (SDS) for all components shall be kept on site for review by the Engineer or other personnel.

C. Waste Disposal

1. The Applicator shall be provided with adequate disposal facilities for non-hazardous waste generated during installation of the system.

1.7 PROJECT CONDITIONS

A. Site Requirements

1. Application may proceed while air, material and substrate temperatures are between 60 F and 85 F providing the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted.
2. The relative humidity in the specific location of the application shall be less than 85 % and the surface temperature shall be at least 5 F above the dew point.
3. The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.

B. Conditions of new concrete to be coated with cementitious urethane material.

1. Concrete shall be moisture cured for a minimum of 7 days and have fully cured for 14 days in accordance with ACI-308 prior to the application of the coating system pending moisture tests. Outside of these parameters manufacturer shall be consulted.
2. Concrete shall have a flat rubbed finish, float or light steel trowel finish (a hard steel trowel finish is neither necessary nor desirable).
3. Sealers and curing agents should not be used.
4. Concrete surfaces on grade shall have been constructed with a vapor barrier to protect against the effects of vapor transmission and possible delamination of the system.

C. Safety Requirements

1. The Owner shall be responsible for the removal of foodstuffs from the work area.
2. Non-related personnel in the work area shall be kept to a minimum.

1.8 WARRANTY

A. 10 year

PART 2 – PRODUCTS

Sanseam epoxy flake floors Shoreline

3.1 EXAMINATION

- A. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for maximum moisture content, installation tolerances and other conditions affecting flooring performance.
 - 1. Verify that substrates and conditions are satisfactory for flooring installation and comply with requirements specified.

3.2 PREPARATION

A. General

- 1. New and existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, and bituminous products.
- 2. Moisture Testing: Perform tests recommended by manufacturer and as follows.
 - a. Perform anhydrous calcium chloride test ASTM F 1869-98. Application will proceed only when the vapor/moisture emission rates from the slab is less than and not higher than 20 lbs/1,000 sf/24 hrs.
 - b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 99% relative humidity level measurement.
- 3. Mechanical surface preparation
 - a. Shot blast all surfaces to receive flooring system with a mobile steel shot, dust recycling machine (Blastrac or equal). All surface and embedded accumulations of paint, toppings hardened concrete layers, laitance, power trowel finishes and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a minimum profile of CSP 4-6 as described by the International Concrete Repair Institute.
 - b. Floor areas inaccessible to the mobile blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers, or other suitable equipment.
 - c. Wherever a free edge will occur, including doorways, wall perimeters, expansion joints, columns, doorways, drains and equipment pads, a 1/4 inch deep by 1/4 inch wide keyways shall be cut in.
 - d. Cracks and joints (non-moving) greater than 1/4 inch wide are to be chiseled or chipped-out and repaired per manufacturer's recommendations.
- 4. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and patch per manufacturer's recommendations.

3.3 APPLICATION

A. General

- 1. The system shall be applied in three distinct steps as listed below:
 - a. Substrate preparation
 - b. Topping/overlay application with quartz aggregate broadcast.
 - c. Topcoat application
- 2. Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.
- 3. The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.
- 4. The system shall follow the contour of the substrate unless pitching or other leveling work has been specified by the Architect.
- 5. A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.

B. Topping

1. The topping shall be applied as a self-leveling system as specified. The topping shall be applied in one lift with a nominal thickness of 3/16 inch.
2. The topping shall be comprised of three components, a resin, hardener and filler as supplied by the Manufacturer.
3. The hardener shall be added to the resin and thoroughly dispersed by suitably approved mechanical means. Aggregate shall then be added to the catalyzed mixture and mixed in a manner to achieve a homogenous blend.
4. The topping shall be applied over horizontal surfaces using a pin rake, trowels or other systems approved by the Manufacturer.
5. Immediately upon placing, the topping shall be degassed with a 15/16 inch spiked roller.
6. Quartz aggregate shall be broadcast to excess into the wet material at the rate of 1 lbs/sf.
7. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.

C. Topcoat

1. The topcoat shall be squeegee applied and back rolled with a coverage rate of 60 sf per kit
2. The topcoat shall be comprised of a liquid resin and a liquid hardener that is mixed as a kit in and installed per the manufacturer's recommendations.
3. The finish floor will have a nominal thickness of 1/4 inch.

3.4 FIELD QUALITY CONTROL

A. Tests, Inspection

1. The following tests shall be conducted by the Applicator:
 - a. Temperature
 1. Air, substrate temperatures and, if applicable, dew point.
 - b. Coverage Rates
 1. Rates for all layers shall be monitored by checking quantity of material used against the area covered.

3.5 CLEANING AND PROTECTION

- A. Cure flooring material in compliance with manufacturer's directions, taking care to prevent their contamination during stages of application and prior to completion of the curing process.
- B. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for subsequent work of other sections.

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Steel.
 - 2. Galvanized metal.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each finish and for each color and texture required.
- C. Product List: Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.3 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Mockups:
 - 1. Apply samples of each paint system indicated and each color and finish selected, in order to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects.
 - 2. Architect will select one representative surface for application of each paint system specified in Part 3. Provide samples of at least 100 sq. ft. (9 sq. m). Architect may designate other items or areas, as required.
 - 3. If preliminary samples are not approved, apply additional samples of colors selected by Architect at no added cost to Owner.
 - 4. Approved samples will become benchmarks to set quality standards for materials and execution. Final approval of color selections will be based on benchmark samples.

1.4 EXTRA MATERIALS

- A. Furnish an additional 5 percent extra of each material described below, but not less than 1 gal. (3.8 L), that is from same production run (batch mix) as materials applied. Package extra materials for storage and identify with labels describing contents.

PART 2 - PRODUCTS

2.1 PAINT, 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 manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors: As selected by Architect from manufacturer's full range.
- C. Abbreviations for paint companies that appear below are defined as follows:
 - 1. SW = Sherwin-Williams; 2. Dur = Duron; 3. MAB = MAB.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Masonry (Clay and CMU): 12 percent.
 - 3. Wood: 15 percent.
 - 4. Plaster: 12 percent.
 - 5. Gypsum Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION AND APPLICATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- D. 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.
- E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.3 EXTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
 1. Quick-Drying Enamel System:
 - a. Prime Coat: SW: Pro Industrial Pro-Cryl Universal Primer, B66-310 series
Dur: Pro Industrial Pro-Cryl Universal Primer, B66-310 series
MAB: Pro Industrial Pro-Cryl Universal Primer, B66-310 series

Intermediate Coat: SW: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)
Dur: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)
MAB: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)

Topcoat: SW: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)
Dur: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)
MAB: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)
- B. Galvanized-Metal Substrates:
 1. Latex System:

- a. Prime Coat: SW: Pro Industrial Pro-Cryl Universal Primer, B66-310 series
Dur: Pro Industrial Pro-Cryl Universal Primer, B66-310 series
MAB: Pro Industrial Pro-Cryl Universal Primer, B66-310 series

Intermediate Coat: SW: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)
Dur: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)
MAB: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)

Topcoat: SW: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)
Dur: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)
MAB: Pro Industrial Zero VOC Acrylic Coating, Gloss (B66-600)

C. Concrete Substrates, Traffic Surfaces:

1. Latex Floor Paint System:

- a. Prime Coat: SW: Armorseal Tread-Plex WB Acrylic Coating, B90 series
Dur: Armorseal Tread-Plex WB Acrylic Primer, B90W110
MAB: Armorseal Tread-Plex WB Acrylic Primer, B90W110
- b. Intermediate Coat: SW: Armorseal Tread-Plex WB Acrylic Coating, B90 series
Dur: Armorseal Tread-Plex WB Acrylic Coating, B90 series
MAB: Armorseal Tread-Plex WB Acrylic Coating, B90 series
- c. Topcoat: SW: Armorseal Tread-Plex WB Acrylic Coating, B90 series
Dur: Armorseal Tread-Plex WB Acrylic Coating, B90 series
MAB: Armorseal Tread-Plex WB Acrylic Coating, B90 series

D. CMU Substrates:

1. Latex System:

- a. Prime Coat: SW: PrepRite Block Filler, B25W25
Dur: Block Kote Acrylic Latex Block Filler, 16-110
MAB: PrepRite Block Filler, B25W25
- b. Intermediate Coat: SW: A-100 Exterior Latex Flat (A6 series), Satin (A82 series), Gloss (A8 series)
Dur: WeatherShield Latex Flat (34 series), Satin (11 series), Gloss (03 series)
MAB: SeaShore Latex Flat (61 series), Satin (60 series), Gloss (24 series)
- c. Topcoat: SW: A-100 Exterior Latex Flat (A6 series), Satin (A82 series), Gloss (A8 series)
Dur: WeatherShield Latex Flat (34 series), Satin (11 series), Gloss (03 series)
MAB: SeaShore Latex Flat (61 series), Satin (60 series), Gloss

(24 series)

E. Plastic Trim Fabrication Substrates:

1. Latex System:

- a. Prime Coat: SW: **Extreme Bond Primer, B51-1150**
Dur: MultiPurpose Zero VOC Latex Primer, B51W450
MAB: MultiPurpose Zero VOC Latex Primer, B51W450
- b. Intermediate Coat: SW: A-100 Exterior Latex Flat (A6 series), Satin (A82 series)
Gloss (A8 series)
Dur: WeatherShield Latex Flat (34 series), Satin (11 series),
Gloss (03 series)
MAB: SeaShore Latex Flat (61 series), Satin (60 series), Gloss
(24 series)
- c. Topcoat: SW: A-100 Exterior Latex Flat (A6 series), Satin (A82 series)
Gloss (A8 series)
Dur: WeatherShield Latex Flat (34 series), Satin (11 series),
Gloss (03 series)
MAB: SeaShore Latex Flat (61 series), Satin (60 series), Gloss
(24 series)

F. Dimension Lumber Substrates, Nontraffic Surfaces: Including **[board siding]** **[fencing]**
[undersides of decking] <Insert description>.

1. Latex System:

- a. Prime Coat: SW: Exterior Latex Wood Primer, B42**W8141**
Dur: Exterior Latex Wood Primer, B42W8041
MAB: Exterior Latex Wood Primer, B42W8041
- b. Intermediate Coat: SW: A-100 Exterior Latex Flat (A6 series), Satin (A82 series)
Gloss (A8 series)
Dur: WeatherShield Latex Flat (34 series), Satin (11 series),
Gloss (03 series)
MAB: SeaShore Latex Flat (61 series), Satin (60 series), Gloss
(24 series)
- c. Topcoat: SW: A-100 Exterior Latex Flat (A6 series), Satin (A82 series)
Gloss (A8 series)
Dur: WeatherShield Latex Flat (34 series), Satin (11 series),
Gloss (03 series)
MAB: SeaShore Latex Flat (61 series), Satin (60 series), Gloss
(24 series)

END OF SECTION 099113

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Concrete masonry units (CMU).
 - 2. Steel.
 - 3. Galvanized metal.
 - 4. Wood.
 - 5. Gypsum board.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each finish and for each color and texture required.
- C. Product List: Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.3 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Mockups:
 - 1. Apply samples of each paint system indicated and each color and finish selected, in order to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects.
 - 2. Architect will select one representative surface for application of each paint system specified in Part 3. Provide samples of at least 100 sq. ft. (9 sq. m). Architect may designate other items or areas, as required.
 - 3. If preliminary samples are not approved, apply additional samples of colors selected by Architect at no added cost to Owner.
 - 4. Approved samples will become benchmarks to set quality standards for materials and execution. Final approval of color selections will be based on benchmark samples.

1.4 EXTRA MATERIALS

- A. Furnish an additional 5 percent extra of each material described below, but not less than 1 gal. (3.8 L), that is from same production run (batch mix) as materials applied. Package extra materials for storage and identify with labels describing contents.

PART 2 - PRODUCTS

2.1 PAINT, 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 manufacturers of topcoat for use in paint system and on substrate indicated.
- B. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24); these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
 - 1. Flat Paints, Coatings, and Primers: VOC content of not more than 50 g/L.
 - 2. Nonflat Paints, Coatings, and Primers: VOC content of not more than 150 g/L.
 - 3. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
 - 4. Floor Coatings: VOC not more than 100 g/L.
 - 5. Shellacs, Clear: VOC not more than 730 g/L.
 - 6. Shellacs, Pigmented: VOC not more than 550 g/L.
 - 7. Flat Topcoat Paints: VOC content of not more than 50 g/L.
 - 8. Nonflat Topcoat Paints: VOC content of not more than 150 g/L.
 - 9. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
 - 10. Floor Coatings: VOC not more than 100 g/L.
 - 11. Shellacs, Clear: VOC not more than 730 g/L.
 - 12. Shellacs, Pigmented: VOC not more than 550 g/L.
 - 13. Primers, Sealers, and Undercoaters: VOC content of not more than 200 g/L.
 - 14. Dry-Fog Coatings: VOC content of not more than 400 g/L.
 - 15. Zinc-Rich Industrial Maintenance Primers: VOC content of not more than 340 g/L.
 - 16. Pre-Treatment Wash Primers: VOC content of not more than 420 g/L.
- C. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:

1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
2. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.
 - d. Benzene.
 - e. Butyl benzyl phthalate.
 - f. Cadmium.
 - g. Di (2-ethylhexyl) phthalate.
 - h. Di-n-butyl phthalate.
 - i. Di-n-octyl phthalate.
 - j. 1,2-dichlorobenzene.
 - k. Diethyl phthalate.
 - l. Dimethyl phthalate.
 - m. Ethylbenzene.
 - n. Formaldehyde.
 - o. Hexavalent chromium.
 - p. Isophorone.
 - q. Lead.
 - r. Mercury.
 - s. Methyl ethyl ketone.
 - t. Methyl isobutyl ketone.
 - u. Methylene chloride.
 - v. Naphthalene.
 - w. Toluene (methylbenzene).
 - x. 1,1,1-trichloroethane.
 - y. Vinyl chloride.

D. Colors: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 1. Concrete: 12 percent.
 2. Masonry (Clay and CMU): 12 percent.
 3. Wood: 15 percent.
 4. Gypsum Board: 12 percent.
 5. Plaster: 12 percent.

- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION AND APPLICATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- D. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
 - 1. Mechanical Work:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.
 - c. Pipe hangers and supports.
 - d. Tanks that do not have factory-applied final finishes.
 - e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
 - 2. Electrical Work:
 - a. Switchgear.
 - b. Panelboards.
 - c. Electrical equipment that is indicated to have a factory-primed finish for field painting.
- E. 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.

- F. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.3 INTERIOR PAINTING SCHEDULE

A. CMU Substrates:

- 1. High-Performance Architectural Latex System:
 - a. Prime Coat:
SW: PrepRite Block Filler, B25W25
Dur: Block Kote Latex Block Filler, 08-128 series
MAB: PrepRite Block Filler, B25W25
 - b. Intermediate Coat:
SW: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
MAB: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
 - c. Topcoat:
SW: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
MAB: Pro Industrial Pre-Catalyzed Water Based Semi-Gloss (K46 series)

B. Steel Substrates:

- 1. High-Performance Architectural Latex System:
 - a. Prime Coat:
SW: Pro Industrial Pro-Cryl Universal Primer, B66-310 series
Dur: Pro Industrial Pro-Cryl Universal Primer, B66-310 series
MAB: Pro Industrial Pro-Cryl Universal Primer, B66-310 series
 - b. Intermediate Coat:
SW: Pro Industrial Pre-Catalyzed Water Based Semi-Gloss (K46 series)
Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
MAB: Pro Industrial Pre-Catalyzed Water Based Semi-Gloss (K46 series)
 - c. Topcoat: SW:
Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
MAB: Pro Industrial Pre-Catalyzed Water Based Semi-Gloss (K46 series)

C. Galvanized-Metal Substrates:

- 1. High-Performance Architectural Latex System:
 - a. Prime Coat:
SW: Pro Industrial Pro-Cryl Universal Primer, B66-310 series

Dur: Pro Industrial Pro-Cryl Universal Primer, B66-310 series
MAB: Pro Industrial Pro-Cryl Universal Primer, B66-310 series

- b. Intermediate Coat:
SW: Pro Industrial Pre-Catalyzed Water Based Semi-Gloss (K46 series)
Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
MAB: Pro Industrial Pre-Catalyzed Water Based Semi-Gloss (K46 series)
- c. Topcoat: SW:
Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
MAB: Pro Industrial Pre-Catalyzed Water Based Semi-Gloss (K46 series)

D. Dressed Lumber Substrates:

1. High-Performance Architectural Latex System:

- a. Prime Coat: SW: PrepRite ProBlock Int./Ext. Latex Primer/Sealer, B51 series
Dur: Terminator 2 Int./Ext. Latex Primer/Sealer, 171series
MAB: PrepRite ProBlock Int./Ext. Latex Primer/Sealer, B51 series
- a. Intermediate Coat:
SW: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
MAB: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
- b. Topcoat:
SW: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
MAB: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)

E. Wood Panel Substrates:

1. High-Performance Architectural Latex System:

- a. Prime Coat: SW: PrepRite ProBlock Int./Ext. Latex Primer/Sealer, B51 series
Dur: Terminator 2 Int./Ext. Latex Primer/Sealer, 171series
MAB: PrepRite ProBlock Int./Ext. Latex Primer/Sealer, B51 series
- b. Intermediate Coat:
SW: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)

MAB: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)

- c. Topcoat:
 - SW: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
 - Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)
 - MAB: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss (K46 series)

F. Gypsum Board Substrates:

- 1. High-Performance Architectural Latex System:
 - a. Prime Coat:
 - SW: ProMar 200 Zero VOC Latex Primer, B28W2650
 - Dur: Acrylic Drywall Primer, 04-124
 - MAB: ProMar 200 Zero VOC Latex Primer, B28W2650
 - a. Intermediate Coat:
 - SW: Pro Industrial Pre-Catalyzed Water Based Epoxy Eg-Shel (K45 series)
 - Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Eg-Shel(K45 series)
 - MAB: Pro Industrial Pre-Catalyzed Water Based Epoxy Eg-Shel(K45 series)
 - b. Top Coat:
 - SW: Pro Industrial Pre-Catalyzed Water Based Epoxy Eg-Shel (K45 series)
 - Dur: Pro Industrial Pre-Catalyzed Water Based Epoxy Eg-Shel(K45 series)
 - MAB: Pro Industrial Pre-Catalyzed Water Based Epoxy Eg- Shel(K45 series)

END OF SECTION 099123

SECTION 101400 - SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Panel signs.

1.3 DEFINITIONS

- A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for signs.
 - 1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
 - 2. Provide message list, typestyles, graphic elements, including tactile characters and Braille, and layout for each sign.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
 - 1. Acrylic sheet.
- D. Sign Schedule: Use same designations indicated on Drawings.
 - 1. Owner to approve all room numbers and signs prior to fabrication.
- E. Qualification Data: For Installer and fabricator.
- F. Maintenance Data: For signs to include in maintenance manuals.
- G. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- B. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- C. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guideline and ICC/ANSI A117.1.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of metal and polymer finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image colors and sign lamination.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).

2.2 PANEL SIGNS

- A. Interior Panel Signs: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch (1.5 mm) measured diagonally from corner to corner, complying with the following requirements:
 - 1. Acrylic Sheet: 0.080 inch (2.03 mm) thick.
 - 2. Edge Condition: Square cut.
 - 3. Corner Condition: Square corners, as indicated.
 - 4. Mounting: Unframed.
 - a. Wall mounted with concealed anchors.
 - b. Manufacturer's standard anchors for substrates encountered.
 - 5. Color: To be selected by Architect from manufacturers full range.

6. Tactile Characters: Characters and Grade 2 Braille raised 1/32 inch (0.8 mm) above surface with contrasting colors.
- B. Tactile and Braille Sign: Manufacturer's standard process for producing text and symbols complying with ADA-ABA Accessibility Guidelines and with ICC/ANSI A117.1. Text shall be accompanied by Grade 2 Braille. Produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape.
 1. Panel Material: Opaque acrylic sheet.
 2. Raised-Copy Thickness: Not less than 1/32 inch (0.8 mm).
- C. Panel Sign Schedule:
 1. See Drawings for Sign Schedule.

2.3 FABRICATION

- A. General: Provide manufacturer's standard signs of configurations indicated.
 1. Conceal all fasteners.

2.4 FINISHES, GENERAL

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.5 ACRYLIC SHEET FINISHES

- A. Colored Coatings for Acrylic Sheet: For copy and background colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and that are UV and water resistant for five years for application intended.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Verify that items including anchor inserts are sized and located to accommodate signs.

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

3.2 INSTALLATION

- A. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Interior Wall Signs: Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches (75 mm) of sign without encountering protruding objects or standing within swing of door.
- B. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
 - 1. Two-Face Tape: Mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.
 - 2. Silicone-Adhesive Mounting: Attach signs to irregular, porous, or vinyl-covered surfaces.
 - 3. Shim Plate Mounting: Provide 1/8-inch- (3-mm-) thick, concealed aluminum shim plates with predrilled and countersunk holes, at locations indicated, and where other mounting methods are not practicable. Attach plate with fasteners and anchors suitable for secure attachment to substrate. Attach panel signs to plate using method specified above.
 - 4. Mechanical Fasteners: Use non-removable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to substrate as recommended in writing by sign manufacturer.

3.3 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 101400

SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS:

- A. All drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes portable, hand-carried fire extinguishers.

1.3 ACTION SUBMITTALS

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

1.4 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
- C. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:

- a. Failure of hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet indicated.
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Badger Fire Protection
 - b. Buckeye Fire Equipment
 2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.
- B. Multipurpose Dry-Chemical Type FE-1: UL-rated 10 lb nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine fire extinguishers for proper charging and tagging.
 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

END OF SECTION 104416