

Phase 1 Addition and Building Improvements

Rabbit Run Community Arts Association

ARPA Funded Project

May 2026



0000043401

RABBIT RUN COMMUNITY ARTS ASSOCIATION

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ADVERTISEMENT FOR BIDS/PUBLIC NOTICE TO BIDDERS

Sealed bids will be received at by Rabbit Run Community Arts Association, 49 Park Street, Madison, OH 44057, until 12:00 p.m. on May 29, 2026 and will be opened and read immediately thereafter for the

PHASE 1 ADDITION AND BUILDING IMPROVEMENTS

ARPA FUNDED PROJECT

OPINION OF PROBABLE CONSTRUCTION COST: \$525,000.00

COMPLETION DATE: DECEMBER 18, 2026

The bid specifications, drawings, plan holders list, addenda, and other bid information (**but not the bid forms**) may be viewed and/or downloaded for free via the internet at <https://bids.verdantas.com>. The bidder shall be responsible to check for Addenda and obtain same from the web site.

Bids must be in accordance with drawings and specifications and on forms available from Verdantas LLC at a non-refundable cost of One Hundred Twenty-Five Dollars (\$125.00) for hard copies **and Forty-Five Dollars (\$45.00) for electronic files**. Documents may be ordered by registering and paying online at <https://bids.verdantas.com>. Please contact planroom@verdantas.com or call (440) 530-2351 if you encounter any problems viewing, registering, or paying for the documents.

Build America, Buy America Act (BABA) requirements apply for the ARPA Funding.

Federal Prevailing Wage Rates Apply.

Publish: ~~Mays 15, 2026~~
May 22, 2026

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SECTION 1
BID DOCUMENTS

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

- 1.1 Sealed bids shall be received by the Owner at the location specified and until the time and date specified in the Advertisement for Bids/Public Notice to Bidders.
- 1.2 Each bid shall contain the full name and address of each person or company interested in said bid. If no other person be so interested, the Bidder shall distinctly so state the fact.
- 1.3 Bid forms must be completed in ink or by typewriter. Any corrections to the bid forms prior to submission must be initialed by the person signing the bid. Failure to submit any bid form(s) or other required document(s) may be cause for rejection of the bidder's bid at the sole discretion of the Owner.
- 1.4 Bids by Corporations must be executed in the corporate name by the President, Vice President, or other officer accompanied by evidence of authority to sign and the corporate seal must be affixed and attested by the Secretary on the Corporate Resolution form.
- 1.5 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature.
- 1.6 All names must be typed or printed below the signature.
- 1.7 The bid shall contain an acknowledgment of receipt of all Addenda.
- 1.8 If a Bidder wishes to withdraw their bid prior to the opening of bids, they shall state their purpose in writing to the Owner before the time fixed for the opening, and when reached it shall be handed to them unread.
- 1.9 After the opening of bids, no Bidder may withdraw their bid for a period of 60 days.

PART 2 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- 2.1 Before submitting a bid, each Bidder must
 - A. Examine the Contract Documents thoroughly.
 - B. Visit the site to familiarize themselves with local conditions that may in any manner affect cost, progress, or performance of the work.
 - C. Familiarize themselves with Federal, State, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress, or performance of the work.
 - D. Study and carefully correlate Bidder's observations with the Contract Documents.

- 2.2 Reference is made to the Specific Project Requirements for the identification of any reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the work which have been relied upon by the Engineer in preparing the drawings and specifications. Owner will make copies of such reports available to any Bidder requesting them if not made available with the bid documents. These reports are not guaranteed as to accuracy or completeness; nor are they part of the Contract Documents. Before submitting their bid each Bidder will, at their own expense, make such additional investigations and tests as the Bidder may deem necessary to determine their bid for performance of the work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 2.3 Upon request, the Owner will provide each Bidder access to the site to conduct such reasonable investigations and tests as each Bidder deems necessary for submission for their bid.
- 2.4 The lands upon which the work is to be performed, rights-of-way for access thereto, and other lands designated for use by Bidder in performing the work are identified on the Drawings.
- 2.5 The submission of a bid will constitute an incontrovertible representation by the Bidder that they have complied with every requirement of this section and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the work.

PART 3 ESTIMATED QUANTITIES

- 3.1 In Unit Price Contracts, the quantities of the work itemized in the bid are approximate only and the bidders are hereby notified that the estimated quantities made by the Engineer are merely for the guidance of the Owner in comparing on a uniform basis all bids received for the work.
- 3.2 The contract quantities, where itemized, are based on plan horizontal and vertical dimensions unless otherwise specified. It is the Contractor's responsibility to verify and determine actual quantities of materials such as pipe, pavement, subgrade, etc. in their ordering materials.
- 3.3 Payments, except for lump sum contracts and except for lump sum items in unit price contracts, will be made to the Contractor only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications.
- 3.4 The successful Bidder will be required to furnish the Owner with a complete breakdown of the lump sum bid items, to the satisfaction of the Engineer/Architect, before signing the Contract documents.

PART 4 CONTRACTOR'S QUALIFICATION

- 4.1 Bidder shall provide detailed information relating to similar projects completed within the past 5 years which demonstrates the bidder's capability, responsibility, experience, skill, and financial standing to undertake this type of project and shall include a list of all projects currently under construction including status and contact person.
- 4.2 Bidder shall own, have rental or lease agreements for, or otherwise have readily available any and all equipment and tools necessary for proper execution of the work. The Owner reserves the right to request lists of equipment or tools available for the project including sources.
- 4.3 Bidder shall provide pertinent information to the Owner relative to any pending suits or outstanding liens. If no information is provided by the Bidder, the Owner shall assume that any such suits or liens do not exist.
- 4.4 The Owner may require similar information on any or all subcontractors proposed by the Bidder.
- 4.5 Bids of corporations not chartered in the state in which the work will take place must be accompanied by proper certification that the corporation is authorized to do business in that state.

PART 5 SUBCONTRACTORS

- 5.1 The Bidder shall state on the appropriate bid form the names of all Subcontractors, Sub Consultants and other professional service providers proposed and the items of work they are to be assigned. All work not assigned to a Subcontractor shall be assumed by the Owner to be performed by the Bidder.
- 5.2 The Owner reserves the right to approve all subcontractors proposed by the Bidder. If the Owner, after due investigation, rejects the use of a proposed subcontractor, the apparent successful Bidder may either submit an acceptable substitution without increase in bid price or decline substitution and withdraw their bid without sacrificing their bid security. Any listed subcontractor to whom the Owner does not make written objection prior to award of contract, shall be deemed acceptable to the Owner.
- 5.3 Requests for changes of Subcontractor by the Bidder after the award shall be subject to the Owner's approval and shall not change the contract bid prices.
- 5.4 No contractor shall be required to employ any Subcontractor, person or organization against whom they have reasonable objection.

PART 6 BID REVIEW BY OWNER

- 6.1 The Owner reserves the right to reject any and all bids, to waive as an informality any and all irregularities, and to disregard all nonconforming, nonresponsive or conditional bids.

- 6.2 All extensions and totals of unit prices and quantities submitted as part of the bid shall be considered informal until verified by the Owner. All bids must be made on the forms contained herein and the bid prices must be written therein, in figures only. Unit prices shall be separately written for "Unit Price Labor," "Unit Price Material," and "Total Unit Price" for each item listed. Should an error in addition and/or multiplication be determined while checking the Contractor's math and verifying their total bid, the "Unit Price Labor" and the "Unit Price Material" figures shall govern in determining the correct "Total Unit Price" and the correct "Item Total."
- 6.3 Each bidder must bid on all Items, Alternates, Deductions, and Additions contained in the Bidding Forms. All bids not in conformity with this notice may be considered non-responsive and may be rejected.
- 6.4 More than one bid for the same work from an individual or entity under the same of different names will not be considered. Reasonable grounds for believing that any bidder has an interest in more than one bid for the work may be cause for disqualification of that bidder and the rejection of all bids in which the bidder has an interest. A subcontractor or supplier is not a bidder, and may submit prices to multiple bidders.
- 6.5 In evaluating bids, the Owner may consider:
- A. The qualifications and experience of the Bidder, proposed subcontractors, and principal material suppliers as outlined in the plans and specifications.
 - B. Financial ability and soundness of the Bidder and proposed subcontractors.
 - C. Completeness of all bid forms and bid requirements.
 - D. Alternates and unit prices requested in the Bid Forms.
 - E. Unit prices or schedules of values that are or appear to be unbalanced.
 - F. Previous contractual experience with the Owner.
 - G. Whether or not the bid package complies with the prescribed requirements.
 - H. The proposed completion date, if applicable.
 - I. Any other matter allowed by law or local ordinance or resolution.
- 6.6 Owner may conduct further investigations as they deem necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications, and financial ability of the Bidder, proposed Subcontractors, and other persons and organizations to do the work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
- 6.7 Owner reserves the right to reject the bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

- 6.8 The Contract award shall be based on the lowest and best bid or lowest responsive and responsible bid (as applicable for the public contracting agency receiving bids) for the base bid and selected alternate items (if any) for this project.

PART 7 BID SECURITY

- 7.1 Each bid must be accompanied by a certified or cashier's check in the amount of 10% of the amount bid, an irrevocable letter of credit in the amount of 10% of the amount bid or an original bond in the amount of 100% of the amount bid per O.R.C. Sections 153.54 and 153.571. The certified or cashier's check, or irrevocable letter of credit shall be from a financial institution authorized to transact business in the State of Ohio and acceptable to the Owner. The bond shall be underwritten by a Surety Company authorized to transact business in the State of Ohio having an Ohio agent and listed on the most current Department of the Treasury Circular 570, "Surety Companies Acceptable on Federal Bonds." The bond shall be a "Bid Guarantee and Contract Bond" ("rollover bond") per O.R.C. Sections 153.54 and 153.571 submitted for the full amount of the bid **including all alternates**, if any.

If bid security is made by bond, the Bidder and their Surety shall sign the Supplemental Bond Acknowledgement form and submit with their bid.

- 7.2 The certified or cashier's check, irrevocable letter of credit, or bond shall be made payable to the Owner and shall serve as a guarantee that in the event the bid is accepted and a contract is awarded to the successful Bidder, the contract will be executed by the bidder including any certifications, certificates or additional bonds required by the contract.
- 7.3 Failure on the part of the successful Bidder to execute the contract documents will cause the certified or cashier's check, irrevocable letter of credit, or bond to be forfeited to the Owner as damages.
- A. If the Owner awards the contract without rebidding, the Bidder (and the Surety on their bond if a bond was submitted) shall be liable to the Owner for a penal sum not to exceed the difference between the low bid and the next lowest bidder or 10% of the amount of the bid, whichever is less.
- B. If the Owner does not award the Contract to the next lowest Bidder, but resubmits the project for bidding; the Bidder (and the Surety on their bond if a bond was submitted) shall be liable to the Owner for a penal sum not to exceed the costs in connection with the resubmission of bids or 10% of the amount of the bid, whichever is less.
- 7.4 Checks or letters of credit for bid security of all bidders will be returned in the manner and timeframe stipulated in the O.R.C. Section 153.54 Bid guaranty to be filed with bid.

PART 8 CONTRACT BOND

- 8.1 As security for faithful performance and payment of all obligations under the Contract, the Owner shall require and the successful Bidder shall furnish either:
- A. *If submitted as Bid Security at time of bid:* "Bid Guarantee and Contract Bond" (AKA "rollover bond") per O.R.C. Sections 153.54 and 153.571.
 - B. *If a cashier's check or irrevocable letter of credit is submitted as Bid Security at time of bid:* Contract Bond per O.R.C. Sections 153.54 and 153.57, in the amount of 100% of the Contract Price. The Contractor and their Surety shall sign the Supplemental Bond Acknowledgement form and submit with the Contract forms
- 8.2 The bond shall be underwritten by a Surety Company authorized to transact business in the State of Ohio having an Ohio agent and listed on the most current Department of the Treasury Circular 570, "Surety Companies Acceptable on Federal Bonds."
- 8.3 The contract bond shall cover correction of the work for the period stated in the specifications and the correction period shall start upon Final Acceptance of the entire project and final payment by the Owner.
- 8.4 Nothing in the performance of the Engineer's service to the Owner in connection with this project shall in any way imply any undertaking for the benefit of the successful Bidder, its subcontractor(s), or the surety of any of them.

PART 9 AWARD AND EXECUTION OF CONTRACT

- 9.1 After the Owner's legislative body awards the project, the successful bidder will receive the unsigned contract documents. Within 10 days after their receipt, the successful Bidder shall sign and deliver to the Owner said contract documents including any certifications, certificates, or additional bonds required by the contract.
- 9.2 The Owner shall execute the Contract within 60 days after the day of the bid opening. When necessary and by mutual consent between the Owner and the Successful Bidder, this 60 day period may be extended.
- 9.3 The date of the Owner's signature on the Contract Agreement shall be the effective contract date.
- 9.4 The Owner shall execute and deliver to the successful Bidder one set of fully executed contract documents.

PART 10 INSURANCE

- 10.1 Verification of limits for public liability, property damage, automobile, Worker's Compensation, or any other insurance required by the provisions of this Contract must be submitted to the Owner prior to execution of the Contract.
- 10.2 All insurance shall be endorsed so that it cannot be cancelled for non-payment of premium for 10 days or cancelled or non-renewed for any other reason in less than 30

days after a written notice of such proposed action by the insurer is given to the Owner. The cancellation clause on the Certificate(s) of Insurance shall read as specified in the Supplementary Conditions and failure to submit an insurance certificate and/or policy endorsement verifying same shall be reason for the Owner to consider the Contractor non-responsive in complying with the requirements for contract execution and may be cause for forfeiture of the Bid Security to Owner.

- 10.3 The Insurer's affording coverage shall be authorized to transact business in the State of Ohio and be listed on the most current Ohio Department of Insurance list of Ohio Licensed Companies.
- 10.4 The Contractor's Liability Insurance policy(s) shall be endorsed such that limits are on a Per Project basis.
- 10.5 The Contractor shall also provide an Owner's and Contractor's Protective Policy.

PART 11 NON-COLLUSION AFFIDAVIT

- 11.1 Collusion between bidders will be cause for rejection of affected bids and may be cause for rejection of all bids. Multiple bids submitted by one bidder under the same name or different names, whether as an individual, firm, partnership, corporation, profit or non-profit, affiliate, or association will be cause for rejection of bids. A subcontractor is not a bidder, and may submit prices to multiple bidders.
- 11.2 All bidders shall submit an affidavit that their bid is genuine and not collusive or sham; that such bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to put in a sham bid, or that such other bidder or person shall refrain from bidding; that such bidder has not in any manner, directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against the Owner or any person or persons interested in the proposed contract; that such bidder is the only party (or parties) who has an interest with the bidder in the profits of any contract which may result from the herein contained proposal; that no individual affiliated with the Owner, including but not limited to the head of any department, any employee, or any other official or officer of the Owner, is or will be directly or indirectly interested in this bid, and/or the profits from this bid if successful; that no individual affiliated with the Owner, including but not limited to the head of any department, any employee, or any other official or officer of the Owner, has or will receive anything of value as a result of the submission of this bid or its award; that no individual affiliated with the Owner, including but not limited to the head of any department, any employee, or any other official or officer of the Owner, has been solicited to provide assistance and/or provided assistance to the bidder which might give the bidder a competitive advantage or circumvent the competitive bidding process; and that all statements contained in said proposal are true; and further, that such bidder has not, directly or indirectly submitted this bid, or the contents thereof, or divulged information or data relative thereto to any association or to any member or agent thereof.

- 11.3 Each bid must be accompanied by a completed Noncollusion Affidavit provided within the contract documents.
- 11.4 Where there is reason to believe collusion or combination among bidders exists, the Owner reserves the right to reject the bid of those concerned.

PART 12 DELINQUENT PERSONAL PROPERTY STATEMENT

- 12.1 Included with the contract documents is a Delinquent Personal Property Statement to be filled out by the successful Bidder.
- 12.2 The statement shall be sent to both the County Auditor and the County Treasurer. A signed copy shall remain in the contract documents as well.

PART 13 ORIGINAL DOCUMENTS

- 13.1 All bid forms, contract forms, bonds and any other bid documents or contract documents requiring signatures shall be submitted with original signatures. No photo copies or faxed copies of signed documents shall be accepted.

PART 14 ADDENDA

- 14.1 The bidder shall be responsible to obtain Addenda from the web at <https://bids.verdantas.com>.

END OF SECTION 01/28/26

BID FORMS

The bid forms are not available online. The bid forms are available only by purchasing a set of plans and specifications at the location indicated in the Advertisement for Bids/Public Notice to Bidders.

SECTION 2
CONTRACT FORMS

NOTICE OF AWARD

TO: «ContractName»
«ContractAddr»
«ContractCity», «ContractState» «ContractZip»

PROJECT: «TitleCaps»

You are notified that your Bid which was opened on «Bidopening» has been accepted for items in the amount of «ContractDollars» at the unit bid prices as reflected in the bid tabulation contained herein for the *(fill in awarded parts, i.e. for Base Bid and Alternate C, ... or delete)*.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Bonds, Certificates of Insurance, and other documents within 10 calendar days from the date of receipt of this Notice.

Failure to comply with these conditions within the time specified will entitle Owner to consider your Bid in default, to annul this Notice and to declare your Bid Security forfeited.

The Owner will return to you one (1) fully signed set of the contract documents.

«OwnerCaps»

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

ACKNOWLEDGMENT

«ContractCAPName»

«ContractFirst» «ContractLast», «ContractTitle»

CONTRACT

FOR «TitleCaps»

THIS CONTRACT, made and entered into at «OwnerCity», «OwnerState», this _____ day of _____, 20____, by and between the «OwnerMuni» (“OWNER”), «OwnerState» and «ContractName» (“CONTRACTOR”).

WITNESSETH: That the said CONTRACTOR has agreed and by this presents does agree with the OWNER for the consideration hereinafter mentioned and contained, and under penalty expressed in a bond given with these presents, and herein contained or hereunto annexed, to furnish at its own cost and expense, all the necessary tools, equipment, materials, labor, and tests in an expeditious, substantial and workmanlike manner, the equipment and appurtenances herein contemplated, commencing work within 20 days from the date of the Notice to Proceed and executing the work within the time and in the manner specified and in conformity with the requirements set forth in this Contract.

The following form essential parts of the Contract (may vary with project).

1. Advertisement for Bids/Public Notice to Bidders
2. Instruction to Bidders
3. Bid Forms and Proposal
4. Contract Forms and Exhibits
5. Contract Bond – ORC 153.571 or ORC 153.57
6. Contract Provisions
7. General Conditions
8. Supplementary Conditions
9. Specifications
10. Specific Project Requirements
11. Prevailing Wage Rate Schedule
12. Contract Drawings; if any.
13. Addenda; if any.

The CONTRACTOR agrees and understands that the work on this contract shall be subject to the acceptance of the OWNER based upon and in accordance with the contract specifications and contract plans and drawings on file in the office of the OWNER.

The CONTRACTOR agrees that each individual employed by the CONTRACTOR or any Subcontractor and engaged in work on the project under this contract shall be paid by prevailing wage established by the Department of Industrial Relations of the State of Ohio or the U.S. Department of Labor (Davis-Bacon Act) as detailed in the section titled "Wage Rates." This shall occur regardless of any contractual relationship which may be said to exist between the Contractor or any Subcontractor and such individual. ***(if a School District, delete this paragraph)***

The CONTRACTOR shall proceed with the said work in a prompt and diligent manner and shall do the several parts thereof. Further the CONTRACTOR shall complete the whole of said work in accordance with the specifications and contract drawings to the satisfaction of the OWNER on or before the time stated, and in default of completion within the time as fixed, the CONTRACTOR shall pay to the OWNER as liquidated damages, an amount equal to «Liquidated», for each and every day (Sundays and legal holidays excepted) the completion of the work may be delayed beyond the date fixed in the manner and as stipulated.

It is hereby mutually agreed that the OWNER is to pay and the CONTRACTOR is to receive, as full compensation for furnishing all materials and labor in building, constructing and testing and in all respect completing the herein described work and appurtenances in the manner and under the conditions herein specified, the prices stipulated in the proposal herein contained or hereto annexed and the total contract sum is «ContractDollars».

This Contract shall be in full force and effect from the date of execution by the OWNER and CONTRACTOR.

IN WITNESS WHEREOF: The OWNER and CONTRACTOR hereunto affixed their signature the day and year first mentioned above.

«ContractCAPName»

«ContractFirst» «ContractLast», «ContractTitle»

«OwnerCaps»

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

I hereby certify that funds in the amount of «ContractAmtwords» Dollars («ContractDollars») necessary for the foregoing Contract have been appropriated and are in the Treasury, or are in the process of collection, or are available through grants and/or loans from other funding sources.

«OwnerFiscalFirst» «OwnerFiscalLast», «OwnerFiscalTitle»

APPROVED AS TO FORM:

«OwnerLegalName», «OwnerLegalTitle»

**THE CONTRACTOR SHALL FURNISH THE FOLLOWING ITEMS
WITHIN 10 DAYS OF NOTIFICATION OF AWARD:**

- A) **CERTIFICATE OF INSURANCE FOR
CONTRACTOR'S PUBLIC LIABILITY INSURANCE POLICY
AND AUTOMOTIVE INSURANCE POLICY**
Owner, Verdantas LLC, CT Consultants, Inc., Named as Additional Insured

- B) **CERTIFICATE OF INSURANCE FOR
OWNER'S AND CONTRACTOR'S PROTECTIVE POLICY**
Owner Named as Insured (No Additional Insured)

- C) **CERTIFICATE OF WORKER'S COMPENSATION**

- D) **CONTRACT BOND THAT COMPLIES WITH ORC 153.54 AND 153.57**

* D above is not required if a bond complying with ORC 153.54 and 153.571 (rollover bond) was submitted at time of bid.

DELINQUENT PERSONAL PROPERTY STATEMENT

STATE OF _____)
) SS
COUNTY OF _____)

«ContractName», having been awarded a contract by the «OwnerMuni», «OwnerState», hereby affirms under oath, pursuant to Ohio Revised Code Section 5719.042, that at the time the bid was submitted, my company **was / was not (CIRCLE ONE)** charged with delinquent personal property taxes on the General Tax List of Personal Property for «OwnerCounty» County, Ohio.

If such charge for delinquent personal property tax exists on the General Tax List of Personal Property for «OwnerCounty» County, Ohio, the amount of such due and unpaid delinquent taxes, including due and unpaid penalties and interest shall be set forth below.

A copy of this statement shall be transmitted by the Taxing District's Fiscal Officer to the County Treasurer within thirty days of the date it is submitted. A copy of this statement shall also be incorporated into the Contract made between «OwnerMuni», «OwnerState», and «ContractName», and no payment shall be made with respect to any Contract unless such statement has been so incorporated as a part thereof.

Delinquent Personal Property Tax	\$ _____
Penalties	\$ _____
Interest	\$ _____

«ContractCAPName»

«ContractFirst» «ContractLast», «ContractTitle»

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

Notary Public

My Commission Expires: _____

AFFIDAVIT
OF COMPLIANCE WITH OHIO REVISED CODE SECTION 3517.13

STATE OF _____)
) SS
COUNTY OF _____)

_____ being duly sworn deposes and states as follows:

1. I am duly authorized to make the statements contained herein on behalf of _____ (“the Contracting Party”).
2. The Contracting Party is a/an (select one):
 - ☐ Individual, partnership, or other unincorporated business association (including without limitation, a professional association organized under Ohio Revised Code Chapter 1787), estate, or trust
 - ☐ Corporation organized and existing under the laws of the State of _____
 - ☐ Labor organization
3. I hereby affirm that the Contracting Party and each of the individuals specified in R.C. 3517.13(I) (with respect to non-corporate entities and labor organizations) or R.C. 3517.13(J) (with respect to corporations) are in full compliance with the political contribution limitations set forth in R.C. 3517.13(I) and (J), as applicable.
4. I understand that a false representation on this certification will incur penalties pursuant to 3517.992(R).

Affiant further sayeth naught.

By: _____

Title: _____

SWORN TO BEFORE ME and subscribed in my presence this _____ day of _____, 20_____.

Notary Public

My commission expires: _____

APPROVED SUBCONTRACTORS

PROJECT: «TitleCaps»

PRIME CONTRACTOR: «ContractName»

1. Name: _____
Address: _____
City/State/Zip: _____
Description of Work
to be Performed: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____
EIN# _____ Unique
Entity ID# _____
2. Name: _____
Address: _____
City/State/Zip: _____
Description of Work
to be Performed: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____
EIN# _____ Unique
Entity ID# _____
3. Name: _____
Address: _____
City/State/Zip: _____
Description of Work
to be Performed: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____
EIN# _____ Unique
Entity ID# _____
4. Name: _____
Address: _____
City/State/Zip: _____
Description of Work
to be Performed: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____
EIN# _____ Unique
Entity ID# _____

«OwnerCaps»

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

NOTICE TO PROCEED

Project: «Title»

Owner: «OwnerMuni»
«OwnerAddr»
«OwnerCity», «OwnerState» «OwnerZip»

To: «ContractName»
«ContractAddr»
«ContractCity», «ContractState» «ContractZip»

Date: _____

You are hereby notified to commence work in accordance with the Contract. All work shall be completed by «Completion_Date».

«OwnerCaps»

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

THE OWNER OR THEIR AUTHORIZED REPRESENTATIVE SHALL INSERT THE FOLLOWING CONTRACT DOCUMENTATION IN THE EXECUTED CONTRACT:

A) FINDINGS FOR RECOVERY – ORC 9.24
(<http://ffr.ohioauditor.gov/>)

B1) CHECK FOR DEBARRED CONTRACTORS IN THE STATE OF OHIO
(<https://www.sos.state.oh.us/records/debarred-contractors/>)

**B2) CHECK FEDERAL SAM (System for Award Management) for
FEDERAL FUNDING (including sub-contractors), (if applicable)**
(<https://www.sam.gov/SAM/>)

**C) NOTIFICATION OF SURETY AND AGENT OF CONSTRUCTION
CONTRACT AWARD – ORC 9.32 (if applicable)**

**D) NOTIFICATION TO UTILITY COMPANIES OF COMMENCEMENT
OF CONTRACT EXECUTION – ORC 153.64 (if applicable)**

SECTION 3
GENERAL CONDITIONS

GENERAL CONDITIONS

General Conditions shall be "General Conditions of the Contract for Construction", AIA Document A201, 2017 Edition, issued by the American Institute of Architects. This document is available for review at the office of Verdantas LLC., 8150 Sterling Court, Mentor, Ohio 44060 and on the web at <https://bids.verdantas.com>

SECTION 4
SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the "General Conditions" of the Contract for Construction," AIA Document A201 - 2017. Where any Article of the General Conditions is modified or any paragraph, subparagraph or clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, paragraph, subparagraph or clause shall remain in effect.

ARTICLE 1 - GENERAL PROVISIONS

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

- SC-1.2.1.1 If, in the Contractor's opinion, any work is indicated on Drawings or is specified in such a manner as will make it impossible to produce satisfactory work or should discrepancies appear between Drawings and Specifications, he shall refer same to the Engineer/Architect for interpretation before proceeding with the work. If the Contractor fails to make such reference, no excuse will thereafter be entertained for failure to carry out work in a satisfactory manner. Should a conflict occur in or between Drawings and Specifications, the Contractor shall be deemed to have estimated on more expensive way of doing work unless he shall have asked for and obtained a decision, in writing, from the Engineer/Architect, before submission of proposals as to which method or materials will be required.
- SC-1.2.1.2 All work shall conform to the Contract Documents. No change there from shall be made without the Contractor having first received permission from the Engineer/Architect, who will furnish information with reasonable promptness.

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

- SC-1.5.2.1 Owner shall furnish one (1) printed/hard copy of the drawings and Project Manual which shall be an executed contract set and one set in electronic format (.pdf), if requested.

ARTICLE 2 - OWNER

2.3 INFORMATION AND SERVICES REQUIRED OF THE OWNER

- SC-2.3.4.1 The Contractor shall be responsible for the accuracy of same to the extent that other subcontractors' work shall relate to them, and the cost of additional work under other contracts resulting from deviations of work established on the Drawings shall be borne by him.
- SC-2.3.4.2 The Contractor shall perform work in accordance with the Drawings and shall be

responsible for the accuracy. Any discrepancies or errors in the Drawings perceived by the Contractor shall be immediately reported to the Engineer/Architect and corrections made in accordance with instructions given by the Engineer/Architect.

ARTICLE 3 - CONTRACTOR

3.4 LABOR AND MATERIALS

SC-3.4.3.1 All labor shall be performed in the best and most workmanlike manner by mechanics skilled in their respective trades. The standards of the work required throughout shall be of such grade as will bring results of the first class only. Mechanics whose work is unsatisfactory to the Owner or Engineer/Architect, or who are considered by the Engineer/Architect to be unskilled or otherwise objectionable, shall be instantly dismissed from the work upon notice from the Engineer/Architect.

3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

SC-3.7.1.1 Each Contractor shall secure all zoning, building, and all other permits required for the complete execution of his Contract, including certificates of the National Board of Fire Underwriters. All certificates of inspection, occupancy and approval shall be delivered to the Owner upon completion of the work. All prime contractors and/or sub-contractors are responsible for becoming registered.

SC-3.7.1.2 If the Contractor performs any work contrary to laws, ordinances, rules and regulations, and without notice to the Owner, he shall bear all costs arising there from.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

SC-3.10.1.1 The General Construction Contractor is responsible for scheduling and coordinating the work of all prime contractors and all subcontractors.

SC-3.10.1.2 All prime contractors and all subcontractors shall coordinate their work with all adjacent work and shall cooperate with other trades so as to facilitate general progress of work. Each trade shall afford other trades every reasonable opportunity for installation of their work and for storage of their material.

3.15 CLEANING UP

SC-3.15.1.1 The General Construction Contractor shall perform special cleaning for all trades at the completion of the work. Remove all temporary protections and clean at completion.

ARTICLE 7 - CHANGES IN THE WORK

7.1 CHANGES

- SC-7.1.1.1 If the Contractor claims that any instructions by Drawings or otherwise involve extra cost under this Contract, he shall give the Owner written notice thereof within ten days after receipt of such instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property, and the procedure then shall be as so provided for changes in the work. No claims shall be valid unless so made.
- SC-7.1.1.2 Except as provided for emergencies and minor changes in the work, not involving extra cost, no order for extra work shall be valid unless signed by the Owner and countersigned by the Engineer/Architect.

7.3 CONSTRUCTION CHANGE DIRECTIVES

- SC-7.3.3.1 The value of such work or change shall be determined by the net cost of labor and materials plus fifteen percent (15%) for overhead and profit.
- SC-7.3.4.1.1 For all labor and for all foremen in direct charge of the specific operations, the Contractor shall receive the actual rate of wage and fringe benefits currently in effect at the time the work is performed for each and every hour that said labor and foremen are actually engaged in such work. The term fringe benefits shall be defined as the actual costs paid to, or in behalf of, workmen by reason of health and welfare benefits, pension fund benefits or other benefits, when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the work.

In addition to the above the Contractor shall receive the actual cost of Social Security Tax, Workers' Compensation and State and Federal Unemployment Insurance, and other insurance premiums based on wages. The Contractor shall furnish evidence of the actual percentages applicable at the time the extra work was performed. To these actual costs, 15% may be added for overhead and profit. The estimated rate of wage and labor cost is to be agreed upon in writing before beginning work. The Contractor shall receive the actual costs paid for subsistence and travel allowances when such payments are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the work. No percentage may be added to these costs.

- SC-7.3.4.2.1 For materials accepted by the Engineer and used, the Contractor shall receive the actual cost of such materials delivered on the work, including transportation charges paid by him (exclusive of machinery rentals as hereinafter set forth), to which cost 15% may be added. Statements shall be accompanied and supported by proper invoices for all materials used and transportation charges, and rented equipment performing work on time and materials operations. However, if materials used on the time and materials work are not specifically purchased for such work but are produced by the Contractor or taken from the Contractor's stock, then in lieu of the

invoices the Contractor shall furnish an affidavit certifying that such materials were produced by him or taken from his stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

- SC-7.3.4.3.1 For any machinery or special equipment other than small tools which it may be deemed necessary or desirable to use, the Contractor shall be allowed a reasonable rental price for the time that such equipment is in use on the work. No compensation will be paid for idle equipment deemed by the Engineer to be unnecessary for the work performed. The maximum hourly rental rate to be paid for machinery and equipment owned, leased, or rented by the Contractor shall be based on 1/176 of the applicable monthly rate listed in the latest edition of "Construction Equipment - Rental Rates Compilation" published by the Associated Equipment Distributors (AED). To this hourly rate 15% will be added for the cost of fuel and lubricants. Fifteen percent (15%) of the approved amount payable for Contractor's own machinery and equipment may be added for overhead and profit.

Five percent (5%) of the approved amount payable for machinery and equipment rented or leased by the Contractor may be added for overhead and profit. Proper invoices and documentation will be required for equipment.

A flat hourly rate of \$2.50 per hour, which includes fuel and lubricants, profit and overhead, and any other costs will be allowed for the foreman's transportation.

- SC-7.3.4.5.1 The wages of any foreman or timekeeper who is employed partly on force account work and partly in other work, shall be prorated between the two classes of work according to the number of men employed on each class of work as shown by the payrolls.
- SC-7.3.4.6 The compensation to the Contractor as above provided in 7.3.7 shall constitute payment in full for extra work done on a time and materials basis including administration, superintendence, overhead, use of tools and equipment for which no rental is allowed, profit, taxes other than sales tax, premium on insurance, and any other expense incidental to performing the force account work. Sales tax will not be allowed on any item for which tax exemption may be obtained.
- SC-7.3.4.7 For work performed by an approved Subcontractor the prime Contractor will be allowed an amount to cover administrative costs, equal to 5% of the compensation provided in 7.3.7 but not exceeding \$5,000.00. Regardless of the number of tiers or layers of Subcontractors, the 5% increase above the Subcontractor's total cost including overhead and profit specified herein before, may be applied one time only for each separate extra work transaction.
- SC-7.3.4.8 Final payment will not be made for work performed on a time and materials basis until the contractor has furnished the Engineer/Architect with itemized statements of the cost of such extra work detailed as follows:

Name, classification, date, daily hours, total hours, built up hourly rate for each operator, laborer, foreman, etc.

Verification of percentages of wages paid for payroll taxes and insurance.
Designation, dates, daily hours, total hours, and allowable rate for each unit of machinery and equipment.

Quantities and prices of materials including transportation with invoices.

- SC-7.3.4.9 The Contractor's representative and the Engineer/Architect shall compare records daily of the cost of work done as ordered on a time and materials basis. The Engineer/Architect shall certify that these records are correct.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.3 APPLICATIONS FOR PAYMENT

- SC-9.3.1.3 Monthly, on a day agreed to at the pre-construction meeting, during construction, the Contractor shall prepare and submit to the Engineer/Architect for approval, an estimate of the amount of labor performed and of the materials incorporated in the work and/or acceptable materials delivered to the site.

- SC-9.3.1.4 Partial payment to the Contractor for work performed under a lump sum price shall be based on a detailed breakdown of a bid showing labor and material as prepared by the Contractor preceding start of construction and approved by the Owner.

- SC-9.3.1.5 Acceptable materials delivered to the site but not incorporated in the work will be paid for at ninety-two percent (92%) of the invoice value of same. Until the job is fifty percent (50%) completed, the Contractor will be paid ninety-two percent (92%) of the estimated value of labor and material completed in acceptable form.

This eight percent (8%) retention of the first fifty percent (50%) of the job will be held by the Owner until 30 days after completion. After the job is fifty percent (50%) completed, material incorporated in the work and labor will be paid for at one-hundred percent (100%) of the estimated value of same as bid.

When the work is completed to the satisfaction of the Owner, the Contractor shall be paid an amount which will bring the total payments to him up to ninety-six percent (96%) of the contract price.

The Act makes reference to payments of estimates "Unless the Contractor does not prosecute the work with diligence and with the force specified or intended in the Contract."

Upon approval of the Engineer/Architect, the four percent (4%) retainer may be reduced commensurate with partial acceptance of facilities completed and placed in operation.

- SC-9.5.1.8 Failure to comply with the terms of the contract and/or these specifications or fails to

comply with the orders or directions of the Engineer/Architect.

9.8 SUBSTANTIAL COMPLETION

SC-9.8.4 In the last sentence delete “Substantial Completion” and insert in its place “Final Acceptance.”

9.10 FINAL COMPLETION AND FINAL PAYMENT

SC-9.10.1 Final Acceptance shall be considered only after completion of all punch list items and submission and approval of the Final Documentation Package and Final Pay Estimate.

ARTICLE 11 - INSURANCE AND BONDS

11.1 CONTRACTOR'S INSURANCE AND BONDS

SC-11.1.1 Add the following: Unless otherwise stated in Specific Project Requirements, the Contractor, not the Owner, shall purchase and maintain, during the Contract Time, the following insurances and all other insurance requirements of the General Conditions as applicable for the type of work to be performed upon the Project to the full insurable value thereof for the benefit of the Owner, the Contractor, Subcontractors, and Suppliers as their interest may appear. This provision shall in no way release the Contractor or Contractor's Surety from obligations under the Contract Documents to fully complete the Project.

SC-11.1.1.1 The limits of liability for the insurance required by the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

All of the limits below may be satisfied with an Umbrella/Excess Liability as needed to increase the Primary Policy to required limits.
Workers' Compensation, etc.:

- | | | |
|-----|--|-------------|
| (a) | State | Statutory |
| (b) | Applicable Federal (e.g., Longshoreman's): | Statutory |
| (c) | Employer's Liability: | \$1,000,000 |

Contractor's Liability Insurance which shall also include completed operations; product liability coverage; and indemnity obligations to the extent available in the insurance industry with industry standard exclusions and as allowed under the laws and regulations in the State of Ohio:

- (a) Bodily Injury and Property Damage, Combined Single Limit (CSL) (Except Products and Completed Operations) Property Damage liability insurance

will provide Explosion, Collapse and Underground coverage where applicable.

Each Occurrence	\$2,000,000
-----------------	-------------

General Aggregate	\$4,000,000
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(b) Products and Completed Operations

Aggregate	\$1,000,000
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Products and Completed Operations to be maintained for two (2) years after final payment and Contractor shall continue to provide evidence of such coverage to the Owner on an annual basis during the aforementioned period.

(c) Personal and Advertising Injury (Per Person/Organization and per occurrence).	\$1,000,000
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(d) Fire Damage	\$100,000
-----------------	-----------

(e) If the General Liability Policy includes a General Aggregate, such policy shall be endorsed to have General Aggregate apply to this project only (Per Project Aggregate Limit).

Automobile Liability - (Owned, Non-Owned, Hired)
Contractor may provide split limits or combined single limit.

(a) Split Limits:

Bodily Injury,	Each Person:	\$2,000,000
	Each Occurrence	\$2,000,000
Property Damage,	Each Occurrence	\$1,000,000

or

(b) Combined Single Limit

Bodily Injury and Property Damage, Each Occurrence \$2,000,000

SC-11.1.1.2 Written notice of cancellation for non-payment of premium shall be at least 10 days.

SC-11.1.1.3 The Certificate(s) of Insurance shall be the most current version ACORD 25.

SC-11.1.2.1 As a guarantee for the faithful performance of correction of the work or repair and/or replacement of any equipment or materials required under the Contractor's warranty, the Contract Bond or Performance/Payment Bond ("Rollover" Bond - ORC 153.571 or Performance/Payment Bond - ORC 153.57) shall cover the Contractor's and equipment and materials warranties for the full Correction (Maintenance/Warranty) Period.

The Owner may, at its option and at no additional cost, also require a Maintenance/Warranty Bond for the length of the Correction Period as a separate instrument apart from the Rollover or Performance/Payment Bond.

11.2 OWNER'S INSURANCE

SC-11.2.1 Delete 11.2.1 in the General Conditions and insert the following:
Unless otherwise stated in Specific Project Requirements, the Contractor shall purchase and provide an "Owner's and Contractor's Protective Policy" with an immediate Effective Date and the **Owner listed as the Insured (No additional insureds)** for the following limits:

Each Occurrence	\$1,000,000
General Aggregate	\$2,000,000

ARTICLE 12 - UNCOVERING AND CORRECTION OF WORK

12.2 CORRECTION OF WORK

SC-12.2.2.1 In the first sentence delete "Substantial Completion" and insert in its place "Final Acceptance."

SC-12.2.6 All materials and equipment shall be warranted by the respective material supplier or equipment manufacturer until the end of the required warranty period or Contractor's Correction Period, which ever is longer, starting from the date of Final Acceptance regardless of date of initial installation or operation of the material or equipment. The cost of such extended warranties as needed from material suppliers or equipment manufacturers to provide warranty coverage until the end of the Correction Period or other period as specified in the contract shall be the responsibility of the prime contractor and shall be assumed to have been included in his bid.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

13.4 TESTS AND INSPECTIONS

SC-13.4.1.1 Unless specifically stated otherwise, all tests hereinafter specified in the various divisions of the Specifications shall be made at the expense of the Contractor within whose Contract is included the work requiring the tests, by testing laboratories approved by the Owner.

SC-13.4.1.2 Tests required by Federal Specifications or ASTM of American Standards will be required where specifically hereinafter stated.

SC-13.4.1.3 Where testing is required, any work performed without test or prior to approval of

test results shall be the full responsibility of the Contractor and shall be subject to replacement should it be unsatisfactory in the opinion of the Engineer/Architect.

SC-13.4.1.4 Where the quality of other proposed materials is questioned and check tests ordered by the Owner, the cost of such tests shall be borne by the Contractor if the material fails to comply with the Specifications. If the materials meet specification requirements, the cost of such special tests will be borne by the Owner.

END OF SECTION

10/25

SECTION 5
SPECIFICATIONS

SECTION 011100 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Related Documents.
- B. Project Contracts.
- C. Work Identification.
- D. Abbreviated Summary of Work
- E. Sequence of Construction.
- F. Miscellaneous Provisions.

1.2 RELATED DOCUMENTS

- A. The Contract Documents are defined in the Project Manual and the Drawings.
 - 1. In general, the Project Manual, includes a description of the work to be performed by the various trades, other than work specifically excluded. It shall be the responsibility of each General Trades Contractor and Subcontractor(s) to perform all work indicated to their contract/trade, whether or not specific mention is made of each item, unless such incidentals are included under another work item.
 - 2. It is advised that all General Trades Contractors and Subcontractors familiarize themselves with the contents of the complete plans and specifications, particularly for the trades preceding, following, related or adjacent to their work.

1.3 PROJECT CONTRACTS

- A. General Trades Contract for this Project includes site, utilities, building, interiors, finishes, plumbing, mechanical, electrical and technologies.

1.4 WORK IDENTIFICATION

- A. Contract Documents indicate the work of the General Trades Contractor and related requirements and conditions that have an impact on the project. Related requirements and conditions that are indicated on the Contract Documents include, but are not necessarily limited to, the following:
 - 1. All labor, materials, tools, equipment and transportation necessary for the proper execution of the work in accordance with the Contract Documents.

2. All assistance required by the Owner or Architect/Engineer to verify compliance with the Contract Documents.
3. Existing site conditions and restrictions on the use of the work sites.
5. Construction sequencing to maintain continuous operation of existing facilities during the construction.
6. Scheduling of the work to accomplish the sequencing and improvement completion within the specified calendar days including intermediate milestone.
7. Testing of materials installed during construction.
8. Requirements for Owner acceptance including testing, start-up, training, operational demonstration and commissioning.
9. Special conditions associated with the project, including any Specific Project Requirements.

1.5 ABBREVIATED SUMMARY OF WORK

The work of Contractors can be summarized as follows:

- A. General: The Contract Documents, Project Specifications and Drawings together describe the work of this project. Neither the specifications nor the drawings describe the work completely. The specifications in their entirety apply to the work of each Contractor.
- B. Coordinate Efforts: The following is a listing of responsibilities for inclusion into the work by General Trades Contractor.
 1. Contractor shall provide all assistance required by the Architects to verify compliance with the Contract Documents.
 2. All Contractors will be responsible for their individual systems and associated costs.
 3. Contractor will be responsible for maintaining one set of working, red-line record drawings as the work progresses. All original red-line drawing sets will be provided to the Owner at the completion of work.
- C. General Contract Work Summary:
 1. Work includes, but is not necessarily limited to, the following. General requirements work as specified in Division 1 including submittals; General contract work; testing.
 - a. Demolition – Including; partitions, ceilings, concrete slabs, and abandoned underground utilities

- c. Wood framing, masonry walls, gypsum board, hollow metal door frames, doors and all associated hardware, ceiling finishes, wall finishes and floor finishes.
- d. Seal cover and protect existing ductwork, diffusers and return air grille, fire suppression equipment from Data Debris.
- e. Clean-up of interior of building and building site.

D. Mechanical Work Summary

- 1. Work includes, but is not necessarily limited to, the following. General requirements work as specified in Division 1 including submittals; temporary construction facilities for General contract work; testing; start-up and commissioning.
 - a. General requirements work as specified in Division 1 including submittals.
 - b. HVAC systems, inside of the building to the limits shown. Includes all equipment that supports the HVAC systems.

E. Electrical Work Summary:

- 1. Work includes, but is not necessarily limited to, the following. General requirements work as specified in Division 1 including submittals; temporary construction facilities for General contract work; testing; start-up and commissioning. Work is primarily electrical, power distribution, conduit and wiring for instrumentation and control, conduit and wiring for equipment monitoring and control, providing and maintaining the temporary power system and lighting plus work traditionally recognized as electrical construction.
 - a. Electrical includes demolition, cutting and patching;
 - b. Site safety for Electrical Contract work.
 - c. Power distribution and panel boards.
 - d. Telephone/Data service conduits.
 - e. Grounding system.

1.6 SEQUENCE OF CONSTRUCTION

- A. Description: The Contractor will be responsible to coordinate and schedule the sequence of and interface the work with the Geauga Maintenance Department.
- B. General Requirements: Since renovation may potentially interfere with the operations of the existing Police and Fire Departments, the Contractor shall take any and all steps necessary to avoid this interference, including the following:
 - 1. When avoidance of interference is impractical, the Contractor shall take the following additional steps:
 - a. The Contractor shall schedule his work so as to minimize the time interval and/or frequency that any portion of the building is open to the outside environment.

- b. The Contractor shall coordinate all labor, materials, and equipment to be on the site at the start of demolition.
- c. The Contractor shall coordinate with and notify the Architect/Owner well in advance of problems.

1.8 MISCELLANEOUS PROVISIONS

- A. The project is located at: 5648 West Chapel Rd., Madison, Ohio 44057.
- B. DRAWING SCHEDULE - The work to be done under this Contract is shown on the following Drawings:

<u>Sheet No.</u>	<u>Title</u>
G1.0	Title Sheet, Key Plan and Code Data
C1.0	Notes and Details
C1.1	Existing Site Conditions
C1.2	Site Demolition Plan
C1.3	Site Layout and Grading Plan
C1.4	SWPPP Details
A1.0	Existing Conditions, Demolition Plan and Notes
A1.1	Proposed Plans and Elevations
A1.2	Door and Finish Schedules, Wall Sections and Details
A1.3	General Notes and Structural Specifications
A1.4	General Notes and Structural Specifications
M1.0	Plumbing and Mechanical Plans
M2.0	Plumbing and Mechanical Symbols, Notes and Details
M3.0	Plumbing and Mechanical Specifications
ED1.0	Electrical Demolition Plan
E1.0	Electrical Details, Schedules and One Line Diagram
E2.0	Lighting Plan
E3.0	Electrical Specifications

END OF SECTION 011100

SECTION 011419 – USE OF SITE

PART 1 - GENERAL

1.1 GENERAL

- A. The Contractor will be allowed the use of as much of the site designated for the improvements as is necessary for his operation.

1.2 USE OF STREETS

- A. During the progress of the work, the Contractor shall make ample provisions for both vehicle and pedestrian traffic on any public street and shall indemnify and save harmless the Owner from any expense whatsoever due to their operations over said streets. The Contractor shall also provide free access to all the fire hydrants, water, and gas valves located along the line of his work. Gutters and waterways must be kept open or other provisions made for the removal of storm water. Street intersections may be blocked only one-half at a time, and the Contractor shall lay and maintain temporary driveways, bridges and crossings, such as in the opinion of the Engineer are necessary to reasonably accommodate the public.
- B. In the event of the Contractor's failure to comply with these provisions, the Owner may cause the same to be done, and may deduct the cost of such work from any monies due the Contractor under this Agreement, but the performance of such work by the Owner at its instance shall serve in no way to release the Contractor from his general or particular liability for the safety of the public or the work.
- C. The Contractor shall repair at no cost to the Owner, all existing roads, parking areas, grassed areas that are damaged due to the execution of his work. The Contractor shall remove daily all mud, soil and debris that may be tracked onto existing streets, drives, or walks by his equipment or that of subcontractors or suppliers.

1.3 CLOSING STREETS TO TRAFFIC

The Contractor may with the approval of the Engineer, close streets, or parts of streets, to vehicular traffic. The streets are to remain closed as long as the construction work or the condition of the finished work requires or as determined by the Engineer. The Engineer shall be the judge of how many streets or parts of streets it is necessary for the Contractor to close at any time, and may refuse to permit the closing of additional streets to traffic until the majority of the work on the closed streets is completed and they are opened to traffic.

1.4 RIGHTS-OF-WAY

- A. Whenever it is required to perform work within the limits of public or private property or in rights-of-way, such work shall be done in conformity with all agreements between the Owner and the owners of such.

Care shall be taken to avoid injury to the premises entered, which premises shall be left in a neat and orderly condition by the removal of rubbish and the grading of surplus materials, and the restoration of said public or private property to the same general conditions as pertained at the time of entry for work to be performed under this contract.

- B. The Contractor shall not (except after consent from the proper parties) enter or occupy with men, tools or equipment, any land outside the rights-of-way or property of the Owner.
- C. When the Contractor performs construction within 10 ft. of a right-of-way or easement line, he shall place tall stakes properly identified at points of change in width or direction of the right-of-way or easement line and at points along the line so that at least two stakes can be seen distinctly from any point on the line.

1.5 EASEMENTS

- A. Where the work is to be constructed upon easements, such easements will be secured by the Owner without cost to the Contractor. The Contractor shall not enter upon or occupy any private property outside of the limits of the easements furnished.
- B. Care shall be taken to avoid injury to the premises entered, which premises shall be left in a neat and orderly condition by the removal of rubbish and the grading of surplus materials, and the restoration of said public or private property to the same general conditions as pertained at the time of entry for work to be performed under this contract.

1.6 PROTECTING EXISTING BUILDINGS, STRUCTURES AND ROADWAYS

- A. The Contractor shall, at his own expense, shore up and protect any buildings, roadways, utilities or other public or private structures which may be encountered or endangered in the prosecution of the work, and that may not be otherwise provided for, and he shall repair and make good any damages caused to any such property by reason of his operations. All existing fences removed due to the prosecution of the work shall be replaced by the Contractor. No extra payment will be made for said work or material, but the cost of this work must be included in the price stipulated for the work to be done under this contract.

1.7 SITE FACILITIES

- A. The Contractor shall furnish and place sufficient quantities of portable toilet facilities at locations convenient for use by the Contractor's personnel, Subcontractors, the Engineer, and the Owner.

1.8 RESTORATION

- A. The contractor shall restore all areas per the plans and specifications and if not specified, at least to the condition existing prior to the start of work.

END OF SECTION 011419

SECTION 011423 - ADDITIONAL WORK, OVERTIME

PART 1 - GENERAL

1.1 NIGHT, SUNDAY AND HOLIDAY WORK

- A. No work will be permitted at night, Sunday or legal holidays except as noted on the plans or in the case of emergency and then only upon written authorization of the Engineer. Where no emergency exists, but the Contractor feels it advantageous to work at night, Sunday or legal holidays, the Contractor shall notify the Engineer at least two (2) days in advance, requesting written permission. Any work performed during the absence of the Engineer will be done at the Contractor's risk and responsibility and may be subject to rejection upon later inspection.

END OF SECTION 011423

SECTION 012513 – PRODUCT SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 MATERIALS AND EQUIPMENT

- A. In the specifications and on the Engineer's drawings, are specified and shown certain pieces of equipment and materials deemed most suitable for the service anticipated. This is not done to eliminate other equipment and materials equally as good and efficient. The Contractor shall prepare his bid on the particular materials and equipment specified. Following the award of the contract, should the Contractor desire to use other equipment and materials, he shall submit to the Owner a written request for such change and state the advantage to the Owner and the savings or additional cost involved by the proposed substitution. The determination as to whether or not such change will be permitted rests with the Owner and the Engineer.
- B. Each major item of equipment shall be inspected by a manufacturer's representative during installation and upon completion of the work. The Contractor shall supply the Engineer with a certificate of such inspection.

END OF SECTION 012513

SECTION 013119 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 PRECONSTRUCTION MEETING

- A. Prior to the Contractor beginning any work on the project, the Architect will schedule and hold a preconstruction meeting to discuss all aspects of the contract work.
- B. The Contractor shall be present and be prepared to comment in detail on all aspects of his work.
- C. The Contractor shall bring to the preconstruction meeting a proposed construction progress schedule, quality control program, concrete mix designs, etc. Approval of each by the Architect is required prior to the start of any work.
- D. Included in the construction progress schedule shall be an implementation sequence of the proposed erosion control efforts required by the contract.

1.2 PROGRESS MEETINGS

- A. Progress meetings will be held at a location to be determined by the Owner on a regularly scheduled day mutually convenient to the Owner, Contractor, and Architect.
- B. The Contractor shall provide an updated construction progress schedule and be prepared to comment in detail on all aspects of his work.

END OF SECTION 013119

SECTION 013319 - FIELD TEST REPORTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes, but is not limited to, services performed by an independent testing laboratory. Laboratory services covered under this section are for testing materials used for field constructed elements of the work. Performance testing of manufactured items and shop fabricated materials shall be covered under their respective specification section.
- B. All testing performed under this item shall be for the protection and benefit of the Owner and shall not be construed by the Contractor as a comprehensive quality control program intended to protect the Contractor, his subcontractors, or his suppliers. The testing frequency and types of testing shall be as scheduled herein at the discretion of the Owner.
- C. Inspections, tests, and related actions specified in this section and elsewhere in the contract documents are not intended to limit the Contractor's own quality control procedures and testing, which facilitate overall compliance with requirements of the contract documents. Requirements for the Contractor to provide quality control services as required by the Engineer, the Owner, governing authorities, or other authorized entities are not limited by the provisions of this Section.
- D. The Contractor is required to cooperate with the testing laboratories performing required inspections, test, and similar services and the Engineer or his representative.
- E. Materials and installed work may require testing or retesting at any time during progress of work. Retesting of rejected materials or installed work shall be done at Contractor's expense.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Supplementary Conditions and Division 1 Specifications sections, apply to work of this section.
- B. The Contract Documents may include testing requirements furnished under other Sections. Work elements which may include other testing requirements are:
 - 1. Water distribution systems.
 - 2. Electrical systems tested and certified by the Electrical Contractor.

1.3 SELECTION AND PAYMENT

- A. The Contractor will employ an independent testing laboratory to perform specified testing. Payment shall be incidental to the related work bid item. The laboratory shall be mutually agreed upon by the Owner, Architect, and Contractor. The laboratory shall be mutually agreed upon by the Owner, Architect, and Contractor.
- B. Employment of testing laboratory in no way relieves the Contractor of the obligation to perform work in accordance with requirements of the contract documents.
- C. The testing laboratory and their personnel shall be under the direction of the Engineer's on-site representative, regardless of who employs their services.

1.4 REFERENCES

- A. AASHTO T-19, Standard Method of Test for Unit Weight and Voids in Aggregate.
- B. AASHTO T-37, Standard Method of Test for Sieve Analysis of mineral Filler for Road and Paving Materials.
- C. AASHTO T-230, Standard Method of Test for Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures.
- D. ASTM C-29, Standard Method of Test for Unit Weight and Voids in Aggregate.
- E. ASTM C-31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
- F. ASTM C-33, Standard Specification for Concrete Aggregates.
- G. ASTM C-39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- H. ASTM C-40, Test Method for Organic Impurities in Fine Aggregates for Concrete.
- I. ASTM C-42, Standard Test Methods for Obtaining and Testing Drilled Cored and Sawed Beams of Concrete.
- J. ASTM C-88, Standard Test Method for Soundness of Aggregate by use of Sodium Sulfate or Magnesium Sulfate.
- K. ASTM C-94, Standard Specification for Ready-Mixed Concrete.
- L. ASTM C-117, Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing.
- M. ASTM C-136, Standard Method for Sieve Analysis of Fine and Course Aggregate.
- N. ASTM C-142, Test Method for Clay Lumps and Friable Particles in Aggregate.
- O. ASTM C-143, Standard Test Method for Slump of Hydraulic Cement Concrete.
- P. ASTM C-172, Standard Practice for Sampling Freshly Mixed Concrete.
- Q. ASTM C-173, Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.

- R. ASTM C-231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
- S. ASTM C-535, Standard Test Method for Resistance to Degradation of Large-Size Course Aggregate by Abrasion and Impact in the Los Angeles Machine.
- T. ASTM C-1064, Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete.
- U. ASTM D-698, Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb. (2.49-kg) Rammer and 12-inc. (305-mm) Drop.
- V. ASTM D-2487, Standard Test Method for Classification of Soils for engineer purposes.
- W. ASTM D-2940, Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports.
- X. ASTM D-4253, Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
- Y. ASTM D-4254, Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
- Z. ASTM D-4832, Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
- AA. ODOT Supplement 1021, Method of Test for Determination of the Percent of Fractured Pieces in Gravel.
- AB. ODOT Supplement 1029, Method of Test for Determining the Percentage of Deleterious Materials in Course Aggregate.
- AC. ODOT Supplement 1036, Method of Test for Determination of Percent Air Voids in Compacted Dense Bituminous Paving Mixtures.
- AD. ODOT Supplement 1044, Mix Design Method for Bituminous Aggregate Base.
- AE. Uni-Bell PVC Pipe Association UNI-B-6-98 for Low Pressure Air Testing of Installed Sewer Pipe.
- AF. ASTM – C969 – Standard practice for infiltration and exfiltration acceptance of installed concrete sewer pipe.

1.5 SUBMITTALS

- A. Prior to the start of work, submit testing laboratory name, address, and telephone number, and names of full-time registered Engineer and responsible officer.
- B. Submit copy of the testing laboratory's evaluation report issued by one of the evaluation authorities identified in Article 1.6 of this Section with memorandum of remedies of any deficiencies reported by the inspection.
- C. Submit the chain of custody and other QA/QC procedures for each test to be utilized by the laboratory.
- D. Submit a sample test report for review by the Engineer to demonstrate conformance with Article 3.2 herein.

1.6 QUALITY ASSURANCE

- A. The field personnel utilized to perform all field-testing and preparation shall be certified for those tests being performed.

1.7 RESPONSIBILITIES

A. Testing Laboratory Responsibilities:

1. Provide qualified personnel at the site. Cooperate with the Architect and Contractor in performance of services.
2. Perform specified sampling and testing of products in accordance with the specified standards.
3. Ascertain compliance of materials and mixes with requirements of the contract documents.
4. Immediately notify the Architect and Contractor of observed irregularities or nonconformance of work or products.
5. Perform additional tests required by the Architect.
6. Testing personnel are to report to the Architect or his representative upon arrival on site for instructions and requirements. Prior to leaving the site, furnish the Architect or his representative all test results whether in a formal or informal format.
7. Attend preconstruction meetings and progress meetings.

B. Contractor Responsibilities:

1. Provide access to materials proposed to be used which require testing.
2. Cooperate with laboratory personnel and provide access to the work.
3. Provide incidental labor and facilities:
 - a. To provide access to work to be tested.
 - b. To obtain and handle samples at the site or at the source of products to be tested.
 - c. To facilitate tests.
 - d. To provide storage and curing of test samples as required by the testing laboratory.
4. Notify the Architect and laboratory 24 hours prior to expected time for operations requiring testing services for scheduling purposes. Materials will not be permitted to be placed without the proper testing being performed in conformance with this Section.

1.8 LIMITS OF LABORATORY AUTHORITY

- A. The laboratory may not release, revoke, alter, or enlarge the requirements of the contract documents.
- B. The laboratory may not approve or accept any portion of the work.
- C. The laboratory may not assume any duties of the Contractor.

- D. The laboratory has no authority to stop the work.

1.9 SCHEDULE OF TESTS

Testing anticipated on this project shall include, but is not limited to:

A. Earthwork

1. Special backfill material sieve analysis per ASTM C-136, one test per source.
2. On-site trench backfill analysis per ASTM D-2487, as directed by Engineer.
3. Pipe bedding and cover sieve analysis per ASTM C-136, one test per source.
4. Drainage fill sieve analysis per ASTM C-136, one test per source.
5. Soil compaction per ASTM D-698.
 - a. Embankment testing shall be at least one (1) test/5,000 S.F. of each lift;
 - b. Trench backfill testing shall be at least one (1) test/50 L.F. of each lift;
 - c. Subgrade and/or subbase testing shall be at least one (1) test/200 L.F. of pavement or 5,000 S.F. of slabs subject to greater frequency due to soil conditions or Engineer's direction.
6. Backfill compaction per ASTM D-4253 and D-4254, one test per 50 L.F. of each lift.
7. Low Strength Mortar testing per ASTM D-4832.

B. Concrete

1. Concrete aggregate deleterious substances per ASTM C-40, ASTM C-117, and ASTM C-142, one test per source.
2. Concrete aggregate abrasion per ASTM C-535, one test per source.
3. Sodium sulfate soundness of coarse aggregate per ASTM C-88, one test per source.
4. Sampling Fresh Concrete: ASTM C-172, except modified for slump to comply with ASTM C 94.
 - a. When cylinders and/or beam samples are made, the slumps and air test shall be made using concrete from the same batch.
 - b. Slump: ASTM C-143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
 - c. Air Content: ASTM C-173, volumetric method of lightweight concrete; ASTM C-231 pressure method for normal weight concrete; at least one for each pour of each type of air-entrained

- concrete, and each time a set of compression test specimens is made.
- d. Concrete Temperature: ASTM C-1064, test hourly when air temperature is 40° F. (4° C.) and below, and when 80° F. (27° C.) and above; and each time a set of compression test specimens is made.
 - e. Compression Test Specimen: ASTM C-31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
 - f. Compressive Strength Tests: ASTM C-39; one set for each day's pour exceeding 5 cubic yards plus additional sets for each 50 cubic yards over and above the first 25 cubic yards of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required. A strength test shall be the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days.
 - i. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
 - ii. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.
 - g. Two (2) tests beams shall be made for each 250 square yards of concrete pavement and/or slabs on grade placed.
 - i. For traffic to be allowed on pavement or slab, the modulus of rupture shall be a minimum of 600 psi for Class C concrete or 400 psi for ODOT Class MS or FS.
 - h. When cylinders and/or beam samples are made, the slumps and air test shall be made using concrete from the same batch.
5. Nondestructive Testing: Penetration resistance, sonoscope, or other nondestructive devices may be permitted but shall not be used as the sole basis for acceptance or rejection.
6. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Engineer. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

- a. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 SEQUENCING AND SCHEDULING

- A. The Contractor shall coordinate the sequence of work activities so as to accommodate required testing and shall allow sufficient time for testing of materials by the laboratory so as to cause no delay in the work or the work of any other Contractor. In addition, the Contractor shall coordinate his work so as to avoid the necessity of removing and replacing work to accommodate inspections and tests.

3.2 LABORATORY TEST RESULTS

- A. The testing laboratory shall submit a certified written report of each inspection, test, or similar service concurrently to the Owner, Architect, and Contractor.
- B. Written reports of each inspection, test, or similar service shall include, but not be limited to, the following:
 - 1. Name of testing laboratory.
 - 2. Project name and construction contract reference number.
 - 3. Dates and locations of samples and tests or inspections.
 - 4. Date of report.
 - 5. Names of individuals making the inspection or test.
 - 6. Designation of the work and test method.
 - 7. Test results.
 - 8. Notation of significant ambient conditions at the time of sample taking and testing.

END OF SECTION 013319

SECTION 013323 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.1 GENERAL

- A. The Contractor shall submit detailed drawings, acceptable catalog data, specifications and material certifications for all equipment and materials specified or required for the proper completion of the work.
- B. The intent of these items is to demonstrate compliance with the design concept of the work and to provide the detailed information necessary for the fabrication, assembly and installation of the work specified. It is not intended that every detail of all parts of manufactured equipment be submitted, however sufficient detail will be required to ascertain compliance with the specifications and establish the quality of the equipment proposed.

Shop Drawings shall be sufficiently clear and complete to enable the Engineer/Architect and Owner to determine that items proposed to be furnished conform to the specifications and that items delivered to the site are actually those that have been reviewed.

- C. It is emphasized that the Engineer/Architect's review of Contractor's submitted data is for general conformance to the contract drawings and specifications but subject to the detailed requirements of drawings and specifications. Although the Engineer/Architect may review submitted data in detail, such review is an effort to discover errors and omissions in Contractor's drawings. The Engineer/Architect's review shall in no way relieve the Contractor of his obligation to properly coordinate the work and to Engineer/Architect the details of the work in such manner that the purposes and intent of the contract will be achieved. Such review by the Engineer/Architect shall not be construed as placing on him or on the Owner any responsibility for the accuracy and for proper fit, functioning or performance of any phase of the work included in the contract.
- D. Shop Drawings shall be submitted in proper sequence and with due regard to the time required for checking, transmittal and review so as to cause no delay in the work. The Contractor's failure to transmit appropriate submittals to the Engineer/Architect sufficiently in advance of the work shall not be grounds for time extension.
- E. The Contractor shall submit Shop Drawings for all fabricated work and for all manufactured items required to be furnished in the Contract in accordance with the General Provisions and as specified herein. Shop Drawings shall be submitted in sufficient time to allow at least twenty-one (21) calendar days after receipt of the Shop Drawings from the Contractor for checking and processing by the Engineer/Architect.
- F. It is the responsibility of each Prime Contractor to furnish to all other Prime Contractors and especially the General Construction Contractor reviewed Shop Drawings for guidance in interfacing the various trades; i.e., sleeves, inserts, anchor bolts, terminations, and space requirements.

- G. No work shall be performed requiring Shop Drawings until same have been reviewed by Engineer/Architect.
- H. Accepted and reviewed Shop Drawings shall not be construed as approval of changes from Contract plan and specification requirements.
- I. The Engineer/Architect will review the first and second Shop Drawing item submittals at no cost to the Contractor. Review of the third submittal and any subsequent submittal will be at the Contractor's expense. Payment will be deducted from the Contract amount at a rate of 2.8 times direct labor cost plus expenses.

1.2 SUBMITTAL PROCEDURE

- A. All required submissions shall be made to the Engineer/Architect by the Prime Contractor(s) only. Any data prepared by subcontractors and suppliers and all correspondence originating with subcontractors, suppliers, etc., shall be submitted through the Contractor.
- B. Contractor shall review and approve all Shop Drawings prior to submission. Contractor's approval shall constitute a representation to Owner and Engineer/Architect that Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data or assumes full responsibility for doing so, and that Contractor has reviewed or coordinated each Shop Drawing or sample with the requirements of the work and the Contract Documents.
- C. Submittal Preparation: Mark each submittal with a permanent label or page for identification. Provide the following information on the label for proper processing and recording of action taken:
 - 1. Location
 - 2. Project Name
 - 3. Contract
 - 4. Name and Address of Engineer/Architect
 - 5. Name and Address of Contractor
 - 6. Name and Address of Subcontractor
 - 7. Name and Address of Supplier
 - 8. Name of Manufacturer
 - 9. Number and Title of appropriate Specification Section
 - 10. Drawing Number and Detail References, as appropriate.
 - 11. Submittal Sequence or Log Reference Number.
 - a. Provide a space on the label for the Contractor's review and approval markings and a space for the Engineer/Architect's "Action Stamp".
- D. Each Shop Drawing, sample and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor:

Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements.

Signature

Date

Company

- E. Shop Drawings shall be submitted in not less than six (6) copies to the Engineer/Architect at the address specified at the Preconstruction Conference. Single mylar or sepia reproducible copies of simple Shop Drawings may be submitted with prior approval of the Engineer/Architect.
- F. At the time of each submission, Contractor shall in writing identify any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.
- G. Drawings shall be clean, legible and shall show necessary working dimensions, arrangement, material finish, erection data, and like information needed to define what is to be furnished and to establish its suitability for the intended use. Specifications may be required for equipment or materials to establish any characteristics of performance where such are pertinent. Suitable catalog data sheets showing all options and marked with complete model numbers may, in certain instances, be sufficient to define the articles which it is proposed to furnish.
- H. For product which require submittal of samples, furnish samples so as not to delay fabrication, allowing the Engineer reasonable time for the consideration of the samples submitted. Properly label samples, indicating the material or product represented, its place of origin, the names of the vendor and Contractor and the name of the project for which it is intended. Ship samples prepaid. Accompany samples with pertinent data required to judge the quality and acceptability of the sample, such as certified test records and, where required for proper evaluation, certified chemical analyses.

1.3 REVIEW PROCEDURE

- A. Engineer/Architect will review with reasonable promptness all properly submitted Shop Drawings. Such review shall be only for conformance with the design concept of the Project and for compliance with the information given in the plans and specifications and shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions or programs incident thereto.
- B. The review of a separate item as such will not constitute the review of the assembly in which the item functions. The Contractor shall submit entire systems as a package.
- C. All Shop Drawings submitted for review shall be stamped with the Engineer/Architect's action and associated comments.

- D. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Engineer/Architect will review each submittal, mark to indicate action taken, and return accordingly. Compliance with specified characteristics is the Contractor's responsibility.

Action Stamp: The Engineer/Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

1. If Shop Drawings are found to be in general compliance, such review will be indicated by marking the first statement.
 2. If only minor notes in reasonable number are needed, the Engineer/Architect will make same on all copies and mark the second statement. Shop Drawings so marked need not be resubmitted.
 3. If the submitted Shop Drawings are incomplete or inadequate, the Engineer/Architect will mark the third statement, request such additional information as required, and explain the reasons for revision. The Contractor shall be responsible for revisions, and/or providing needed information, without undue delay, until such Shop Drawings are acceptable. Shop Drawings marked with No. 3 shall be completed resubmitted.
 4. If the submitted Shop Drawings are not in compliance with the Contract Documents, the Engineer/Architect will mark the fourth statement. The Contractor will be responsible to submit a new offering conforming to specific products specified herein and/or as directed per review citations.
- E. No submittal requiring a Change Order for either value or substitution or both, will be returned until the Change Order is approved or otherwise directed by the Owner.

APPLICATION FOR USE OF SUBSTITUTE ITEM

TO: _____

PROJECT: _____

SPECIFIED ITEM:

Page	Paragraph	Description
A.		The undersigned requests consideration of the following as a substitute item in accordance with Article 6.05 of the General Conditions.
B.		Change in Contract Price (indicate + or -) \$ _____
C.		Attached data includes product description, specifications, drawings, photographs, references, past problems and remedies, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified. For consideration of the attached data as SHOP DRAWINGS, submittal shall be in accordance with requirements of Section 013323.
D.		Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments are correct:

1. The proposed substitute does not affect dimensions shown on Drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing, and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse affect on other contractors, the construction schedule, or specified warranty requirements. (If proposed substitution affects construction schedule, indicate below using + or -)

_____ CONSECUTIVE CALENDAR DAYS

4. Maintenance and service parts will be locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item, and agrees to reimburse the OWNER for the charges of the ENGINEER for evaluating this proposed substitute item.

E. Signature:

Firm:

Address:

Telephone:

Date:

Attachments:

For use by ENGINEER:

_____ Accepted as evidenced by affixed SHOP DRAWING REVIEW stamp.

_____ Accepted as evidenced by included CHANGE ORDER.

_____ Not accepted as submitted. See Remarks.

_____ Acceptance requires completion of submittal as required for SHOP DRAWINGS.

_____ Not accepted. Do not resubmit.

By:

Date:

Remarks:

APPLICATION FOR USE OF "OR-EQUAL" ITEM

TO: _____

PROJECT: _____

SPECIFIED ITEM:

Page	Paragraph	Description
A.		The undersigned requests consideration of the following as an "or-equal" item in accordance with Article 6.05 of the General Conditions. _____
B.	Change in Contract Price (indicate + or -) \$	_____
C.		Attached data includes product description, specifications, drawings, photographs, references, past problems and remedies, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified. For consideration of the attached data as SHOP DRAWINGS, submittal shall be in accordance with requirements of Section 013323.
D.	Signature:	_____
	Firm:	_____
	Address:	_____ _____ _____

Telephone: _____ Date: _____

Attachments: _____

For use by ENGINEER:

Accepted as evidenced by affixed SHOP DRAWING REVIEW stamp.

Accepted as evidenced by included CHANGE ORDER.

Not accepted as submitted. See Remarks.

Acceptance requires completion of submittal as required for SHOP DRAWINGS.

Not accepted. Do not resubmit.

By: _____ Date: _____

Remarks: _____

END OF SECTION 013323

SECTION 013325 - WARRANTY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section provides procedures and requirements for warranting the Work. The enumerated warranties herein are in no way intended to abrogate any implied warranties as associated with goods supplied under this Contract.

1.2 SUMMARY

- A. Work Included:
 - 1. Preparation of Warranties for submittals.
 - 2. Requirements for the content and submittal of Warranties.

1.3 RELATED DOCUMENTS

- A. This Section includes minimum requirements for the warranty of the equipment. See also all equipment specification sections for additional requirements.
- B. Section 013323, Shop Drawings, Product Data, and Samples.

1.4 SUBMITTALS

- A. As a part of the submittals for each item of equipment or a group of equipment items, include a DRAFT Warranty containing all of the language and terms specified.
- B. Following completion of the terms for establishment of the Warranty specified, prepare Warranties for submittal per section 013323 and the following:
 - 1. Warranties for projects or portions of the work, established on a particular date as specified herein, may be submitted as a group.
 - 2. Label each submittal with the title 'WARRANTY,' the project name and effective date; the Contractor's names, address and telephone number.
 - 3. A Table of Contents shall be included identifying each item with a number and title of specification section and the name of the product or Work item.
 - 4. Separate Warranty for each specification section item with index tab sheets. Label tables to conform to the Table of Contents.
- C. The Warranty shall contain, as applicable:
 - 1. Effective starting date and end date of the Warranty period.
 - 2. Statement of the terms and conditions of the Warranty, if any.
 - 3. Statement that all Operating and Maintenance information has been provided and approved.
 - 4. Statement that all training and training materials have been provided and approved.

5. Statement that the equipment or system commissioning is complete and has been reviewed and accepted by the manufacturer in accordance with provisions of the individual Sections in Divisions 1 through 46 of the Project Manual, as applicable.
 6. Certifications by the Contractor and/or Manufacturer that the statements noted above are true and correct. This certification shall be signed by a person authorized to sign documents on behalf of the Contractor.
- D. Special warranties, as required by individual Sections in Divisions 1 through 46 of the Project Manual, shall be submitted in accordance with the requirements of this Section.

PART 2 – PRODUCTS

2.1 WARRANTIES

A. Term or Period

1. The Warranty shall extend for two (2) calendar years from the date of acceptance by Owner unless a longer period is required in the provisions of the individual Sections in Divisions 1 through 46 of the Project Manual, as applicable.

B. Contractor's Responsibilities

1. During the Warranty period, the Contractor is responsible for repair or replacement of all failures and defects, exclusive of ordinary and routine maintenance and failures directly traceable to the lack thereof. This requirement shall be thoroughly explained by the Contractor to all prospective equipment suppliers. Repairs or replacement shall be performed in accordance with the General Conditions.

PART 3 – EXECUTION

3.1 EXECUTION OF WARRANTY

- A. The approved DRAFT Warranty will be executed and placed in effect as the FINAL Warranty on the date of Final Completion of the Work for the specific equipment item or group named in the Warranty.

END OF SECTION 013325

SECTION 013326 – PRODUCT TESTING AND CERTIFYING

PART 1 - GENERAL

1.1 QUALITY OF MATERIALS

- A. Where the specifications call for mill or shop tests, the Contractor shall furnish duplicate copies of attested manufacturer's certificates showing details of quality or performance sufficient to demonstrate conformity to contract requirements. Mill, shop or witness tests shall be subject to view by the Architect's representative, but the Engineer's representation shall not relieve the Contractor from the necessity of furnishing certificates specified. The Engineer shall be notified by the Contractor in writing, sufficiently in advance of the time of making tests, so that proper arrangements may be made. Waiving of witness of tests by the Engineer may be in writing only by the Architect. All costs for travel, lodging, food and transportation that are necessary for the Architect's representative and the Owner's representative to attend witness tests shall be included in the Contractor's bid for those item(s) specifically designated as being subject to witness testing.
- B. Unless otherwise specified, all materials, equipment and articles shall be erected, installed, applied, or connected, used, cleaned and conditioned in accordance with the printed instructions and directions of the manufacturer.
- C. The installation shall be so made that its several component parts will function together as a workable system. It shall be complete with all accessories necessary for its operation and shall be left with all equipment properly adjusted and in working order.
- D. The work shall be executed in conformity with the best practice and so as to contribute to efficiency of operation, minimum maintenance, accessibility and sightliness. It shall also be executed so that the installation will conform and accommodate itself to the building structure, its equipment and usage.
- E. Whenever in the contract documents a particular brand, make of material, device or equipment is shown or specified, such brand, make of material, device or equipment is to be regarded merely as a standard and such trade name shall be followed by "or equal".

1.2 QUALITY ASSURANCE

- A. The equipment and materials to be furnished under this Contract shall be the products of well established and reliable firms which have had ample experience for at least five (5) years in the manufacture of equipment or materials similar in design and of equal quality to that specified. If required, the manufacturer shall submit a list of installations of similar equipment which have been in successful operation for at least five (5) years.

1.3 EXPERIENCE CLAUSE REQUIREMENT AND PERFORMANCE BONDS FOR MANUFACTURER

- A. For every piece of equipment furnished under this Contract, the manufacturer will be required to have a minimum of five (5) years of experience in providing this specific type of equipment. In lieu of this experience requirement, the manufacturer will be required to provide performance bond(s) for the faithful performance of the equipment and guarantee payment in a sum of not less than one hundred and fifty percent (150%) of the total equipment price for the completed work for that item. In the absence of verifiable experience, the manufacturer will be required to provide the performance bond(s) for the same number of years that the manufacturer was found lacking in experience from the specified five (5) year period. The performance bond(s) shall be from an approved surety company, to the satisfaction of the Owner's Law Director.
- B. Agents of bonding companies which write bonds for the performance and payment of the contract shall furnish power of attorney bearing the seal of the company, evidencing such agent's authority to execute the particular type of bond to be furnished, and evidencing also the right of the surety company to do business in the State of Ohio. Copy of this proof shall be attached to each copy of the contract.
- C. The bond shall be purchased through a surety company with a local agent upon whom service of process can be made.
- D. In event of failure of surety or co-surety, the manufacturer shall immediately furnish a new bond, as required herein. The manufacturer's bond will not be released until all provisions of the contract have been fulfilled.
- E. The surety used for the bid bond and performance bond shall be listed in the latest U.S. Treasury Circular 570 and the Penal Sums shall be within the maximum specified for such company in said Circular 570.

END OF SECTION 013326

SECTION 014126 - GENERAL REGULATIONS AND PERMITS

PART 1 - GENERAL

1.1 PERMITS

The Contractor shall apply for and pay for all permits from the Owner and/or other authorities having jurisdiction.

1.2 ARCHAEOLOGICAL DISCOVERIES

Contractors and subcontractors are required under O.R.C. Section 149.53, to notify the Ohio Historical Society and the Ohio Historic Site Preservation Board of Archaeological Discoveries located in the project area, and to cooperate with those entities in archaeological and historic surveys and salvage efforts if such discoveries are uncovered within the project area.

Contact: Ohio's State Historic Preservation Office
Diana Welling, Resource Protection & Review Department Manager
Phone: 1-614-298-2000
Email: dwelling@ohiohistory.org

Should archaeological discoveries or other activities delay progress of the work, an adjustment in contract time will be made.

END OF SECTION 014126

SECTION 014223 - INDUSTRY STANDARDS

PART 1 - GENERAL

1.1 ABBREVIATIONS

- A. Abbreviations, as used, designate the following:

AASHTO	-	American Association of State Highway and Transportation Officials
ACI	-	American Concrete Institute
AIEE	-	American Institute of Electrical Engineers
AISC	-	American Institute of Steel Construction
ANSI	-	American National Standards Institute
ASTM	-	American Society of Testing and Materials
AWWA	-	American Water Works Association
CMS	-	Construction and Material Specifications
NEMA	-	National Electrical Manufacturers Association
ODOT	-	Ohio Department of Transportation
ORC	-	Ohio Revised Code
UL	-	Underwriters Laboratories, Inc.

1.2 REFERENCE TO OTHER SPECIFICATIONS

- A. Where reference is made to specifications such as ASTM, AWWA or AASHTO, the latest edition shall be used, unless otherwise noted on the plans or in the specifications.

1.3 CODES AND STANDARDS

- A. All work provided for by these specifications must be installed according to the provisions of the State and local building codes, subject to inspection and acceptance by the State and local inspectors.

END OF SECTION 014223

SECTION 014323 – QUALIFICATIONS OF TRADESMEN

PART 1 - GENERAL

1.1 CHARACTER OF WORKMEN AND EQUIPMENT

- A. The Contractor shall employ competent and efficient workmen for every kind of work. Any person employed on the work who shall refuse or neglect to obey directions of the Architect or his representative, or who shall be deemed incompetent or disorderly, or who shall commit trespass upon public or private property in the vicinity of the work, shall be dismissed when the Architect so orders, and shall not be re-employed unless express permission be given by the Architect. The methods, equipment and appliances used on the work and the labor employed shall be such as will produce a satisfactory quality of work, and shall be adequate to complete the contract within the specified time limit.
- B. In hiring of employees for the performance of work under this Contract, or any Subcontract hereunder, no Contractor or Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall, by reason of race, sex, creed or color, discriminate against any citizen of the State of Ohio in the work to which the employment relates. No Contractor, Subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, creed, sex or color.

END OF SECTION 014323

SECTION 016600 - PRODUCT HANDLING AND PROTECTION

PART 1 - GENERAL

1.1 DELIVERY AND STORAGE OF MATERIALS

- A. The Contractor shall be responsible for delivery and storage of all materials.
- B. The Contractor shall coordinate with the Engineer on the arrangement for storing construction materials and equipment. Deliveries of all construction materials and equipment should be made at suitable times.
- C. The Contractor shall store all materials required for the performance of this contract at sites designated by the Engineer.
- D. All stockpiles shall be neat, compact, completely safe, and barricaded with warning lights if necessary.
- E. Precautions shall be taken so that no shade trees, shrubs, flowers, sidewalks, driveways or other facilities will be damaged by the storage of materials. The Contractor shall be responsible for the restoration of all stockpile sites to their original condition.
- F. Materials, tools and machinery shall not be piled or placed against shade trees, unless they shall be amply protected against injury therefrom. All materials, tools, machinery, etc. stored upon public thoroughfares must be provided with red lights at night time so as to warn the traffic of such obstruction.
- G. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, shall again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. Approved portions of the construction site may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefore must be provided by the Contractor at his expense. Private property shall not be used for storage purposes without written permission of the property owner or lessee, and copies of such written permission shall be furnished the Architect. All storage sites shall be restored to their original condition by the Contractor at his expense.

END OF SECTION 016600

SECTION 017800 - FINAL COMPLIANCE AND SUBMITTALS

PART 1 - GENERAL

- 1.1 The following forms and related sign-offs shall be documented in accordance with provisions of the contract. These forms shall be completed by the Contractor and approved by the Owner before final retainer is approved for release. Forms for Items A to G will be attached to the Contractor's executed copy of the contract.
- A. Certificate of Substantial Completion (To be submitted at time of Substantial Completion).
 - B. Contractor's Certification of Completion.
 - C. Contractor's Affidavit of Prevailing Wage.
 - D. Consent of Surety Company for Final Payment.
 - E. Affidavit of Final Acceptance Date and Correction Period.
 - F. Before the OWNER will approve and accept the work and release the retainer, the CONTRACTOR will furnish the OWNER a written report indicating the resolution of any and all property damage claims filed with the CONTRACTOR by any party during the construction period. The information to be supplied shall include, but not be limited to, name of claimant, date filed with CONTRACTOR, name of insurance company and/or adjuster handling claim, how claim was resolved and if claim was not resolved for the full amount, a statement indicating the reason for such action.
 - G. Build America, Buy America Certifications.

END OF SECTION 017800

SECTION 017821 - CLEANING AND PROTECTION

PART 1 - GENERAL

1.1 GENERAL

- A. On or before the completion date for the work, the Contractor shall tear down and remove all temporary structures built by him, all construction plant used by him, and shall repair and replace all parts of existing embankments, fences or other structures which were removed or injured by his operations or by the employees of the Contractor. The Contractor shall thoroughly clean out all buildings, sewers, drains, pipes, manholes, inlets and miscellaneous and appurtenant structures, and shall remove all rubbish leaving the grounds in a neat and satisfactory condition.
- B. As circumstances require and when ordered by the Architect, the Contractor shall clean the road, driveway, and/or sidewalk on which construction activity under this contract has resulted in dirt or any other foreign material being deposited with an automatic self-contained mechanical sweeper with integral water spray, vacuum and on-board or supplementary containment.
- C. Failure to comply with this requirement when ordered by the Architect or his representative, may serve as cause for the Engineer to stop the work and to withhold any monies due the Contractor until such order has been complied with to the satisfaction of the Engineer.
- D. As the work progresses, and as may be directed, the Contractor shall remove from the site and dispose of debris and waste material resulting from his work. Particular attention shall be given to minimizing any fire and safety hazard from form materials or from other combustibles as may be used in connection with the work, which should be removed daily.
- E. The Contractor shall wash all windows and other glass surfaces, leaving all areas free from putty marks, paint, etc.
- F. During and after installation, the Contractor shall furnish and maintain satisfactory protection to all equipment against injury by weather, flooding or breakage thereby permitting all work to be left in a new condition at the completion of the contract.

END OF SECTION 017821

SECTION 017823 - MAINTENANCE MANUALS

PART 1 - GENERAL

1.1 OPERATION AND MAINTENANCE MANUALS

- A. Operation and maintenance information shall be submitted for all manufactured items, i.e. equipment, hardware, pumps, valves, motors, etc.
- B. This manual will either contain or make reference to all information that has been issued during the construction and start-up periods, as well as information necessary for the proper operation and maintenance of equipment.
- C. It shall be the responsibility of the Contractor who supplies such equipment to obtain from his vendors the required information and submit to the Architect. This information will be accepted only if properly identified and only after it has been revised, where necessary, to conform to previous transmittals of the same material that have been "approved as noted" by the Architect. All submittals shall be on 8-1/2" X 11" size paper or folded to that size.
- D. In general and where applicable, the information shall consist of, but not be limited to, six (6) sets of the following:
 - 1. Descriptive literature, bulletins or other data covering equipment or system.
 - 2. Complete list of equipment and appurtenances included with system, complete with manufacturer and model number.
 - 3. Storage instructions.
 - 4. Installation instructions.
 - 5. Utility requirements.
 - 6. General arrangement drawing.
 - 7. Sectional assembly.
 - 8. Dimension print.
 - 9. Materials of construction.
 - 10. Certified performance curve.
 - 11. Performance guarantee.
 - 12. Parts list and recommended spare parts list.
 - 13. Recommended spare parts list with part and catalog number.
 - 14. Lubrication recommendations and instructions.
 - 15. Schematic wiring diagrams.
 - 16. Schematic piping diagrams.
 - 17. Instrumentation data.
 - 18. Drive dimensions and data.
 - 19. Control data.
 - 20. Operating instructions.
 - 21. Maintenance instructions including troubleshooting guidelines and preventative maintenance instructions with task schedule.
 - 22. Required tools and equipment for operation and maintenance.
 - 23. Safety considerations for O & M procedures.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORDS, DRAWINGS

PART 1 - GENERAL

1.1 RECORD DRAWINGS

- A. The Contractor shall furnish an authentic set of marked-up drawings showing the installation insofar as the installation shall have differed from the Architect's drawings. The drawings shall be delivered to the Architect for making revisions to the original drawings immediately after final acceptance by the Owner.
- B. The Contractor shall furnish dimensioned drawings indicating locations of all underground mechanical and electrical facilities.

1.2 SERVICE CONNECTION RECORDS

- A. The Contractor shall record the location of all service and property connections, new or existing, made to utilities constructed under this contract. Such records shall be turned over to the Owner upon completion of the work. The cost of making such records shall be included in the various unit or lump sum prices stipulated for the various items of the work.
- B. The location of each sewer connection as measured along the sewer from the nearest downstream manhole and its description with respect to the sewer shall be recorded. The record shall include the depth of new stubs for future connections and the depth of existing connections as measured from the surface grade. Also, the use of any vertical riser pipe shall be noted.
- C. The location of each water connection as measured along the water line from the nearest fire hydrant.

END OF SECTION 017839

SECTION 018000 - SYSTEM PERFORMANCES

PART 1 - GENERAL

1.1 GENERAL

- A. It is the intent of this Contract that the final installation shall be complete in all respects.
- B. The Contractor shall be responsible for all minor details, whether or not shown on the Drawings or specifically included in these Specifications.

1.2 BUILDINGS

- A. The building and components shall function properly and in accordance with the plans, specifications and industry standards.
- B. The following components are included, but not necessarily limited to, the following:
 - 1. Painting Systems
 - 2. Equipment
 - a. Architectural
 - b. Mechanical
 - c. Electrical

1.3 FACILITIES

- A. The facilities and equipment shall function properly and in accordance with plans, specifications and industry standards.

1.4 CERTIFICATION

- A. The Contractor shall provide written certification from the manufacturers and/or installers that the various major components are in working order or have been installed in accordance with the manufacturer's instructions.

END OF SECTION 018000

SECTION 042200 - CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

1. Concrete masonry units.
2. Decorative concrete masonry units.
3. Mortar and grout.
4. Steel reinforcing bars.
5. Masonry-joint reinforcement.
6. Embedded flashing.
7. Miscellaneous masonry accessories.
8. Foamed in place insulation.

- B. Products Installed but not Furnished under This Section:

1. Cast-stone trim in concrete unit masonry.

1.3 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For the following:
 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
 2. Reinforcing Steel: Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315.
 3. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples for Initial Selection:
 1. Decorative CMUs, in the form of small-scale units.
 2. Colored mortar.

3. Weep holes/vents.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Material Certificates: For each type and size of the following:
 1. Masonry units.
 - a. Include data on material properties, material test reports substantiating compliance with requirements.
 - b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
 2. Integral water repellant used in CMUs.
 3. Cementitious materials. Include name of manufacturer, brand name, and type.
 4. Mortar admixtures.
 5. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
 6. Grout mixes. Include description of type and proportions of ingredients.
 7. Reinforcing bars.
 8. Joint reinforcement.
 9. Anchors, ties, and metal accessories.
- 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 C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.
 2. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.
- D. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 602/ACI 530.1/ASCE 6.
- E. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C1093 for testing indicated.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.8 FIELD CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches (600 mm) down both sides of walls, and hold cover securely in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. 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.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 PERFORMANCE REQUIREMENTS

- A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.
 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602/ACI 530.1/ASCE 6.

2.3 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 and will be within 20 feet (6 m) vertically and horizontally of a walking surface.
- 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.

2.4 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.
 2. Provide bullnose units for outside corners unless otherwise indicated.
- B. Integral Water Repellent: Provide units made with integral water repellent for exposed units.
1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E514/E514M as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen.
- C. CMUs: ASTM C90.
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi (14.8 MPa).
 2. Density Classification: Normal weight.
 3. Size (Width): Manufactured to dimensions 3/8 inch (10 mm) less-than-nominal dimensions.
 4. Exposed Faces: Provide color and texture matching the range represented by manufacturers standard color range.
- D. Concrete Building Brick: ASTM C55.
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).
 2. Density Classification: Normal weight.
 3. Size (Actual Dimensions): 3-5/8 inches (92 mm) wide by 2-1/4 inches (57 mm) high by 7-5/8 inches (194 mm) long.
- E. Decorative CMUs: ASTM C90.
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi (14.8 MPa) .
 2. Density Classification: Normal weight.
 3. Size (Width): Manufactured to dimensions specified in "CMUs" Paragraph.
 4. Pattern and Texture:
 - a. Standard pattern, split-face finish.
 5. Colors: As selected by Architect from manufacturer's full range.
 6. Special Aggregate: Provide units made with aggregate matching aggregate in Architect's sample.

2.5 CONCRETE AND MASONRY LINTELS

- A. General: Provide one of the following:
- B. Concrete Lintels: ASTM C1623, matching CMUs in color, texture, and density classification; and with reinforcing bars indicated. Provide lintels with net-area compressive strength not less than that of CMUs.
- C. Concrete Lintels: Precast or formed-in-place concrete lintels complying with requirements in Section 033000 "Cast-in-Place Concrete," and with reinforcing bars indicated.
- D. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs matching adjacent CMUs in color, texture, and density classification, with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

2.6 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
 - 1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C114.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of Portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C91/C91M.
- E. Mortar Cement: ASTM C1329/C1329M.
- F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar.
- G. Colored Cement Products: Packaged blend made from masonry cement and mortar pigments, all complying with specified requirements, and containing no other ingredients.
 - 1. Colored Masonry Cement
 - 2. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
- H. Aggregate for Mortar: ASTM C144.
 - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.

2. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
 3. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
- I. Aggregate for Grout: ASTM C404.
- J. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
- K. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.
- L. Water: Potable.

2.7 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60 (Grade 420).
- 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 (3.77-mm) steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
- C. Masonry-Joint Reinforcement, General: Ladder type complying with ASTM A951/A951M.
1. Interior Walls: Hot-dip galvanized carbon steel.
 2. Exterior Walls: Hot-dip galvanized carbon steel.
 3. Wire Size for Side Rods: 0.187-inch (4.76-mm) diameter.
 4. Wire Size for Cross Rods: 0.187-inch (4.76-mm) diameter.
 5. Spacing of Cross Rods: Not more than 16 inches (407 mm) o.c.
 6. Provide in lengths of not less than 10 feet (3 m) with prefabricated corner and tee units.

2.8 TIES AND ANCHORS

- A. General: Ties and anchors shall extend at least 1-1/2 inches (38 mm) into masonry but with at least a 5/8-inch (16-mm) cover on outside face.
- B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
- C. Flexible Flashing: Use one of the following unless otherwise indicated:

1. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.030 inch (0.76 mm)
 - a. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.
2. Butyl Rubber Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.030 inch (0.76 mm)
 - a. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.
3. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy.
 - a. Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040 inch (1.02 mm) thick.
 - b. Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025 inch (0.64 mm) thick, with a 0.015-inch- (0.38-mm-) thick coating of adhesive.
 - 1) Color: Gray
 - c. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.
4. EPDM Flashing: Sheet flashing product made from ethylene-propylene-diene terpolymer, complying with ASTM D4637/D4637M, 0.040 inch (1.02 mm) thick.
5. Elastomeric Sealant: ASTM C920, chemically curing urethane silicone sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and remain watertight.

- 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.

2.9 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene urethane or PVC.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, Designation M2AA-805 or PVC, complying with ASTM D2287, Type PVC-65406 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 D226/D226M, Type I (No. 15 asphalt felt).

2.10 FOAMED IN PLACE MASONRY CELL INSULATION

- A. General: Provide insulating materials which comply with requirements indicated for materials, compliance with referenced standards, and other characteristics.
- B. Foamed-in-Place Masonry Insulation: Two component thermal insulation produced by combining a plastic resin and catalyst foaming agent surfactant which, when properly ratioed and mixed, together with compressed air produce a cold-setting foam insulation in the hollow cores of hollow unit masonry walls.
 - 1. Surface Burning Characteristics: Maximum flame spread, smoke developed and fuel contributed of 0, 5 and 0 respectively.
 - 2. Combustion Characteristics: Must be noncombustible, Class A building material.
 - 3. Thermal Values: R Value of 4.91/inch @ 32 degrees F mean; ASTM C-177.
 - 4. Sound Abatement: Minimum Sound Transmission Class (STC) rating of 53 and a minimum Outdoor Indoor Transmission Class (OITC) rating of 44 for 8" wall assembly (ASTM E 90-90).

2.11 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 masonry cement or mortar cement mortar unless otherwise indicated.
 - 3. For exterior masonry, use masonry cement or mortar cement mortar.
 - 4. For reinforced masonry, use masonry cement or mortar 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 C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
 - 1. For masonry below grade or in contact with earth, use Type M.
 - 2. For reinforced masonry, use Type N.
 - 3. 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.

4. For interior nonload-bearing partitions, Type O may be used instead of Type N.
- D. Pigmented Mortar: Use colored cement product.
1. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.
 2. Color: Manufacturers standard color range.
 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. Mix to match Architect's sample.
 2. Application: Use colored-aggregate mortar for exposed mortar joints with the following units:
 - a. Decorative CMUs.
 - b. Pre-faced CMUs.
 - c. Cast-stone trim units.
- F. Grout for Unit Masonry: Comply with ASTM C476.
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 C476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
 3. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measured according to ASTM C143/C143M.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
 2. Verify that foundations are within tolerances specified.
 3. Verify that reinforcing dowels are properly placed.
 4. Verify that substrates are free of substances that would impair mortar bond.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping.

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

3.2 INSTALLATION, GENERAL

- A. Build chases and recesses to accommodate items specified in this and other Sections.
- B. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.
- C. 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.

3.3 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.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm).

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 exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).
3. 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).
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).

3.4 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. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4 inches (100 mm). Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- G. 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.
- H. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- I. Build nonload-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
 1. Install compressible filler in joint between top of partition and underside of structure above.

2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch (13-mm) clearance between end of anchor rod and end of tube. Space anchors 48 inches (1200 mm o.c. unless otherwise indicated).
3. Wedge nonload-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078443 "Joint Firestopping."

3.5 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. Set cast-stone trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
 1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
 2. Wet joint surfaces thoroughly before applying mortar.
 3. Rake out mortar joints for pointing with sealant.
- D. Rake out mortar joints at pre-faced CMUs to a uniform depth of 1/4 inch (6 mm) and point with epoxy mortar to comply with epoxy-mortar manufacturer's written instructions.
- E. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- F. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.
- G. Cut joints flush where indicated to receive waterproofing unless otherwise indicated.

3.6 FOAMED-IN-PLACE INSULATION

- A. General: Install foamed-in-place insulation from interior, or as specified, prior to installation of interior finish work and after all masonry and structural concrete work is in place, comply with manufacturer's instructions.

- B. Installation: Fill all open cells and voids in hollow concrete masonry walls where shown on drawings. The foam insulation shall be pressure injected through a series of 5/8" to 7/8" holes drilled into every vertical column of block cells (every 8" on center) beginning at an approximate height of four (4) feet from finished floor level. Repeat this procedure at an approximate height of ten (10) feet above the first horizontal row of holes (or as needed) until the void is completely filled. Patch holes with mortar and score to resemble existing surface.

3.7 MASONRY-JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).
 - 1. Space reinforcement not more than 16 inches (406 mm) o.c.
 - 2. Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.
 - 3. Provide reinforcement not more than 8 inches (203 mm) above and below wall openings and extending 12 inches (305 mm) 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.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at [corners,] returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.8 ANCHORING MASONRY TO CONCRETE

- A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete, to comply with the following:
 - 1. Provide an open space not less than 1 inch (25 mm) wide between masonry and 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 (610 mm) o.c. vertically and 36 inches (915 mm) o.c. horizontally.

3.9 CONTROL AND EXPANSION JOINTS

- A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry using one of the following methods:

1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout, and rake out joints in exposed faces for application of sealant.
2. Install preformed control-joint gaskets designed to fit standard sash block.
3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar, or rake out joint for application of sealant.
4. Install temporary foam-plastic filler in head joints, and remove filler when unit masonry is complete for application of sealant.

3.10 LINTELS

- A. Provide concrete or masonry lintels where shown and where openings of more than 12 inches (305 mm) for brick-size units and 24 inches (610 mm) for block-size units are shown without structural steel or other supporting lintels.
- B. Provide minimum bearing of 8 inches (200 mm) at each jamb unless otherwise indicated.

3.11 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. At lintels, 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.
 3. Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches (38 mm) or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Section 079200 "Joint Sealants" for application indicated.
 4. Install metal [drip edges] [and] [sealant stops] with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Section 079200 "Joint Sealants" for application indicated.
 5. 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.
 6. 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.

7. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.
- 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.
 - D. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

3.12 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.
- C. 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.

3.13 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 B C 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. (464 sq. m) of wall area or portion thereof.
- E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C140 for compressive strength.
- F. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C780.
- G. Mortar Test (Property Specification): For each mix provided, according to ASTM C780. Test mortar for compressive strength.
- H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C1019.
- I. Prism Test: For each type of construction provided, according to ASTM C1314 at 28 days.

3.14 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.

3.15 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

3.16 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. 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. Crush masonry waste to less than 4 inches (100 mm) in each dimension.
 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Section 312000 "Earth Moving."
 3. Do not dispose of masonry waste as fill within 18 inches (450 mm) of finished grade.
- C. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.
- D. 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 Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Framing with dimension lumber.
 - 2. Framing with engineered wood products.
 - 3. Wood blocking, and nailers.
 - 4. Wood furring.
 - 5. Sheathing.
 - 6. Plywood backing panels.
 - 7. Building wrap.
- B. Related Sections include the following:
 - 1. Division 6 Section "Shop Fabricated Wood Trusses."

1.3 DEFINITIONS

- A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise indicated.
- B. Exposed Framing: Dimension lumber not concealed by other construction.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Engineered Wood Products: Obtain each type of engineered wood product through one source from a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Building Wrap:

- a. Celotex Corporation (The); Building Products Division.
- b. DuPont (E. I. du Pont de Nemours and Company).

2. Metal Framing Anchors:

- a. Alpine Engineered Products, Inc.
- b. Cleveland Steel Specialty Co.
- c. Harlen Metal Products, Inc.
- d. KC Metals Products, Inc.
- e. Silver Metal Products, Inc.
- f. Simpson Strong-Tie Company, Inc.
- g. Southeastern Metals Manufacturing Co., Inc.
- h. United Steel Products Company, Inc.

2.2 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.

- 1. Factory mark each piece of lumber with grade stamp of grading agency.
- 2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
- 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
- 4. Provide dressed lumber, S4S, unless otherwise indicated.
- 5. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.
- 6. Provide dry lumber with 15 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

B. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

C. Wood Structural Panels:

1. Plywood: DOC PS 1.
2. Oriented Strand Board: DOC PS 2.
3. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
4. Comply with "Code Plus" provisions in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial."
5. Factory mark panels according to indicated standard.

2.3 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPAC2 (lumber) and AWPAC9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPAC31 with inorganic boron (SBX).
 1. Preservative Chemicals: Acceptable to authorities having jurisdiction.
 2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.
- 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 sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

2.4 DIMENSION LUMBER

- A. General: Provide dimension lumber of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the grading agency indicated.
- B. Non-Load-Bearing Interior Partitions: Construction, Stud, or No. 2 grade and any of the following species:
 - 1. Mixed southern pine.
 - 2. Western woods; WCLIB or WWPA.
- C. Framing Other Than Non-Load-Bearing Partitions: Construction or No. 2 grade and any of the following species:
 - 1. Douglas fir-larch.
 - 2. Southern pine; SPIB.
 - 3. Spruce-pine-fir; NLGA.
- D. Joists and Rafters: Select Structural and Construction or No. 1 grade and any of the following species:
 - 1. Douglas fir-larch.
 - 2. Southern pine.
 - 3. Spruce-pine-fir; NLGA.
 - a. A machine stress-rated dimension lumber with a grade of not less than 1650f-1.5E.
 - b. Modulus of elasticity of at least 1,500,000 psi
 - c. Extreme fiber stress in bending of at least 850 psi for 2-inch nominal thickness and 12-inch nominal width for single-member use.

2.5 ENGINEERED WOOD PRODUCTS

- A. Laminated-Veneer Lumber: A composite of wood veneers with grain primarily parallel to member lengths, manufactured with an exterior-type adhesive complying with ASTM D 2559. Product has the following allowable design values as determined according to ASTM D 5456:
 - 1. Extreme Fiber Stress in Bending, Edgewise: 2600 psi for 12-inch nominal- depth members.
 - 2. Modulus of Elasticity, Edgewise: 1,800,000 psi.

2.6 SHEATHING

- A. Plywood Wall Sheathing: Exterior Exposure 1, Structural I Exposure 1 sheathing.

1. Span Rating: Not less than 24/0.
 2. Thickness: As indicated on drawings.
- B. Plywood Roof Sheathing: Exterior Exposure 1, Structural I sheathing.
1. Span Rating: Not less than 32/16.
 2. Thickness: As indicated on drawings.

2.7 PLYWOOD BACKING PANELS

- A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, not less than 1/2 inch thick.

2.8 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: CABO NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- F. Lag Bolts: ASME B18.2.1..
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.9 METAL FRAMING ANCHORS

- A. General: Provide framing anchors made from metal indicated, of structural capacity, type, and size indicated.
- B. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
- C. Rafter Tie-Downs: Bent strap tie for fastening rafters or roof trusses to wall studs below, 1-1/2 inches wide by 0.050 inch thick.
- D. Rafter Tie-Downs (Hurricane or Seismic Ties): Bent strap tie for fastening rafters or roof trusses to wall studs below, 2-1/4 inches wide by 0.062 inch thick. Tie fits over top of rafter or truss and fastens to both sides of rafter or truss, face of top plates, and side of stud below.

2.10 MISCELLANEOUS MATERIALS

- A. Building Wrap: Air-retarder sheeting made from polyolefins; cross-laminated films, woven strands, or spun-bonded fibers; coated or uncoated; with or without perforations; and complying with ASTM E 1677, Type I.
 - 1. Thickness: Not less than 3 mils.
 - 2. Permeance: Not less than 10 perms.
 - 3. Flame-Spread Index: 25 or less per ASTM E 84.
 - 4. Allowable Exposure Time: Not less than three months.
- B. Building Wrap Tape: Pressure-sensitive plastic tape recommended by building wrap manufacturer for sealing joints and penetrations in building wrap.
- C. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch nominal thickness, compressible to 1/32 inch; selected from manufacturer's standard widths to suit width of sill members indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- C. Apply field treatment complying with AWWA M4 to cut surfaces of preservative-treated lumber and plywood.

- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
1. CABO NER-272 for power-driven fasteners.
 2. Published requirements of metal framing anchor manufacturer.
 3. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in the Uniform Building Code.
 4. Table 2305.2, "Fastening Schedule," in the BOCA National Building Code.
 5. Table 2306.1, "Fastening Schedule," in the Standard Building Code.
 6. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in the International One- and Two-Family Dwelling Code.
- E. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
- F. Use finishing nails for exposed work, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3.2 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Gypsum Board: Install 1-1/2 x 1-1/2 nominal-size furring vertically at 16 inches o.c.

3.3 WOOD FRAMING INSTALLATION, GENERAL

- A. Framing Standard: Comply with AFPA's "Manual for Wood Frame Construction," unless otherwise indicated.
- B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- C. Do not splice structural members between supports.

3.4 WALL AND PARTITION FRAMING INSTALLATION

- A. General: Arrange studs so wide face of stud is perpendicular to direction of wall or partition and narrow face is parallel. Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Anchor plates to supporting construction, unless otherwise indicated.
1. For interior partitions and walls, provide 2-by-4-inch nominal- size wood studs spaced [16 inches] [400 mm] o.c., unless otherwise indicated.

- B. Construct corners and intersections with three or more studs. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide continuous horizontal blocking at mid-height of partitions more than 96 inches high, using members of 2-inch nominal thickness and of same width as wall or partitions.
- C. Fire block concealed spaces of wood-framed walls and partitions at each floor level and at ceiling line of top story. Where fire blocking is not inherent in framing system used, provide closely fitted wood blocks of 2-inch nominal- thick lumber of same width as framing members.
- D. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Set headers on edge and support on jamb studs.
 - 1. For non-load-bearing partitions, provide double-jamb studs with headers not less than 4-inch nominal depth for openings 48 inches and less in width, 6-inch nominal depth for openings 48 to 72 inches in width, 8-inch nominal depth for openings 72 to 120 inches in width, and not less than 10-inch nominal depth for openings 10 to 12 feet in width.
- E. Provide bracing in walls, at locations indicated, full-story height, unless otherwise indicated.

3.5 CEILING JOIST AND RAFTER FRAMING INSTALLATION

- A. Ceiling Joists: Install ceiling joists with crown edge up and complying with requirements specified above for floor joists. Face nail to ends of parallel rafters.
- B. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions.

3.6 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.
 - 1. Comply with "Code Plus" provisions in above-referenced guide.
- B. Fastening Methods: Fasten panels as indicated below:
 - 1. Sheathing:
 - a. Nail to wood framing.
 - 2. Plywood Backing Panels: Nail or screw to supports.

3.7 BUILDING WRAP APPLICATION

- A. Cover wall sheathing with building wrap as indicated.
 - 1. Comply with manufacturer's written instructions.
 - 2. Cover upstanding flashing with 4-inch overlap.

END OF SECTION 061000

SECTION 061053 - MISCELLANEOUS CARPENTRY

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. Wood furring, grounds, nailers, and blocking.
 - 2. Interior wood trim.
 - 3. Interior plywood panels.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 6 Section "Interior Architectural Woodwork" for interior woodwork not specified in this Section.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Wood treatment data as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:
 - 1. For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
 - 2. For waterborne-treated products, include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.
 - 3. For fire-retardant-treated wood products, include certification by treating plant that treated materials comply with specified standard and other requirements as well as data relative to bending strength, stiffness, and fastener-holding capacities of treated materials.
- C. Material test reports from a qualified independent testing agency indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with performance requirements indicated.
- D. Warranty of chemical treatment manufacturer for each type of treatment.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.
 - 1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL

- A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
- C. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 1. Provide dressed lumber, S4S, unless otherwise indicated.
 - 2. Provide lumber with 15 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, 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.
- B. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft. (4.0 kg/cu. m). After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items 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 sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 - 3. Wood floor plates installed over concrete slabs directly in contact with earth.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated wood is indicated, comply with applicable requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL; U.S. Testing; Timber Products Inspection, Inc.; or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Treatment Type: Interior Type A.
 - 2. Treatment Type: Exterior.
 - 3. Treatment Types: Interior Type A for protected wood and Exterior for wood exposed to weather.
- B. Inspect each piece of treated lumber or plywood after drying and discard damaged or defective pieces.

2.4 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Moisture Content: 15 percent maximum for lumber items are not specified to receive wood preservative treatment.
- D. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, NLGA, or WWP; No. 2 grade per SPIB; or Standard grade per NLGA, WCLIB or WWP of any species.

2.5 INTERIOR WOOD TRIM

- A. Hardwood Trim: Provide finished hardwood lumber and moldings complying with the following requirements:
 - 1. Species and Cut: Rift-sawn, clear, kiln-dried red oak selected for compatible grain and color.
 - 2. Texture: Surfaced (smooth).
 - 3. Lumber for Transparent Finish (Stained or Clear): Solid lumber stock.

2.6 HARDWOOD VENEER PLYWOOD

- A. Face Veneer Species: Plain sliced red oak.
- B. Backing Veneer Species: Any hardwood compatible with face species.
- C. Thickness: 1/4" and 1/2".

2.7 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where miscellaneous carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.
- B. Nails, Wire, Brads, and Staples: FS FF-N-105.
- C. Power-Driven Fasteners: CABO NER-272.
- D. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
- C. Fit 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.
- D. Apply field treatment complying with AWWA M4 to cut surfaces of preservative-treated lumber and plywood.
- E. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.
- F. Countersink nail heads on exposed carpentry work and fill holes with wood filler.
- G. Use fasteners of appropriate type and length. Predrill members when necessary to avoid splitting wood.

3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install where shown and where required for screeding or attaching other work. Cut and shape to required size. Coordinate locations with other work involved.
- B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.3 WOOD TRIM INSTALLATION

- A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available.

END OF SECTION 061053

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Wall sheathing.
 - 2. Roof sheathing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

- A. Plywood: Either DOC PS 1 or DOC PS 2 unless otherwise indicated.
- B. Oriented Strand Board: DOC PS 2.
- C. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
- D. Factory mark panels to indicate compliance with applicable standard.

2.2 WALL SHEATHING

- A. Plywood Wall Sheathing: Exposure 1 sheathing.
 - 1. Span Rating: Not less than 24/0.
 - 2. Nominal Thickness: Not less than 1/2 inch (13 mm).
- B. Oriented-Strand-Board Wall Sheathing: Exposure 1 sheathing.

1. Span Rating: Not less than 24/0.
2. Nominal Thickness: Not less than 1/2 inch (13 mm).

2.3 ROOF SHEATHING

- A. Plywood Roof Sheathing: Exposure 1 sheathing.
1. Span Rating: Not less than 24/0.
 2. Nominal Thickness: Not less than 5/8 inch (16 mm).
- B. Oriented-Strand-Board Roof Sheathing: Exposure 1 sheathing.
1. Span Rating: Not less than 24/0.
 2. Nominal Thickness: Not less than 5/8 inch (16 mm).

2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
1. NES NER-272 for power-driven fasteners.
 2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
- D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

- E. Coordinate roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
 - 1. Wall and Roof Sheathing:
 - a. Nail or staple to wood framing.
 - b. Space panels 1/8 inch (3 mm) apart at edges and ends.

END OF SECTION 061600

SECTION 061753 - SHOP-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Wood roof trusses.

1.3 DEFINITIONS

- A. Metal-Plate-Connected Wood Trusses: Planar structural units consisting of metal-plate-connected members fabricated from dimension lumber and cut and assembled before delivery to Project site.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: Show fabrication and installation details for trusses.
 - 1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
 - 2. Indicate sizes, stress grades, and species of lumber.
 - 3. Indicate locations, sizes, and materials for permanent bracing required to prevent buckling of individual truss members due to design loads.
 - 4. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
 - 5. Show splice details and bearing details.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For metal-plate-connected wood trusses, signed by officer of truss-fabricating firm.

1.6 QUALITY ASSURANCE

- A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.
 - 1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
 - 2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Handle and store trusses to comply with recommendations in SBCA BCSI, "Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, & Bracing Metal Plate Connected Wood Trusses."
 - 1. Store trusses flat, off of ground, and adequately supported to prevent lateral bending.
 - 2. Protect trusses from weather by covering with waterproof sheeting, securely anchored.
 - 3. Provide for air circulation around stacks and under coverings.
- B. Inspect trusses showing discoloration, corrosion, or other evidence of deterioration. Discard and replace trusses that are damaged or defective.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Metal-plate-connected wood trusses shall be capable of withstanding design loads within limits and under conditions indicated. Comply with requirements in TPI 1 unless more stringent requirements are specified below.
 - 1. Design Loads: As indicated.
 - 2. Maximum Deflection under Design Loads:
 - a. Roof Trusses: Vertical deflection of 1/360 of span.
- B. Comply with applicable requirements and recommendations of TPI 1, TPI DSB, and SBCA BCSI.
- C. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

2.2 DIMENSION LUMBER

- A. Lumber: DOC PS 20 and applicable rules of any rules-writing agency certified by the American Lumber Standard Committee (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.
 - 2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.

3. Provide dressed lumber, S4S.
 4. Provide dry lumber with 19 percent maximum moisture content at time of dressing.
- B. Minimum Chord Size for Roof Trusses: 2 by 6 inches nominal (38 by 140 mm actual) for both top and bottom chords.
- C. Minimum Specific Gravity for Top Chords: 0.50.
- D. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Section 061000 "Rough Carpentry."

2.3 METAL CONNECTOR PLATES

- A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
1. Alpine Engineered Products, Inc.; a division of ITW Building Components Group, Inc.
 2. Cherokee Metal Products, Inc.; Masengill Machinery Company.
 3. CompuTrus, Inc.
 4. Eagle Metal Products.
 5. Jager Building Systems, Inc.
 6. MiTek Industries, Inc.
 7. Robbins Engineering, Inc.
 8. Truswal Systems Corporation.
- B. General: Fabricate connector plates to comply with TPI 1.
- C. Hot-Dip Galvanized-Steel Sheet: ASTM A653/A653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G60 (Z180) coating designation; and not less than 0.036 inch (0.9 mm) thick.
1. Use for interior locations unless otherwise indicated.
- D. Hot-Dip Heavy-Galvanized-Steel Sheet: ASTM A653/A653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 (Z550) coating designation; and not less than 0.036 inch (0.9 mm) thick.
1. Use for wood-preservative-treated lumber and where indicated.

2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
1. Provide fasteners for use with metal framing anchors that comply with written recommendations of metal framing manufacturer.

- B. Nails, Brads, and Staples: ASTM F1667.

2.5 METAL FRAMING ANCHORS AND ACCESSORIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cleveland Steel Specialty Co.
 - 2. KC Metals Products, Inc.
 - 3. Phoenix Metal Products, Inc.
 - 4. Simpson Strong-Tie Co., Inc.
 - 5. USP Structural Connectors.
- B. Allowable design loads, as published by manufacturer, shall comply with or exceed those of products of manufacturers listed. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.
- C. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M, G60 (Z180) coating designation.
 - 1. Use for interior locations unless otherwise indicated.
- D. Hot-Dip Heavy-Galvanized-Steel Sheet: ASTM A653/A653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 (Z550) coating designation; and not less than 0.036 inch (0.9 mm) thick.
 - 1. Use for wood-preservative-treated lumber and where indicated.
- E. Truss Tie-Downs: Bent strap tie for fastening roof trusses to wall studs below, 1-1/2 inches (38 mm) wide by 0.050 inch (1.3 mm) thick. Tie fastens to one side of truss, top plates, and side of stud below.

2.6 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: SSPC-Paint 20, with dry film containing a minimum of 92 percent zinc dust by weight.

2.7 FABRICATION

- A. Cut truss members to accurate lengths, angles, and sizes to produce close-fitting joints.
- B. Fabricate metal connector plates to sizes, configurations, thicknesses, and anchorage details required to withstand design loads for types of joint designs indicated.

- C. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly, with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.
 - 1. Fabricate wood trusses within manufacturing tolerances in TPI 1.
- D. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install wood trusses only after supporting construction is in place and is braced and secured.
- B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.
- C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.
- D. Install and brace trusses according to TPI recommendations and as indicated.
- E. Install trusses plumb, square, and true to line and securely fasten to supporting construction.
- F. Space trusses 24 inches (610 mm) o.c.; adjust and align trusses in location before permanently fastening.
- G. Anchor trusses securely at bearing points; use metal truss tie-downs or floor truss hangers as applicable. Install fasteners through each fastener hole in metal framing anchors according to manufacturer's fastening schedules and written instructions.
- H. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
 - 1. Install bracing to comply with Section 061000 "Rough Carpentry."
- I. Install wood trusses within installation tolerances in TPI 1.
- J. Do not alter trusses in field. Do not cut, drill, notch, or remove truss members.
- K. Replace wood trusses that are damaged or do not comply with requirements.
 - 1. Damaged trusses may be repaired according to truss repair details signed and sealed by the qualified professional engineer responsible for truss design, when approved by Architect.

3.2 REPAIRS AND PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect wood trusses from weather. If, despite protection, wood trusses become wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- C. Repair damaged galvanized coatings on exposed surfaces according to ASTM A780/A780M and manufacturer's written instructions.

END OF SECTION 061753

SECTION 064116AIA - PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Plastic-laminate-clad architectural cabinets.
 - 2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-clad architectural cabinets that are not concealed within other construction.

1.3 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to support loads imposed by installed and fully loaded cabinets.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 3. Show locations and sizes of cutouts and holes for items installed in plastic-laminate architectural cabinets.
 - 4. Apply AWI Quality Certification Program label to Shop Drawings.
- C. Samples: For each exposed product and for each color and texture specified, in manufacturer's or manufacturer's standard size.
- D. Samples for Initial Selection: For each type of exposed finish.
- E. Samples for Verification: For the following:
 - 1. Plastic Laminates: 8 by 10 inches, for each type, color, pattern, and surface finish required.
 - a. Provide one sample applied to core material with specified edge material applied to one edge.

2. Thermoset Decorative Panels: 8 by 10 inches, for each color, pattern, and surface finish.
 - a. Provide edge banding on one edge.
3. Corner Pieces:
 - a. Cabinet-front frame joints between stiles and rails and at exposed end pieces, 18 inches (450 mm) high by 18 inches (450 mm) wide by 6 inches (150 mm) deep.
 - b. Miter joints for standing trim.
4. Exposed Cabinet Hardware and Accessories: One full-size unit for each type and finish.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: 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.

1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver cabinets until painting and similar finish operations that might damage architectural cabinets have been completed in installation areas. Store cabinets in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.
- B. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 17 and 50 percent during the remainder of the construction period.
- C. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate

measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed/concealed by construction, and indicate measurements on Shop Drawings.
- D. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 ARCHITECTURAL CABINET MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work.

2.2 PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the Architectural Woodwork Standards for grades of cabinets indicated for construction, finishes, installation, and other requirements.
1. The Contract Documents contain requirements that are more stringent than the referenced quality standard. Comply with requirements of Contract Documents in addition to those of the referenced quality standard.
- B. Architectural Woodwork Standards Grade: Premium.
- C. Type of Construction: Frameless.
- D. Door and Drawer-Front Style: Reveal overlay.
- E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by quality standard.
- F. Laminate Cladding for Exposed Surfaces:
1. Horizontal Surfaces: Grade HGS
 2. Postformed Surfaces: Grade HGP.
 3. Vertical Surfaces: Grade HGS.
 4. Edges: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish.
- G. Materials for Semiexposed Surfaces:
1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, NEMA LD 3, Grade VGS.

- a. Edges of Plastic-Laminate Shelves: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish.
 - b. Edges of Thermoset Decorative Panel Shelves: PVC or polyester edge banding.
 - c. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3, Grade VGS.
- 2. Drawer Sides and Backs: [Solid-hardwood lumber] [Thermoset decorative panels with PVC or polyester edge banding].
- 3. Drawer Bottoms: [Hardwood plywood] [Thermoset decorative panels].
- H. Dust Panels: 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers unless located directly under tops.
- I. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.
- J. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
 - 1. Join subfronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners or glued dovetail joints.
- K. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As indicated by laminate manufacturer's designations.
 - 2. Match Architect's sample.
 - 3. As selected by Architect from laminate manufacturer's full range in the following categories:
 - a. Solid colors, matte finish.
 - b. Solid colors with core same color as surface, matte finish.
 - c. Wood grains, matte finish.
 - d. Patterns, matte finish.

2.3 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
 - 1. Wood Moisture Content: 8 to 13 percent.

2.4 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087100 "Door Hardware."

- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 100 degrees of opening, self-closing.
- C. Wire Pulls: Back mounted, solid plastic, 4 inches (100 mm) long, 5/16 inch (8 mm) in diameter.
- D. Catches: Magnetic catches, BHMA A156.9, B03141.
- E. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- F. Shelf Rests: BHMA A156.9, B04013; metal.
- G. Drawer Slides: BHMA A156.9.
 - 1. Grade 1 and Grade 2: Side mounted[and extending under bottom edge of drawer].
 - a. Type: Full extension.
 - b. Material: Zinc-plated steel with polymer rollers.
 - 2. For drawers not more than 3 inches (75 mm) high and not more than 24 inches (600 mm) wide, provide Grade 1.
 - 3. For drawers more than 3 inches (75 mm) high, but not more than 6 inches (150 mm) high and not more than 24 inches (600 mm) wide, provide Grade 1.
 - 4. For drawers more than 6 inches (150 mm) high or more than 24 inches (600 mm) wide, provide Grade 1HD-100.
- H. Door Locks: BHMA A156.11, E07121.
- I. Drawer Locks: BHMA A156.11, E07041.
- J. Door and Drawer Silencers: BHMA A156.16, L03011.

2.5 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber kiln-dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.
- C. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.
 - 1. Adhesive for Bonding Edges: Hot-melt adhesive.

2.6 FABRICATION

- A. Fabricate architectural cabinets to dimensions, profiles, and details indicated.
- B. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for

shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Notify Architect seven days in advance of the dates and times architectural cabinet fabrication will be complete.
 2. Trial fit assemblies at manufacturer's shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.
- C. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.

3.2 INSTALLATION

- A. Architectural Woodwork Standards Grade: Install cabinets to comply with quality standard grade of item to be installed.
- B. Assemble cabinets and complete fabrication at Project site to extent that it was not completed in the shop.
- C. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with wafer-head cabinet installation screws.
- D. Install cabinets level, plumb, and true in line to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm) using concealed shims.
1. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
 2. Install cabinets without distortion so doors and drawers fit openings and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 3. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches (400 mm) o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch (38-mm) penetration into wood framing, blocking, or hanging strips.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects. Where not possible to repair, replace architectural cabinets. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean cabinets on exposed and semiexposed surfaces.

END OF SECTION 064116AIA 06/17

SECTION 072100 - BUILDING INSULATION

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. Concealed building insulation.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of insulation product specified.
- C. Samples for verification in full-size units of each type of exposed insulation indicated for each color specified.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products complying with requirements indicated without delaying the Work.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated on Drawings or specified elsewhere in this Section as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 1. Surface-Burning Characteristics: ASTM E 84.
 - 2. Combustion Characteristics: ASTM E 136.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

B. Protect plastic insulation as follows:

1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering insulation products that may be incorporated in the work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide insulation products by one of the following:
1. Extruded-Polystyrene Board Insulation:
 - a. Amoco Foam Products Company.
 - b. DiversiFoam Products.
 - c. Dow Chemical Co.
 - d. UC Industries, Inc.; Owens-Corning Co.

2.2 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with requirements and with referenced standards.
1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thicknesses, widths, and lengths.
- B. Extruded-Polystyrene Board Insulation: Rigid, cellular polystyrene thermal insulation formed from polystyrene base resin by an extrusion process using hydrochlorofluorocarbons as blowing agent to comply with ASTM C 578 for type and with other requirements indicated below:
1. Type IV, 1.60-lb/cu. ft. (26-kg/cu. m) minimum density, unless otherwise indicated.
 2. Surface-Burning Characteristics: Maximum flame-spread and smoke-developed indices of 5 and 165, respectively.

2.3 VAPOR RETARDERS

- A. Polyethylene Vapor Retarder: ASTM D 4397, 8 mils thick, with maximum permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).
- B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulations or vapor retarders, including removing projections capable of puncturing vapor retarders or that interfere with insulation attachment.

3.3 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, unsoiled, and has not been exposed at any time to ice and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Apply single layer of insulation to produce thickness indicated.

3.4 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

- B. Seal joints between closed-cell (non-breathing) insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

3.5 INSTALLATION OF VAPOR RETARDERS

- A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.
- B. Seal vertical joints in vapor retarders over framing by lapping not less than 2 wall studs. Fasten vapor retarders to framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches (406 mm) o.c.
- C. Firmly attach vapor retarders to substrates with mechanical fasteners or adhesives as recommended by vapor retarder manufacturer.
- D. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder.
- E. Repair any tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

3.6 PROTECTION

- A. General: Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 073113 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Asphalt shingles.
 - 2. Underlayment.
 - 3. Ridge vents.
 - 4. Metal flashing and trim.

1.3 DEFINITION

- A. Roofing Terminology: See ASTM D1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.
 - 1. Asphalt Shingles: Full size.
 - 2. Ridge and Hip Cap Shingles: Full size.
 - 3. Ridge Vent: 12-inch- (300-mm-) long Sample.
 - 4. Exposed Valley Lining: 12 inches (300 mm) square.
- C. Samples for Initial Selection: For each type of asphalt shingle indicated.
 - 1. Include similar Samples of accessories involving color selection.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For each type of asphalt shingle and underlayment product indicated, for tests performed by a qualified testing agency.
- C. Sample Warranty: For manufacturer's warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For asphalt shingles to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Asphalt Shingles: 100 sq. ft. (9.3 sq. m) of each type, in unbroken bundles.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture according to manufacturer's written instructions.
- B. Store underlayment rolls on end on pallets or other raised surfaces. Do not double stack rolls.
- C. Protect unused roofing materials from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.
- D. Handle, store, and place roofing materials in a manner to prevent damage to roof deck or structural supporting members.

1.10 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Manufacturing defects.
 - 2. Material Warranty Period: 25 years from date of Substantial Completion, prorated, with first three years non-prorated.
 - 3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 135 mph (60 m/s) for five years from date of Substantial Completion.
 - 4. Algae-Resistance Warranty Period: Asphalt shingles will not discolor for five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Exterior Fire-Test Exposure: Provide asphalt shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance according to ASTM E108 or UL 790 by Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

2.2 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

- A. Laminated-Strip Asphalt Shingles: ASTM D3462/D3462M, laminated, multi-ply overlay construction, glass-fiber reinforced, mineral-granule surfaced, and self-sealing.
 - 1. Basis of Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. CertainTeed Corporation.
 - b. GAF Materials Corporation.
 - c. Timko .
 - d. Owens Corning.
 - 2. Butt Edge: Straight cut.
 - 3. Strip Size: Manufacturer's standard.
 - 4. Algae Resistance: Granules resist algae discoloration.
 - 5. Impact Resistance: UL 2218, Class 4.
 - 6. Color and Blends: As selected by Owner from manufacturer's full range.
- B. Hip and Ridge Shingles: Manufacturer's standard units to match asphalt shingles.

2.3 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D226/D226M, asphalt-saturated organic felts, non-perforated.
 - 1. Type: Type I.
- B. Self-Adhering Sheet Underlayment, Granular Surfaced: ASTM D1970/D1970M, minimum of 40-mil- (1.0-mm-) thick sheet; glass-fiber-mat-reinforced, SBS-modified asphalt; mineral-granule surfaced; with release backing; cold applied.
 - 1. Basis of Design Product: Subject to compliance with requirements, provide products by one of following:
 - a. CertainTeed Corporation.
 - b. GAF Materials Corporation.
 - c. Grace, W.R. & Co.
 - d. Owens Corning.
 - e. Timko.

2.4 RIDGE VENTS

- A. Rigid Ridge Vent: Manufacturer's standard, rigid section high-density polypropylene or other UV-stabilized plastic ridge vent for use under ridge shingles.
 - 1. Basis of Design Product: Subject to compliance with requirements, provide products by one of the following:
 - a. Owens Corning.
 - b. Air Vent, Inc.
 - c. Cor-a-Vent, Inc.
 - d. Lomanco, Inc.
- B. Flexible Ridge Vent: Manufacturer's standard, compression-resisting, three-dimensional, open-nylon or polyester-mat filter bonded to a nonwoven, nonwicking, geotextile fabric cover.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. GAF Materials Corporation.
 - b. Obdyke, Benjamin Incorporated.
 - c. TAMKO Building Products, Inc.

2.5 ACCESSORIES

- A. Asphalt Roofing Cement: ASTM D4586, Type II, asbestos free.
- B. Roofing Nails: ASTM F1667; aluminum, stainless-steel, copper, or hot-dip galvanized-steel wire shingle nails, minimum 0.120-inch- (3-mm-) diameter, sharp-pointed, with a minimum 3/8-inch- (9.5-mm-) diameter flat head and of sufficient length to penetrate 3/4 inch (19 mm) into solid wood decking or extend at least 1/8 inch (3 mm) through OSB or plywood sheathing.
 - 1. Shank: Barbed.
 - 2. Where nails are in contact with metal flashing, use nails made from same metal as flashing.
- C. Felt-Underlayment Nails: Aluminum, stainless-steel, or hot-dip galvanized-steel wire with low-profile capped heads or disc caps, 1-inch (25-mm) minimum diameter.
- D. Synthetic-Underlayment Fasteners: As recommended in writing by synthetic-underlayment manufacturer for application indicated.

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.

1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provisions have been made for flashings and penetrations through asphalt shingles.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

- A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
- B. Single-Layer Felt Underlayment: Install on roof deck parallel with and starting at the eaves. Lap sides a minimum of 2 inches (50 mm) over underlying course. Lap ends a minimum of 4 inches (100 mm). Stagger end laps between succeeding courses at least 72 inches (1830 mm). Fasten with felt-underlayment nails.
1. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment. Lap sides of felt over self-adhering sheet underlayment not less than 3 inches (75 mm) in direction that sheds water. Lap ends of felt not less than 6 inches (150 mm) over self-adhering sheet underlayment.
 2. Install fasteners at no more than 36 inches (914 mm) o.c.
- C. Self-Adhering Sheet Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install lapped in direction that sheds water. Lap sides not less than 3-1/2 inches (89 mm). Lap ends not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Roll laps with roller. Cover underlayment within seven days.
1. Prime concrete and masonry surfaces to receive self-adhering sheet underlayment.
 2. Eaves: Extend from edges of eaves 36 inches (914 mm) beyond interior face of exterior wall.
 3. Rakes: Extend from edges of rake 36 inches (914 mm) beyond interior face of exterior wall.
 4. Valleys: Extend from lowest to highest point 18 inches (450 mm) on each side.
 5. Hips: Extend 18 inches (450 mm) on each side.
 6. Ridges: Extend 36 inches (914 mm) on each side without obstructing continuous ridge vent slot.
 7. Roof Slope Transitions: Extend 18 inches (450 mm) on each roof slope.
- D. Metal-Flashed, Open-Valley Underlayment: Install two layers of minimum 36-inch-(914-mm-) wide underlayment centered in valley. Stagger end laps between layers at least 72 inches (1830 mm). Lap ends of each layer at least 12 inches (300 mm) in direction to shed water, and seal with asphalt roofing cement. Fasten each layer to roof deck.

1. Lap roof-deck underlayment over first layer of valley underlayment at least 6 inches (150 mm).

3.3 ASPHALT-SHINGLE INSTALLATION

- A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
- B. Install starter strip along lowest roof edge, consisting of an asphalt-shingle strip at least 7-inches (175 mm) width with self-sealing strip face up at roof edge.
 1. Extend asphalt shingles 3/4 inch (19 mm) over fasciae at eaves and rakes.
 2. Install starter strip along rake edge.
- C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- D. Fasten asphalt-shingle strips with a minimum of five roofing nails located according to manufacturer's written instructions.
 1. When ambient temperature during installation is below 50 deg F (10 deg C), seal asphalt shingles with asphalt roofing cement spots.
- E. Open Valleys: Cut and fit asphalt shingles at open valleys, trimming upper concealed corners of shingle strips. Maintain uniform width of exposed open valley from highest to lowest point.
 1. Set valley edge of asphalt shingles in a 3-inch- (75-mm-) wide bed of asphalt roofing cement.
 2. Do not nail asphalt shingles to metal open-valley flashings.
- F. Ridge Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.
- G. Hip and Ridge Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.
 1. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

END OF SECTION 073113

SECTION 074293 - SOFFIT PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes metal soffit panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
 - 1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
 - 2. Accessories: Include details of flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches (1:10).
- C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.
 - 1. Include similar Samples of trim and accessories involving color selection.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For each product, tests performed by a qualified testing agency.
- C. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal panels to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.9 COORDINATION

- A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Two-years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 20-years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:
 1. Wind Loads: As indicated on Drawings.
 2. Other Design Loads: As indicated on Drawings.
- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 1. Temperature Change (Range): 120 deg. F (67 deg. C), ambient; 180 deg. F (100 deg. C), material surfaces.

2.2 METAL SOFFIT PANELS

- A. General: Provide metal soffit panels designed to be installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners in side laps. Include accessories required for weathertight installation.
- B. V-Groove-Profile Metal Soffit Panels Perforated panels formed with vertical panel edges and intermediate stiffening ribs symmetrically spaced between panel edges; with a V-groove joint between panels.
 1. Material: Same material, finish, and color as metal roof panels.

2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
 - a. Nominal Thickness: 0.022 inch (0.56 mm).
 - b. Exterior Finish: Three-coat fluoropolymer
 - c. Color: As selected by Architect from manufacturer's full range.

2.3 MISCELLANEOUS MATERIALS

- A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
 1. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- B. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Finish flashing and trim with same finish system as adjacent metal panels.
- C. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.
- D. Panel Sealants: Provide sealant types recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
 2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.4 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

- B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
 - 3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
 - 4. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal soffit panel manufacturer for application but not less than thickness of metal being secured.

2.5 FINISHES

- A. Protect mechanical and painted 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 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.
- C. Steel Panels and Accessories:
 - 1. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 - 1. Examine framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal panel manufacturer.
 - 2. Examine sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal panel manufacturer.
 - a. Verify that air- or water-resistive barriers been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install sub-framing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.
 - 1. Soffit Framing: Wire tie or clip furring channels to supports, as required to comply with requirements for assemblies indicated.

3.3 METAL PANEL INSTALLATION

- A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Shim or otherwise plumb substrates receiving metal panels.
 - 2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
 - 3. Install screw fasteners in predrilled holes.
 - 4. Locate and space fastenings in uniform vertical and horizontal alignment.
 - 5. Install flashing and trim as metal panel work proceeds.
 - 6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.

7. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
 2. Aluminum Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.
 3. Copper Panels: Use copper, stainless-steel, or hardware-bronze fasteners.
 4. Stainless-Steel Panels: Use stainless-steel fasteners.
- C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- D. Lap-Seam Metal Panels: Fasten metal panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.
1. Apply panels and associated items true to line for neat and weathertight enclosure.
 2. Provide metal-backed washers under heads of exposed fasteners bearing on weather side of metal panels.
 3. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
 4. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
- E. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal panel system including trim, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.
- F. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.
1. Install exposed flashing and trim that is without buckling, and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to achieve waterproof performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

3.4 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed unless otherwise indicated in manufacturers' written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
- C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074293

SECTION 074633 - PLASTIC SIDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes vinyl siding.

1.3 COORDINATION

- A. Coordinate siding installation with flashings and other adjoining construction to ensure proper sequencing.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 1. For vinyl siding, include VSI's official certification logo printed on Product Data.
- B. Samples for Initial Selection: For vinyl siding including related accessories.
- C. Samples for Verification: For each type, color, texture, and pattern required.
 - 1. 12-inch- (300-mm-) long-by-actual-width Sample of siding.
 - 2. 24-inch- (600-mm-) wide-by-36-inch- (900-mm-) high Sample panel of siding assembled on plywood backing.
 - 3. 12-inch- (300-mm-) long-by-actual-width Sample of soffit.
 - 4. 12-inch- (300-mm-) long-by-actual-width Samples of trim and accessories.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For vinyl siding Installer.
- B. Product Certificates: For each type of vinyl siding.
- C. Research/Evaluation Reports: For each type of vinyl siding required, from ICC-ES.
- D. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of product, including related accessories, to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish full lengths of vinyl siding including related accessories, in a quantity equal to 2 percent of amount installed.

1.8 QUALITY ASSURANCE

- A. Vinyl Siding Installer Qualifications: A qualified installer who employs a VSI-certified Installer on Project.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with labels intact until time of use.
- B. Store materials under cover.

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including cracking, fading, and deforming.
 - b. Deterioration of materials beyond normal weathering.
 - 2. Fading is defined as loss of color, after cleaning with product recommended by manufacturer, of more than 4 Hunter color-difference units as measured according to ASTM D2244.
 - 3. Warranty Period: 10-years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain products, including related accessories, from single source from single manufacturer.

2.2 VINYL SIDING

- A. Vinyl Siding: Integrally colored product complying with ASTM D3679.
- B. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.
- C. Horizontal Pattern: 8-inch (203-mm) exposure in plain, double, 4-inch (102-mm) board style.
- D. Texture: Wood grain.
- E. Nominal Thickness: 0.044 inch (1.1 mm).
- F. Minimum Profile Depth (Butt Thickness): 5/8 inch (16 mm).
- G. Nailing Hem: Double thickness.
- H. Finish: Wood-grain print with clear protective coating containing not less than 70 percent PVDF.
 - 1. Colors: As selected by Architect from manufacturer's full range of colors.

2.3 ACCESSORIES

- A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.
 - 1. Provide accessories made from same material as matching color and texture of adjacent siding unless otherwise indicated.
- B. Vinyl Accessories: Integrally colored vinyl accessories complying with ASTM D3679 except for wind-load resistance.
 - 1. Texture: Wood grain.
- C. Flashing: Provide flashing complying with Section 76300 "Sheet Metal Flashing and Trim" at window and door heads and where indicated.
- D. Fasteners:
 - 1. For fastening to wood, use siding nails of sufficient length to penetrate a minimum of 1 inch (25 mm) into substrate.
 - 2. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch (6 mm), or three screw-threads, into substrate.
 - 3. For fastening vinyl, use aluminum fasteners. Where fasteners are exposed to view, use prefinished aluminum fasteners in color to match item being fastened.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of vinyl siding and related accessories.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 - 1. Center nails in elongated nailing slots without binding siding to allow for thermal movement.
- B. Install vinyl siding and related accessories according to ASTM D4756.
 - 1. Install fasteners for horizontal vinyl siding no more than 16 inches (400 mm).
- C. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.

3.4 ADJUSTING AND CLEANING

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

END OF SECTION 074633

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes joint sealants for the following locations:
 - 1. Exterior joints in vertical surfaces and non-traffic horizontal surfaces as indicated below:
 - a. Control and expansion joints in unit masonry.
 - b. Perimeter joints between materials listed above and frames of doors and windows.
 - c. Other joints as indicated.
 - 2. Interior joints in vertical surfaces and horizontal nontraffic surfaces as indicated below:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Vertical control joints on exposed surfaces of interior unit masonry and concrete walls and partitions.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
 - e. Perimeter joints of toilet fixtures.
 - f. Other joints as indicated.
- B. Related Sections: The following Sections contain requirements that relate to this Section:

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

- B. Product data from manufacturers for each joint sealant product required.
 - 1. Certification by joint sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds.
- C. Samples for initial selection purposes in form of manufacturer's standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.
- D. Samples for verification purposes of each type and color of joint sealant required. Install joint sealant samples in 1/2-inch (13-mm) wide joints formed between two 6-inch (150-mm) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- E. Certificates from manufacturers of joint sealants attesting that their products comply with specification requirements and are suitable for the use indicated.
- F. Product test reports for each type of joint sealants indicated, evidencing compliance with requirements specified.
- G. Preconstruction field test reports indicating which products and joint preparation methods demonstrate acceptable adhesion to joint substrates.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.
- B. Pre-Installation Conference: Conduct conference at Project site to comply with requirements of the Division 1 Section covering this activity.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer.

2. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer or below 40 deg F (4 deg C).
 3. When joint substrates are wet.
- B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.
- C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

1.8 SEQUENCING AND SCHEDULING

- A. Sequence installation of joint sealants to occur not less than 21 nor more than 30 days after completion of waterproofing, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, joint fillers, 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: Provide color of exposed joint sealants to comply with the following:
1. Provide selections made by Architect from manufacturer's full range of standard colors for products of type indicated.

2.2 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with ASTM C 920 and other requirements indicated on each Elastomeric Joint Sealant Data Sheet at end of this Section, including those requirements referencing ASTM C 920 classifications for Type, Grade, Class, and Uses.
- B. Products: Subject to compliance with requirements, provide one of the products specified in each Elastomeric Joint Sealant Data Sheet.

2.3 LATEX JOINT SEALANTS

- A. General: Provide manufacturer's standard one-part, nonsag, mildew-resistant, paintable latex sealant of formulation indicated that is recommended for exposed applications on interior and protected exterior locations and that accommodates indicated percentage change in joint width existing at time of installation without failing either adhesively or cohesively.

- B. Acrylic-Emulsion Sealant: Provide product complying with ASTM C 834 that accommodates joint movement of not more than 5 percent in both extension and compression for a total of 10 percent.
- C. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Acrylic-Emulsion Sealant:
 - a. "AC-20," Pecora Corp.
 - b. "Sonolac," Sonneborn Building Products Div., ChemRex, Inc.
 - c. "Tremco Acrylic Latex 834," Tremco, Inc.

2.4 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:
 - 1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90.
- B. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.
- C. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Acoustical Sealant:
 - a. "SHEETROCK Acoustical Sealant," United States Gypsum Co.
 - b. "AC-20 FTR Acoustical and Insulation Sealant," Pecora Corp.
 - 2. Acoustical Sealant for Concealed Joints:
 - a. "BA-98," Pecora Corp.
 - b. "Tremco Acoustical Sealant," Tremco, Inc.

2.5 PREFORMED FOAM SEALANTS

- A. Preformed Foam Sealants: Manufacturer's standard preformed, precompressed, impregnated open-cell foam sealant manufactured from high-density urethane foam impregnated with a nondrying, water repellent agent; factory-produced in precompressed sizes and in roll or stick form to fit joint widths indicated and to develop a watertight and airtight seal when compressed to the degree specified by manufacturer; and complying with the following requirements:
 - 1. Properties: Permanently elastic, mildew-resistant, nonmigratory, nonstaining, and compatible with joint substrates and other joint sealants.
 - 2. Impregnating Agent: Manufacturer's standard.

3. Density: Manufacturer's standard.
4. Backing: None.
5. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Emseal," Emseal Corp.
 - b. "Wil-Seal 150," Wil-Seal Construction Foams Div., Illbruck.

2.6 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. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, nonwaxing, nonextruding strips of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 1. Closed-cell polyethylene foam, nonabsorbent to liquid water and gas, nonoutgassing in unruptured state.
 2. Proprietary, reticulated, closed-cell polymeric foam, nonoutgassing, with a density of 2.5 pcf (40 kg/cu. m) and tensile strength of 35 psi (240 kPa) per ASTM D 1623, and with water absorption less than 0.02 g/cc per ASTM C 1083.
 3. Any material indicated above.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as 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.

2.7 MISCELLANEOUS MATERIALS

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

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean concrete, masonry, unglazed surfaces of ceramic tile, and similar 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 metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's recommendations. 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.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

- C. Acoustical Sealant Application Standard: Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- D. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
 - 1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint fillers.
 - b. Do not stretch, twist, puncture, or tear joint fillers.
 - c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.
- E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
 - 1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
 - 2. Provide recessed joint configuration, per Figure 5C in ASTM C 1193, of recess depth and at locations indicated.
- G. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, and to comply with sealant manufacturer's directions for installation methods, materials, and tools that produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in conformance with sealant manufacturer's recommendations.

3.4 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

SECTION 081149 - STEEL DOORS AND FRAMES

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. Steel doors.
 - 2. Steel door frames.
- B. Related Sections include the following:
 - 1. Division 4 Section "Concrete Unit Masonry" for installing anchors and grouting frames in masonry construction.

1.3 SUBMITTALS

- A. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.
- B. Shop Drawings: Show the following:
 - 1. Elevations of each door design.
 - 2. Details of doors including vertical and horizontal edge details.
 - 3. Frame details for each frame type including dimensioned profiles.
 - 4. Details and locations of reinforcement and preparations for hardware.
 - 5. Details of each different wall opening condition.
 - 6. Details of anchorages, accessories, joints, and connections.
 - 7. Coordination of glazing frames and stops with glass and glazing requirements.
- C. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

1.4 QUALITY ASSURANCE

- A. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4-inch-high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Steel Doors and Frames:
 - a. Amweld Building Products, Inc.
 - b. Ceco Door Products; a United Dominion Company.
 - c. Fenestra
 - d. Pioneer Industries Inc.
 - e. Republic Builders Products.
 - f. Steelcraft; A division of Ingersoll-Rand.

2.2 MATERIALS

- A. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.
- C. Metallic-Coated Steel Sheets: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with an A40 zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.

2.3 DOORS

- A. Steel Doors: Provide 1-3/4 inch (44-mm) thick doors of materials and ANSI/SDI 100 grades and models specified below, or as indicated on Drawings or schedules:
 - 1. Interior Doors: Grade III, heavy-duty, Model 1, full flush design, minimum 18 gauge.
- B. Door Louvers: Provide louvers for interior doors, where indicated, that comply with SDI 111C, with blades or baffles formed of 0.020-inch- thick, cold-rolled steel sheet set into 0.032-inch- thick steel frame.
 - 1. Sightproof Louvers: Stationary louvers constructed with inverted V-shaped or Y-shaped blades.

2.4 FRAMES

- A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.
- B. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, according to ANSI/SDI 100, and of types and styles as shown on Drawings and schedules. Conceal fastenings, unless otherwise indicated.
 - 1. Fabricate frames with mitered or coped and continuously welded corners.
 - 2. Form interior and exterior frames from 16-gauge thick steel sheet.
 - 3. Galvanized exterior frames.
- C. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.
- D. Plaster Guards: Provide 0.016-inch- thick, steel sheet plaster guards or mortar boxes to close off interior of openings; place at back of hardware cutouts where mortar or other materials might obstruct hardware operation.
- E. Supports and Anchors: Fabricated from not less than 0.042-inch- thick, electrolytic zinc-coated or metallic-coated steel sheet.
 - 1. Wall Anchors in Masonry Construction: 0.177-inch- diameter, steel wire complying with ASTM A 510 may be used in place of steel sheet.
- F. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.

2.5 FABRICATION

- A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant.
- B. Interior Door Faces: Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units from cold-rolled steel sheet.
- C. Core Construction: One of the following manufacturer's standard core materials that produce a door complying with SDI standards:
 - 1. Resin-impregnated kraft/paper honeycomb, interior.
 - 2. Polyurethane, exterior.
- D. Clearances for Non-Fire-Rated Doors: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between pairs of doors. Not more than 3/4 inch at bottom.
- E. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- F. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.
- G. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- H. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies.
 - 1. Unless otherwise indicated, provide thermal-rated assemblies with U-value of [0.41 Btu/sq. ft. x h x deg F] or better.
- I. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
 - 1. For concealed overhead door closers, provide space, cutouts, reinforcement, and provisions for fastening in top rail of doors or head of frames, as applicable.
- J. Frame Construction: Fabricate frames to shape shown.
 - 1. Fabricate frames with mitered or coped and continuously welded corners.
 - 2. Provide welded frames with temporary spreader bars.

- K. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
- L. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.
- M. Glazing Stops: Manufacturer's standard, formed from 0.0359-inch- thick steel sheet.
 - 1. Provide screw-applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.

2.6 FINISHES

- A. Factory Priming for Field-Painted Finish: Apply shop primer that complies with ANSI A250.3 acceptance criteria, is compatible with finish paint systems indicated, and has capability to provide a sound foundation for field-applied topcoats. Apply primer immediately after surface preparation and pretreatment.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
 - 1. Except for frames located in existing walls or partitions, place frames before construction of enclosing walls and ceilings.
 - 2. In masonry construction, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.
 - 3. In existing concrete or masonry construction, provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
 - 4. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
 - 5. Install fire-rated frames according to NFPA 80.

- C. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.

3.2 ADJUSTING AND CLEANING

- A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.
- B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 081149

SECTION 085113 - ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes fixed and operable aluminum-framed windows for exterior locations.
 - 1. Fixed.
 - 2. Double Hung

1.3 DEFINITIONS

- A. Performance class designations according to AAMA/WDMA 101/I.S.2/NAFS:
 - 1. AW: Architectural.
 - 2. HC: Heavy Commercial.
 - 3. C: Commercial.
 - 4. LC: Light Commercial.
 - 5. R: Residential.
- B. Performance grade number according to AAMA/WDMA 101/I.S.2/NAFS:
 - 1. Design pressure number in pounds force per square foot (pascals) used to determine the structural test pressure and water test pressure.
- C. Structural Test Pressure: For uniform load structural test, is equivalent to 150 percent of the design pressure.
- D. Minimum Test Size: Smallest size permitted for performance class (gateway test size). Products must be tested at minimum test size or at a size larger than minimum test size to comply with requirements for performance class.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide aluminum windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified, and that are of minimum test size indicated below:
 - 1. Size required by AAMA/WDMA 101/I.S.2/NAFS for optional performance grade.

- B. Structural Performance: Provide aluminum windows capable of withstanding the effects of the following loads, based on testing units representative of those indicated for Project that pass AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Structural Test:
1. Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour (meters per second) at 33 feet (10 m) above grade, according to ASCE 7, Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.
 - a. Basic Wind Speed: 90 mph (40 m/s).
 - b. Importance Factor: 1
 - c. Exposure Category: C
 2. Deflection: Design glass framing system to limit lateral deflections of glass edges to less than 1/175 of glass-edge length or 3/4 inch (19 mm), whichever is less, at design pressure based on testing performed according to AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Deflection Test or structural computations.
- C. Windborne-Debris Resistance: Provide glazed windows capable of resisting impact from windborne debris, based on the pass/fail criteria as determined from testing glazed windows identical to those specified, according to ASTM E 1886 and testing information in ASTM E 1996 AAMA 506 and requirements of authorities having jurisdiction.
- D. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C) material surfaces.

1.5 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, hardware, finishes, and operating instructions for each type of aluminum window indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances, installation details, and the following:
1. Mullion details, including reinforcement and stiffeners.
 2. Joinery details.
 3. Flashing and drainage details.
 4. Weather-stripping details.
 5. Thermal-break details.
 6. Glazing details.

- C. Warranty: Special warranty specified in this Section.
- D. Field Dimensions shall be verified for all openings. Tolerance for lintel deflection, jamb squareness and sill irregularity shall be addressed by a per case basis.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An installer acceptable to aluminum window manufacturer for installation of units required for this Project.
- B. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that meet or exceed performance requirements indicated and of documenting this performance by inclusion in lists and by labels, test reports, and calculations.
- C. Source Limitations: Obtain aluminum windows through one source from a single manufacturer for all storefront, curtain wall and window systems.
- D. Fenestration Standard: Comply with AAMA/WDMA 101/I.S.2/NAFS, "North American Fenestration Standard Voluntary Performance Specification for Windows, Skylights and Glass Doors," for definitions and minimum standards of performance, materials, components, accessories, and fabrication. Comply with more stringent requirements if indicated.
 - 1. Provide AAMA-certified aluminum windows with an attached label.
- E. Glazing Publications: Comply with published recommendations of glass manufacturers and with GANA's "Glazing Manual" unless more stringent requirements are indicated.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify aluminum window openings by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating aluminum windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace aluminum windows that fails in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to meet performance requirements.
 - b. Structural failures including excessive deflection, water leakage, air infiltration, or condensation.
 - c. Faulty operation of movable sash and hardware.

- d. Deterioration of metals, other materials, and metal finishes beyond normal weathering.
 - e. Failure of insulating glass.
- 2. Warranty Period:
 - a. Window: Two years from date of Substantial Completion.
 - b. Glazing: Five years from date of Substantial Completion.
 - c. Metal Finish: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Capitol Aluminum and Glass Corporation - Model 325 ES.
 - 2. EFCO Corporation - Model 8101.
 - 3. Graham Architectural Products Corp - Model 6800.
 - 4. Approved Equal.

2.2 MATERIALS

- A. Aluminum Extrusions: Alloy and temper recommended by aluminum window manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength, not less than 16,000-psi (110-MPa) minimum yield strength, and not less than 0.062-inch (1.6-mm) thickness at any location for the main frame and sash members.
- B. Fasteners: Aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturer to be noncorrosive and compatible with aluminum window members, trim, hardware, anchors, and other components.
 - 1. Reinforcement: Where fasteners screw anchor into aluminum less than 0.125 inch (3.2 mm) thick, reinforce interior with aluminum or nonmagnetic stainless steel to receive screw threads, or provide standard, noncorrosive, pressed-in, splined grommet nuts.
 - 2. Exposed Fasteners: Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.
- C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

- D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- E. Compression-Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action and for complete concealment when aluminum window is closed.
 - 1. Weather-Stripping Material: Elastomeric cellular preformed gaskets complying with ASTM C 509.
 - 2. Weather-Stripping Material: Dense elastomeric gaskets complying with ASTM C 864.
 - 3. Weather-Stripping Material: Manufacturer's standard system and materials complying with AAMA/WDMA 101/I.S.2/NAFS.
- F. Sliding-Type Weather Stripping: Provide woven-pile weather stripping of wool, polypropylene, or nylon pile and resin-impregnated backing fabric. Comply with AAMA 701/702.
 - 1. Weather Seals: Provide weather stripping with integral barrier fin or fins of semirigid, polypropylene sheet or polypropylene-coated material. Comply with AAMA 701/702.
- G. Replaceable Weather Seals: Comply with AAMA 701/702.
- H. Sealant: For sealants required within fabricated windows, provide window manufacturer's standard, permanently elastic, nonshrinking, and nonmigrating type recommended by sealant manufacturer for joint size and movement.

2.3 WINDOW

- A. Window Type: Fixed and operable as indicated on Drawings, with a minimum Three and one-quarter (3-1/4)-inch depth. Front glazed.
- B. AAMA/WDMA Performance Requirements: Provide aluminum windows of performance indicated that comply with AAMA/WDMA 101/I.S.2/NAFS unless more stringent performance requirements are indicated.
 - 1. Performance Class and Grade: AW50.
- C. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 52.
- D. Thermal Transmittance: Provide aluminum windows with a whole-window, U-factor maximum indicated at 15-mph (24-km/h) exterior wind velocity and winter condition temperatures when tested according to AAMA 1503.
 - 1. U-Factor: 0.35 Btu/sq. ft. x h x deg F (2.0 W/sq. m x K).

- E. Solar Heat-Gain Coefficient (SHGC): Provide aluminum windows with a whole-window SHGC maximum of 0.50 determined according to NFRC 200 procedures.
- F. Air Infiltration: Maximum rate not more than indicated when tested according to AAMA/WDMA 101/I.S.2/NAFS, Air Infiltration Test.
 - 1. Maximum Rate: 0.3 cfm/sq. ft. (5 cu. m/h x sq. m) of area at an inward test pressure of 6.24 lbf/sq. ft. (300 Pa).
- G. Water Resistance: No water leakage as defined in AAMA/WDMA referenced test methods at a water test pressure equaling that indicated, when tested according to AAMA/WDMA 101/I.S.2/NAFS, Water Resistance Test.
 - 1. Test Pressure: 20 percent of positive design pressure, but not more than 15 lbf/sq. ft. (720 Pa).
- H. Forced-Entry Resistance: Comply with Performance Grade 30 requirements when tested according to ASTM F 588.
- I. Life-Cycle Testing: Test according to AAMA 910 and comply with AAMA/WDMA 101/I.S.2/NAFS.
- J. Operating Force and Auxiliary (Durability) Tests: Comply with AAMA/WDMA 101/I.S.2/NAFS for operating window types indicated.

2.4 GLAZING

- A. Glass Type: Low-e-coated, tinted, tempered insulating glass.
 - 1. Overall Unit Thickness: 1-inch.
 - 2. Outdoor Lite: Tinted fully tempered float glass.
 - a. Tint color: Bronze.
 - 3. Interspace Content: Argon.
 - 4. Indoor Lite: Clear fully tempered float glass.
 - 5. Low-E Coating: Pyrolytic on third surface.
 - 6. Provide safety glazing labeling.

2.5 HARDWARE

- A. General: Provide manufacturer's hardware fabricated from stainless steel, to smoothly operate, tightly close, and securely lock aluminum windows, and sized to accommodate sash or ventilator weight and dimensions.
- B. Sill Cap/Track: Extruded-aluminum track with natural anodized finish, of thickness, dimensions, and profile indicated; designed to comply with performance requirements indicated and to drain to the exterior.
- C. Locks and Latches: Designed to allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only.

- D. Roller Assemblies: Low-friction design.
- E. Inward Swinging Window Four- or Six-Bar Friction Hinges: Comply with AAMA 904.
 - 1. Locking mechanism and handles for manual operation.
 - 2. Friction Shoes: Provide friction shoes of nylon or other nonabrasive, nonstaining, noncorrosive, durable material.
- F. Bottom Hinged In-Swinging Windows: Provide the following operating hardware:
 - 1. Hinge: Four- or six-bar friction hinge with adjustable-slide friction shoe; two per ventilator.
 - 2. Lock: Internal, key-operated, limited-access locks located not more than 48 inches (1220 mm) o.c. at jambs and sill.
 - 3. Hold-Open Device: Automatic-locking hold-open arms or stay bars; designed to permit sash operation for inside cleaning of outside glass face; two per ventilator.
- G. Limit Devices: Provide limit devices for Owner installation.

2.6 INSECT SCREENS

- A. General: Design windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches. Fabricate insect screens to fully integrate with window frame. Locate screens on outside of window and provide for each operable exterior sash or ventilator.
 - 1. Aluminum Tubular Frame Screens: Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," Architectural C-24 class.
 - 2. Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," for minimum standards of appearance, fabrication, attachment of screen fabric, hardware, and accessories unless more stringent requirements are indicated.
- B. Aluminum Insect Screen Frames: Manufacturer's standard aluminum alloy complying with SMA 1004. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners and removable PVC spline/anchor concealing edge of frame.
 - 1. Aluminum Tubular Framing Sections and Cross Braces: Roll formed from aluminum sheet with minimum wall thickness as required for class indicated.
 - 2. Extruded-Aluminum or Aluminum Tubular Framing Sections and Cross Braces: Not less than 0.040-inch (1.0-mm) wall thickness.
 - 3. Finish: Anodized Clear Aluminum.
- C. Glass-Fiber Mesh Fabric: 18-by-16 (1.0-by-1.1-mm) mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration; in the following color. Comply with ASTM D 3656.

1. Mesh Color: Charcoal.

2.7 FABRICATION

- A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- B. Fabricate aluminum windows that are reglazable without dismantling sash or ventilator framing.
- C. Thermally Improved Construction: Fabricate aluminum windows with an integral, concealed, low-conductance thermal barrier; located between exterior materials and window members exposed on interior side; in a manner that eliminates direct metal-to-metal contact.
- D. Provide thermal-break construction that has been in use for not less than three years and has been tested to demonstrate resistance to thermal conductance and condensation and to show adequate strength and security of glass retention. Weather Stripping: Provide full-perimeter weather stripping for each operable sash and ventilator.
- E. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.
- F. Provide water-shed members above side-hinged ventilators and similar lines of natural water penetration.
- G. Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design loads of window units.
- H. Subframes: Provide subframes with anchors for window units as shown, of profile and dimensions indicated but not less than 0.062-inch- (1.6-mm-) thick extruded aluminum. Miter or cope corners, and weld and dress smooth with concealed mechanical joint fasteners. Finish to match window units. Provide subframes capable of withstanding design loads of window units.
- I. Factory-Glazed Fabrication: Glaze aluminum windows in the factory where practical and possible for applications indicated. Comply with AAMA/WDMA 101/I.S.2/NAFS.

2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

- C. 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.

2.9 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Class I, Dark Bronze Anodized Finish: AA-M12C22AA42/A44, 0.018mm (Mechanical Finish: Nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally color or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate, and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weathertight window installation.
- B. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
- C. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing windows, hardware, accessories, and other components.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
- C. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.
- D. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

- E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust operating sashes and ventilators, screens, hardware, operators, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.
- B. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- E. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

END OF SECTION 085113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. This Section includes the following:
 - 1. Hinges.
 - 2. Lock and latch sets.
 - 3. Bolts.
 - 4. Exit devices.
 - 5. Closers.
 - 6. Overhead holders.
 - 7. Weatherstripping for exterior doors.
 - 8. Astragals or meeting seals on pairs of doors.
 - 9. Thresholds.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 8 Section "Steel Doors and Frames" for silencers integral with hollow metal frames.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.
- B. Product data including manufacturers' 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.
- C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 - a. Type, style, function, size, and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of each hardware set cross referenced to indications on Drawings both on floor plans and in door and frame schedule.
 - e. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for hardware.
 - g. Door and frame sizes and materials.
 - h. Keying information.
 2. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
- D. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

1.4 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.
- B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
 1. Require supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.

1.5 PRODUCT HANDLING

- A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

- B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.
- C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).
- E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.6 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1. Butts and Hinges:
 - a. Bommer Industries, Inc.
 - b. Cal-Royal Products, Inc.
 - c. Hager Hinge Co.
 - d. Lawrence Brothers, Inc.
 - e. McKinney Products Co.
 - f. H. Soss & Company.
 - g. Stanley Hardware, Div. Stanley Works.
- 2. Locks:
 - a. Arrow Lock Manufacturing Co.
 - b. Best Lock Corp.
 - c. Corbin & Russwin Architectural Hardware, Div. Black & Decker Corp.
 - d. Falcon Lock Co.
 - e. Sargent Manufacturing Company.
 - f. Schlage Lock, Div. Ingersoll-Rand Door Hardware Group.
 - g. Yale Security Inc.

- 3. Bolts:

- a. Builders Brass Works Corp.
 - b. Glynn-Johnson Corp.
 - c. Hager Hinge Co.
 - d. H. B. Ives, A Harrow Company.
 - e. Quality Hardware Mfg. Co., Inc.; Div. Newman Tonks, Inc.
 - f. Stanley Hardware, Div. Stanley Works.
4. Exit/Panic Devices:
- a. Adams Rite Manufacturing Co.
 - b. Arrow Lock Manufacturing Co.
 - c. Corbin & Russwin Architectural Hardware, Div. Black & Decker Corp.
 - d. Dor-O-Matic.
 - e. Monarch Hardware & Mfg. Co., Div Newman Tonks, Inc.
 - f. Precision Hardware, Inc.
 - g. Reed Exit Hardware, Div. Yale Security Inc.
 - h. Sargent Manufacturing Company.
 - i. Von Duprin, Div. Ingersoll-Rand Door Hardware Group.
 - j. Yale Security Inc.
5. Overhead Closers:
- a. Arrow Lock Manufacturing Co.
 - b. Corbin & Russwin Architectural Hardware, Div. Black & Decker Corp.
 - c. Dorma Door Controls International.
 - d. International Door Closers, Inc.
 - e. LCN, Div. Ingersoll-Rand Door Hardware Group.
 - f. Monarch Hardware & Mfg. Co., Div Newman Tonks, Inc.
 - g. Norton Door Controls, Div. Yale Security Inc.
 - h. Rixson-Firemark, Div. Yale Security Inc.
 - i. Sargent Manufacturing Company.
 - j. Yale Security Inc.
6. Door Control Devices:
- a. Baldwin Hardware Corp.
 - b. Brookline Industries, Div. Yale Security Inc.
 - c. Builders Brass Works Corp.
 - d. Corbin & Russwin Architectural Hardware, Div. Black & Decker Corp.
 - e. Glynn-Johnson Corp.
 - f. Hager Hinge Co.
 - g. H. B. Ives, A Harrow Company.
 - h. Quality Hardware Mfg. Co., Inc.; Div. Newman Tonks, Inc.
 - i. Triangle Brass Manufacturing Company (Trimco).
7. Kick, Mop, and Armor Plates:
- a. Baldwin Hardware Corp.

- b. Brookline Industries, Div. Yale Security Inc.
 - c. Corbin & Russwin Architectural Hardware, Div. Black & Decker Corp.
 - d. Hager Hinge Co.
 - e. Hiawatha, Inc.
 - f. H. B. Ives, A Harrow Company.
 - g. Triangle Brass Manufacturing Company (Trimco).
- 8. Door Stripping and Seals:
 - a. Hager Hinge Co.
 - b. National Guard Products, Inc.
 - c. Pemko Manufacturing Co., Inc.
 - d. Reese Enterprises, Inc.
 - e. Sealeze Corp.
 - f. Ultra Industries.
 - g. Zero International, Inc.
- 9. Thresholds:
 - a. Hager Hinge Co.
 - b. National Guard Products, Inc.
 - c. Pemko Manufacturing Co., Inc.
 - d. Reese Enterprises, Inc.
 - e. Sealeze Corp.
 - f. Zero International, Inc.
- 10. Automatic Drop Seals:
 - a. Hager Hinge Co.
 - b. National Guard Products, Inc.
 - c. Pemko Manufacturing Co., Inc.
 - d. Reese Enterprises, Inc.
 - e. Zero International, Inc.

2.2 SCHEDULED HARDWARE

- A. Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of finish hardware are indicated in the "Hardware Schedule" at the end of this Section. Products are identified by using hardware designation numbers of the following:
 - 1. Manufacturer's Product Designations: The product designation and name of one manufacturer are listed for each hardware type required for the purpose of establishing minimum requirements. Provide either the product designated or, where more than one manufacturer is specified under the Article "Manufacturers" in Part 2 for each hardware type, the comparable product of one of the other manufacturers that complies with requirements.

2.3 MATERIALS AND FABRICATION

- A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise acceptable to Architect.
 - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- B. Base Metals: Produce hardware units of basic metal and forming method indicated using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units for finish designations indicated.
- C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
- D. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
- E. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of reinforcing the work adequately to fasten the hardware securely. Where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

2.4 HINGES

- A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- B. Screws: Provide Phillips flat-head screws complying with the following requirements:
 - 1. For metal doors and frames install machine screws into drilled and tapped holes.
 - 2. For wood doors and frames install wood screws.
 - 3. For fire-rated wood doors install #12 x 1-1/4-inch (32-mm), threaded-to-the-head steel wood screws.
 - 4. Finish screw heads to match surface of hinges or pivots.
- C. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - 1. Out-Swing Exterior Doors: Nonremovable pins.
 - 2. Out-Swing Corridor Doors with Locks: Nonremovable pins.
 - 3. Interior Doors: Nonrising pins.
 - 4. Tips: Flat button and matching plug, finished to match leaves, except where hospital tip (HT) indicated.

- D. Number of Hinges: Provide number of hinges indicated but not less than 3 hinges per door leaf for doors 90 inches (2250 mm) or less in height and one additional hinge for each 30 inches (750 mm) of additional height.

2.5 LOCK CYLINDERS AND KEYING

- A. Existing System: Grandmasterkey the locks to the Owner's existing system, with a new masterkey for the Project.

2.6 LOCKS, LATCHES, AND BOLTS

- A. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set, unless otherwise indicated.
 - 1. Provide flat lip strikes for locks with 3-piece, antifriction latchbolts as recommended by manufacturer.
- B. Lock Throw: Provide 5/8-inch (16-mm) minimum throw of latch on pairs of doors. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.
 - 1. Provide 1/2-inch (13-mm) minimum throw of latch for other bored and preassembled types of locks and 3/4-inch (19-mm) minimum throw of latch for mortise locks. Provide 1-inch (25-mm) minimum throw for all dead bolts.
- C. Flush Bolt Heads: Minimum of 1/2-inch- (13-mm-) diameter rods of brass, bronze, or stainless steel with minimum 12-inch- (300-mm-) long rod for doors up to 84 inches (2100 mm) in height. Provide longer rods as necessary for doors exceeding 84 inches (2100 mm) in height.

2.7 CLOSERS AND DOOR CONTROL DEVICES

- A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit depending on size of door, exposure to weather, and anticipated frequency of use.
 - 1. Where parallel arms are indicated for closers, provide closer unit one size larger than recommended for use with standard arms.
 - 2. Provide parallel arms for all overhead closers, except as otherwise indicated.
- B. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ANSI A117.1 provisions for door opening force and delayed action closing.

2.8 WEATHERSTRIPPING AND SEALS

- A. General: Provide continuous weatherstripping on exterior doors and smoke, light, or sound seals on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

- B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.
- C. Weatherstripping at Jambs and Heads: Provide bumper-type resilient insert and metal retainer strips, surface applied unless shown as mortised or semimortised.

2.9 THRESHOLDS

- A. General: Except as otherwise indicated, provide standard metal threshold unit of type, size, and profile as shown or scheduled.

2.10 HARDWARE FINISHES

- A. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- B. The designations used in schedules and elsewhere to indicate hardware finishes are the industry-recognized standard commercial finishes, except as otherwise noted.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
 - 1. Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
 - 2. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.
- C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers."

- F. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
 - 1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
- D. Six-Month Adjustment: Approximately six months after the date of Substantial Completion, the Installer, accompanied by representatives of the manufacturers of latchsets and locksets and of door control devices, and of other major hardware suppliers, shall return to the Project to perform the following work:
 - 1. Examine and re-adjust each item of door hardware as necessary to restore function of doors and hardware to comply with specified requirements.
 - 2. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures.
 - 3. Replace hardware items that have deteriorated or failed due to faulty design, materials, or installation of hardware units.
 - 4. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.3 HARDWARE SCHEDULE

- A. General: Provide hardware for each door to comply with requirements of Section "Door Hardware," hardware set numbers indicated in door schedule, and in the following schedule of hardware sets.
 - 1. Hardware sets indicate quantity, item, manufacturer and product designation, size, and finish or color, as applicable.

Heading No. 1

3 Hinges	AB700 4-1/2" x 4-1/2"	26D
1 Lockset (Storeroom)	82 8204 (F07) LNJ	26D
1 Closer	350 PSH	EN
1 Perimeter Gasketing	160 VA 36" x 84"	28D
1 Door Protection Plate	8" x 34"	SS
Door Cylinders: Best		

Heading No. 2

3 Hinges	AB700 4-1/2" x 4-1/2"	26D
1 Lockset (Entry)	82 8205 (F04) LNJ	26D
1 Closer	350 PSH	EN
1 Threshold	884 V x 72"	AL
1 Door Sweep	102 VA x 36"	28D
1 Perimeter Gasketing	160 VA 36" x 84"	28D
2 Door Protection Plates	8" x 34"	SS
Door Cylinders: Best		

END OF SECTION 087100

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.

1.3 ACTION SUBMITTALS

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

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

A. Gypsum Wallboard: ASTM C1396/C1396M.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Gypsum.
 - b. CertainTeed Corporation.
 - c. Georgia-Pacific Building Products.
 - d. National Gypsum Company.
 - e. USG Corporation.
2. Thickness: 1/2 inch (12.7 mm).
3. Long Edges: Tapered.

B. Mold-Resistant Gypsum Board: ASTM C1396/C1396M. With moisture- and mold-resistant core and paper surfaces.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Gypsum.
 - b. CertainTeed Corporation.
 - c. Georgia-Pacific Building Products.
 - d. National Gypsum Company.
 - e. USG Corporation.
2. Core: 1/2 inch (12.7 mm), regular type.
3. Long Edges: Tapered.
4. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. L-Bead: L-shaped; exposed long flange receives joint compound.
 - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C475/C475M.

- 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. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
 - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use setting-type, sandable topping compound.

2.5 AUXILIARY MATERIALS

- A. Sound-Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.

- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- F. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Wallboard Type: As indicated on Drawings.
 - 2. Ceiling Type: As indicated on Drawings.
 - 3. Mold-Resistant Type: As indicated on Drawings.
- B. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Multilayer Application:
 - 1. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
 - 2. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 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 C840.
- 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.

3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - 2. Level 2: Panels that are substrate for tile.
 - 3. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in Section 099100 "Interior Painting."

3.6 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Thermoset-rubber base.
 - 2. Thermoplastic-rubber base.

1.3 ACTION SUBMITTALS

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

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish not less than 10 linear feet (3 linear m) for every 500 linear feet (150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg. F (10 deg. C) or more than 90 deg. F (32 deg. C).

1.6 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg. F (21 deg. C) 95 deg. F (35 deg. C), in spaces to receive resilient products during the following periods:
 - 1. 48 hours before installation.
- B. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 THERMOSET-RUBBER BASE

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Flexco
 - 2. Johnsonite; ATarkett Company
 - 3. Roppe Corporation, USA
- B. Product Standard: ASTM F1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).
 - 1. Style and Location:
 - a. Style B, Cove
- C. Thickness: 0.125 inch (3.2 mm).
- D. Height 4 inches (102 mm).
- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Preformed.
- G. Inside Corners: Preformed.
- H. Colors: As indicated by manufacturer's designations.

2.2 THERMOPLASTIC-RUBBER BASE

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Armstrong World Industries, Inc.
 - 2. Flexco
 - 3. Johnsonite: A Tarkett Company
 - 4. Roppe Corporation, USA
- B. Product Standard: ASTM F1861, Type TP (rubber, thermoplastic).
 - 1. Group: I (solid, homogeneous)
 - 2. Style and Location:
- C. Thickness: 0.125 inch (3.2 mm)
- D. Height: 4 inches (102 mm).
- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Preformed.

- G. Inside Corners: Preformed.
- H. Colors: As indicated by manufacturer's designations.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.

3.3 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
 - 1. Remove adhesive and other blemishes from surfaces.
 - 2. Sweep and vacuum horizontal surfaces thoroughly.
 - 3. Damp-mop horizontal surfaces to remove marks and soil.

END OF SECTION 096513

SECTION 099100 - PAINTING

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 surface preparation and field painting of exposed exterior and interior items and surfaces.
 - 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
 - 1. Prefinished items include the following factory-finished components:
 - a. Finished mechanical and electrical equipment.

1.3 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
 - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
 - 2. Low Luster (Eggshell) refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
 - 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
 - 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

1.4 SUBMITTALS

- A. Product Data: For each paint system indicated.
 - 1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
 - 1. Product name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
 - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.7 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.8 EXTRA MATERIALS

- A. Provide extra paint applied to surfaces. Deliver extra materials to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed.

- B. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Benjamin Moore & Co. (Benjamin Moore).
2. PPG Industries, Inc. (Pittsburgh Paints).
3. Sherwin-Williams Co. (Sherwin-Williams).

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Exterior Wood Primer for Acrylic Enamels: Factory-formulated alkyd or latex wood primer for exterior application.
1. Benjamin Moore; Moorcraft Super Spec Alkyd Exterior Primer No. 176: Applied at a dry film thickness of not less than 1.8 mils.
 2. Pittsburgh Paints; 6-609 SpeedHide Exterior House & Trim Wood Primer 100 Percent Acrylic Latex: Applied at a dry film thickness of not less than 1.6 mils.
 3. Sherwin-Williams; A-100 Exterior Latex Wood Primer B42W41: Applied at a dry film thickness of not less than 1.4 mils.
- D. Exterior Galvanized Metal Primer: Factory-formulated galvanized metal primer for exterior application.
1. Benjamin Moore; Moore's IMC Acrylic Metal Primer No. M04: Applied at a dry film thickness of not less than 2.0 mils.
 2. Pittsburgh Paints; 90-709 Pitt-Tech One Pack Interior/Exterior Primer/Finish DTM Industrial Enamel: Applied at a dry film thickness of not less than 3.0 mils.
 3. Sherwin-Williams; primer not required over this substrate.
 4. Sherwin-Williams; Galvite HS Paint B50WZ3: Applied at a dry film thickness of not less than 2.0 mils.

2.3 INTERIOR PRIMERS

- A. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application.
 - 1. Benjamin Moore; Moorcraft Super Spec Latex Enamel Undercoater & Primer Sealer No. 253: Applied at a dry film thickness of not less than 1.2 mils.
 - 2. Pittsburgh Paints; 6-2 SpeedHide Interior Quick-Drying Latex Sealer: Applied at a dry film thickness of not less than 1.0 mil.
 - 3. Sherwin-Williams; PrepRite 200 Latex Wall Primer B28W200 Series: Applied at a dry film thickness of not less than 1.6 mils.
- B. Interior Wood Primer for Acrylic-Enamel and Semigloss Alkyd-Enamel Finishes: Factory-formulated alkyd- or acrylic-latex-based interior wood primer.
 - 1. Benjamin Moore; Moorcraft Super Spec Alkyd Enamel Underbody and Primer Sealer No. 245: Applied at a dry film thickness of not less than 1.5 mils.
 - 2. Pittsburgh Paints; 6-855 SpeedHide Latex Enamel Undercoater: Applied at a dry film thickness of not less than 1.0 mil.
 - 3. Sherwin-Williams; PrepRite Wall and Wood Primer B49W200 Series: Applied at a dry film thickness of not less than 1.6 mils.
 - 4. Sherwin-Williams; PrepRite Classic Interior Primer B28W101 Series: Applied at a dry film thickness of not less than 1.6 mils.

2.4 EXTERIOR FINISH COATS

- A. Exterior Semigloss Acrylic Enamel: Factory-formulated semigloss waterborne acrylic-latex enamel for exterior application.
 - 1. Benjamin Moore; Moorcraft Super Spec Latex House & Trim Paint No. 170: Applied at a dry film thickness of not less than 1.1 mils.
 - 2. Pittsburgh Paints; 6-900 Series SpeedHide Exterior House & Trim Semi-Gloss Acrylic Latex Paint: Applied at a dry film thickness of not less than 1.5 mils.
 - 3. Sherwin-Williams; A-100 Latex Gloss A8 Series: Applied at a dry film thickness of not less than 1.3 mils.
- B. Exterior Full-Gloss Acrylic Enamel for Ferrous and Other Metals: Factory-formulated full-gloss waterborne acrylic-latex enamel for exterior application.
 - 1. Benjamin Moore; Moore's IMC Acrylic Gloss Enamel M28: Applied at a dry film thickness of not less than 2.0 mils.
 - 2. Pittsburgh Paints; 90-300 Series Pitt-Tech One Pack Interior/Exterior High Performance Waterborne High Gloss DTM Industrial Enamels: Applied at a dry film thickness of not less than 3.0 mils.
 - 3. Sherwin-Williams; DTM Acrylic Coating Gloss (Waterborne) B66W100 Series: Applied at a dry film thickness of not less than 2.4 mils.

2.5 INTERIOR FINISH COATS

- A. Interior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for interior application.
 - 1. Benjamin Moore; Moorecraft Super Spec Latex Flat No. 275: Applied at a dry film thickness of not less than 1.2 mils.
 - 2. Pittsburgh Paints; 6-70 Line SpeedHide Interior Wall Flat-Latex Paint: Applied at a dry film thickness of not less than 1.0 mil.
 - 3. Sherwin-Williams; ProMar 200 Interior Latex Flat Wall Paint B30W200 Series: Applied at a dry film thickness of not less than 1.4 mils.
- B. Interior Low-Luster Acrylic Enamel: Factory-formulated eggshell acrylic-latex interior enamel.
 - 1. Benjamin Moore; Moorcraft Super Spec Latex Eggshell Enamel No. 274: Applied at a dry film thickness of not less than 1.3 mils.
 - 2. Pittsburgh Paints; 6-400 Series SpeedHide Eggshell Acrylic Latex Enamel: Applied at a dry film thickness of not less than 1.25 mils.
 - 3. Sherwin-Williams; ProMar 200 Interior Latex Egg-Shell Enamel B20W200 Series: Applied at a dry film thickness of not less than 1.6 mils.

2.6 INTERIOR WOOD STAINS AND VARNISHES

- A. Open-Grain Wood Filler: Factory-formulated paste wood filler applied at spreading rate recommended by manufacturer.
 - 1. Benjamin Moore; Benwood Paste Wood Filler No. 238.
 - 2. Pittsburgh Paints; none required.
 - 3. Sherwin-Williams; Sher-Wood Fast-Dry Filler.
- B. Interior Wood Stain: Factory-formulated alkyd-based penetrating wood stain for interior application applied at spreading rate recommended by manufacturer.
 - 1. Benjamin Moore; Benwood Penetrating Stain No. 234.
 - 2. Pittsburgh Paints; 77-560 Rez Interior Semi-Transparent Oil Stain.
 - 3. Sherwin-Williams; Wood Classics Interior Oil Stain A-48 Series.
- C. Clear Sanding Sealer: Factory-formulated fast-drying alkyd-based clear wood sealer applied at spreading rate recommended by manufacturer.
 - 1. Benjamin Moore; Moore's Interior Wood Finishes Quick-Dry Sanding Sealer No. 413.
 - 2. Pittsburgh Paints; 6-10 SpeedHide Quick-Drying Interior Sanding Wood Sealer and Finish.
 - 3. Sherwin-Williams; Wood Classics Fast Dry Sanding Sealer B26V43.

- D. Interior Alkyd- or Polyurethane-Based Clear Satin Varnish: Factory-formulated alkyd- or polyurethane-based clear varnish.
 - 1. Benjamin Moore; Benwood Interior Wood Finishes Polyurethane Finishes Low Lustre No. 435.
 - 2. Pittsburgh Paints; 77-7 Rez Varnish, Interior Satin Oil Clear.
 - 3. Sherwin-Williams; Wood Classics Fast Dry Oil Varnish, Satin A66-300 Series.
- E. Interior Waterborne Clear Satin Varnish: Factory-formulated clear satin acrylic-based polyurethane varnish applied at spreading rate recommended by manufacturer.
 - 1. Benjamin Moore; Stays Clear Acrylic Polyurethane No. 423, Satin.
 - 2. Pittsburgh Paints; 77-49 Rez Satin Acrylic Clear Polyurethane.
 - 3. Sherwin-Williams; Wood Classics Waterborne Polyurethane Satin, A68 Series.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.
 - 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.

1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
1. Provide barrier coats over incompatible primers or remove and reprime.
 2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.
 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
 - c. If transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
 4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.

- a. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 6/NACE No. 3.
 - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.
- 5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
 - 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 - 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 - 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 - 3. Provide finish coats that are compatible with primers used.
 - 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convactor covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 - 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
 10. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer over metal surfaces that have been shop primed and touchup painted.
 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- F. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been

prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

- G. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- H. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
 - 1. Provide satin finish for final coats.
- I. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.6 EXTERIOR PAINT SCHEDULE

- A. Smooth Wood and Trim: Provide the following finish systems over smooth wood siding, wood trim, and other smooth exterior wood surfaces:
 - 1. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Exterior wood primer for acrylic enamels.
 - b. Finish Coats: Exterior semigloss acrylic enamel.

- B. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.
 - 1. Full-Gloss Alkyd-Enamel Finish: Two finish coats over a rust-inhibitive primer.
 - a. Primer: Exterior ferrous-metal primer.
 - b. Finish Coats: Exterior full-gloss alkyd enamel.

3.7 INTERIOR PAINT SCHEDULE

- A. Concrete Unit Masonry: Provide the following finish systems over interior concrete unit masonry:
 - 1. Semigloss Acrylic-Enamel Finish: Two finish coats over a block filler.
 - a. Block Filler: Concrete unit masonry block filler.
 - b. Finish Coats: Exterior semigloss acrylic enamel.
- B. Gypsum Board Walls: Provide the following finish systems over interior gypsum board surfaces:
 - 1. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior gypsum board primer.
 - b. Finish Coats: Interior low-luster acrylic enamel.
- C. Wood and Hardboard: Provide the following paint finish systems over new interior wood surfaces:
 - 1. Full-Gloss Alkyd-Enamel Finish: Two finish coats over a wood primer.
 - a. Primer: Interior wood primer for full-gloss alkyd-enamel finishes.
 - b. Finish Coats: Interior full-gloss alkyd enamel for wood and metal surfaces.
- D. Ferrous Metal: Provide the following finish systems over ferrous metal:
 - 1. Full-Gloss Alkyd-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior ferrous-metal primer.
 - b. Finish Coats: Interior full-gloss alkyd enamel.
- E. All-Service Jacket over Insulation: Provide the following finish system on cotton or canvas insulation covering:
 - 1. Flat Acrylic Finish: Two finish coats. Add fungicidal agent to render fabric mildew proof.
 - a. Finish Coats: Interior flat latex-emulsion size.

3.8 INTERIOR STAIN AND NATURAL-FINISH WOODWORK SCHEDULE

- A. Stained Woodwork: Provide the following stained finishes over new interior woodwork:
 - 1. Alkyd-Based Stain Satin-Varnish Finish: Two finish coats of alkyd-based clear satin varnish over a sealer coat and interior wood stain. Wipe wood filler before applying stain.
 - a. Filler Coat: Open-grain wood filler.
 - b. Stain Coat: Interior wood stain.
 - c. Sealer Coat: Clear sanding sealer.
 - d. Finish Coats: Interior alkyd- or polyurethane-based clear satin varnish.
- B. Natural-Finish Woodwork: Provide the following natural finishes over new interior woodwork:
 - 1. Alkyd-Based Satin-Varnish Finish: Two finish coats of alkyd-based clear satin varnish over a sanding sealer. Provide wood filler on open-grain wood before applying first varnish coat.
 - a. Filler Coat: Open-grain wood filler.
 - b. Sealer Coat: Clear sanding sealer.
 - c. Finish Coats: Interior alkyd- or polyurethane-based clear satin varnish.

END OF SECTION 099100

SECTION 102800 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Toilet Room accessories.

1.3 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify accessories using designations indicated.

1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For accessories to include in maintenance manuals.

1.7 WARRANTY

- A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, visible silver spoilage defects.
 - 2. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PUBLIC-USE WASHROOM ACCESSORIES

- A. Source Limitations: Obtain public-use washroom accessories from single source from single manufacturer.
- B. Toilet Tissue (Roll) Dispenser:
 - 1. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - a. A & J Washroom Accessories, Inc.
 - b. American Specialties, Inc.: ASI Group.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
 - 2. Description: Roll-in-reserve dispenser with hinged front secured with tumbler lockset.
 - 3. Mounting: Surface mounted.
 - 4. Operation: Non-control delivery with standard spindle.
 - 5. Capacity: Designed for 4-1/2- or 5-inch- (114- or 127-mm-) diameter tissue rolls.
 - 6. Material and Finish: Stainless steel, No. 4 finish (satin).
- C. Surface Mounted Horizontal Design Baby Changing Station:
 - 1. Basis of Design: Model KB300-00, beige color, with external stainless steel bag hook, as manufactured by Koala Kare Products, a Division of Bobrick
 - 2. Complies with ADA and ICC A117.1 Accessibility Standards. Complies with ASTM Standard F 2285, Standard Consumer Safety Performance Specification for Diaper Changing Stations for Commercial Use.
 - 3. Performance: Unit will deflect less than 1 degree from 90 degrees with a 200 lb. static load placed in the center of the changing surface, has been tested to 300 lbs. Units exceed static load requirements called out by ASTM Standard F 2285, Standard Consumer Safety Performance Specification for Diaper Changing Stations for Commercial Use.
 - 4. Bed Surface: injection molded polypropylene with Microban antimicrobial additive, and ISO 22196 tested for efficacy. Surface is contoured, concave and smooth. Bed surface shall be minimum 535sq in.
 - 5. External Bag Hook: 18-8, Type 304, 3/4 inch (19mm) diameter, solid stainless steel rod with satin-finish.

6. Operation: Concealed pneumatic cylinder providing controlled, slow opening and closing of the changing station bed.
7. Safety Straps: Replaceable, restraining straps.
8. Frame and Hinge Mechanism: Concealed 11-gauge chassis, will comprise of 1" diameter integral steel-tubing that supports the changing bed and interacts with 11-gauge steel wall mounting bracket to provide steel-on-steel hinge stop. The wall frame shall serve as wall-mounting bracket
9. Mounting: Factory-drilled mounting holes (6). Mounting screws included.

D. Waste Receptacle

- a. A & J Washroom Accessories, Inc.
 - b. American Specialties, Inc.: ASI Group.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Mounting: Freestanding
 3. Material and Finish: Stainless steel, No. 4 finish (satin).

E. Automatic Soap Dispenser:

1. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - a. A & J Washroom Accessories, Inc.
 - b. American Specialties, Inc.: ASI Group.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Description: Designed for dispensing soap in liquid or lotion form.
3. Mounting: Vertically oriented, surface mounted.
4. Capacity: 27 fluid ounces.
5. Materials: Stainless steel, No. 4 finish (satin).
6. Lockset: Tumbler type.
7. Refill Indicator: Window type.
8. Battery Box: Plastic, holds (3) "C" Alkaline batteries. Contractor to provide.
9. Indicator Lights: Green light = in "use" and dispensing. Red flashing light = low battery.

F. Grab Bar:

1. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - a. A & J Washroom Accessories, Inc.
 - b. American Specialties, Inc.: ASI Group.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, 0.05 inch (1.3 mm) thick.
 - a. Finish: Smooth, No. 4 finish (satin).

4. Outside Diameter: 1-1/2 inches (38 mm).
5. Configuration and Length: As indicated on Drawings.

G. Double Teak Wood Folding Wall Bench:

1. Manufacturers:
 - A. Clevr
 - B. ADA Compliant: Seating Area Dimension: 35.5" x 45.75".
 - C. 400 lb maximum weight capacity.

H. Mirror Unit:

1. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - a. A & J Washroom Accessories, Inc.
 - b. American Specialties, Inc.: ASI Group.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Frame: Stainless-steel angle, 0.05 inch (1.3 mm) thick.
 - a. Corners: Mitered and mechanically interlocked.
3. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
 - a. One-piece, galvanized-steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
 - b. Wall bracket of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
4. Size: As indicated on Drawings.

I. Hand Dryers:

1. Manufacturers: Subject to compliance with requirements, provide products as indicated or approved equal:
 - a. Dyson Airblade V HU02
 - b. Color: Sprayed Nickel
 - c. Surface Mounted: Back plate mounting bracket
 - d. Input voltage: 100-200V
 - e. Motor Speed: 83,000 RPM
 - f. Heater Type: None
 - g. Amp: Dedicated 15 amp circuit. See electrical. Installed by General Contractor.

2.2 MATERIALS

- A. Stainless Steel: ASTM A666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.
- B. Mirrors: ASTM C1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

2.3 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units, level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written instructions.

END OF SECTION 102800

SECTION 107423 - CUPOLA SPECIFICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide steeple/cupola work shown on the drawings, as specified herein, and as needed for a complete and proper installation.
- B. Coordinate steeple/cupola work of this section with General Conditions and Supplementary Conditions.

1.2 SUBMITTALS

- A. Submit shop drawings designed in accordance with local building code requirements. Upon approval, general contractor shall send to field or job-site superintendent copy of final approved shop drawing.
- B. Submit color samples of exterior covering.
- C. Submit certificates of insurance.
- D. Submit close-out documents, warranties, and manuals.

1.3 QUALITY ASSURANCE

- A. Use adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts, and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use materials which shall be free from defects impairing strength, durability, and appearance; shall be of best commercial quality for purpose required; and shall comply with approved drawings.
- C. Use manufacturer who has had ten (10) years of experience in the manufacture of specified product.

1.4 WARRANTY

- A. Warrant the product for one year after date of completed installation by manufacturer of product.
- B. Warrant the product for one year after date of delivery of product installed by others.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Use product as manufactured by Campbellsville Industries, Inc., P.O. Box 278, 440 Taylor Blvd., Campbellsville, KY 42718, Phone: 800/467-8135, Fax: 270/465-6839. Website: <http://cvilleindustries.com>. E-mail: steeple@cvilleindustries.com or approved equal.
- B. Use steeple/cupola stock design no. RC-20B.

2.2 MATERIALS

- A. Use structural steel products according to ASTM specifications
- B. Use structural aluminum products according to the Construction Manual of the Aluminum Association, Inc., and shall be alloy 6061-T6.
- C. Use .032" aluminum cladding, 3003-H14 alloy, with available stock finishes.
- D. Use 20 oz. cold rolled copper cladding.
- E. Use 20 oz. lead coated copper cladding, C-11000, 15 lbs. Lead per 100 S/F, both sides.
- F. Use .027" Altrista zinc cladding.

2.3 ACCESSORIES

- A. Fabricate cross, finial, weathervane and/or topping ornament true to dimensions, with welded or soldered joints, ground smooth.
- B. Form louver blades and firmly secure and rivet to frames, and back with 18 x 18 aluminum or copper screen.
- C. Form cornices, mouldings, and ornaments in accordance with approved drawings.
- D. Fabricate window framing from extruded aluminum tubing alloy 6061-T5, and glaze in Krinklglas of suitable thickness, using stock colors.
- E. Cast, stamp, form, and/or spin special ornaments in accordance with good and acceptable practices, and in accordance with approved drawings.

2.4 FABRICATION

- A. Fabricate structural steel framing to conform to AWS standards.
- B. Fabricate structural aluminum framing with cold driven aluminum rivets, limiting welding to secondary architectural members.

- C. Form all exterior cladding with good and acceptable sheet metal practices, and lock form all seams inasmuch as possible.
- D. Conceal all exterior fasteners to maximum possibility.
- E. Use cadmium plated bolts, nuts, and washers for anchoring, unless anchoring materials are provided and installed by others.

2.5 FINISHES

- A. Use aluminum skin with Kynar 500 finishes, from manufacturer's stock colors of white, sandstone, medium bronze, cream, colonial white, ivory, and/or patina green.
- B. Shop finish all aluminum castings, stampings, spinings, and accessories. Units shall be caustic etched, primed with 2 heavy coats of primer, and finished with 2 heavy coats minimum of industrial vinyl or enamel finish electrostatically applied and air dried.
- C. Clean all copper, lead coated copper or microzinc to weather naturally.
- D. Paint all aluminum surfaces in contact with steel with one heavy coat of zinc primer, and paint all steel surfaces with 2 heavy coats red lead or zinc chromate, followed by one coat of aluminized bituminous paint.

2.6 CAULKING

- A. Clean and dry all surfaces to be caulked.
- B. Apply with caulking gun, using nozzle of proper size to fit the joint width.
- C. Use Sealant as provided for in Specification Section 079200 Joint Sealants.

PART 3 - EXECUTION

3.1 PROJECT SITE CONDITIONS

- A. Verify with owner or general contractor that site conditions are suitable and accessible for delivery and installation.
- B. Confirm with owner or general contractor that all preparatory work is in place in accordance with approved shop drawings before delivery and installation.

3.2 INSTALLATION

- A. Coordinate with other trades as required to assure proper and adequate installation.

- B. Clean all soiled and dirty areas and touch up any scratches or abrasions to finish before lifting into position.
- C. Install work with skilled workmen who are familiar with such work in accordance with approved shop drawings.
- D. Provide crane to manufacturer for unloading and hoisting product into position for as long as required.

3.3 CLEAN-UP

- A. Clean up all debris caused by work of this section
- B. Keep the premises clean and neat at all times.

END OF SECTION 107423

SECTION 6
SPECIFIC PROJECT REQUIREMENTS

SPECIFIC PROJECT REQUIREMENTS

1 - CONTACT DURING BIDDING

- 1.1 All questions during bidding should be addressed to Andrew Torowski, Architect, at Verdantas, LLC, 8150 Sterling Court, Mentor Ohio 44060, at V0000043401@verdantas.com

2 - CORRECTION PERIOD

- 2.1 Section GC-12.2.2.1 of the General Conditions shall be changed from a one (1) year to a two (2) year period.

3 - INSURANCE

- 3.1 Section SC-5.04(D) of the Supplementary Conditions shall be deleted and no "all risk builders risk" or "installation floater" insurance need be purchased by the Contractor.
- 3.2 See the following Bid Set Sections for Insurance Requirements:
- A. Section 1, Instructions to Bidders, Part 10 Insurance
 - B. Section 3, General Conditions, Article 5 Bonds and Insurance (EJCDC) or Article 11 Insurance and Bonds (AIA), whichever is used in the Bid Set
 - C. Section 4, Supplemental Conditions

4 - PAYMENTS

- 4.1 This project is being funded in whole or in part by ARPA. The Contractor shall comply with all requirements of this program. In paragraph 14.02 C.1. of the General Conditions, change "ten days" to "sixty days".

5 - WORKING HOURS

- 5.1 No work shall be performed between the hours of 7:30 p.m. and 7:30 a.m. nor on Saturday, Sunday, or legal Holidays, without written permission of the Owner.

6 - PROJECT COMPLETION

- 6.1 All work including restoration and clean-up shall be completed no later than the contract completion date. Failure to complete all work within the allotted time will result in assessment of liquidated damages. Upon completion of all work and written notification of same by the Contractor, the Engineer and Owner will compile a punch list. The punch list will be sent to the Contractor. All punch list work shall be completed to the satisfaction of the Engineer and the Owner within 14 days after receipt of the punch list. Failure to complete the punch list work within the allotted time will result in assessment of liquidated damages.

7 - BUILDING ACCESS

- 7.1 Access to the building for field investigation of existing conditions must be scheduled in advance with the Owner by contacting Mr. Brint Learned, Executive Director, who can be reached at (440) 428-5913.

END OF SECTION

SECTION 7
PREVAILING WAGE RATES

DAVIS-BACON FEDERAL WAGE DECISION

The Contractor agrees that each individual employed by the Contractor or any Subcontractor and engaged in work on the project under this contract shall be paid the prevailing wage established by the U.S. Department of Labor under the Davis-Bacon and related Acts. This shall occur regardless of any contractual relationship which may be said to exist between the Contractor and any individual or any Subcontractor and any individual.

The Prevailing Wage Determination Schedule for this project is attached for review. These wages are subject to change pending modifications by the Department of Labor. Wage Determination Schedules can be viewed via the internet at <https://sam.gov/wage-determinations> .

Prevailing Wage Orientation Meeting

After award of contract the prime contractor and all approved subcontractors shall participate in a prevailing wage orientation meeting.

Prevailing Wage No Work Performed Reports

The Prime Contractor and all Subcontractors shall submit Prevailing Wage Reports weekly from the first week of work until the final week of work. This includes weeks when no work is performed. Contractors shall submit a Prevailing Wage Report (WH347 or other approved format) or the included Non-Performing Week/No Work Report. All prevailing wage reports submitted must be signed.

Online Fillable WH-347 Form

The on-line .pdf Fillable Form for Davis-Bacon and Related Acts Weekly Certified Payroll HW-347 is located at <https://www.dol.gov/agencies/whd/forms/wh347>

Davis-Bacon and Related Acts Weekly Certified Payroll Form
(For Contractor's Optional Use; See Instructions at www.dol.gov/whd/forms/wh347instr.htm)



Unless otherwise noted, the information requested is specific to the named project below.
Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

Rev. January 2025
OMB No.: 1235-0008
Expires: 01/31/2028

☐ SUBMISSION OF FINAL DBRA CERTIFIED PAYROLL FORM

☐ PRIME CONTRACTOR

☐ SUBCONTRACTOR

PROJECT NAME		PROJECT NO. or CONTRACT NO.		CERTIFIED PAYROLL NO.		PRIME CONTRACTOR'S/SUBCONTRACTOR'S BUSINESS NAME											
PROJECT LOCATION		WAGE DETERMINATION NO.		WEEK ENDING DATE		PRIME CONTRACTOR'S/SUBCONTRACTOR'S BUSINESS ADDRESS											
WORKER ENTRY NO.	WORKER LAST NAME	WORKER FIRST NAME	WORKER MIDDLE INITIAL	WORKER IDENTIFYING NO.	(1) JOURNEYWORKER (RA) REGISTERED APPRENTICE	(2) LABOR CLASSIFICATION	(3) ST = STRAIGHT TIME OT = OVERTIME	(4) (TOP) DAYS OF WORK WEEK (BOTTOM) DATES S M Tu W Th F S HOURS WORKED EACH DAY	(5) TOTAL HOURS WORKED FOR WEEK	(6A) PAID FOR ST AND OT	(6B) TOTAL FRINGE BENEFIT CREDIT	(6C) PAYMENT IN LIEU OF FRINGE BENEFITS	(7A) GROSS AMT EARNED	(7B) GROSS AMT EARNED FOR ALL WORK	(8) DEDUCTIONS FOR ALL WORK FICA TAX WITH- HOLDINGS OTHER (MUST SPECIFY, SEE INSTRUCTIONS) TOTAL DEDUCTIONS	(9) NET PAY TO WORKER FOR ALL WORK	
							ST		0.00								
							OT										
							ST		0.00								
							OT										
							ST		0.00								
							OT										
							ST		0.00								
							OT										
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While use of Form WH-347 itself is optional, covered contractors and subcontractors performing work on Federal or federally assisted construction contracts are required by the DBRA regulations and the contract clauses to submit payroll information on a weekly basis. The Copeland Act (40 U.S.C. § 3145) requires contractors and subcontractors performing work on Federal or federally financed construction contracts to, on a weekly basis, "furnish a statement on the wages paid each employee during the prior week." U.S. Department of Labor (DOL) Regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors and subcontractors to submit weekly certified payrolls to the appropriate Federal agency if the agency is a party to the contract (or, if the agency is not such a party, to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to the Federal agency). Each certified payroll must be accompanied by a signed "Statement of Compliance" (e.g., page 2 of the WH-347 or another document with identical wording) indicating that the certified payrolls are accurate and complete, and that each laborer or mechanic has been paid not less than the required Davis-Bacon prevailing wage rate(s) (including any fringe benefits) for the work performed. DOL and contracting agencies receiving this information review the information to determine whether workers have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that it will take an average of 55 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room 53502, 200 Constitution Avenue, N.W. Washington, D.C. 20210 (over)

PROJECT NAME		PROJECT NO. or CONTRACT NO.		PAYROLL NO.		PRIME CONTRACTOR'S/SUBCONTRACTOR'S BUSINESS NAME			
PROJECT LOCATION				WEEK ENDING DATE		CERTIFYING OFFICIAL'S NAME AND TITLE			
I paid or supervised the payment of the laborers or mechanics working on the above project during the stated time period. I certify the following:									
☐ The payroll information submitted with this statement is correct and complete for the above project during the above period, and the wage and fringe benefit rates paid to the workers, including credit taken for the reasonably anticipated costs of a bona fide fringe benefit plan, fund or program, are not less than the applicable wage and fringe benefits rates for the classification(s) of work actually performed, as specified in the wage determination(s) incorporated into the contract.									
☐ All regular payrolls and all other basic records that the contractor is required to maintain for this payroll period are complete and accurate and will be made available upon request from the agency or the Department of Labor.									
☐ The classifications reported for each laborer or mechanic are the classification(s) of work that each worker actually performed.									
☐ Any workers paid as apprentices during the above period are duly registered in a bona fide apprenticeship program registered with the Office of Apprenticeship, Employment and Training Administration, United States Department of Labor ("OA"), or a State Apprenticeship Agency ("SAA") recognized by Department of Labor. I have verified the registered apprenticeship program information provided below as accurate and applicable to any apprentices identified on page 1 of this form.									
APPRENTICESHIP PROGRAM NAME		REGISTERED		NAME OF LABOR CLASSIFICATION					
		☐ OA ☐ SAA							
		☐ OA ☐ SAA							
		☐ OA ☐ SAA							
☐ Fringe benefits have been paid in cash and/or to bona fide fringe benefit plans, funds, or programs. Where the contractor is claiming an hourly credit for their contributions to or reasonably anticipated costs of a bona fide fringe benefit plan, fund, or program, provide plan information and the hourly credit claimed for each worker listed on the previous page of this form.									
HOURLY CREDIT FOR FRINGE BENEFITS									
If an amount is listed in (6B) on the first page of this certified payroll form, enter the hourly credit claimed under each plan name, type and number for each worker and check whether the plan is funded or unfunded.									
NAME OF WORKER		FB NAME		FB NAME		FB NAME		TOTAL HOURLY CREDIT	
		FB TYPE	FB TYPE	FB TYPE	FB TYPE	FB TYPE	FB TYPE		
		PLAN NO.	PLAN NO.	PLAN NO.	PLAN NO.	PLAN NO.	PLAN NO.		
		☐ Funded	☐ Unfunded	☐ Funded	☐ Unfunded	☐ Funded	☐ Unfunded		
		Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	\$ 0.00	
		Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	\$ 0.00	
		Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	\$ 0.00	
		Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	\$ 0.00	
		Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	\$ 0.00	
		Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	\$ 0.00	
		Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	\$ 0.00	
		Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	Hourly Credit	\$ 0.00	
☐ All workers on the project have been paid the full weekly wages earned, and no rebates or deductions have been or will be made either directly or indirectly, other than permissible deductions as defined in 29 CFR part 3.									
ADDITIONAL REMARKS									
SIGNATURE OF CERTIFYING OFFICIAL		DATE		TELEPHONE NUMBER		EMAIL ADDRESS			
				() - - - - -					
THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION (SEE SECTION 1001 OF TITLE 18 AND SECTION 3729 OF TITLE 31 OF THE UNITED STATES CODE), AS WELL AS DEBARMENT FROM FUTURE FEDERAL AND FEDERALLY-ASSISTED CONTRACTS. INFORMATION REPORTED IN CERTIFIED PAYROLLS MAY BE SUBJECT TO DISCLOSURE IN RESPONSE TO A FREEDOM OF INFORMATION ACT REQUEST.									

Wage and Hour Division

Instructions For Completing Davis-Bacon and Related Acts Weekly Certified Payroll Form, WH-347

- [WH-347 \(PDF\)](#)
OMB Control No. 1235-0008, Expires 01/31/2028.
- [WH-347 Form Annotated Guide \(PDF\)](#)
- [Online Fillable WH-347 Form](#)

General: Form WH-347 is available for the convenience of contractors and subcontractors to submit certified weekly payrolls in connection with their Federal or federally assisted construction contracts and subcontracts. Properly completed, this form will satisfy the requirements of the regulations in parts 3 and 5 of Title 29 of the Code of Federal Regulations (CFR) as to certified payrolls submitted in connection with contracts subject to the Davis-Bacon and Related Acts (DBRA).

While use of Form WH-347 itself is optional, covered contractors and subcontractors performing work on Federal or federally assisted construction contracts are required by the DBRA regulations and the contract clauses to submit payroll information on a weekly basis. The Copeland Act (40 U.S.C. § 3145) requires contractors and subcontractors performing work on Federal or federally financed construction contracts to, on a weekly basis, “furnish a statement on the wages paid each employee during the prior week.” U.S. Department of Labor (DOL) Regulations at 29 CFR 5.5(a)(3)(ii) require contractors and subcontractors to submit weekly certified payrolls to the appropriate Federal agency if the agency is a party to the contract (or, if the Federal agency is not party to the contract, to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to the Federal agency that provided the Federal assistance). Each certified payroll must be accompanied by a signed “Statement of Compliance” (e.g., page 2 of the WH-347 or another document with *identical* wording) indicating that the certified payrolls are accurate and complete, and that each laborer or mechanic has been paid not less than the required Davis-Bacon prevailing wage rate(s) (including any fringe benefits) for the work performed. DOL and contracting agencies receiving this information review the information to help determine whether workers have received legally required wages and fringe benefits.

Under the DBRA, contractors and subcontractors are required to pay not less than the prevailing wage, including fringe benefits, as predetermined by DOL. The contractor’s obligation to pay fringe benefits may be met through the contractor’s contributions to or reasonably anticipated costs of bona fide benefit plans, funds, or programs, or by paying workers cash in lieu of fringe benefits.

Form WH-347 provides fields for contractors and subcontractors to document all wages paid to each worker, whether paid entirely as cash wages or by a combination of cash wages and employer-provided bona fide fringe benefits, and provides for the contractor or subcontractor’s certification in the Statement of Compliance (as shown on page 2 of Form WH-347) that the data and payroll information on the form are accurate and complete. The Statement of Compliance also provides for the representation that the contractor or subcontractor is paying its workers, including registered apprentices, at least the required wage rates, satisfying its fringe benefits obligations, and maintaining required payroll records.

Detailed instructions for completing the first page of Form WH-347 follow:

“Check Box” for Submission of Final DBRA Certified Payroll Form: Mark the box to indicate that this submission is for the final week of work on the project for the contractor or subcontractor.

“Check Box” for Prime Contractor or Subcontractor: Mark the appropriate box to indicate whether it is the prime contractor or a subcontractor on the project for which certified payroll is being reported.

Project Name: Enter the name of the project on which you are reporting.

Project No. or Contract No.: Enter the project number or the prime contract number assigned by the relevant contracting agency (if available).

Certified Payroll No.: Beginning with the number “1”, each weekly certified payroll that a contractor or subcontractor submits for a project should be given a payroll number. Enter the appropriate payroll number.

Prime Contractor's/Subcontractor's Business Name: Enter the business' legal name.

Project Location: Enter the complete address of the project, or, if there is no specific address, a description of the project location, including, at a minimum, the county or counties and state in which the project is located.

Wage Determination No.: Enter the wage determination number(s) and revision number(s) included in the covered contract and relevant to the submitted certified payroll form (e.g., if there are multiple wage determinations applicable to the project, please list all wage determinations that applied to the work performed by the workers in this pay period).

Week Ending Date: Enter the workweek ending date for this pay period.

Prime Contractor's/Subcontractor's Business Address: Enter the company's full business address.

Column 1A – Worker Entry No.: Beginning with the number “1”, enter each worker's entry number (e.g., entry in row 2 may be 2, entry in row 3 may be 3, etc. If reporting more than 8 entries, row 1 on page 2 may be entry 9 and row 1 on page 3 may be entry 17, etc.). If a worker works in more than one labor classification during the course of the week, the contractor should show the number of hours the worker worked in each classification using separate rows. In such circumstances, the same worker entry number should be used on each row associated with the worker.

Column 1B – Worker Last Name: Self-explanatory.

Column 1C – Worker First Name: Self-explanatory.

Column 1D – Worker Middle Initial: Self-explanatory.

Column 1E – Worker Identifying No.: Enter each worker's individual identifying number (e.g., last four digits of the worker's social security number or any number specific to the individual worker) on each weekly certified payroll submitted. **Note:** *workers' full Social Security numbers must **not** be included.*

Column 2 – Journeyworker / Registered Apprentice: Enter “J” if the worker is a journeyworker or “RA” if the worker is a registered apprentice in an apprenticeship program approved by DOL's Office of Apprenticeship (OA) or a State Apprenticeship Agency (SAA). For registered apprentices, also list their level of progression within the approved program.

Column 3 – Labor Classification: List the labor classification for the work actually performed by each worker. Labor classifications are found in the applicable Davis-Bacon wage determination(s) that are included in the contract for this project. If the wage determination(s) does not include a labor classification for work that a worker has performed on this contract, contact the Contracting Officer or Agency representative immediately.

If a worker performed work in more than one labor classification during the week, the worker must be paid at least the rate specified for the appropriate labor classification for the time actually worked in that labor classification. In such circumstances, an accurate breakdown of hours worked in each labor classification must be shown on the submitted payroll by using a separate row for each labor classification in which the worker performed work. If the contractor did not maintain an accurate breakdown of hours worked by a worker in each labor classification, the worker must be paid for all hours worked using the highest applicable prevailing wage rate (basic hourly rate and fringe benefits).

Column 4 – Hours Worked Each Day: In column 4 in the table above row 1, please enter the first letter for each day of the contractor's workweek in each box on the top row and its corresponding date in each box on the second row below it. For example, if a contractor's workweek starts on Tuesday and ends on Monday, enter “T” for Tuesday in the first box of the first row and continue with the appropriate letter identifying the day of the week for each box ending with “M” on the last box of the first row. In the second row, enter the corresponding date for each day of the week. Please see example below:

T	W	T	F	S	S	M
6/16	6/17	6/18	6/19	6/20	6/21	6/22

For worker-specific entries, please enter hours worked on this project as straight time (“ST”) and overtime (“OT”) in the applicable boxes. On all contracts subject to the Contract Work Hours and Safety Standards Act (CWHSSA), enter hours worked on this project in excess of 40 hours total in the week as overtime (“OT”) (including hours worked on and off the site of the work of the covered contract). **Note:** *For more information about compliance with overtime requirements on Federal and federally assisted contracts, please visit [Overtime Pay on Government Contracts](#).*

Column 5 – Total Hours Worked for the Week: Enter the total number of the hours worked entered in column four.

Column 6A – Hourly Wage Rate Paid for ST and OT: For each worker, list the actual hourly rate paid for straight time (top row) and overtime (bottom row) worked for work in the classification indicated in column 3. If the worker was paid at a higher rate than the wage rate required on the wage determination, indicate the wage rate the worker was actually paid. **Note:** *do not include cash payments in lieu of fringe benefits in this column.*

Column 6B – Total Fringe Benefit Credit: Enter the total of the contractor's or subcontractor's contributions to or reasonably anticipated costs of bona fide fringe benefit plans, funds, or programs for which the contractor or subcontractor is taking a credit toward satisfying Davis-Bacon prevailing fringe benefit rates as listed on page 2 of Form WH-347 under "Hourly Credit for Fringe Benefits". This amount should equal the worker's total hours worked in this period multiplied by the hourly credit for fringe benefits as listed under the Total Hourly Credit column on page 2 of Form WH-347 under "Hourly Credit for Fringe Benefits".

Column 6C – Payment in Lieu of Fringe Benefits: Enter the total amount in cash provided in lieu of fringe benefits to the worker during the workweek. This amount should equal the worker's total hours worked in this period multiplied by the hourly rate provided to the worker as cash in lieu of fringe benefits.

Column 7A – Gross Amount Earned: Enter the worker's gross amount earned for the workweek for hours worked on this Federal or federally assisted project.

Column 7B – Gross Amount Earned for all Work: If part of a worker's weekly wage was earned on projects or work other than the project described on this payroll, including non-DBRA covered projects, enter in column 7B the total gross amount earned during the week for all work performed during the week.

Column 8 – Deductions for all Work: Enter all deductions made from worker's total gross amount earned for all work (Column 7B). Columns are provided for entering deductions made for tax withholdings, FICA, and "Other" deductions. If the amount under "Other" deductions is specific to one deduction, please describe the deduction under "Additional Remarks" on page 2 of this certified payroll form. If the amount under the "Other" deductions made from the worker's pay is a result of more than one deduction, submit an addendum that itemizes each deduction and includes a description and amount for each deduction listed on that document. Enter the total amount for all deductions actually made under the "Total Deductions" column (include the amounts listed under the Tax Withholdings, FICA and Other columns). All deductions must be in accordance with the provisions of the Copeland Act Regulations, 29 CFR part 3. If a worker worked on other jobs in addition to this project, do not pro-rate the deductions; instead, show actual deductions from the worker's weekly gross wage for all projects. **Note:** *Except for deductions listed in 29 CFR 3.5, all deductions must have prior approval from the Department of Labor.*

Column 9 – Net Payment to Worker for All Work: Enter the actual dollar amount paid to the worker for all hours worked across all projects (including non-DBRA covered projects) during the week.

Detailed instructions for completing the second page of Form WH-347 follow:

Project Name: Enter the name of the project on which you are reporting.

Project No. Or Contract No.: Enter the project or prime contract number associated with your contract assigned by the relevant contracting agency (if available).

Payroll No.: Beginning with the number "1", each weekly certified payroll that a contractor or subcontractor submits for a project should be given a payroll number. Enter the appropriate payroll number.

Prime Contractor's/Subcontractor's Business Name: Enter the business' legal name.

Project Location: Enter the complete address of the project, or, if there is no specific address, a description of the project location, including, at a minimum, the county or counties and state in which the project is located.

Week Ending Date: Enter the workweek ending date for this pay period.

Certifying Official's Name and Title: Print the name and official title of the contractor or subcontractor, or their agent who paid or supervised the payment of the workers under the contract during the weekly time period covered by the form.

Statement of Compliance: While the "Statement of Compliance" need not be notarized, the statement (on page 2 of this certified payroll form) is subject to the penalties provided by 18 U.S.C. § 1001, namely, a fine, possible imprisonment of not more than 5 years, or both. Accordingly, the party signing this statement should have knowledge of the facts represented as true.

If applicable, please "check" each of the 6 boxes certifying the accompanying statement as accurate. Boxes 1, 2, 3 and 6 (i.e., the first three boxes and the last box) always **must** be checked to certify that the contractor or subcontractor completing the form is in compliance with the DBRA.

If any worker is being paid as an apprentice during the period, box 4 **must** be checked and each program name in which the contractor has registered apprentices working on the project during this payroll period must be listed, with the appropriate box checked to indicate whether the apprenticeship program is registered with DOL's Office of Apprenticeship (OA) or a State Apprenticeship Agency (SAA), and the name of the labor classification entered. If more than three entries are required, please submit an addendum providing the requested information with the submission of the certified payroll. If box 4 is not applicable, do not check the box and enter "Not Applicable" or "N/A" in the entry subsection, under Apprenticeship Program Name.

If the contractor or subcontractor is claiming an hourly credit for their contributions to or reasonably anticipated costs of bona fide fringe benefit plans, funds, or programs, box 5 must be checked and the subsections titled "Hourly Credit for Fringe Benefits" must be completed. In the first column, list each worker entry number (entered in column 1A on the first page) and name of worker for whom the contractor or subcontractor claimed an hourly fringe benefit credit (this should mirror the worker names and order found on Page 1 of the certified payroll form). In the following columns, list each fringe benefit plan name in the top row, fringe benefit plan type in the second row, fringe benefit plan number in the third row, mark whether the fringe benefit plan is funded or unfunded in the fourth row, and state the hourly amount of credit claimed for each worker under each applicable plan in the rows below. In the last column, list the total hourly cost of fringe benefit provided for each worker. Where the contractor or subcontractor is claiming a credit for the reasonably anticipated costs of fringe benefits provided directly by the contractor (commonly referred to as an "unfunded plan"), the contractor or subcontractor must have prior approval from the Department of Labor prior to claiming such credit as required in 29 CFR 5.28. If more than six bona fide fringe benefits are provided to the workers for which the contractor is claiming a credit, submit an addendum for each providing the information requested in this section.

Note: If the contractor or subcontractor is meeting its fringe benefit obligations partially through contributions to or reasonably anticipated costs of a bona fide fringe benefit plan and partially through the payment of cash in lieu of fringe benefits, the contractor or subcontractor should enter the respective amounts in this section and in column 6C (Cash Payment in Lieu of Fringe Benefits) on page 1. If the contractor or subcontractor is meeting its fringe benefits obligations by simply paying the cash equivalent to each worker, check the box but do not complete the subsection, because those payments will be reported under column 6C (Cash Payment in Lieu of Fringe Benefits) on page 1.

Additional Remarks: Optional space for additional information on deductions, hourly cost of fringe benefits, or explanations. If more space is needed, please continue remarks on a separate page. If the optional space or separate pages are used, please include all contractor and project information required by the form.

Signature of Certifying Official, Date, Telephone Number, and Email Address: The Statement of Compliance must be signed by the contractor or subcontractor, or their agent who paid or supervised the payment of the workers under the contract during the weekly time period covered by the form. Enter the phone number and email address of the individual who is signing the statement and the date signed. Legally valid electronic signatures are acceptable. A legally valid electronic signature includes any electronic process that indicates acceptance of the certified payroll record and includes an electronic method of verifying the signer's identity.

Note: Photocopies or scanned copies of signatures do not satisfy this requirement.

Public Burden Statement: We estimate that it will take an average of 55 minutes to complete this collection of information, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection of information, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room S3502, 200 Constitution Avenue, N.W., Washington, D.C. 20210.

Note: In order to view, fill out, and print PDF forms, you need Adobe® Acrobat® Reader® version 5 or later, which you may download for free at www.adobe.com/products/acrobat/readstep2.html.

Topics	Worker Rights	For Employers	Resources	Interpretive Guidance	State Laws
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FEDERAL GOVERNMENT	LABOR DEPARTMENT	WHD PORTALS
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White House	About DOL	YouthRules!
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Disaster Recovery Assistance	Guidance Search	Wage Determinations
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DisasterAssistance.gov	Español	Accessibility Statement
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Wage and Hour Division

An agency within the U.S.
Department of Labor

200 Constitution Ave NW
Washington, DC 20210
[1-866-4-US-WAGE](tel:1-866-4-US-WAGE)
[1-866-487-9243](tel:1-866-487-9243)
www.dol.gov

USA.gov

[No Fear Act Data](#)

[U.S. Office of Special Counsel](#)

[Office of Inspector General](#)

[A to Z Index](#)

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[Important Website Notices](#)

[Privacy & Security Statement](#)

The completion of the WH-347 Davis Bacon and Related Acts Weekly Certified Payroll Form is optional; The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired.

DB.9

CONTRACTOR FRINGE BENEFIT STATEMENT

Contract # /Project Name:	Contract Location:	Today's Date:
Contractor / Subcontractor Name:		Business Address:

In order that the proper Fringe Benefit rates can be verified when checking payrolls on the above contract, the hourly rates for fringe benefits, subsistence and/or travel allowance payment made for employees by the employer on the various classes of work are tabulated below. **Please Include Apprentices Rates.**

Classification:		Effective Date:	Subsistence or Travel Pay: \$ _____
EMPLOYER PAID FRINGE BENEFITS	Health & Welfare \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____
	Pension \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____
	Vacation/Holiday \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____
	Training \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____
	Other \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____

Classification:		Effective Date:	Subsistence or Travel Pay: \$ _____
EMPLOYER PAID FRINGE BENEFITS	Health & Welfare \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____
	Pension \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____
	Vacation/Holiday \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____
	Training \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____
	Other \$ _____ hr	Paid To: Name of Plan/Fund/Program: _____ Address: _____	_____

Supplemental statements must be submitted during the progress of the work should there be an increase or change in rates. Use additional sheets as necessary. (Attach a copy of your most recent premium transmittal (including copy of check submitted) into each of the above plans/funds/programs or a letter from the above plans/funds/programs reflecting current payment status).

I certify under penalty of perjury that fringe benefits are paid to the approved plans, funds or programs as listed above.

Name and Title _____	Signature and Date (Wet Signature Required) _____
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PREVAILING WAGE NOTIFICATION TO EMPLOYEE

Project Name:		Job Number:	
Contractor:			
Project Location:			
Jobsite posting of prevailing wage rates located:			
Prevailing Wage Coordinator		Employee	
Name:		Name:	
Street:		Street:	
City:		City:	
State / Zip:		State / Zip:	
Phone:		Phone:	
You will be performing work on this project that falls under these classifications. You will be paid the appropriate rate for the type of work you are performing.			
Classification	Prevailing Wage Rate Total Package	Minus Your Fringe Benefits	Your Hourly Base Rate
Hourly fringe benefits paid on your behalf by this company.			
Fringe	Amount	Fringe	Amount
Health Insurance		Vacation	
Life Insurance		Holiday	
Pension		Sick Pay	
Bonus		Training	
Other		TOTAL HOURLY FRINGES	
Contractor's Signature:			Date:
Employee's Signature:			Date:

whpw1512

"General Decision Number: OH20260084 01/02/2026

Superseded General Decision Number: OH20250084

State: Ohio

Construction Type: Building

County: Lake County in Ohio.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Modification Number	Publication Date
0	01/02/2026

ASBE0003-002 08/01/2024

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$ 43.88	26.93

BROH0005-007 05/01/2023

	Rates	Fringes
BRICK POINTER/CAULKER/CLEANER....	\$ 38.13	20.19

BROH0005-009 05/01/2024

	Rates	Fringes
TILE FINISHER.....	\$ 31.50	16.23

BROH0016-003 05/01/2024

	Rates	Fringes
BRICKLAYER.....	\$ 38.01	20.64

BROH0036-001 05/01/2024

	Rates	Fringes
TILE SETTER.....	\$ 36.07	19.49

CARP0373-001 05/01/2024

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 37.52	23.50

CARP0435-001 05/01/2024

	Rates	Fringes
CARPENTER (Drywall Hanging and Metal Stud Installation Only).....	\$ 37.52	23.50

CARP1090-001 05/01/2025

	Rates	Fringes
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PILEDRIVERMAN.....\$ 36.34 27.50

ELEC0038-005 04/28/2025

Rates Fringes

ELECTRICIAN (Low Voltage
Wiring Only).....\$ 33.05 14.91

FOOTNOTES;

- a. 6 Paid Holidays: New Year's Day; Memorial Day; July 4th;
Labor Day; Thanksgiving Day; & Christmas Day
- b. 1 week's paid vacation for 1 year's service; 2 weeks' paid
vacation for 2 or more years' service

ELEC0038-010 04/28/2025

Rates Fringes

ELECTRICIAN (Including
HVAC/Temperature Controls and
Alarm Installation; Excluding
Low Voltage Wiring).....\$ 46.63 24.92

FOOTNOTES;

- a. 6 Paid Holidays: New Year's Day; Memorial Day; July 4th;
Labor Day; Thanksgiving Day; & Christmas Day
- b. 1 week's paid vacation for 1 year's service; 2 weeks' paid
vacation for 2 or more years' service

ELEV0017-002 01/01/2025

Rates Fringes

ELEVATOR MECHANIC.....\$ 63.79 38.435+a+b

PAID HOLIDAYS:

- a. New Year's Day, Memorial Day, Independence Day, Labor Day,
Veteran's Day, Thanksgiving Day, the Friday after
Thanksgiving, and Christmas Day.
- b. Employer contributes 8% of regular hourly rate to vacation
pay credit for employee who has worked in business more
than 5 years; 6% for less than 5 years' service.

ENGI0018-042 05/01/2024

Rates Fringes

POWER EQUIPMENT OPERATOR
Crane.....\$ 46.71 16.41
Oiler.....\$ 36.93 16.41

ENGI0066-045 06/01/2017

Rates Fringes

POWER EQUIPMENT OPERATOR
Forklift.....\$ 28.87 19.66
Grader/Blade.....\$ 32.42 19.66
Mechanic.....\$ 32.92 19.66

IRON0017-011 05/01/2024

	Rates	Fringes
IRONWORKER		
Ornamental, Reinforcing, & Structural.....	\$ 36.83	29.01

LAB00310-002 06/01/2024

	Rates	Fringes
LABORER		
Common or General; Mason Tender - Brick & Cement/Concrete.....	\$ 31.89	22.66

PAIN0181-001 05/01/2024

	Rates	Fringes
GLAZIER.....	\$ 34.82	20.80

PAIN0707-002 05/01/2024

	Rates	Fringes
PAINTER (Brush and Roller).....	\$ 32.35	19.45

PAIN0707-003 05/01/2025

	Rates	Fringes
PAINTER (Drywall Finishing/Taping Only).....	\$ 35.45	20.20

PLAS0031-018 05/01/2014

	Rates	Fringes
PLASTERER (Including FLOOR LAYER: Floor Coating/Epoxy).....	\$ 29.51	15.67

PLAS0404-001 05/01/2025

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 35.58	23.71

PLUM0055-002 05/05/2025

	Rates	Fringes
PLUMBER (Excludes HVAC Pipe Installation).....	\$ 44.86	30.03

PLUM0120-009 05/01/2025

	Rates	Fringes
PIPEFITTER (Includes HVAC Pipe Installation).....	\$ 49.17	28.55
SPRINKLER FITTER (Fire Sprinklers).....	\$ 49.17	28.55

ROOF0044-003 04/27/2025

	Rates	Fringes
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ROOFER.....	\$ 40.15	21.28
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SHEE0033-044 05/01/2024

	Rates	Fringes
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SHEET METAL WORKER (Including HVAC Duct and Unit Installation).....	\$ 43.06	30.11
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* UAVG-OH-0026 01/01/2019

	Rates	Fringes
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CARPENTER (Form Work Only).....	\$ 31.87	12.74
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SUOH2012-086 08/29/2014

	Rates	Fringes
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CARPENTER: (Excluding Drywall Hanging and Metal Stud Installation, Soft Floor Laying, and Form Work).....	\$ 28.26	12.11
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LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$ 24.53	14.55
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OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 30.95	10.20
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OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 32.88	12.26
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OPERATOR: Bulldozer.....	\$ 21.15	8.72
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OPERATOR: Loader.....	\$ 29.66	12.61
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OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$ 31.48	12.80
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OPERATOR: Roller.....	\$ 31.48	12.80
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PAINTER: Spray.....	\$ 22.78	12.40
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TRUCK DRIVER: Dump (All Types)...	\$ 24.32	11.73
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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 \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. 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
"

Federal Grant Compliance - American Rescue Plan Act of 2021

All references to the Contractor shall include all subcontractors and suppliers at any tier.

All procurement activities involving the expenditure of federal funds must be conducted in compliance with the Procurement Standards codified in 2 C.F.R. § 200.317 through §200-326 unless otherwise directed in writing by the federal agency or state pass-through agency that awarded the funds. All applicable local, state, and federal procurement requirements will be followed when expending federal funds. Should the State of Ohio have more stringent requirements, the most restrictive requirement shall apply so long as it is consistent with state and federal law.

The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause. 41 C.F.R. 60-1.4(b).

The Contractor shall comply with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States").

The Contractor shall comply with the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 - 3708) as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each Contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

The Contractor shall comply with the Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

A contract with a Contractor will not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with OBM guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp. p.189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

The Contractor shall comply with the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352) and must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

The Contractor shall comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only 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, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

The Contractor shall comply with CFR §200.216, Prohibition on certain telecommunications and video surveillance services or equipment. The Contractor is prohibited from obligating or expending loan or grant funds to:

- (1) Procure or obtain;
- (2) Extend or renew a contract to procure or obtain; or
- (3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, Section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
 - (i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

- (ii) Telecommunications or video surveillance services provided by such entities or using such equipment.
- (iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

In implementing the prohibition under Public Law 115 -232, Section 889, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained.

See Public Law 115-232, Section 889 and § 200.471 for additional information.

BABA - The Contractor shall, as appropriate and to the extent consistent with law, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award.

(a) For purposes of this section:

- (1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.**
- (2) "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.**

End of Section [7/29/22]