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Toledo, Ohio 43604
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Specifications

**Wood County Board of DD
Residential Respite Home for Children**

**Project Location:
41 Island View Avenue
Rossford, Ohio 43460**

Commission No. 20026
December, 2021

Prepared for:

**Wood County Board of
Developmental Disabilities**
1921 Gypsy Lane Road
Bowling Green, OH 43402

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PROJECT DIRECTORY

Owner: Wood County Board of Developmental Disabilities
1921 Gypsy Lane Road
Bowling Green, Ohio 43402
Phone: 419.353.2414
Email: smckeown@woodcountydd.org
Contact: Scott McKeown

Architect: Thomas Porter Architects, Inc.
8 N. St. Clair Street
Toledo, Ohio 43604
Phone: 419.243.2400
Email: andy.knopp@porterarch.com
Contact: Andy Knopp

Engineer: MDA Engineering, Inc.
1415 Holland Road
Maumee, Ohio 43537
Phone: 419.893.3141
Email: ryambert@mdaengr.com
Contact: Rob Yambert

Publication Date: October 22, 29 & November 5, 2021

Publication Locations: <https://www.woodcountydd.org>, BG Sentinel – Tribune, Toledo Blade

NOTICE TO BIDDERS

Sealed bids will be received for the construction of a new residential respite home for children located at 41 Island View Avenue, Rossford, Ohio 43460 by the Wood County Board of DD no later than **3:00 pm, EST on Thursday, December 9, 2021**. Proposals must be delivered to the Reception desk of the Maintenance & Transportation Building located on the Wood County Board of DD Campus, 1921 Gypsy Lane Road, Entrance F, Bowling Green, Ohio 43402. Proposals will be read publicly immediately following in the Maintenance & Transportation Building Conference Room (Entrance F). Proposals received after the listed date and time shall be considered late and will be returned to the submitting party unopened.

The overall work scope will consist of all material and labor required for the demolition of an existing single story garage building, construction of a new single story residential respite home, new single story two car garage, associated site paving and landscaping, refer to bid documents.

Project Estimates:

Base Bid – Residential Respite Home: \$850,000.00.

Add Alternate 01 – Residential Garage: \$ 75,000.00.

Add Alternate 02 – Fencing: \$ 10,000.00.

Deduct Alternate 03 – Vinyl Siding: \$ 20,000.00.

Bidders shall not be responsible for paying taxes on materials incorporated into the structure. A single contract will be issued for all work.

In accordance with the Plans and Specifications Prepared by:

Thomas Porter Architects

8 N. St. Clair Street

Toledo, Ohio 43604-1028

Phone: (419) 243-2400

Website: ThomasPorterArchitects.com

Email: andy.knopp@porterarch.com

Contact: Andy Knopp

CONTRACTORS may obtain Electronic (PDF) format and/or Hardcopy sets of the Bid Documents directly from Newfax Corporation, 333 W. Woodruff Avenue, Toledo, Ohio 43604, Phone 419-241-5157, FAX 419-241-2018 <http://www.newfaxcorp.com/>. A non-refundable fee will be required for each set of Bidding Documents and Contract Documents provided by Newfax Corporation. Checks shall be made payable to Newfax Corporation.

Neither Owner nor Architect has any responsibility for the accuracy, completeness or sufficiency of any bid documents obtained from any source other than the source indicated in these documents. Obtaining these documents from any other source(s) may result in obtaining incomplete and inaccurate information. Obtaining these documents from any source other than directly from the source listed herein may also result in failure to receive any addenda, corrections, or other revisions to these documents that may be issued.

A pre-bid meeting will be held on Friday, November 12th, 2021 at 10:00 am, at the Wood County Board of DD Maintenance and Transportation Building, 1921 Gypsy Lane Road, Entrance F,

Bowling Green, Ohio 43402. The pre-bid meeting will be immediately followed by an optional site visit of the areas of work contained within the base bid at the address listed above.

Bids shall be received on the Form of Bid Proposal furnished and accompanied by the required supporting documents listed with the Instruction to Bidders. No other form(s) will be accepted.

The bid guarantee may be of two forms:

1. A Bid Guarantee and Contract Bond using the form in the Contract Documents.
2. A certified check, cashier's check or letter of credit in favor of the Wood County Commissioners, in the amount of ten percent (10%) of the bid. If the contract is awarded a Contract Bond will be required, which is a one hundred percent (100%) payment and performance bond.

Bidders shall submit with their bid the affidavit required under the Ohio Revised Code, Section 5719.042 that the bidder was not charged with any delinquent personal property taxes in Wood County, Ohio.

The Contractor declares that its principal officers, directors, shareholders and/or partners are current with any court-ordered child support payments pursuant to the Board of County Commissioners' Resolution No. 92-2041.

The successful bidder will be required to pay not less than the minimum wage rates established by the Department of Commerce, Division of industrial Compliance, Bureau of Wage and hour Administration of the State of Ohio in accordance with all provisions of the Prevailing Wage Act of the State of Ohio, ORC Sections 4115.16 and related requirements.

Wood County Board of Developmental Disabilities reserves the right to waive irregularities in the bids and to reject any or all proposals or parts of any or all proposals.

No bidder may withdraw their bid within thirty (30) days after bid opening.

The Notice to Bidders is posted on the internet and may be viewed in Wood County Board of Development Disabilities web page at <https://www.woodcountydd.org>.

Wood County Board of Developmental Disabilities
Ed Metzger, President

END OF NOTICE TO BIDDERS

INSTRUCTIONS TO BIDDERS

A. EXAMINATION OF DOCUMENTS AND SITE CONDITIONS

1. Bidders are cautioned to review carefully the existing conditions and all parts of the Contract Documents included in or referenced in the Project Manual, including, but not limited to, the Instructions to Bidders, Bid Form, Owner-Contractor Agreement, General Conditions of the Contract for the Project, Special Conditions (if any), Project Schedule, Drawings, and Specifications. For access to the site, the Bidder should contact Scott McKeown, Wood County Board of DD, 419.353.2414 to make arrangements to visit the site at an acceptable time. These Contract Documents shall become the basis for the contract between the Owner and the successful Bidder, as defined in the Owner-Contractor Agreement, and govern the relationship between the successful Bidder and the Owner when the Owner-Contractor Agreement is executed.

2. No allowance will be made subsequently for any omission, error or negligence of the Bidder.

B. OWNER, ARCHITECT

1. The Owner is: Wood County Board of Developmental Disabilities
1921 Gypsy Lane Road
Bowling Green, Ohio 43402
Phone: 419.353.2414
Email: smckeown@woodcountydd.org
Contact: Scott McKeown
2. The Architect is: Thomas Porter Architects
8 N. St. Clair Street
Toledo, Ohio 43604
Phone: 419.243.2400
Email: andy.knopp@porterarch.com
Contact: Andy Knopp

C. PROJECT

1. The Project consists of all labor, materials, and services necessary for the timely and proper completion of the Residential Respite Home located at 41 Island View Ave, Rossford, OH 43460 on behalf of the Owner (Wood County Board of Developmental Disabilities), all in accordance with the Contract Documents.

D. WORK

1. The overall work scope will consist of the demolition of an existing single-story garage building; construction of a new four bedroom, 2 1/2 bath single-story residential respite home (Base Bid); new single-story two-car garage (Alternate 01); associated site paving and landscaping, refer to project drawings.

2. A single contract will be issued for all work. The bid documents request costs for the following scopes of work:

F. ESTIMATE OF CONSTRUCTION COST

The Project estimate is:

Base Bid – Residential Respite Home:	\$850,000.00.
Alternate 01 – Residential Garage (ADD):	\$ 75,000.00.
Alternate 02 – Fencing (ADD):	\$ 10,000.00.
Alternate 03 – Vinyl Siding (DEDUCT):	\$ 20,000.00.

G. DOCUMENTS INCLUDE

1. Instructions to Bidders
2. Bid Form
3. Substitution Request Form
4. Form of Bid Guaranty and Contract Bond
5. Form of Contract Bond
6. Contractor's Personal Property Tax Affidavit (R.C. § 5719.042)
7. Owner's Tax Exemption Certificate
8. Construction Tax Exempt Form
9. General Conditions of the Contract available upon request from Thomas Porter Architects
10. Project Specifications
11. Drawings (see drawing cover sheet for list)

Availability of Documents. CONTRACTORS may obtain Electronic (PDF) format and/or Hardcopy sets of the Bid Documents directly from Newfax Corporation, 333 W. Woodruff Avenue, Toledo, Ohio 43604, Phone 419-241-5157, FAX 419-241-2018 <http://www.newfaxcorp.com/>. A non-refundable fee will be required for each set of Bidding Documents and Contract Documents provided by Newfax Corporation. Checks shall be made payable to Newfax Corporation.

H. PRE-BID MEETING

A pre-bid meeting is scheduled for **Friday, November 12th, 2021 at 10:00 am** at the Maintenance and Transportation Building, 1921 Gypsy Lane Road, Entrance F, Bowling Green, Ohio 43402. The pre-bid meeting will be immediately followed by an optional site visit of the areas of work contained within the base bid for each of the buildings listed above.

For all other site visits bidders must make arrangements with the Wood County Board of DD Health and Safety Coordinator, Scott McKeown, 419.341.5601 prior to visiting the site.

I. PREPARATION OF BIDS

1. All bids must be submitted on the "Bid Form" furnished in the Project Manual.
2. All blank spaces shall be filled in, in ink or typewritten, in words and figures, and in figures only where no space is provided for words, and signed by the Bidder. The wording on the Bid Form shall be used without change, alteration or addition. Any change in the wording or omission of specified accompanying documents may cause the bid to be rejected.

3. Bidders shall note receipt of Addenda on the Bid Form.
4. Each Bidder shall submit two (2) identical copies of its bid to the Owner. Bids shall be signed with the name typed or printed in ink below the signature. Bids shall not be submitted by facsimile transmission. A Bidder that is a corporation shall sign its bid with the legal name of the corporation followed by the name of the state of incorporation and the legal signature of an officer authorized to bind the corporation to a contract.
5. Bids shall be enclosed in a sealed opaque envelope with the Bidder's name, the name of the Bid Package, and title of Project printed in the upper left hand corner, and addressed as follows:

Ed Metzger, President
Wood County Board of DD
1921 Gypsy Lane Road
Bowling Green, Ohio 43402

Instructions for delivery of bids and information on the bid opening are contained in Paragraph I (12).

6. The completed Bid Form shall be accompanied by the Bidder's Bid Guaranty (see Paragraph I (8) below).
7. The Bidder shall take the following precautions in preparing its Bid:
 - a. Sign the Bid Form and check to insure all blank spaces are filled in with requested information and that the Bid Guaranty is included in a sealed opaque envelope addressed as provided in Paragraph 5 above.
 - b. Where the Bid Form provides for quoting either an addition or deduction for an Alternate item, indicate whether the sum named is an addition or deduction.
 - c. Where the Bid Form provides for quoting a unit price, the Bidder should quote the unit price.
 - d. When applicable, make sure that the Bid Guaranty is properly executed and signed by:
 - 1) The Bidder
 - 2) The Surety or Sureties
 - e. Make sure that the amount of the Bid Guaranty is for a specific sum in an amount as instructed in Paragraph I(8)(a) below or the amount is left blank.
8. Bonds and Guarantees
 - a. Bid Guaranty: Bidder shall furnish a Bid Guaranty, as prescribed in Section 153.54 of the Ohio Revised Code, in the form of either: (1) a bond for the full amount of the bid (including add alternates) in the form of the Bid Guaranty and Contract Bond included in the Contract Documents; or (2) a certified check, cashier's check, or irrevocable letter of credit in an amount equal to 10% of the amount of the bid (including add alternates).

- b. Contract Bond: The successful Bidder who, as a Bid Guaranty, submits a certified check, cashier's check, or irrevocable letter of credit in an amount equal to 10% of the amount of the bid, shall furnish to the Architect a Contract Bond in the form included in the Contract Documents in an amount equal to 100% of the Contract Sum within three (3) days of being notified of the Owner's intent to award the contract to the successful Bidder.
 - c. All bonds must be issued by a surety company authorized by the Ohio Department of Insurance to transact business in the State of Ohio. The bond must be issued by a surety capable of demonstrating a record of competent underwriting, efficient management, adequate reserves, and sound investments. These criteria will be deemed to be met if the surety currently has an A.M. Best Company Policyholders Rating of "A-" or better and has or exceeds the Best Financial Size Category of Class VI; other sureties may be determined acceptable by the Owner.
 - d. All bonds shall be signed by an authorized agent of an acceptable Surety Bonding Company and by the Bidder. (Affix Corporate Seals to all copies.)
 - e. Surety Bonding Company bonds shall be supported by credentials showing the Power of Attorney of the agent, a certificate showing the legal right of the Bonding Company to do business in the State of Ohio, and a financial statement of the Surety.
 - f. The Bid Guaranty, as applicable, shall be in the name of or payable to the order of the Owner.
 - g. The name and address of the Surety and the name and address of the Surety's Agent must be typed or printed on each bond.
9. Bidder's Examination and Representation.
- a. Before submitting a bid, each Bidder should carefully examine the documents and the construction site and inform itself of the limitations and conditions related to the Work covered by the bid and shall include in its bid a sum to cover the cost of such items. Bidders awarded contracts will not be given extra payments for conditions that could have been determined by examining the site and documents.
 - b. It is the purpose and intent of the Contract Documents that a complete job be accomplished. It shall be each Bidder's responsibility to include costs necessary to provide labor and materials for that portion of the Work bid upon, including incidentals, whether or not specifically called for in the Specifications and Drawings.
10. Clarification of Bidders' Questions.
- a. Questions for this Project shall be directed to the Architect in writing.

- b. Each Bidder is responsible for calling to the attention of the Architect any ambiguities, inconsistencies, errors, or omissions which occur in the Contract Documents for its part of the Work. If the Bidder fails to request clarification, the Bidder will be expected to overcome such conditions without additions to the bid price.
 - c. Prospective Bidders with questions as to the true meaning of any part of the Drawings, Specifications, or other Contract Documents shall submit to the Architect, not less than five (5) days prior to the closing time for acceptance of bids, a written request for interpretation and clarification.
 - d. Bidders are instructed to request interpretations and the issuing of addenda if the Contract Documents call for materials, equipment, or methods that adversely affect the cost or quality of the Project or are unavailable.
11. Combined Bids. The Owner may provide the option of submitting a combined bid on the Bid Form
- a. When there is an option for submitting a combined bid on the Bid Form, a bidder desiring to submit a combined bid for two or more base bid Areas of Work shall indicate both its combined bid amount and separate base bids for the separate Areas of Work in the places provided on the Bid Form.
 - b. The individual cost amounts of each base bid (including alternatives) shall be indicated in the appropriate spaces for each and every base bid included under the combined bid.
12. Bid Opening. Bids will be accepted until 3:00 p.m., local time, on Thursday, December 9, 2021, at the Reception desk of the Maintenance & Transportation Building located on the Wood County Board of DD Campus, 1921 Gypsy Lane Road, Entrance F, Bowling Green, Ohio 43402, and will be opened publicly and read immediately thereafter in the Maintenance & Transportation Building Conference Room.

J. METHOD OF AWARD

1. The Owner will receive bids for the Bid Package identified in these Instructions to Bidders.

Subject to the right of the Owner to reject any and all bids and as provided below, the Owner will award a single contract for the Project identified in these Instructions to Bidders. Bidders must furnish all information requested on or accompanying the Bid Form. Failure to do so may result in disqualification of the bid.

2. Determination of Lowest Responsible Bid

Subject to the right of the Owner to reject any or all bids, the Owner will award the Contract for the Work to the Bidder submitting the lowest responsible and responsive bid, taking into consideration accepted alternates. The Owner, in its sole discretion, will determine whether a bid is responsive to the specifications or whether bidder is responsible. The Owner reserves the right to conduct such investigations as it deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of the Bidders or any proposed subcontractors. In determining whether a bid is responsive or a bidder is responsible, the Owner may consider the following criteria and such other criteria as it determines proper:

a. The Bidder's work history.

The Bidder should have a record of consistent customer satisfaction and of consistent completion of projects, including projects which are comparable to or larger and more complex than the Owner's Project, on time and in accordance with the respective contract documents. If the Bidder's management (i.e., president, chairman of the board, or any director) operates or has operated another construction company, the Owner may consider the work history of that company in determining responsibility of the Bidder.

The Owner will consider the Bidder's prior experience on other projects of the Owner and/or Architect, including the Bidder's demonstrated ability to complete its work on these projects in accordance with the Contract Documents and on time and its ability to work with the Owner and/or Architect.

The Bidder authorizes the Owner and its representatives to contact the owners and design professionals on projects on which the Bidder has worked, and authorizes and requests such owners and design professionals to provide the Owner with a candid evaluation of the Bidder's performance. By submitting its bid, the Bidder agrees that if it or any person at its urging, directly or indirectly, brings an action against any of such owners or design professionals or their employees as a result of or related to such candidate evaluation and such action is not successful, the Bidder will reimburse such owners, design professionals and/or their employees for all legal fees and expenses incurred by them that are related to such legal action, including the cost of collection. This obligation is expressly intended for the benefit of such owners, design professionals and their employees.

- b. The Bidder's resources, including but not limited to the financial ability to complete the Contract successfully and on time without resort to its Surety and the experience, adequacy, and numbers of the Bidder's work force.**
- c. The Bidder's compliance with federal, state, and local laws, rules, and regulations, including but not limited to the Occupational Safety and Health Act.**

- d. The foregoing information with respect to each of the Subcontractors that the Contractor intends to use on the Project.
 - e. Depending upon the type of the work, other essential factors, as the Owner may determine.
3. Within three (3) business days after receipt of the bids, the apparent low Bidder, and any other bidder requested by the Architect or Construction Consultant, will complete and submit to the Architect the following documents, as requested by the Architect:
- a. AIA Document A305, Contractor Qualifications Statement, and the information required by the supplement to that document, and thereafter will provide the Architect with such additional information as the Architect may request. A Bidder will submit any requested information within three (3) business days of the request.
 - b. The list of all proposed Subcontractors, suppliers, and manufacturers.
 - c. The breakdown of Labor and Material for the Project, including the sum for each, on AIA Document G702, Schedule of Values.
 - d. Affidavit as to Property Taxes, in the form included with the Contract Documents. After approval by the Owner, Construction Consultant, and Architect of the list of proposed Subcontractors, suppliers, and manufacturers submitted by the successful Bidder, the list shall not be changed unless written approval of the change is authorized by the Owner, Construction Consultant, and Architect.
4. The failure to submit requested information on a timely basis may result in the determination that the Bidder is not responsible.
5. By submitting its bid, the Bidder agrees that the Owner's determination of responsiveness and responsibility shall be final and conclusive, and that if the Bidder, or any person at the Bidder's urging, directly or indirectly challenges such determination in any legal proceeding and such challenge is not successful, the Bidder will reimburse the Owner for all legal fees and expenses incurred by the Owner that are related to such challenge, including the cost of collection.
6. No Bidder may withdraw its bid within thirty (30) days after the date bids are opened.
7. The Owner further reserves the right to disqualify bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices on the part of the Bidder.

K. EXECUTION OF CONTRACT

1. Notice of Intent to Award Contract. The successful bidder will be notified of the award of the contract and provided with one (1) electronic copy of the Owner-Contractor Agreement ("Agreement") in the form included in the Project Manual. The Owner reserves the right to rescind any Notice of Award if the Owner determines the Notice of Award was issued in error.

2. The successful Bidder will sign and return the original forms to the Owner, or as otherwise directed, for execution by the Owner. The contract will be submitted to the Owner at its next regularly scheduled Board meeting for approval by the Owner. The successful Bidder will be provided with a fully executed copy of the Agreement for its records.

3. If the successful Bidder does not return the executed contracts to the Owner within five (5) business days of its receipt of the contracts from the Owner, the Owner reserves the right to reject the bid and award the contract to the next low responsible bidder.

L. SUBSTITUTIONS

1. Certain brands of material or apparatus are specified. These specified brands may be referred to in the Contract Documents as Standards. Each bid will be based on these brands. The use of another brand may be requested as provided herein.

2. No substitution for a specified brand ("Substitution") will be considered prior to receipt of bids unless written request for approval has been received by the Architect at least five (5) days prior to the date for receipt of bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed Substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed Substitution would require, shall be included. The burden of proof of the merit of the proposed Substitution is upon the Bidder proposing the Substitution. The Architect's decision of approval or disapproval of a proposed Substitution shall be final.

If the brand or product is acceptable, the Architect will approve it prior to bidding in an Addendum issued to all Bidders on record and the Substitution shall become a Standard.

3. In proposing a Substitution, the Bidder represents and warrants that each proposed Substitution will not result in any changes to the Project, including changes to the Work of other contractors, or any decrease in the performance of any equipment or systems to be installed in the Project and agrees to pay any additional costs incurred by the Owner as a result of a Substitution which is accepted.

4. Following the award of the Contract, there shall be no Substitutions, except pursuant to a Change Order. The Owner in its sole discretion may decline to consider a Substitution for a Change Order.

M. ALTERNATES

1. The Owner may request bids on alternates. If the Owner request bids on alternates, the Bidder should include the cost of the alternates requested on its Bid Form.

2. At the time of awarding the contract, the Owner will select or reject alternates as it determines is in its best interest. A Bidder's failure to include in its Bid Form the cost of an alternate selected by the Owner and applicable to the Bidder's work may render the bid non-responsive and be grounds for the rejection of the bid. Otherwise, the failure to include the cost of an alternate will not be deemed material.

3. The Bidder acknowledges that although there is an estimate for the cost of the Project, the market conditions may and frequently do result in the estimate being different from the sum of the bids received, either higher or lower. The Bidder understands that the Owner has included alternates, which may include deduct alternates as well as add alternates, to give it the flexibility in building the Project with the funds that are available. The Bidder further understands and acknowledges that use of add and deduct alternates is a long held customary practice in the construction industry in the State of Ohio. The Bidder also acknowledges that the Owner will not make a decision about what alternates on which to base the award of contracts until the bids are received, and the Owner can compare its available funds with the base bids and the cost or savings from selecting different alternates. The Bidder understands that the award to the lowest responsible and responsive Bidder will be based on the lowest base bid plus selected alternates, and may result in an award to a Bidder other than the Bidder that submitted the lowest base bid.

4. The Bidder agrees to hold the prices stated for alternates on the Bid Form for a period of 90 days after the bid opening. If following that 90-day period, during the progress of the Work, the Owner desires to reinstate any alternate not included in the Contract, the Owner reserves the right to reinstate the alternate at the price bid by the Contractor provided that such action is taken in sufficient time so as not to delay the progress of the work or cause the Contractor additional expense.

N. UNIT PRICES

1. Where unit prices are requested in the Bid Form for a Contract on which the Bidder submits a bid, the Bidder should quote a unit price. Unless otherwise expressly provided in the Contract Documents, such unit prices shall include all labor, materials and services necessary for the timely and proper installation of the item for which the unit prices are requested. The unit prices quoted in the bid shall be the basis for any Change Orders entered into under the Owner-Contractor Agreement, unless the Architect or Construction Consultant determines that the use of such unit prices will cause substantial inequity to either the Contractor or the Owner.

O. ADDENDA

1. Any explanation, interpretation, correction or modification of the Bid Documents will be issued in writing in the form of an Addendum, which shall be the only means considered binding; explanations, interpretations, etc., made by any other means shall NOT be legally binding. All Addenda shall become a part of the Contract Documents.

2. Contractors should submit questions to the Architect in advance, to allow sufficient time for the Architect to respond. All Addenda will be issued except as hereafter provided, and mailed or otherwise furnished to persons who have obtained Contract Documents for the Project, at least forty-eight (48) hours prior to the published time for the opening of bids, excluding Saturdays, Sundays and legal holidays.
3. Copies of each Addendum will be sent only to the Contractors to whom Drawings and Specifications have been issued for refundable deposit. Receipt of Addenda shall be indicated by Bidders in the space provided on the Bid Form.
4. Each Bidder shall carefully read and review the Contract Documents and immediately bring to the attention of the Owner's Designated Representative any error, omission, inconsistency, or ambiguity therein.
5. If a Bidder fails to indicate receipt of all Addenda through the last Addenda issued by the Architect on its Bid Form, the bid of such Bidder will be deemed to be responsive only if:
 - a. The bid received clearly indicates that the Bidder received the Addendum, such as where the Addendum added another item to be bid upon and the Bidder submitted a bid on that item; or
 - b. The Addendum involves only a matter of form or is one which has either no effect or has merely a trivial or negligible effect on price, quantity, quality, or delivery of the item bid upon.

P. Wage Rates

1. The Bidder to whom the Contract is awarded will be required to pay as a minimum, the prevailing wage rates, current throughout the work, promulgated by the State.

Q. STATE SALES AND USE TAXES

1. The Owner is a political subdivision of the State of Ohio. Building materials that the successful Bidder purchases for incorporation into the Project will be exempt from state sales and use taxes if the successful Bidder provides a properly completed sales tax exemption certificate, executed by the successful Bidder and the Owner, to the vendors or suppliers when the materials are acquired. The Owner will execute properly completed certificates on request. A copy of the Construction Tax Exempt Form to be used in connection with the Project is included with the Project Manual

R. PROJECT SCHEDULE AND SEQUENCE.

1. The Contractor shall be prepared to start work within three months after award of Contract and complete the project by October 1, 2022 with the exception of the requirements listed in Paragraph R 2 below.
2. It is the intention of the Owner to have the Contractor establish a clear construction schedule based on the scope of the project to be presented at a Pre-Construction meeting between the Owner, Architect and Contractor. The Contractor is expected to outline their proposed construction sequencing, establish proposed daily hours of operation, and verify if the proposed date of substantial completion aligns with their proposed construction schedule.

S. BID RESPONSIVENESS; OWNER'S RIGHT TO WAIVE DEFECTS AND IRREGULARITIES

1. The Bidder's bid shall be responsive to the Specifications for the Project in all material respects and shall contain no material irregularities or deviations from the Specifications that would affect the amount of the bid or otherwise give the Bidder a competitive advantage. The Owner reserves the right to reject any bid, in whole or in part, that it determines is not responsive.
2. The Owner reserves the right to waive any and all irregularities, informalities and technicalities in the bidding process.
3. By submitting its bid, the Bidder agrees that (i) the Owner's determination of whether a defect or irregularity affects the amount of the bid in any material respect or otherwise gives the Bidder a competitive advantage will be final and conclusive; and (ii) the Bidder will pay the Owner's attorney's and consultants' fees related to any challenge to the bid procedure or process, brought directly or indirectly by the Bidder and/or any of its affiliates, which is unsuccessful.

T. MODIFICATION AND WITHDRAWAL OF BIDS

1. Modification: A Bidder may modify its bid by written communication to the Owner addressed to the Director of Business Services, at the Owner's address at any time prior to the scheduled closing time for receipt of bids, provided such written communication is received by the Director of Business Services prior to the closing time. The written communication shall not reveal the bid price, but should provide the addition or subtraction or other modification so that the final prices or terms will not be known until the sealed bid is opened.
2. Withdrawal Prior to Bid Closing: A Bidder may withdraw its bid at any time for any reason prior to the bid closing time established in the Notice to Bidders. The request to withdraw shall be made in writing and submitted to the Director of Business Services, at the Owner's address.
3. Withdrawal after Bid Closing: A Bidder may withdraw its bid after the bid closing time when all of the following apply:
 - a. the price bid was substantially lower than the other bids;
 - b. the reason for the bid being substantially lower was a clerical mistake, rather than a mistake in judgment, and was due to an unintentional and substantial error in arithmetic or an unintentional omission of a substantial quantity of work, labor, or material;
 - c. the bid was submitted in good faith;
 - d. the Bidder provides written notice to the Owner, to the attention of the Treasurer, within two (2) business days after the bid opening for which the right to withdraw is claimed.

U. EQUAL EMPLOYMENT OPPORTUNITY/NONDISCRIMINATION

1. Minority, female, and disadvantaged businesses will be afforded full opportunity to submit bids, and bidders will not be discriminated against on the grounds of race, color, religion, sex, age, handicap, ancestry, or national origin in the consideration of an award. The successful Bidder(s) shall include a provision in any subcontract entered into for the Project that requires that each of its subcontractors not discriminate against any employee or applicant for employment on the basis of race, religion, color, sex, age, handicap, ancestry, or national origin in any actions that it takes. Such actions include, without limitation, employment, upgrading, demotion, transfer recruitment or recruiting advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeships.
2. The contract document to be executed by the successful Bidder contains nondiscrimination provisions as required by Ohio Revised Code Sections 153.59 and 153.60.

END OF INSTRUCTIONS TO BIDDERS

BID FORM

Project: Residential Respite Home for Children
41 Island View Avenue
Rossford, Ohio 43460

Bids Due: December 9, 2021, 3:00 PM EST

To: Ed Metzger, President
Wood County Board of DD
1921 Gypsy Lane Road
Bowling Green, Ohio 43402

Submitted By: Bidder : _____
Address : _____
: _____
Telephone : _____
E-mail : _____

The undersigned acknowledges having received and carefully reviewed the Contract Documents prepared by: **Thomas Porter Architects, 8 N. St. Clair Street, Toledo, Ohio 43604-1028**

The undersigned also acknowledges receipt and inclusion of the following addenda in our Bid:

<u>ADDENDUM #</u>	<u>DATE</u>
_____	_____
_____	_____
_____	_____

In submitting this Bid, the Bidder agrees to the following:

1. To hold their bid open for 30 days after receipt of bids.
2. To provide a form of bid guaranty as described in the Instructions to Bidders.
3. To enter into and execute a Contract, if awarded on the basis of this Bid, and to furnish a Bid Guaranty and Contract Bond in accordance with the project manual.
4. To submit Certificates of Insurance for the coverage specified.
5. To accomplish the Work in accordance with the Contract Documents.
6. To complete the Work covered by this Bid within dates specified in the project manual.

BASE BIDS

The Bidder agrees to execute the work under each of the following Base Bid areas indicated for the lump sum amount(s) given therein. (See Section 01010 – Summary of Work, for work included under the Base Bid)

ITEM 1.0 – Residential Respite Home

Provide cost to provide all labor, materials and equipment for all demolition, construction and miscellaneous work identified as Base Bid on the contract drawings. Base bid, Item 1 to include allowances indicated in Section 01019 Contract Consideration.

All Labor and Materials, for the sum of \$ _____

Sum in Words _____

ITEM 2.0 - COMBINED BID (Items 1.0, Alt. 01 & Alt. 02)

Provide cost to provide all labor, materials and equipment for the proposed building project, including Base bid and all ADD alternates. Combined Bid to include allowances indicated in Section 01019 Contract Consideration.

All Labor and Materials, for the sum of \$ _____

Sum in Words _____

ALTERNATES

Alternate 01 – Residential Garage (ADD) – Provide cost to provide all labor, materials and equipment for all demolition, construction and miscellaneous work identified as Alternate 01 on the contract drawings for the garage and the roof structure connecting the home and garage, refer to sheet A2.2 in the drawing set.

- A. Provide cost to provide all labor, materials and equipment required to perform indicated work in Alternate 01.

All Labor and Materials, for the sum of \$ _____

Sum in Words _____

Alternate 02 – Residential Chain-Link Fence (ADD) – Provide cost to provide all labor, materials and equipment for all demolition, construction and miscellaneous work identified as Alternate 02 on the contract drawings for the fence and access gates, refer to sheet A1.1 in the drawing set.

- A. Provide cost to provide all labor, materials and equipment required to perform indicated work in Alternate 02.

All Labor and Materials, for the sum of \$_____

Sum in Words_____

Alternate 03 – Substitute Fiber-cement for vinyl siding (DEDUCT) – Where fiber-cement products are specified and design for siding, fascia and soffit materials only contractor is to provide a cost deduct to provide vinyl products from one of the following manufacturers: Alside; Certainteed; SAINT-GOBAIN; PLY GEM Siding Group. Contractor to match material profiles and design contained within the drawing package. Fiber-Cement wood trim is not to be included within this alternate.

- A. Provide cost to provide all labor, materials and equipment required to perform indicated work in Alternate 03.

All Labor and Materials, for the sum of \$_____

Sum in Words_____

UNIT COSTS (refer to Section 01270 Unit Prices)

- | | | |
|----|--|--------------|
| 1. | Residential Chain-link Fence | _____ / L.F. |
| a. | Sched. 20, 11 ga wire, 1-5/8" post, 4' high | |
| 2. | Residential wood split rail fencing | _____ / L.F. |
| 3. | Residential 4' high, painted wood picket fencing | _____ / L.F. |
| 4. | Concrete paving / sidewalk | _____ / S.F. |
| a. | 4" concrete & 6" ODOT #304 aggregate base | |

BIDDERS CERTIFICATION

The Bidder hereby acknowledges that the following representations in this bid are material and not mere recitals:

1. The Bidder has read and understands the Contract Documents and agrees to comply with all requirements of the Contract Documents, regardless of whether the Bidder has actual knowledge of the requirements and regardless of any statement or omission made by the Bidder which might indicate a contrary intention.
2. The Bidder represents that the bid is based upon the Standards specified by the Contract Documents.
3. The Bidder has visited the Project site, become familiar with local conditions and has correlated personal observations with the requirements of the Contract Documents. The Bidder has no outstanding questions regarding the interpretation or clarification of the Contract Documents.
4. The Bidder understands that the award of separate contracts for the Project will require sequential, coordinated and interrelated operations, which may involve interference, disruption, hindrance or delay in the progress of the Bidder's Work. The Bidder agrees that the Contract price, as amended from time to time by Change Order, shall cover all amounts due from the Owner resulting from interference, disruption, hindrance or delay caused by or between Contractors or their agents and employees.
5. The Bidder agrees that any such interference, disruption, hindrance or delay is within the contemplation of the Bidder and the Owner and that the Contractor's sole remedy for such interference, disruption, hindrance or delay shall be an extension of time in accordance with the Contract Documents. This provision is intended to be, and shall be construed as, consistent with and not in conflict with, Section 4113.62, ORC, to the fullest extent permitted.
6. The Bidder and each person signing on behalf of the Bidder certifies, and in the case of a joint or combined bid, each party thereto certifies as to such party's entity, under penalty or perjury, that to the best of the undersigned's knowledge and belief: (a) the Base Bid, any Unit Prices and any Alternate Bid in the bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition as to any matter relating to such Base Bid, any Unit Prices and any Alternate bid in the bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to the bid opening, directly or indirectly, to any other Bidder who would have any interest in the Base Bid, Unit Prices or Alternate bid; (c) no attempt has been made or will be made by the Bidder to induce any other individual, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
7. The Bidder will execute the Contract Form with the Board, if a Contract is awarded on the basis of this bid, and if the Bidder does not execute the Contract Form for any reason, other than as authorized by law, the Bidder and the Bidder's Surety are liable to the School District Board as provided in Article 6 of the Instructions to Bidders.
8. The Bidder certifies that upon the execution of the Contract Form, the Contractor will make a good faith effort to ensure that all of the Contractor's employees, will work on the site of the Project, will not purchase, transfer, use or possess illegal drugs or alcohol or abuse prescription drugs in any way.

9. The Contractor acknowledges that all Work shall be completed within the time established in the Contract Documents, and that each applicable portion of the Work shall be completed upon the respective milestone completion dates, unless an extension of time is granted in accordance with the Contract Documents.
10. Bidder agrees to furnish any information requested by the Board to evaluate the responsibility of the Bidder.

Each bid shall contain the name of every person interested therein. If the Bidder is a corporation, partnership, sole proprietorship, or limited liability corporation, an officer, partner or principal of the Bidder, as applicable, shall print or type the legal name of the Bidder on the line provided and sign the Bid Form. If the Bidder is a joint venture, an officer, partner or principal, as applicable, of each member of the joint venture shall print or type the legal name of the applicable member on the line provided and sign the Bid Form.

BIDDER'S NAME (PRINT)

Authorized Signature: _____

Title: _____

Company Name: _____

Mailing Address:

Telephone Number: (____) _____

Facsimile Number: (____) _____

Where Incorporated: _____

Type of Business (circle one):

Corporation Partnership

Sole Proprietorship

Limited Liability Corporation

Federal Tax ID Number: _____

Contact Person for
Contract processing:

End of Section

WOOD COUNTY BAROD OF DD – Respite Home for Children

SUBSTITUTION REQUEST FORM

SUBMITTED BY:

FIRM	DATE SUBMITTED
ADDRESS	PHONE NO.
	FAX NO.
CONTACT PERSON	

SPECIFIED PRODUCT/MATERIAL/SYSTEM

PRODUCT NAME	SPECIFICATION SECTION	PARAGRAPH NUMBER	DRAWING NUMBER	DETAIL OR SECTION NUMBER
--------------	-----------------------	------------------	----------------	--------------------------

PROPOSED SUBSTITUTION (insert names and circle Yes or No as relates to product data and samples)

PRODUCT/MATERIAL/SYSTEM		MANUFACTURER	
Yes	We have included product data with this request.	Yes	We have included material samples with this request
No	We have not included product data with this request	No	We have not included material samples with this request

STATEMENT OF COMPLIANCE

WE hereby certify

1. We have investigated the proposed substitute and determined that it meets or exceeds, in all respects, the specified product.
2. The same warranty will be provided for the proposed substitution as for the specified product.
3. Installation will be coordinated and other changes made as necessary to ensure that work is complete in all respects, including costs both to others and us.
4. We waive claims for additional costs, which may subsequently become apparent due to use of the proposed substitute.
5. The proposed substitute is compatible with other materials.
6. The proposed substitute can be provided within the Contract Time and will not cause Work delay.
7. The proposed substitute complies with applicable requirements of governing authorities.
8. The proposed substitute will not affect indicated dimensions on drawings.
9. The proposed substitute will not affect other materials and systems.
10. The proposed substitute will not affect work of other trades.
11. The proposed substitute will not require redesign work by the Architect.
12. The person signing this form is legally authorized representative of our firm.

EXCEPTIONS

	EXCEPTION STATEMENT
	We do not take exception to any item listed in the above Compliance Statement.
	We have attached documentation indicating items to which we take exception and why.

(Type Name)

(Signature)

(Date)

ACCEPTED	Accepted by	Date	REJECTED	Rejected by	Date
----------	-------------	------	----------	-------------	------

BID GUARANTY AND CONTRACT BOND
(O.R.C. § 153.571)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____
_____ ("Contractor") as principal and
_____ as surety are hereby held
and firmly bound unto the Wood County Board of Development Disabilities, Wood County, Ohio,
as obligee in the penal sum of the dollar amount of the bid submitted by the principal to the
obligee on _____, 20____, to undertake _____ for the
Residential Respite Home for Children, Rossford, Ohio ("Project"). The penal sum referred to
herein shall be the dollar amount of the principal's bid to the obligee, incorporating any additive
or deductive Alternates made by the principal on the date referred to above to the obligee,
which are accepted by the obligee. In no case shall the penal sum exceed the amount of
_____ Dollars
(\$_____). (If the foregoing blank is not filled in, the penal sum will be the full
amount of the principal's bid, including add Alternates. Alternatively, if the blank is filled in the
amount stated must not be less than the full amount of the bid including add Alternates, in
dollars and cents. A percentage is not acceptable.) For the payment of the penal sum well
and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors,
administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the above named principal
has submitted a bid for work on the Project.

Now, therefore, if the obligee accepts the bid of the principal and the principal fails to
enter into a proper contract in accordance with the bid, plans, details, specifications, and bills
of material; and in the event the principal pays to the obligee the difference not to exceed ten
percent (10%) of the penalty hereof between the amount specified in the bid and such larger
amount for which the obligee may in good faith contract with the next lowest bidder to perform
the work covered by the bid; or in the event the obligee does not award the contract to the
next lowest bidder and resubmits the project for bidding, the principal pays to the obligee the
difference not to exceed ten percent (10%) of the penalty hereof between the amount
specified in the bid, or the costs, in connection with the resubmission, of printing new contract
documents, required advertising, and printing and mailing notices to prospective bidders,
whichever is less, then this obligation shall be null and void, otherwise to remain in full force and
effect; if the obligee accepts the bid of the principal and the principal within ten (10) days after
the awarding of the contract enters into a proper contract in accordance with the bid, plans,
details, specifications, and bills of material, which said contract is made a part of this bond the
same as though set forth herein.

Now also, if the said principal shall well and faithfully do and perform the things agreed
by said principal to be done and performed according to the terms of said contract; and shall
pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and
materials furnished in the carrying forward, performing, or completing of said contract; we
agreeing and assenting that this undertaking shall be for the benefit of any materialman or
laborer having a just claim, as well as for the obligee herein; then this obligation shall be void;
otherwise the same shall remain in full force and effect; and surety shall indemnify the obligee
against all damage suffered by failure of the principal to perform the contract according to its

provisions and in accordance with the plans, details, specifications, and bills of material therefore and to pay all lawful claims of subcontractors, materialmen, and laborers for labor performed or material furnished in carrying forward, performing, or completing the contract and surety further agrees and assents that this undertaking is for the benefit of any subcontractor, materialman, or laborer having a just claim, as well as for the obligee; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of the said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of said surety on its bond, and it does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

Signed and sealed this ____ day of _____, 202__.

(PRINCIPAL) (Seal)

By: _____

Printed Name & Title: _____

(SURETY) (Seal)

By: _____

Printed Name & Title: _____

NAME OF SURETY'S AGENT

Surety's Agent's Address: _____

Surety's Agent's Telephone Number: _____

Surety's Agent's Fax Number: _____

CONTRACT BOND

(O.R.C. § 153.57)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned ("Contractor") as principal and _____ as sureties, are hereby held and firmly bound unto the Wood County Board of Development Disabilities, Wood County, Ohio, as obligee, in the penal sum of _____ Dollars (\$ _____), for the payment of which well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas, the above-named principal did on the ____ day of _____, 20____, enter into a contract with the Board for the Residential Respite Home for Children, Rossford, Ohio ("Project"), which said contract is made a part of this bond the same as though set forth herein:

Now, if the said Contractor shall well and faithfully do and perform the things agreed by the Contractor to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialman or laborer having a just claim, as well as for the obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of the said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of said surety on its bond, and it does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

Signed and sealed this ____ day of _____, 201__.

(PRINCIPAL) (Seal)

By: _____

Printed Name & Title: _____

(SURETY) (Seal)

By: _____

Printed Name & Title: _____

NAME OF SURETY'S AGENT

Surety's Agent's Address: _____

Surety's Agent's Telephone Number: _____

Surety's Agent's Fax Number: _____

CONTRACTOR'S PERSONAL PROPERTY TAX AFFIDAVIT
(O.R.C. § 5719.042)

State of Ohio

County of _____, ss:

_____, being first duly sworn, deposes and says that he is the
(Name)

_____ of _____ with offices located at
(Title) (Contractor)

_____, and as it's duly
(Address of Contractor)

authorized representative, states that effective this ____ day of _____, 201____,

(Name of Contractor)

() is charged with delinquent personal property taxes on the general list of personal property as set forth below:

<u>County</u> thereon)	<u>Amount</u> (include total amount penalties and interest
---------------------------	--

Lucas County	\$ _____
--------------	----------

_____ County	\$ _____
--------------	----------

_____ County	\$ _____
--------------	----------

() is not charged with delinquent personal property taxes on the general list of personal property in any Ohio county.

(Affiant)

Sworn to and subscribed this ____ day of _____, 20____.

(Notary Public)

My commission expires



Sales and Use Tax Construction Contract Exemption Certificate

Identification of Contract:

Contractee's (owner's) name _____

Exact location of job/project _____

Name of job/project as it appears
on contract documentation _____

The undersigned hereby certifies that the tangible personal property purchased under this exemption certificate was purchased for incorporation into:

<input type="checkbox"/>	A building used exclusively for charitable purposes by a nonprofit organization operated exclusively for charitable purposes as defined in Ohio Revised Code (R.C.) section 5739.02(B)(12);	<input type="checkbox"/>	Real property that is owned, or will be accepted for ownership at the time of completion, by the United States government, its agencies, the state of Ohio or an Ohio political subdivision;
<input type="checkbox"/>	Real property under a construction contract with the United States government, its agencies, the state of Ohio or an Ohio political subdivision;	<input type="checkbox"/>	A computer data center entitled to exemption under R.C. 122.175;
<input type="checkbox"/>	A horticulture structure or livestock structure for a person engaged in the business of horticulture or producing livestock;	<input type="checkbox"/>	A building under a construction contract with an organization exempt from taxation under section 501(c)(3) of the Internal Revenue Code of 1986 when the building is to be used exclusively for the organization's exempt purposes;
<input type="checkbox"/>	A house of public worship or religious education;		
<input type="checkbox"/>	The original construction of a sports facility under R.C. section 307.696;	<input type="checkbox"/>	A hospital facility entitled to exemption under R.C. section 140.08;
<input type="checkbox"/>	Real property outside this state if such materials and services, when sold to a construction contractor in the state in which the real property is located for incorporation into real property in that state, would be exempt from a tax on sales levied by that state;	<input type="checkbox"/>	Building and construction materials and services sold for incorporation into real property comprising a convention center that qualifies for property tax exemption under R.C. 5709.084 (until one calendar year after the construction is completed).

The original of this certificate must be signed by the owner/contractee and/or government official and must be retained by the prime contractor. Copies must be maintained by the owner/contractee and all subcontractors. When copies are issued to suppliers when purchasing materials, each copy must be signed by the contractor or subcontractor making the purchase.

Prime Contractor

Name _____

Signed by _____

Title _____

Street address _____

City, state, ZIP code _____

Date _____

Subcontractor

Name _____

Signed by _____

Title _____

Street address _____

City, state, ZIP code _____

Date _____

Owner/Contractee

Name _____

Signed by _____

Title _____

Street address _____

City, state, ZIP code _____

Date _____

Political Subdivision

Name _____

Signed by _____

Title _____

Street address _____

City, state, ZIP code _____

Date _____

GENERAL CONDITIONS / SUPPLEMENTARY CONDITIONS

GENERAL CONDITIONS

The standard form of "General Conditions of the Contract for Construction", of the American Institute of Architects, A201 - 2017 edition, is hereby incorporated into and becomes a part of the Specifications for this work.

SUPPLEMENTARY GENERAL CONDITIONS

The following "Supplementary General Conditions" are subject to all requirements of the General Conditions of the Contract, except as stated above, and modify them as follows.

The following items refer to the General Conditions by Article and Sub-Article numbers:

ARTICLE 2: OWNER

2.2.2 Delete the first part of the subparagraph as follows "Except for permits....under the contract documents"

2.2.2.1 The Owner shall secure the required general building permit required by the State of Ohio.

Add the following paragraph 2.2.6 to 2.2.6.2.

2.2.6 Notice of Commencement

2.2.6.1 Pursuant to Section 1311.252, ORC, the Owner shall prepare a Notice of Commencement in affidavit from identifying the name and address of the public authority, the Project number, the name, address and trade of all Contractors, the date of execution of the Contracts, and the name and address of the Surety for each Contractor, in addition to the name and address of the Owner's representative upon whom a Claim Affidavit may be served.

2.2.6.2 The Notice of Commencement shall be made available upon request. The unavailability of a Notice of Commencement or incorrect information in the Notice of Commencement does not adversely affect the right of claimants, pursuant to Section 1311.252(C), ORC.

ARTICLE 3: CONTRACTOR

Add the following paragraphs 3.1.4 to 3.1.4.4, 3.1.5 to 3.1.5.1, 3.1.6 to 3.1.6.2 and 3.1.7 to 3.1.7.2.

3.1.4 Nondiscrimination

3.1.4.1 During the performance of the Contract, the Contractor agrees that in the hiring of employees for the performance of Work, including without limitation Work to be performed by a Subcontractor, no Contractor or Subcontractor, and no person acting on behalf of the Contractor or Subcontractor, shall, by reason of race, religion, national origin, age, sex, disability, Vietnam era Veteran status, or color, discriminate against any citizen in the employment of labor or workers who are qualified and available to perform the Work to which the employment relates.

3.1.4.2 The Contractor further agrees that no Contractor or Subcontractor, and no person acting on behalf of the Contractor or Subcontractor, shall, in any manner, discriminate against or intimidate any employee hired for the performance of Work on account of race, religion, national origin, age, sex, disability, Vietnam era Veteran status or color.

3.1.4.3 The Contractor agrees that the Contractor will fully cooperate with the State Equal Opportunity Coordinator, with any other official or agency of the State or federal government which seeks to eliminate unlawful employment discrimination, and with all other State and federal efforts to assure equal employment practices under the Contract.

3.1.4.4 In the event of the Contractor's noncompliance with the nondiscrimination clauses, the Contract may be terminated or suspended in whole or in part.

3.1.5 Affirmative Action

3.1.5.1 Each Contractor must fully comply with the State's Equal Employment in the Construction Industry rules set forth in Chapters 123:2-3 through 123:2-9, OAC.

3.1.6 Women in Construction

3.1.6.1 The utilization goal for women workers in the performance of the Work in each trade in all geographical areas is 6.9 percent of the work hours.

3.1.6.2 The Contractor's good faith effort to comply with this goal shall be reviewed and determined according to Chapters 123:2-1 through 123:2-9, OAC.

- 3.6.1 Delete subparagraph 3.6.1 and substitute the following:
"The Project is tax exempt."
- 3.7.1 Delete the requirement that the contractor shall secure and pay for the building and plumbing permits. The Owner will secure and pay for these two permits. The Contractor will be responsible for all other permits.

ARTICLE 9: PAYMENTS AND COMPLETION

Add the following subparagraph 9.4.3.

- 9.4.3 Certified payroll reports for the period of time indicated shall be attached to one (1) copy of every Certificate for Payment.

- 9.6.1 Add the following subparagraphs to 9.6.1.

9.6.1.1 Payment of an approved Certificate for Payment shall be made within 30 days from the date of approval by the Owner.

9.6.1.2 Payments due and not paid to the Contractor within such 30 day period shall bear interest from the date payment is due under the Contract Documents at the average of the prime rate established at the commercial banks in the city of over 100,000 population that is nearest to the Project, pursuant to Section 153.14, ORC.

Add the following paragraph 9.11 to 9.11.3.

- 9.11 Retainage

9.11.1 Partial payments to this contractor for material and labor performed under the contract shall be made at the rate of 95 percent of the amount invoiced until The Certificate for Payment which shows the total contract completion at 100 percent or greater, pursuant to Section 153.13, ORC.

9.11.2 After the contract is 100 percent complete, as evidenced by payments in the amount of at least 100 percent of the contract price to the contractor. No additional funds shall be retained from payments for material and labor.

9.11.3 All funds retained for the faithful performance of the work shall be deposited in an escrow account with a bank in the state in accordance with the terms and conditions provided in an escrow agreement executed by the Contractor, the Owner, and the applicable bank, pursuant to Section 153.63, ORC.

ARTICLE 11: INSURANCE AND BONDS

Add the following Clause 11.1.2.1 to 11.1.2:

11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be written for not less than the following limits or greater if required by law:

1. Worker's Compensation:
 - a. State Statutory
 - b. Applicable Federal
(e.g., Longshoremen's) Statutory
 - c. Employer's Liability \$250,000 per Accident
\$500,000 Disease, Policy Limit
\$250,000 Disease, Each
Employee
2. Comprehensive or Commercial General Liability (including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage);
 - a. Bodily Injury:
\$250,000 Each Occurrence
\$500,000 Aggregate
 - b. Property Damage:
\$250,000 Each Occurrence
\$500,000 Aggregate
 - c. Products and Completed Operations to be maintained for 1 year after final payment:
\$500,000 Aggregate
 - d. Property Damage Liability Insurance shall provide X, C, and U coverage.
 - e. Broad Form Property Damage Coverage shall include Complete Operations.
3. Contractual Liability:
 - a. Bodily Injury:
\$250,000 Each Occurrence
\$500,000 Aggregate

- | | | |
|----|--|--------------------------------|
| 4. | Personal Injury, with Employment Exclusion deleted:
\$500,000 | Aggregate |
| | | |
| 5. | Business Auto Liability (including owned, non-owned and hired vehicles): | |
| a. | Bodily Injury
\$250,000
\$500,000 | Each Person
Each Occurrence |
| | | |
| b. | Property Damage:
\$250,000 | Each Occurrence |

Delete paragraph 11.3 Prospect Management Protective Liability Insurance and subparagraphs 11.3.1 to 11.3.3.

Add the following subparagraph 11.5.1.1

- 11.5.1.1 The Contractor shall furnish a performance bond for the entire project.

ARTICLE 13: MISCELLANEOUS PROVISIONS

Add the following paragraphs 13.8 to 13.8.4, 13.9 to 13.9.3 and 13.10 to 13.10.2.4.

13.8 Subcontractors and Material Suppliers

- | | |
|----------|---|
| 13.8.1 | Within ten (10) days of the Notice to Proceed, the Contractor shall list the Contractor's proposed Subcontractors and Material Suppliers and submit such list to the Architect. |
| | |
| 13.8.2 | The Contractor shall not replace any Subcontractor or Material Supplier after execution of the Contract without written approval of the Owner. |
| | |
| 13.8.3 | The Contractor shall be fully responsible for all acts and omissions of the Contractor's Subcontractors and Material Suppliers and shall be responsible for scheduling and coordinating the Work of the Contractor's Subcontractors and Material Suppliers. |
| | |
| 13.8.3.1 | Delays attributable to the contractor's Subcontractors or Material Suppliers shall be deemed to be delays within the control of the Contractor. |
| | |
| 13.8.3.2 | The Contractor shall required that each of the Contractor's Subcontractors have a competent supervisor at the Project whenever Work is being performed by the Subcontractor. |

13.8.3.3. The Contractor agrees to bind the Contractor's Subcontractor and Material Supplier to the terms of the Contract Documents, so far as applicable to the Work of such Subcontractor or Material Supplier.

13.8.4 The Contractor shall required each Subcontractor and Material Supplier to fully warrant and guarantee, for the benefit of the Owner, the effectiveness, fitness for the purpose intended, quality and merchantability of any Work performed or item provided or installed by such Subcontractor or Material Supplier.

13.9 Prompt Payment

13.9.1 Pursuant to Section 4113.61(A)(1), ORC, if a subcontractor or Material Supplier requests payment in time to allow the Contractor to include the request in the Contractor's Certificate for Payment, the Contractor shall pay within ten (10) days after the receipt of payment from the Owner.

13.9.1.1 To a Subcontractor an amount equal to percent of completion allowed by the Owner for the Subcontractor's Work.

13.9.1.2 To a Material Supplier an amount equal to all or a portion of the Material Supplier's request for materials furnished.

13.9.2 The Contractor may reduce the amount to be paid to a Subcontractor or Material Supplier pursuant to paragraph 9.11 by the amount of any retainage withheld from the Contractor and may withhold amounts necessary to resolve disputed liens or claims involving the Work of the Subcontractor or Material Supplier.

13.9.3 If the Contractor fails to comply with the provision of paragraph 9.11, the Contractor shall pay to the applicable Subcontractor or Material Supplier 18 percent interest on any unpaid amount beginning on the 11th day after receipt of payment from the Owner.

End of Section

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.
- B. This section includes:
 - 2. Outline Scope of Work
 - 3. Contractor's use of site and premises
 - 4. Work sequence
 - 5. Occupancy Requirements

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. This section includes a brief description of the proposed work to be performed. It is issued as a guide to aid the bidders in understanding of the scope of work, but shall not be considered as being all inclusive or limited to the scope of work described in the contract documents. All bidders shall base bids on Scope of Work identified in the project drawings and project manual.
 - 1. **Base Bid** – The overall work scope will consist of the demolition of an existing single-story garage building; construction of a new four bedroom, 2 1/2 bath single-story residential respite home; new single-story two-car garage; associated site paving and landscaping, refer to project drawings.
 - 2. **Alternate 01** – All labor, materials and equipment for all demolition, construction and miscellaneous work identified as Alternate 01 on the contract drawings for the garage and the roof structure connecting the home and garage, refer to sheet A2.2 in the drawing set.
 - 3. **Alternate 02** – All labor, materials and equipment for all demolition, construction and miscellaneous work identified as Alternate 02 on the contract drawings for the fence and access gates, refer to sheet A1.1 in the drawing set.

1.3 CONTRACTOR USE OF SITES AND PREMISES

- A. Contractor shall coordinate work with Owner.
- B. Contractor shall limit use of sites to the project areas indicated on drawings.
- C. Time restrictions for performing exterior work shall conform to the Owners requirements.

1.4 WORK SEQUENCES

- A. Construction work shall accommodate Owner's occupancy requirements. During the construction period coordinate construction schedule and operation with Owner.
- B. It is the intention of the Owner to have the Contractor establish a clear construction schedule based on the scope of the project to be presented at a Pre-Construction meeting between the Owner, Architect and Contractor. The Contractor is expected to outline their proposed construction sequencing, establish proposed daily hours of operation, and verify if the proposed date of substantial completion aligns with their construction schedule.

1.5 OCCUPANCY REQUIREMENTS

- A. Contractor shall cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- B. Schedule the work to accommodate this requirement.
- C. It is expected that the work will occur during typical office hours in owner occupied areas. The Contractor shall make arrangements to ensure that Owner access to the areas of work are maintained throughout the duration of the work.
- D. Work shall not be permitted on the weekends without written request.
- E. Contractor may elect to perform the Work outside of the Owners hours of operation, coordinate daily hours of operation with the Owner prior to commencement of the Work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01019 - CONTRACT CONSIDERATIONS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contingency allowance.
- B. SureHands Lift & Care System Allowance
- C. Schedule of Values.
- D. Application for Payment.
- E. Change procedures.

1.2 RELATED SECTIONS

- A. All sections.

1.3 CONTINGENCY ALLOWANCE

- A. Include in the project bids, the following project contingencies for use upon Owner's instruction:
 - 1. Residential Respite Home (Base Bid) \$30,000.00
- B. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Allowance.
- C. Funds will be drawn from Contingency Allowance only by Change Order.
- D. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.4 SureHands Lift & Care System ALLOWANCE

- A. Include in the project bids, the following project allowance for use upon execution of the contract:
 - 1. SureHands Lift and Care System \$10,000.00
- B. Contractors to engage with the Sure Hands Representative listed below for the purchase and installation of the SureHands Lift and Care System determined by Wood County Board of DD within the project:

Gary Stoops, SureHands Representative
982 Route 1
Pine Island, NY10696
(765) 532-7453
GaryStoops@gmail.com

- C. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Pay Application expenditure of funds from this Allowance.
- D. Funds will be drawn from SureHands Lift & Care System Allowance by Contractor's Application for Payment at the discretion of the Contractor.
- E. At closeout of Contract, funds remaining in SureHands Lift and Care System Allowance will be credited to Owner by Change Order.

1.5 SCHEDULE OF VALUES

- A. Submit typed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet.
- B. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification Section. Identify site mobilization, bonds and insurance, and other pertinent information.
- D. Include in each line item, the amount of Allowances specified in this Section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- E. Include separately from each line item, a directly proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.6 APPLICATIONS FOR PAYMENT

- A. Submit three copies of each application on AIA Form G702 - Application and Certificate for Payment.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: Monthly.
- D. Waiver of Lien: Include with each Application for Payment except the first Waiver of Lien for payments associated with previous work.

1.7 CHANGE PROCEDURES

- A. The Architect/Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by AIA A201, by issuing supplemental instructions on AIA Form G710.
- B. The Architect/Engineer may issue a Proposal Request for which includes a det

ailed description of a proposed change with supplementary or revised Drawings and specifications. Contractor will prepare and submit an estimate with 15 days, and will include a revised project schedule.

- C. The Contractor may propose a change by submitting request for change to the Architect/Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600.
- D. Stipulated Sum/Price Change Order: Based on Proposal Request or Bulletin and Contractor's fixed maximum price quotation or Contractor's request for a Change Order as approved by Architect/Engineer.
- E. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect/Engineer will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
- F. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- G. Change Order Forms: AIA G701.
- F. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

2. PART 2 PRODUCTS

Not Used

3. PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01027 - APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing each prime contractor's Applications for Payment.
 - 1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
 - 1. Schedules: The Contractor's Construction Schedule and Submittal Schedule are specified in Division 1 Section "Submittals."

1.3 SCHEDULE OF VALUES

- A. Coordination: Prime Contractor for the demolition contract shall coordinate preparation of its Schedule of Values for the Work with preparation of the Project Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - a. Contractor's Construction Schedule.
 - b. Application for Payment forms, including Continuation Sheets.
 - c. List of subcontractors.
 - d. List of principal suppliers and fabricators.
 - 2. Submit the Schedule of Values to the Architect at the earliest possible date but no later than 7 days before the date scheduled for submittal of the initial Applications for Payment.

- B. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of the Architect.
 - c. Contractor's name and address.
 - d. Date of submittal.
 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Dollar value.
 - 1) Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Break principal subcontract amounts down into several line items.
 4. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing, if required.
 6. Provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 7. Margins of Cost: Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.

- a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at the Contractor's option.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment-Application Times: The date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days prior to the date for each progress payment.
- C. Payment-Application Forms: Use AIA Document G702 and Continuation Sheets G703 as the form for Applications for Payment.
- D. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Retainage will be 5% up to 100% of substantial completion.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to the Architect by a method ensuring receipt within 24 hours. One copy shall be complete, including waivers of lien and similar attachments, when required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect.
- F. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics liens from subcontractors, sub-subcontractors and suppliers for the construction period covered by the previous application.
 1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.

2. When an application shows completion of an item, submit final or full waivers.
 3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.
- G. Initial Application for Payment: Administrative actions and submittals, that must precede or coincide with submittal of the first Application for Payment, include the following:
1. List of subcontractors.
 2. List of principal suppliers.
 3. Schedule of Values.
 4. Contractor's Construction Schedule.
 5. Schedule of principal products.
 6. Copies of authorizations and licenses from governing authorities for performance of the Work.
 7. Initial progress report.
 8. Report of preconstruction meeting.
 9. Certificates of insurance and insurance policies.
 10. Performance and payment bonds.
 11. Data needed to acquire the Owner's insurance.
- H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 2. Administrative actions and submittals that shall precede or coincide with this application include:
 - a. Occupancy permits and similar approvals.
 - b. Warranties (guarantees) and maintenance agreements.
 - c. Test records.
 - d. Maintenance instructions.
 - e. Final site cleaning.
 - f. Application for reduction of retainage and consent of surety.
 - g. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- I. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
1. Completion of Project closeout requirements.

2. Completion of items specified for completion after Substantial Completion.
3. Ensure that unsettled claims will be settled.
4. Ensure that incomplete Work is not accepted and will be completed without undue delay.
5. Transmittal of required Project construction records to the Owner.
6. Proof that taxes, fees, and similar obligations were paid.
7. Removal of temporary facilities and services.
8. Removal of surplus materials, rubbish, and similar elements.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01030 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing Alternates.

1.3 DEFINITIONS

- A. Definition: An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, related coordination, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.
- B. Notification: Immediately following the award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other Work of this Contract.
- D. Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each alternate.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

Scope of Work includes:

1. **Alternate 01** – Residential Garage (ADD) – Provide cost to provide all labor, materials and equipment for all demolition, construction and miscellaneous work identified as Alternate 01 on the contract drawings for the garage and the roof structure connecting the home and garage, refer to sheet A2.2 in the drawing set.
 - A. Provide cost to provide all labor, materials and equipment required to perform indicated work in Alternate 01.
2. **Alternate 02** – Residential Chain-Link Fence (ADD) – Provide cost to provide all labor, materials and equipment for all demolition, construction and miscellaneous work identified as Alternate 02 on the contract drawings for the fence and access gates, refer to sheet A1.1 in the drawing set.
 - B. Provide cost to provide all labor, materials and equipment required to perform indicated work in Alternate 02.
3. **Alternate 03** – Substitute Fiber-cement for vinyl siding (DEDUCT) – Where fiber-cement products are specified and design for siding, fascia and soffit materials only contractor is to provide a cost deduct to provide vinyl products from one of the following manufacturers: Alside; Certainteed; SAINT-GOBAIN; PLY GEM Siding Group. Contractor to match material profiles and design contained within the drawing package. Fiber-Cement wood trim is not to be included within this alternate.
 - C. Provide cost to provide all labor, materials and equipment required to perform indicated work in Alternate 03.

END OF SECTION

SECTION 01035 - MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.
 - 1. Prime Contract: Provisions of this Section apply to the work of prime contractor.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Contract Considerations" for procedural requirements governing the handling and processing of allowances.
 - 2. Division 1 Section "Submittals" for requirements for the Contractor's Construction Schedule.
 - 3. Division 1 Section "Applications for Payment" for administrative procedures governing Applications for Payment.

1.3 MINOR CHANGES IN THE WORK

- A. The Architect/Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or Contract Time, on either AIA Form G710, Architect/Engineer's Supplemental Instructions or as part of an RFI (Request for Information) response form.

1.4 CHANGE ORDER PROPOSAL REQUESTS

- A. The Architect/Engineer will issue a detailed description of proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal requests issued by the Architect/Engineer are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.
 - 2. Within 10 days of receipt of a proposal request, submit an estimate of cost necessary to execute the change to the Architect/Engineer for the Owner's review.

- a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
- b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
- c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

1.5 CHANGE ORDER PRICING GUIDELINES

- A. For each change, the Contractor shall furnish a detailed, written Proposal itemized according to these Pricing Guidelines. Any Subcontractor or Material Supplier pricing shall also be itemized according to these Pricing Guidelines. In order to expedite the review and approval process, all Proposals shall be prepared in the categories and in the order listed below. These Pricing Guidelines are intended to establish the maximum amount which the Owner will pay for any Change Order, including without limitation all amounts for interference, delay, hindrance or disruption of the Work. A Change Order may provide that the Owner may pay less than the amount established by these Pricing Guidelines if an equitable amount is negotiated between the Construction Manager and the Contractor.
- B. **LABOR:** All field labor shall be priced at the current base rate being paid by the Contractor for such labor on the Project, or if such labor has not been previously employed on the Project, the base rate currently being paid by the Contractor on projects in the same locality, excluding fringe benefits. The payroll is to be based on straight time only and is to include number of hours and rate of pay for each classification of worker. If overtime is approved, list only the straight time portion in this item; overhead and profit will not be permitted on the cost of any premium time costs or shift work premiums.
- C. **FRINGES:** All established payroll taxes, assessments and fringe benefits on the labor in Paragraph 1.5.B. This may include, without limitation, FICA, Federal and State Unemployment, Health and Welfare, Pension Funds, Workers' Compensation and Apprentice Fund. Each of the fringes is to be a separate line item.
- D. **EQUIPMENT RENTALS:** All charges for certain non-owned heavy or specialized equipment at up to 100 percent of the documented rental cost. No rental charges will be allowed for hand tools, minor equipment, simple scaffolds, etc. Downtime due to repairs, maintenance and weather delays will not be allowed.
- E. **OWNED EQUIPMENT:** All charges for certain owned, heavy or specialized equipment at up to 100 percent of the cost listed by the Associated Equipment Dealers Blue Book. No recovery will be allowed for hand tools, minor equipment, simple scaffolds, etc. The longest period of time that the

equipment is to be required for the Work will be the basis for the pricing. Downtime due to repairs, maintenance and weather delays will not be allowed.

- F. TRUCKING: A reasonable delivery charge or per-mile trucking charge for delivery of required materials or equipment. Charges for use of a pick-up truck will not be allowed.
- G. OVERHEAD: Overhead on items in Paragraph 1.5.B, C., D., E., and F., up to 10 percent, which shall include all costs required to schedule the work and coordinate with the Contractors.
 - 1. Overhead includes, without limitation, telephone, telephone charges, facsimile, telegrams, postage, photos, photocopying, hand tools, simple scaffolds (one level high), tool breakage, tool repairs, tool replacement, tool blades, tool bits, home office estimating and expediting, home office clerical and accounting support, home office labor (management, supervision, engineering*), legal services, travel and parking expenses.
 - 2. *An exception from Paragraph 1.5.G.1., is allowed for shop or engineering labor for steel fabricators, sheet metal fabricators and sprinkler system fabricators. Recovery for such matters will be allowed under Paragraph 1.5.B. and C.
- H. MATERIALS
 - 1. All materials purchased by the Contractor and incorporated into the changed Work, showing costs, quantities, or Unit Prices of all items, as appropriate. Reimbursement of material costs shall only be allowed in the amount of the Contractor's actual cost, including any and all discounts, rebates or related credits.
 - 2. One-third (33 percent) of the cost of reusable materials for each use, such as formwork lumber, shoring or temporary enclosures.
- I. PROFIT: Profit on items in Paragraphs 1.5, Items B., C., D., E., F., G., and H, up to 5 percent.
- J. SUBCONTRACTOR: The reasonable cost of all labor and material provided by a Subcontractor whose pricing is included and which complies with these Pricing Guidelines.
- K. CONTRACTOR MARK-UP ON SUBCONTRACTOR: Mark-up on items in Paragraph 1.5.J. up to 5 percent.
- L. MISCELLANEOUS: The following items are allowable at the cost of the Work, with no overhead or profit.
 - 1. The cost of extending the Bond and the cost of extending liability, property damage, builder's risk or specialty coverage insurance.

2. The premium portion only for approved overtime (labor and fringes). The straight time portion is included in Paragraphs 1.5.B. and 1.5.C.
 3. Fees for permits, licenses, inspections, tests, etc.
 4. When requested by the Contractor and approved in writing by the Owner due to special circumstances, reimbursement will be paid for overnight lodging, travel and food in an amount not to exceed the Owner's travel guidelines.
- M. Costs which will not be reimbursed for Change Order Work include the following:
1. Employee Profit Sharing Plans: Regardless of how defined or described, the Contractor will pay these charges from Contractor profit and will not be reimbursed.
 2. Voluntary Employee Deductions: Examples are United Way and U.S. Savings Bonds, etc.
- N. State sales tax shall be allowed on items as defined by Paragraph 1.6.
- 1.6 TAXES
- A. Only those materials which ultimately become a part of the completed structure or improvement which constitutes the Project will be exempt from State sales tax as provided in Section 5739.02, ORC, and State use tax as provided in Section 5741.01, ORC.
- B. The purchase, lease or rental of material, equipment, parts or expendable items such as form lumber, tools, oils, greases and fuels, which are used in connection with the Work, are subject to the application of State sales tax and State use tax.
- 1.7 ALLOWANCES
- A. Allowance Adjustment: For allowance-cost adjustment, base each Change Order Proposal on the difference between the actual purchase amount and the allowance, multiplied by the final measurement of work-in-place. Where applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
1. Include installation costs in the purchase amount only where indicated as part of the allowance.
 2. When requested, prepare explanations and documentation to substantiate the margins claimed.

1.8 CONSTRUCTION CHANGE DIRECTIVE

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

1.9 CHANGE ORDER PROCEDURES

- A. Upon the Owner's approval of a Proposal Request, the Architect/Engineer will issue a Change Order for signatures of the Owner and the Contractor.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01200 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:
 - 1. Preconstruction conferences.
 - 2. Progress meetings.
 - 3. Coordination meetings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" for submitting the Contractor's Construction Schedule.

1.3 PRECONSTRUCTION CONFERENCE

- A. Schedule a preconstruction conference before starting construction, at a time convenient to the Owner and the Architect/Engineer, but no later than 15 days after execution of the Agreement. Hold the conference at the Project Site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: Authorized representatives of the Owner, Architect/Engineer, and their consultants; the Contractors and their superintendents; major subcontractors; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress, including the following:

1. Tentative construction schedule.
2. Critical work sequencing.
3. Designation of responsible personnel.
4. Procedures for processing field decisions and Change Orders.
5. Procedures for processing Applications for Payment.
6. Distribution of Contract Documents.
7. Submittal of Shop Drawings, Product Data, and Samples.
8. Preparation of record documents.
9. Use of the premises.
10. Parking availability.
11. Office, work, and storage areas.
12. Equipment deliveries and priorities.
13. Safety procedures.
14. First aid.
15. Security.
16. Housekeeping.
17. Working hours.

1.4 PROGRESS MEETINGS

- A. Conduct progress meetings at the Project Site at regular intervals. Notify the Owner and the Architect/Engineer of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request. The job progress meetings will be facilitated by the Architect/Engineer.
- B. Attendees: In addition to representatives of the Owner and the Architect/Engineer, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.
 1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.
 2. Review the present and future needs of each entity present, including the following:

- a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Status of submittals.
 - e. Deliveries.
 - f. Off-site fabrication problems.
 - g. Access.
 - h. Site utilization.
 - i. Temporary facilities and services.
 - j. Hours of work.
 - k. Hazards and risks.
 - l. Housekeeping.
 - m. Quality and work standards.
 - n. Change Orders.
 - o. Documentation of information for payment requests.
- D. Reporting: The Architect/Engineer will distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - 1. Schedule Updating: Revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

1.5 COORDINATION MEETINGS

- A. Conduct project coordination meetings at weekly intervals convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01270 – UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
 - 1. Division 1 Section "Contract Considerations or Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

- A. Unit price is stated on the Bid Form as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead and profit.
- B. Measurement and Payment" Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of required unit prices is included on the Bid Proposal Form.
 - 1. Residential Chain-link Fence _____ / L.F.
 - a. Sched. 20, 11 ga wire, 1-5/8" post, 4' high
 - 2. Residential wood split rail fencing _____ / L.F.
 - 3. Residential 4' high, painted wood picket fencing _____ / L.F.
 - 4. Concrete paving / sidewalk _____ / S.F.
 - a. 4" concrete & 6" ODOT #304 aggregate base

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Submittal schedule.
 - 3. Daily construction reports.
- B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Permits.
 - 2. Applications for Payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. List of subcontractors.
- C. Owner, Contractor and Architect shall utilize a mutually agreed upon electronic file sharing software as the Electronic Project Management System (EPMS) for the central repository of project related documents including but not limited to submittals, RFIs, Pay Applications, information for the record and O&M Manuals.
- D. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Applications for Payment" specifies requirements for submittal of the Schedule of Values.
 - 2. Division 1 Section "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.
 - 3. Division 1 Section "Quality Control" specifies requirements for submittal of inspection and test reports.
 - 4. Division 1 Section "Contract Closeout" specifies requirements for submittal of Project Record Documents and warranties at project closeout.

1.3 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.

1. Preparation of Coordination Drawings is specified in Division 1 Section "Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.

1.4 SUBMITTAL PROCEDURES

- A. The Contractor shall be responsible for the coordination of submittals and field verifications as required for the various parts of the work.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
- C. Submittal Transmittal: Transmit each submittal from the prime Contractor to the Architect/Engineer using an electronic transmittal form. The Architect/Engineer will not accept submittals received from sources other than the prime Contractors.
- D. All submittals shall reference the Specification item that it covers, the Contractor's name, the Contract title and location, and the date of submission. Submittal shall also indicate whether the information is for the Engineer's review and approval, for record purposes, or for the fulfillment of the operation and maintenance requirements.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: The Contractor shall prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 15 days after the date established for "Commencement of the Work."

1.6 DAILY CONSTRUCTION REPORTS

- A. Prepare a weekly construction report recording the following information concerning events at the site, and submit copies to the Architect/Engineer at weekly intervals:
 1. List of subcontractors at the site.
 2. Approximate count of personnel at the site.
 3. High and low temperatures, general weather conditions.
 4. Accidents and unusual events.
 5. Stoppages, delays, shortages, and losses.
 6. Orders and requests of governing authorities.
 7. Change Orders received, implemented.
 8. Services connected, disconnected.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

- A. All submittals shall have a Submittal Identification & Approval cover sheet attached. A sample of the submittal cover sheet is attached for reference. The form will be provided by the Architect and coordinated with Contractor.
- B. All submittals shall be given a consecutive number when they are entered into the Electronic Project Management System (EPMS).
- C. Resubmittals shall be entered into EPMS as resubmittals.
- D. Submittals to satisfy the Operation and Maintenance information requirements shall be entered into the EPMS as a submittal. The description shall have the prefix "OM".

3.2 PRINTING AND DISTRIBUTION

- A. Contractor shall provide digital copies of approved submittals and deliver them to the Owner and Engineers RPR at the project site.
- B. Contractor shall provide one printed copy of the approved O&M Manual and the electronic copy on portable electronic media device to the Owner.
- C. Contractor shall provide printed copies of submittals, project information or documents required to satisfy the building permit and inspections as may be required by the governing agency.
- D. The Architect will provide the stamped/sealed Contract Drawings for the initial filing of the building permit applications.

END OF SECTION

SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittal of Shop Drawings, Product Data, Samples, and other miscellaneous quality-control submittals.

- B. Shop Drawings include, but are not limited to, the following:

- 1. Fabrication drawings.
- 2. Installation drawings.
- 3. Setting diagrams.
- 4. Shopwork manufacturing instructions.
- 5. Schedules.

- a. Standard information prepared without specific reference to the Project is not Shop Drawings.

- C. Product Data include, but are not limited to, the following:

- 1. Manufacturer's product specifications.
- 2. Manufacturer's installation instructions.
- 3. Standard color charts.
- 4. Catalog cuts.
- 5. Roughing-in diagrams and templates.
- 6. Standard wiring diagrams.
- 7. Printed performance curves.
- 8. Operational range diagrams.
- 9. Mill reports.
- 10. Standard product operating and maintenance manuals.

- D. Samples include, but are not limited to, the following:

- 1. Partial Sections of manufactured or fabricated components.
- 2. Small cuts or containers of materials.
- 3. Swatches showing color, texture, and pattern.
- 4. Color range sets.
- 5. Field samples.

- E. Quality-control submittals include, but are not limited to, the following:

1. Design data.
 2. Certifications.
 3. Manufacturer's instructions.
 4. Manufacturer's field reports.
- F. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
1. Permits.
 2. Applications for payment.
 3. Performance and payment bonds.
 4. Insurance certificates.
 5. Listing of subcontractors.
- G. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 1 Section "Coordination" specifies requirements governing preparation and submittal of required Coordination Drawings.
 2. Division 1 Section "Schedules and Reports" specifies requirements for submittal of required schedules and reports, including the Submittal Schedule.
 3. Division 1 Section "Quality Control" specifies requirements for submittal of inspection and test reports.
 4. Division 1 Section "Contract Closeout" specifies requirements for submittal of Project Record Documents, including copies of final Shop Drawings, at project closeout.

1.3 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
1. Preparation of Coordination Drawings is specified in Division 1 Section "Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal to the Architect/Engineer sufficiently in advance of scheduled performance of related construction activities to avoid delay.
1. Coordinate each submittal with other submittals and related activities that require sequential activity including:
 - a. Testing.
 - b. Purchasing.
 - c. Fabrication.
 - d. Delivery.
 2. Coordinate transmittal of different types of submittals for the same element of the Work and different elements of related parts of the Work to avoid delay in processing because of the Architect/Engineer's need to review submittals concurrently for coordination.
 - a. The Architect/Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are forthcoming.
 3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
 - a. Allow 2 weeks for the Architect/Engineer's initial review of each submittal. Allow additional time if the Architect/Engineer must delay processing to permit coordination with subsequent submittals. The Architect/Engineer will advise the Contractor when a submittal being processed must be delayed for coordination.
 - b. Where necessary to provide an intermediate submittal, process the intermediate submittal in the same manner as the initial submittal.
 - c. Allow 2 weeks for reprocessing each submittal.
 - d. The Architect/Engineer will not authorize an extension of time because of the Contractor's failure to transmit submittals to the Architect/Engineer sufficiently in advance of the Work to permit processing.
- B. Contractors Review: Submittals shall clearly indicate contractors and subcontractors review of the information submitted.
1. Supplier, fabricator, subcontractor, and contractor's identification of their review and concurrence that the submittal meets the requirements of the contract documents shall be clearly indicated on each sheet.

2. Submittals that have not been so identified and/or submittals that have major or multiple discrepancies with contract documents will be returned without further review.
- C. Submittal Preparation: Place a permanent label or title block on each submittal for identification.
 1. Indicate name of the firm or entity that prepared each submittal on the label or title block.
- D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect/Engineer and to other destinations by use of a transmittal form. The Architect/Engineer will return submittals received from sources other than the Contractor.
 1. Record relevant information and requests for data on the transmittal form. On the form, or an attached separate sheet, record deviations from requirements of the Contract Documents, including minor variations and limitations.
 2. Include the Contractor's certification stating that information submitted complies with requirements of the Contract Documents.

1.5 SHOP DRAWINGS

- A. Submit newly prepared information, drawn accurately to scale. Do not reproduce Contract Documents or copy standard printed information as the basis of Shop Drawings.
 1. Include the following information on Shop Drawings:
 - a. Dimensions.
 - b. Identification of products and materials included.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 2. Submit Coordination Drawings where required for integration of different construction elements. Show construction sequences and relationships of separate components where necessary to avoid conflicts in utilization of the space available.
 3. Highlight, encircle, or otherwise indicate deviations from the Contract Documents on the Shop Drawings.
 4. Do not allow Shop Drawing copies that do not contain an appropriate final stamp or other marking indicating the action taken by the Architect/Engineer to be used in construction.
 5. Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).

6. Submittal: Submit one correctable, translucent, reproducible print and three blue- or black-line print for the Architect/Engineer's review. The Architect/Engineer will return the reproducible print and two copies.
 - a. The Contractor shall mark up and retain one copy of the returned reproducible as a "Record Document."

1.6 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Mark each copy to show which choices and options are applicable to the Project.
 1. Where Product Data includes information on several similar products, some of which are not required for use on the Project, mark copies clearly to indicate which products are applicable.
 2. Where Product Data must be specially prepared for required products, materials, or systems because standard printed data are not suitable for use, submit as Shop Drawings not Product Data.
 3. Include the following information in Product Data:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with recognized trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 4. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- B. Submittals: Submit 2 copies of each required Product Data submittal. Submit 2 additional copies where copies are required for maintenance manuals. The Architect/Engineer will retain one copy and will return the other marked with the action taken and corrections or modifications required.
 1. Unless the Architect/Engineer observes noncompliance with provisions of the Contract Documents, the submittal may serve as the final submittal.
- C. Distribution: Furnish copies of final Product Data submittal to the manufacturers, subcontractors, suppliers, fabricators, installers, governing authorities and others as required for performance of the construction activities. Show distribution on transmittal forms.
 1. Do not proceed with installation of materials, products, and systems until a copy of Product Data applicable to the installation is in the Installer's possession.

2. Do not permit use of unmarked copies of Product Data in connection with construction.

1.7 SAMPLES

- A. Submit full-size, fully fabricated Samples, cured and finished in the manner specified, and physically identical with the material or product proposed for use.
- B. Submittals: Except for Samples intended to illustrate assembly details, workmanship, fabrication techniques, connections, operation, and other characteristics, submit 3 sets of Samples. One set will be returned marked with the action taken.
 1. Maintain sets of Samples, as returned by the Architect/Engineer, at the Project Site, available for quality-control comparisons throughout the course of construction activity.
 2. Unless the Architect/Engineer observes noncompliance with provisions of the Contract Documents, the submittal may serve as the final submittal.
 3. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- C. Distribution of Samples: Distribute additional sets of Samples to the subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities, and others as required for performance of the Work. Show distribution on transmittal forms.
- D. Field samples specified in individual Specification Sections are special types of Samples. Comply with Sample submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.8 QUALITY ASSURANCE SUBMITTALS

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
 1. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
- C. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Control."

1.9 ARCHITECT/ENGINEER'S ACTION

- A. Except for submittals for the record or for information, where action and return of submittals is required, the Architect/Engineer will review each submittal, mark to indicate the action taken, and return.
1. Compliance with specified characteristics is the Contractor's responsibility and not considered part of the Architect/Engineer's review and indication of action taken.
- B. Action Stamp: The Architect/Engineer will stamp each submittal with a uniform, action stamp. The Architect/Engineer will mark the stamp appropriately to indicate the action taken.
1. Architect/Engineer review portion of the review stamp shall be interpreted as follows:
- | <u>Comment</u> | <u>Meaning</u> |
|---------------------|-----------------------------|
| No Exceptions Taken | Acceptance for Construction |
| Note Markings | Incorporate Corrections |
| Rejected | Not Acceptable |
| Comments Attached | Incorporate Comments |
2. Response required of Contractor portion of the review stamp shall be interpreted as follows:
- | <u>Comment</u> | <u>Meaning</u> |
|----------------|---------------------------|
| Process | Proceed with Construction |
3. Other Action: Where a submittal is for information or record purposes or special processing or other activity, the Architect/Engineer will return the submittal marked "Action Not Required."
- C. Unsolicited Submittals: The Architect/Engineer will return unsolicited submittals to the sender without action.
- D. Incomplete or Inaccurate Submittals: The Architect/Engineer will return submittals that do not comply with contract requirements including, but not limited to, requirements of this section.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Architect/Engineer.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Architect/Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
- B. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
 - 1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.
- C. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel.
- D. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Architect/Engineer and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.
 - 1. The agency shall notify the Architect/Engineer and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.
 - 3. The agency shall not perform any construction duties of the Contractor.
- E. Coordination: Coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1.4 SUBMITTALS

- A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Architect/Engineer. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.
 - 1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION

SECTION 01501 - TEMPORARY FACILITIES & CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Water service and distribution.
 - 2. Temporary electric power.
 - 3. Communications service.
 - 4. Sanitary facilities, including drinking water.
 - 5. Storm and sanitary sewer.
- C. Support facilities include, but are not limited to, the following:
 - 1. Dewatering facilities and drains.
 - 2. Waste disposal services.
 - 3. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
 - 1. Temporary fire protection.
 - 2. Barricades, warning signs, and lights.
 - 3. Sidewalk bridge or enclosure fence for the site.
 - 4. Environmental protection.

1.3 DIVISION OF RESPONSIBILITIES

- A. General: These Specifications assigns the Prime Contractor specific responsibilities for certain temporary facilities used at the site.
- B. Prime Contractor is responsible for the following:
 - 1. Installation, operation, maintenance, and removal of each temporary facility usually considered as its own normal construction activity, as well as the costs and use charges associated with each facility.
 - 2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
 - 3. Its own storage and fabrication sheds (as required).

4. Collection and disposal of its own hazardous, dangerous, unsanitary, or other harmful waste material.
5. Secure lockup of its own tools, materials, and equipment.
6. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
7. Temporary telephone service.
8. Temporary toilets, including disposable supplies.
9. General collection and disposal of wastes.
10. Barricades, warning signs, and lights.
11. Security enclosure and lockup.
12. Environmental protection.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to the Owner or the Architect/Engineer. The Architect/Engineer will not accept a Prime Contractor's cost or use charges for temporary services or facilities as a basis of claim for an adjustment in the Contract Sum or the Contract Time.
- B. Water Service: Water from owner's exiting water system is not available for use. Contractor to provide connections and extension of service and metering as required for construction operations.
- C. Electric Power Service: Electric power from owner's exiting electrical system is not available for use. Contractor to provide connections and extension of service and metering as required for construction operations.
- D. Owner may terminate privilege of existing building heat, power, or water if abuse or excessive use by the contractor exists.

1.5 SUBMITTALS

Not used.

1.6 QUALITY ASSURANCE

- A. Regulations: Prime Contractor shall comply with industry standards and with applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
 1. Building code requirements.
 2. Health and safety regulations.
 3. Utility company regulations.
 4. Police, fire department and rescue squad rules.
 5. Environmental protection regulations.
- B. Standards: Prime Contractor shall comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI-A10

Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."

1. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

1.7 PROJECT CONDITIONS

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Each Prime Contractor shall provide new materials. If acceptable to the Architect/Engineer, undamaged, previously used materials in serviceable condition may be used. Provide materials suitable for use intended.

2.2 EQUIPMENT

- A. General: Each Prime Contractor shall provide new equipment. If acceptable to the Architect/Engineer, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- C. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. If existing toilet facilities in the building are operational during construction, contractor may use these facilities.
- D. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Prime Contractor shall provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. Sanitary facilities include temporary toilets and wash facilities. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
 - 1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
- B. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
 - 1. Provide separate facilities for male and female personnel.
- C. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Architect/Engineer.
- B. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the

hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.

- C. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
 - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- D. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities and good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
- C. Termination and Removal: Unless the Architect/Engineer requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION

SECTION 01540 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Attention is directed to Bidding and Contract Requirements, and to Division 1, General Requirements, which are hereby made a part of this Section.

1.2 INSPECTION

- A. Before cutting existing surfaces, examine surfaces to be cut, including elements subject to damage or movement during cutting and patching work. Report any unsatisfactory or questionable conditions to General Trades Contractor and Project Architect.
- B. Before proceeding, meet at the site with General Trades Contractor. Review areas of potential interference, conflict and possible effects on the Owner's existing operations. Coordinate procedures, temporary support, methods of dust and water protection, etc. and resolve potential conflicts before proceeding.
- C. If any hazardous material is encountered or is suspected to be present, General Trades Contractor and Project Architect are to be notified.

1.3 PREPARATION

- A. Provide adequate temporary support as necessary to assure the structural value and integrity of the affected portion of the work. Where specified or required, submit temporary support methodologies to the Architect for approval.
- B. Provide devices and methods to protect adjacent areas or other portions of the Project from damage including dust protection, water protection, exposure, maintain excavations free of water, etc. as necessary to provide protection from the elements.

1.4 EXECUTION

- A. Each Contractor and Subcontractor is responsible for the cutting of all holes and openings through existing walls, partitions, ceilings, floors and roofs as necessary for the installation of their work as specified in the contract documents. Holes and openings shall be neatly cut and of minimum size to allow the work to be installed. Execute cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.
- C. Execute work in such a manner as to minimize disruptions to or interference with the Owner's normal operations or functioning in the existing buildings and provide all means necessary to provide safety and convenience of those employed in and about the premises. Every effort should be made to minimize disruptions to the operations of other contractors.
- D. Each Contractor is responsible for patching of all holes and openings they make. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces. Patching is to match adjacent surfaces in materials and finish. All rated walls shall be

sealed with approved fire rated sealants. Each Contractor is to utilize only tradesmen skilled in the specific finish and material involved in making the patches. All patching is to be done in a neat and workmanlike manner to the satisfaction of General Trades Contractor and Architect. Defective work shall be corrected at no cost to the Owner.

- E. Where new work connects with existing, do all necessary cutting and fitting required to make a satisfactory connection with the work to be performed so as to leave the entire work in finished and workmanlike condition. Furnish all labor and materials to this end, whether or not shown or specified. All measurements must be verified at the building.
- F. Employ the original Installer and Fabricator, when possible, to perform cutting and patching for:
 - 1. Weather-exposed or moisture-resistant elements.
 - 2. Sight-exposed finished surfaces.
- G. Execute fitting and adjustment of products to provide a finished installation to comply with the specified products, functions, tolerances and finishes.
- H. Restore work which has been cut or removed. Install new products to provide completed work in accordance with the Contract Documents. Each Contractor will be responsible to pay the appropriate Contractor as designated by Project Architect for restoring any portion of the building that is disturbed, including but not limited to, slabs, walls, ceilings, fire rated partitions, spray-on fireproofing, finishes, etc. to their original state as a result of that Contractor's action.
- I. Refinish entire surfaces as the Contractor's work scope requires to provide an even finish to match adjacent surfaces and finishes.
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish the entire unit.
- J. Removal and replacement of ceilings not scheduled to be replaced shall be the responsibility of the Contractor requiring access.
- K. All Trade Contractors shall be held responsible for reckless cutting of holes in slabs, walls or other finishes, or for scraping off areas of fireproofing larger or greater than that which is necessary for installation of their work.

END OF SECTION

SECTION 01600 - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. Related Sections: The following Sections contain requirements that relate to this Section:

- 1. Division 1 Section "Submittals" specifies requirements for submittal of the Contractor's Construction Schedule and the Submittal Schedule.

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - a. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
 - 2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
 - 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.4 SUBMITTALS

- A. Product List: Prepare a list showing products specified in tabular form acceptable to the Architect/Engineer. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
1. Coordinate product list with the Contractor's Construction Schedule and the Schedule of Submittals.
 2. Form: Prepare product list with information on each item tabulated under the following column headings:
 - a. Related Specification Section number.
 - b. Generic name used in Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 3. Initial Submittal: Within 15 days after date of commencement of the Work, submit 3 copies of an initial product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 - a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.
 4. Completed List: Within 30 days after date of commencement of the Work, submit 3 copies of the completed product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 5. Architect/Engineer's Action: The Architect/Engineer will respond in writing to Contractor within 1 week of receipt of the completed product list. No response within this period constitutes no objection to listed manufacturers or products but does not constitute a waiver of the requirement that products comply with Contract Documents. The Architect/Engineer's response will include a list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.5 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
 1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

SECTION 01700 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project record document submittal.
 - 3. Submittal of warranties.
 - 4. Final cleaning.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
 - a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - 2. Advise the Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases enabling the Owner unrestricted use of the work. Include occupancy permits and similar releases.
 - 5. Submit record drawings, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver spare parts and similar items.
7. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.
8. Discontinue and remove temporary facilities from the site, construction tools, and similar elements.
9. Complete final cleanup requirements.

- B. Inspection Procedures: On receipt of a request for inspection, the Architect/Engineer will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect/Engineer will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect/Engineer will repeat inspection when requested and assured that the Work is substantially complete.
2. Results of the completed inspection will form the basis of requirements for final acceptance.
3. Cost and Architect/Engineer fees for multiple or extensive inspections due to incomplete or faulty work by the Contractor may be deducted from the contractor's contract.

1.4 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Architect/Engineer's final inspection list of items to be completed or corrected, endorsed and dated by the Architect/Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect/Engineer.
 4. Submit consent of surety to final payment.
 5. Submit a final liquidated damages settlement statement.
 6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Reinspection Procedure: The Architect/Engineer will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect/Engineer.

1. Upon completion of reinspection, the Architect/Engineer will prepare a certificate of final acceptance. If the Work is incomplete, the Architect/Engineer will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, reinspection will be repeated.
3. Cost and Architect/Engineer fees for multiple or extensive inspections due to incomplete or faulty work by the Contractor may be deducted from the contractor's contract.

1.5 RECORD DOCUMENT SUBMITTALS

- A. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
 2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
 3. Note related change-order numbers where applicable.
 4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
- B. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.
 1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
 2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
 3. Note related record drawing information and Product Data.
 4. Upon completion of the Work, submit record Specifications to the Architect/Engineer for the Owner's records.
- C. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.
 1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in

- products delivered to the site and from the manufacturer's installation instructions and recommendations.
2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
 3. Upon completion of markup, submit complete set of record Product Data to the Architect/Engineer for the Owner's records.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

3.2 FINAL CLEANING

- A. General: The General Conditions require general cleaning during construction. Regular site cleaning is included in Division 1 Section "Construction Facilities and Temporary Controls."
- B. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

END OF SECTION

SECTION 01740 - WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties.
 - 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" specifies procedures for submitting warranties.
 - 2. Division 1 Section "Contract Closeout" specifies contract closeout procedures.
 - 3. Division 2 for specific requirements for warranties on products and installations specified to be warranted.
 - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.3 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

- D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.4 SUBMITTALS

- A. Submit written warranties to the Architect/Engineer prior to the date certified for Substantial Completion. If the Architect/Engineer's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect/Engineer.
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect/Engineer within 15 days of completion of that designated portion of the Work.
- B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect/Engineer, for approval prior to final execution.
 - 1. Refer to Division 2 for specific content requirements and particular requirements for submitting special warranties.
- C. Form of Submittal: At Final Completion compile 2 copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.

1.2 MATERIALS OWNERSHIP

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

1.3 INFORMATIONAL SUBMITTALS

- A. Schedule of selective demolition activities with starting and ending dates for each activity.

1.4 CLOSEOUT SUBMITTALS

1.5 QUALITY ASSURANCE

1.6 FIELD CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
1. Before selective demolition, Owner will remove the following items:
 - a. Contractor to coordinate removal of garage contents with Owner prior to demolition .
- B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Storage or sale of removed items or materials on-site is not permitted.
- D. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

3.2 PREPARATION

3.3 PROTECTION

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

3.4 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting

- operations. Maintain portable fire-suppression devices during flame-cutting operations.
 - 4. Maintain fire watch during and for at least 4 hours after flame-cutting operations.
 - 5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 6. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.5 CLEANING

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
- 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 - 4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 031000 - CONCRETE FORMING AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Form-facing material for cast-in-place concrete.

1.2 PREINSTALLATION MEETINGS

1.3 ACTION SUBMITTALS

A. Product Data: For each of the following:

1. Exposed surface form-facing material.
2. Concealed surface form-facing material.
3. Form ties.
4. Waterstops.
5. Form-release agent.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Concrete Formwork: Design, engineer, erect, shore, brace, and maintain formwork, shores, and reshores in accordance with **ACI 301**, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.
1. Design wood panel forms in accordance with APA's "Concrete Forming Design/Construction Guide."
 2. Design formwork to limit deflection of form-facing material to 1/240 of center-to-center spacing of supports.

- a. For architectural concrete specified in Section 033300 "Architectural Concrete," limit deflection of form-facing material, studs, and walers to 0.0025 times their respective clear spans (L/400).

2.2 FORM-FACING MATERIALS

- A. Concealed Surface Form-Facing Material: Lumber, plywood, metal, plastic, or another approved material.
 1. Provide lumber dressed on at least two edges and one side for tight fit.

2.3 WATERSTOPS

- A. Flexible Rubber Waterstops: U.S. Army Corps of Engineers CRD-C 513, with factory-installed metal eyelets, for embedding in concrete to prevent passage of fluids through joints, with factory fabricate corners, intersections, and directional changes.
 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Williams Products, Inc.
 2. Profile: Flat dumbbell with center bulb .
 3. Dimensions: 4 inches by 3/16 inch thick ; nontapered.
- B. Flexible PVC Waterstops: U.S. Army Corps of Engineers CRD-C 572, with factory-installed metal eyelets, for embedding in concrete to prevent passage of fluids through joints, with factory fabricate corners, intersections, and directional changes.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BoMetals, Inc.
 - b. Sika Corporation.
 - c. Vinylex Waterstop & Accessories.
 2. Profile: Flat dumbbell with center bulb .
 3. Dimensions: 4 inches by 3/16 inch thick ; nontapered.
- C. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlisle Coatings & Waterproofing Inc.
 - b. CETCO.
 - c. JP Specialties, Inc.
 - d. Sika Corporation.

- D. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free hydrophilic polymer-modified chloroprene rubber, for adhesive bonding to concrete, **3/8 by 3/4 inch**.
- 1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. CETCO.
 - b. GCP Applied Technologies Inc.
 - c. Sika Corporation.

2.4 RELATED MATERIALS

- A. Reglets: Fabricate reglets of not less than **0.022-inch-** thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- B. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than **0.034 inch** thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, **3/4 by 3/4 inch**, minimum.
- D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- E. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
 - 2. Form release agent for form liners shall be acceptable to form liner manufacturer.
- F. Form Ties: Factory-fabricated, removable or snap-off, glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that leave no corrodible metal closer than **1 inch** to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, leave holes no larger than **1 inch** in diameter in concrete surface.
 - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

PART 3 - EXECUTION

3.1 INSTALLATION OF FORMWORK

- A. Comply with **ACI 301**.
- B. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of **ACI 117** and to comply with the Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete" for as-cast finishes .
- C. Limit concrete surface irregularities as follows:
 - 1. Surface Finish-1.0: ACI 117 Class D, **1 inch**.
 - 2. Surface Finish-2.0: ACI 117 Class B, **1/4 inch**.
 - 3. Surface Finish-3.0: ACI 117 Class A, **1/8 inch**.
- D. Construct forms tight enough to prevent loss of concrete mortar.
 - 1. Minimize joints.
 - 2. Exposed Concrete: Symmetrically align joints in forms.
- E. Construct removable forms for easy removal without hammering or prying against concrete surfaces.
 - 1. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces.
 - 2. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 3. Install keyways, reglets, recesses, and other accessories, for easy removal.
- F. Do not use rust-stained, steel, form-facing material.
- G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces.
 - 1. Provide and secure units to support screed strips.
 - 2. Use strike-off templates or compacting-type screeds.
- H. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible.
 - 1. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar.
 - 2. Locate temporary openings in forms at inconspicuous locations.
- I. Chamfer exterior corners and edges of permanently exposed concrete.

- J. At construction joints, overlap forms onto previously placed concrete not less than 12 inches.
- K. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.
 - 1. Determine sizes and locations from trades providing such items.
 - 2. Obtain written approval of Architect prior to forming openings not indicated on Drawings.
- L. Construction and Movement Joints:
 - 1. Construct joints true to line with faces perpendicular to surface plane of concrete.
 - 2. Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 3. Place joints perpendicular to main reinforcement.
 - 4. Locate joints for beams, slabs, joists, and girders in the middle third of spans.
 - a. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 - 5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 - 6. Space vertical joints in walls as indicated on Drawings .
 - a. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
- M. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.
 - 1. Locate ports and openings in bottom of vertical forms, in inconspicuous location, to allow flushing water to drain.
 - 2. Close temporary ports and openings with tight-fitting panels, flush with inside face of form, and neatly fitted, so joints will not be apparent in exposed concrete surfaces.
- N. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- O. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- P. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.

SECTION 031000 -

CONCRETE FORMING AND ACCESSORIES

031000 - 5

1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
4. Install dovetail anchor slots in concrete structures, as indicated on Drawings.
5. Clean embedded items immediately prior to concrete placement.

3.3 INSTALLATION OF WATERSTOPS

- A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm.
1. Install in longest lengths practicable.
 2. Locate waterstops in center of joint unless otherwise indicated on Drawings.
 3. Allow clearance between waterstop and reinforcing steel of not less than 2 times the largest concrete aggregate size specified in Section 033000 "Cast-In-Place Concrete."
 4. Secure waterstops in correct position at 12 inches on center.
 5. Field fabricate joints in accordance with manufacturer's instructions using heat welding.
 - a. Miter corners, intersections, and directional changes in waterstops.
 - b. Align center bulbs.
 6. Clean waterstops immediately prior to placement of concrete.
 7. Support and protect exposed waterstops during progress of the Work.
- B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated on Drawings, according to manufacturer's written instructions, by adhesive bonding, mechanically fastening, and firmly pressing into place.
1. Install in longest lengths practicable.
 2. Locate waterstops in center of joint unless otherwise indicated on Drawings.
 3. Protect exposed waterstops during progress of the Work.

3.4 SHORING AND RESHORING INSTALLATION

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.

- B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
- C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- B. Inspections:
 - 1. Inspect formwork for shape, location, and dimensions of the concrete member being formed.
 - 2. Inspect insulating concrete forms for shape, location, and dimensions of the concrete member being formed.

END OF SECTION 031000

SECTION 033000 - CAST-IN-PLACE CONCRETE

1.1 QUALITY ASSURANCE

- A. Mockups of formed-surface panels to demonstrate typical joints, surface finish, texture, tolerances, floor treatments, and standard of workmanship.

1.2 PRODUCTS

- A. Concrete General: **ACI 301** and **ACI 117**.
- B. Cementitious Materials:
 - 1. Portland Cement: ASTM C150, Type I , .
 - 2. Fly Ash: ASTM C618, Class C or F.
 - 3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.
 - 4. Blended Hydraulic Cement: ASTM C595/C595M, Type IS Type IP Type IL Type IT.
 - 5. Silica fume.
 - 6. Aggregate: Normal weight .
 - 7. Water.
- C. Mixing: Ready mixed .

1.3 CONCRETE MIXTURES

- A. Compressive Strength (28 Days):
 - 1. Footings and Grade Beams: **4000 psi** .
 - 2. Slabs-on-Ground: **4000 psi** .
 - 3. Concrete Toppings: **3500 psi** .

1.4 INSTALLATION

- A. Formed Finishes: Surface Finish 3.0 .
- B. Floor and Slab Finishes:
 - 1. Float Finish: Surfaces to receive trowel finish and surfaces to be covered with fluid-applied or sheet waterproofing .
 - 2. Trowel Finish: Surfaces exposed to view or to be covered with thin-film-finish coating system.
 - 3. Broom Finish: Exterior concrete .

1.5 FIELD QUALITY CONTROL

- A. Testing: By Contractor-engaged agency.
- B. Special Inspections: By Owner-engaged special inspector.

END OF SECTION 033000

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Framing with engineered wood products.
3. Shear wall panels.
4. Wood blocking , cants, and nailers.
5. Wood furring and grounds.
6. Wood sleepers.
7. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data:

1. For each type of process and factory-fabricated product.
2. For preservative-treated wood products.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates:

1. For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
2. For preservative-treated wood products. Indicate type of preservative used and net amount of preservative retained.

1.4 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber:** Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber

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, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content:

1. Boards: 15 percent.
2. Dimension Lumber: 15 percent for 2-inch nominal thickness or less; 19 percent for more than 2-inch nominal thickness unless otherwise indicated.
3. Timber: 19 percent .

C. 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, as published by manufacturer, shall 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.

2.2 DIMENSION LUMBER FRAMING

A. Non-Load-Bearing Interior Partitions by Grade: Construction or No. 2 grade.

1. Application: Interior partitions not indicated as load bearing.
2. Species:
 - a. Southern pine or mixed southern pine; SPIB.
 - b. Northern species; NLGA.

B. Framing Other Than Non-Load-Bearing Partitions by Grade: No. 2 grade.

1. Application: Framing other than interior partitions .
2. Species:
 - a. Hem-fir (north); NLGA.
 - b. Southern pine; SPIB.
 - c. Southern pine or mixed southern pine; SPIB.
 - d. Spruce-pine-fir; NLGA.
 - e. Douglas fir-larch (north); NLGA.

C. Framing Other Than Non-Load-Bearing Partitions by Performance: Any species and grade with a modulus of elasticity of at least 1,500,000 psi and an extreme fiber stress in bending of at least 850 psi for 2-inch nominal thickness and 12-inch nominal width for single-member use.

1. Application: Framing other than interior partitions .
- D. Exposed Framing: Hand-select material for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
 1. Species and Grade: As indicated above for load-bearing construction of same type.

2.3 ENGINEERED WOOD PRODUCTS

- A. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D5456 and manufactured with an exterior-type adhesive complying with ASTM D2559.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Boise Cascade Company.
 - b. Cudahy Lumber Company.
 - c. Louisiana-Pacific Corporation.
 - d. RedBuilt.
 - e. Roseburg.
 - f. Weyerhaeuser Company.
 2. Extreme Fiber Stress in Bending, Edgewise: 2600 psi for 12-inch nominal-depth members.
 3. Modulus of Elasticity, Edgewise: 1,800,000 psi .
- B. Wood I-Joists: Prefabricated units, I-shaped in cross section, made with solid or structural composite lumber flanges and wood-based structural panel webs, let into and bonded to flanges. Comply with material requirements of and with structural capacities established and monitored according to ASTM D5055.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Boise Cascade Company.
 - b. Cudahy Lumber Company.
 - c. Louisiana-Pacific Corporation.
 - d. RedBuilt.
 - e. Roseburg.
 - f. Weyerhaeuser Company.
 2. Web Material: Either OSB or plywood, complying with DOC PS 1 or DOC PS 2, Exposure 1 .
 3. Structural Properties: Depths and design values not less than those indicated.

4. Comply with APA PRI-400. Factory mark I-joists with APA-EWS trademark indicating nominal joist depth, joist class, span ratings, mill identification, and compliance with APA-EWS standard.
- C. Rim Boards: Product designed to be used as a load-bearing member and to brace wood I-joists at bearing ends, complying with research or evaluation report for I-joists.
 1. Manufacturer: Provide products by same manufacturer as I-joists.
 2. Material: glued-laminated wood .
 3. Thickness: 1-1/8 inches .
 4. Comply with APA PRR-401, rim board grade. Factory mark rim boards with APA-EWS trademark indicating thickness, grade, and compliance with APA-EWS standard.

2.4 SHEAR WALL PANELS

- A. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 1. MarinoWARE.
 2. Shear Transfer Systems.
 3. Simpson Strong-Tie Co., Inc.
- B. Wood-Framed Shear Wall Panels: Prefabricated assembly consisting of wood perimeter framing, tie downs, and Exposure I, Structural I plywood or OSB sheathing.
- C. Allowable design loads, as published by manufacturer, shall meet or exceed those of basis-of-design products . 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.

2.5 MISCELLANEOUS LUMBER

- A. Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 1. Blocking.
 2. Nailers.
 3. Rooftop equipment bases and support curbs.
 4. Cants.
 5. Furring.
 6. Grounds.
- B. Dimension Lumber Items: Construction or No. 2 grade lumber of any species.

- C. Concealed Boards: 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine or southern pine; No. 2 grade; SPIB.
2. Northern species; No. 2 Common grade; NLGA.

2.6 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: Plywood, DOC PS 1, Exterior, A-C , in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.7 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches into wood substrate.
1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M .
- B. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- C. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 ICC-ES AC58 ICC-ES AC193 or ICC-ES AC308 as appropriate for the substrate.

2.8 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets:
1. Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
 2. Self-adhering sheet consisting of 64mils of rubberized asphalt laminated on one side to a 4-mil- thick, polyethylene-film reinforcement, and with release liner on adhesive side ; formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.
- B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

- C. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D3498 that is approved for use indicated by adhesive manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- C. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- D. Install shear wall panels to comply with manufacturer's written instructions.
- E. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- F. Do not splice structural members between supports unless otherwise indicated.
- G. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- H. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
 - 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
 - 3. ICC-ES evaluation report for fastener.

3.2 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 rough carpentry from weather. If, despite protection, rough carpentry becomes wet enough that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wall sheathing.
2. Roof sheathing.
3. Subflooring.
4. Underlayment.
5. Sheathing joint and penetration treatment.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.

1.3 INFORMATIONAL SUBMITTALS

1.4 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

2.2 WOOD PANEL PRODUCTS

- A. Emissions: Products shall meet the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.3 WALL SHEATHING

- A. Plywood Sheathing: DOC PS 1 Either DOC PS 1 or DOC PS 2 , Exterior, Structural I Exterior Exposure 1, Structural I Exposure 1 sheathing.
- B. Oriented-Strand-Board Sheathing: DOC PS 2, Exposure 1, Structural I Exposure 1 sheathing.

- C. Paper-Surfaced Gypsum Sheathing: ASTM C 1396/C 1396M, gypsum sheathing; with water-resistant-treated core and with water-repellent paper bonded to core's face, back, and long edges.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. Georgia-Pacific Gypsum LLC.
 - c. National Gypsum Company.
 - d. USG Corporation.
 - 2. Type and Thickness: Regular, 1/2 inch Type X, 5/8 inch thick.
- D. Glass-Mat Gypsum Sheathing: ASTM C 1177/1177M.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. Georgia-Pacific Gypsum LLC.
 - c. National Gypsum Company.
 - d. USG Corporation.
 - 2. Type and Thickness: Regular, 1/2 inch Type X, 5/8 inch thick.
- E. Cementitious Backer Units: ASTM C 1325, Type A.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Custom Building Products.
 - b. FinPan, Inc.
 - c. USG Corporation.
 - 2. Thickness: As indicated.

2.4 ROOF SHEATHING

- A. Plywood Sheathing: DOC PS 1 Either DOC PS 1 or DOC PS 2 , Exterior, Structural I Exterior Exposure 1, Structural I Exposure 1 sheathing.
- B. Oriented-Strand-Board Sheathing: DOC PS 2, Exposure 1, Structural I Exposure 1 sheathing.

2.5 SUBFLOORING AND UNDERLAYMENT

- A. Plywood Combination Subfloor-Underlayment: DOC PS 1, Exterior, Structural I, C-C Plugged Exterior, C-C Plugged Exposure 1, Structural I, Underlayment Exposure 1, Underlayment single-floor panels.
- B. Oriented-Strand-Board Combination Subfloor-Underlayment: DOC PS 2, Exposure 1 single-floor panels.

- C. Plywood Subflooring: DOC PS 1 Either DOC PS 1 or DOC PS 2 , Exterior, Structural I Exterior Exposure 1, Structural I Exposure 1 single-floor panels or sheathing.
- D. Oriented-Strand-Board Subflooring: DOC PS 2, Exposure 1 , Structural I sheathing single-floor panels or sheathing.
- E. Underlayment: Provide underlayment in nominal thicknesses indicated or, if not indicated, not less than **1/4 inch** over smooth subfloors and not less than **3/8 inch** over board or uneven subfloors.
 - 1. Plywood Underlayment for Resilient Flooring: DOC PS 1, Exterior A-C Exterior B-C Exterior, C-C Plugged Exposure 1 Underlayment with fully sanded face.
 - 2. Plywood Underlayment for Ceramic Tile: DOC PS 1, Exterior, C-C Plugged, not less than **5/8-inch** nominal thickness.
 - 3. Plywood Underlayment for Carpet: DOC PS 1, Exterior, C-C Plugged Exposure 1, Underlayment Interior, Underlayment.
 - 4. Particleboard Underlayment: ANSI A208.1, Grade PBU Grade M-2.
 - 5. Hardboard Underlayment: ANSI A135.4, Class 4 (Service), Surface S1S; with back side sanded.

2.6 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 .

2.7 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

- A. Sealant for Paper-Surfaced Glass-Mat Gypsum Sheathing: Elastomeric, medium-modulus, neutral-curing silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other materials, recommended by sheathing manufacturer for application indicated and complying with requirements for elastomeric sealants specified in Section 079200 "Joint Sealants."
- B. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C 834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
 - 1. Sheathing Tape: Self-adhering glass-fiber tape, minimum **2 inches** wide, **10 by 10 or 10 by 20 threads/inch**, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.

- C. Sheathing Tape for Foam-Plastic Sheathing: Pressure-sensitive plastic tape recommended by sheathing manufacturer for sealing joints and penetrations in sheathing.

2.8 MISCELLANEOUS MATERIALS

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. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
 - 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in the ICC's International Residential Code for One- and Two-Family Dwellings.
 - 3. ICC-ES evaluation report for fastener.
- D. Coordinate wall and 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.
- E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

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. Combination Subfloor-Underlayment:
 - a. Glue and nail to wood framing.
 - b. Space panels **1/8 inch** apart at edges and ends.

2. Subflooring:
 - a. Glue and nail to wood framing.
 - b. Space panels **1/8 inch** apart at edges and ends.
3. Wall and Roof Sheathing:
 - a. Nail to wood framing. Apply a continuous bead of glue to framing members at edges of wall sheathing panels.
 - b. Screw to cold-formed metal framing.
 - c. Space panels **1/8 inch** apart at edges and ends.
4. Underlayment:
 - a. Nail to subflooring.
 - b. Space panels **1/32 inch** apart at edges and ends.
 - c. Fill and sand edge joints of underlayment receiving resilient flooring immediately before installing flooring.

3.3 HARDBOARD UNDERLAYMENT INSTALLATION

- A. Comply with CPA's recommendations and hardboard manufacturer's written instructions for preparing and applying hardboard underlayment.
 1. Fastening Method: Nail underlayment to subflooring.

END OF SECTION 061600

SECTION 061753 - SHOP-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood roof trusses.
2. Wood girder trusses.

1.2 ACTION SUBMITTALS

A. Product Data: For metal-plate connectors, metal truss accessories, and fasteners.

B. 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 of permanent bracing required to prevent buckling of individual truss members due to design loads.
4. Indicate locations, sizes, and materials for permanent bracing required to prevent buckling of individual truss members due to design loads.
5. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
6. Show splice details and bearing details.

C. Delegated-Design Submittal: For metal-plate-connected wood trusses indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS

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

B. Evaluation Reports: For the following, from ICC-ES:

1. Metal-plate connectors.
2. Metal truss accessories.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program, complies with quality-control procedures in TPI 1, and involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction .

1.5 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."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design metal-plate-connected wood trusses.
- B. 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.
- C. Comply with applicable requirements and recommendations of TPI 1, TPI DSB, and SBCA BCSI.
- D. 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. Provide dry lumber with 19 percent maximum moisture content at time of dressing.
- B. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Section 061000 "Rough Carpentry."

2.3 METAL CONNECTOR PLATES

- A. Manufacturers: 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. Eagle Metal Products.
 - 3. MiTek Industries, Inc.
- B. 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** coating designation; and not less than **0.036 inch** thick.

2.4 FASTENERS

- A. 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.
 - 2. Where trusses are exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.
- 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. Phoenix Metal Products, Inc.
 - 3. Simpson Strong-Tie Co., Inc.
- 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** coating designation.

2.6 FABRICATION

- A. 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.
- B. 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. 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.
- F. Securely connect each truss ply required for forming built-up girder trusses.
- G. 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."
 - 2. Install and fasten strongback bracing vertically against vertical web of parallel-chord floor trusses at centers indicated.
- H. Install wood trusses within installation tolerances in TPI 1.
- I. Do not alter trusses in field. Do not cut, drill, notch, or remove truss members.

- J. Replace wood trusses that are damaged or do not comply with requirements.

END OF SECTION 061753

SECTION 061800 - GLUED-LAMINATED CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural glued-laminated timber.
2. Timber connectors.
3. Factory finishing.

1.2 ACTION SUBMITTALS

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

1.3 INFORMATIONAL SUBMITTALS

- A. Certificates of Conformance: Issued by a qualified testing and inspecting agency indicating that structural glued-laminated timber complies with requirements in ANSI A190.1.

1.4 QUALITY ASSURANCE

1.5 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with provisions in AITC 111.
- B. Individually wrap members using plastic-coated paper covering with water-resistant seams.

PART 2 - PRODUCTS

2.1 STRUCTURAL GLUED-LAMINATED TIMBER

- A. General: Provide structural glued-laminated timber that complies with ANSI A190.1 and ANSI 117 or research/evaluation reports acceptable to authorities having jurisdiction.
1. Factory mark each piece of structural glued-laminated timber with AITC Quality Mark or APA-EWS trademark. Place mark on surfaces that are not exposed in the completed Work.

2. Provide structural glued-laminated timber made with wet-use adhesive complying with ANSI A190.1.
- B. Species and Grades for Structural Glued-Laminated Timber: Southern pine that complies with structural properties indicated.
- C. Species and Grades for Beams and Purlins:
 1. Species and Beam Stress Classification: Southern pine, 24F-1.8E .
 2. Lay-up: Balanced .
- D. Species and Grades for Columns and Truss Members:
 1. Species and Combination Symbol: Southern pine, 47 .
- E. Appearance Grade: Architectural , complying with AITC 110.

2.2 TIMBER CONNECTORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Cleveland Steel Specialty Co.
 2. Simpson Strong-Tie Co., Inc.
- B. Materials: Unless otherwise indicated, fabricate from the following materials:
 1. Structural-steel shapes, plates, and flat bars complying with ASTM A36/A36M.
 2. Round steel bars complying with ASTM A575, Grade M 1020.
 3. Hot-rolled steel sheet complying with ASTM A1011/A1011M, Structural Steel, Type SS, Grade 33.
- C. Finish steel assemblies and fasteners with rust-inhibitive primer, 2-mil dry film thickness.
- D. Hot-dip galvanize steel assemblies and fasteners after fabrication to comply with ASTM A123/A123M or ASTM A153/A153M.

2.3 MISCELLANEOUS MATERIALS

- A. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.
- B. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

2.4 FABRICATION

- A. Camber: Fabricate horizontal and inclined members of less than 1:1 slope with either circular or parabolic camber equal to 1/500 of span.
- B. End-Cut Sealing: Immediately after end cutting each member to final length, apply a saturation coat of end sealer to ends and other cross-cut surfaces, keeping surfaces flood coated for not less than 10 minutes.
- C. Seal Coat: After fabricating, sanding, and end-coat sealing, apply a heavy saturation coat of penetrating sealer on surfaces of each unit.
- D. Factory Finishing:
 - 1. Water repellent.
 - 2. Film-forming two-coat varnish urethane.
 - 3. Semitransparent stain.
 - 4. Solid-color stain.
 - 5. Paint.
 - 6. Color: As selected by Architect from manufacturer's full range .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Erect structural glued-laminated timber true and plumb and with uniform, close-fitting joints. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.
 - 1. Handle and temporarily support glued-laminated timber to prevent surface damage, compression, and other effects that might interfere with indicated finish.
- B. Cutting: Avoid extra cutting after fabrication. Where field fitting is unavoidable, comply with requirements for shop fabrication.
- C. Fit structural glued-laminated timber by cutting and restoring exposed surfaces to match specified surfacing.
 - 1. Predrill for fasteners using timber connectors as templates.
 - 2. Finish exposed surfaces to remove planing or surfacing marks.
 - 3. Coat cross cuts with end sealer.

3.2 ADJUSTING

- A. Repair damaged surfaces after completing erection. Replace damaged structural glued-laminated timber if repairs are not approved by Architect.

3.3 PROTECTION

- A. Do not remove wrappings on individually wrapped members until they no longer serve a useful purpose, including protection from weather, sunlight, soiling, and damage from work of other trades.
 - 1. Slit underside of wrapping to prevent accumulation of moisture inside the wrapping.

END OF SECTION 061800

SECTION 062023 - INTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior trim, including non-fire-rated interior door and sidelight frames.
2. Shelving and clothes rods.

1.2 DEFINITIONS

- A. MDF:** Medium-density fiberboard.
- B. MDO:** Plywood with a medium-density overlay on the face.
- C. PVC:** Polyvinyl chloride.

1.3 ACTION SUBMITTALS

- A. Product Data:** For each type of process and factory-fabricated product.

1.4 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber:** DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with applicable rules of any rules-writing agency certified by the American Lumber Standard Committee's (ALSC) Board of Review. Grade lumber by an agency certified by the ALSC's 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, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by grading agency.
- B. Softwood Plywood:** DOC PS 1.
- C. Hardboard:** ANSI A135.4.

- D. MDF: ANSI A208.2, Grade 130 .
- E. Particleboard: ANSI A208.1, Grade M-2 .
- F. Melamine-Faced Particleboard: Particleboard complying with ANSI A208.1, Grade M-2, finished on both faces with thermally fused, melamine-impregnated decorative paper and complying with NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.
 - 1. Color: White or As selected by Architect from manufacturer's full range .

2.2 INTERIOR TRIM

- A. Lumber Trim for Opaque Finish (Painted Finish):
 - 1. Species and Grade:
 - a. Eastern white pine; NeLMA or NLGA Finish or 1 Common .
 - b. Idaho white, lodgepole, ponderosa, radiata, or sugar pine; NLGA or WWP A 1 Common (Colonial) .
 - c. Eastern white, Idaho white, lodgepole, ponderosa, radiata, or sugar pine; NeLMA, NLGA, or WWP A Finish or 1 Common (Colonial) .
 - d. White woods; WWP A 1 Common .
 - e. Species and Grade: Douglas fir-larch or Douglas fir south; NLGA, WCLIB, or WWP A Superior or C & Btr finish.
 - f. Spruce-pine-fir; NeLMA, NLGA, WCLIB, or WWP A 2 Common.
 - g. Alder, aspen, basswood, cottonwood, gum, magnolia, soft maple, sycamore, tupelo, or yellow poplar; NHLA A Finish .
 - 2. Maximum Moisture Content for softwoods: 15 percent with at least 85 percent of shipment at 12 percent or less.
 - 3. Maximum Moisture Content for Hardwoods: 10 percent.
 - 4. Finger Jointing: Allowed .
 - 5. Face Surface: Surfaced (smooth) .
 - 6. Optional Material: Primed MDF of same actual dimensions as lumber indicated may be used in lieu of lumber.
- B. Moldings for Opaque Finish (Painted Finish): Made to patterns included in MMPA's "WM/Series Softwood Moulding Patterns."
 - 1. Softwood Moldings: MMPA WM 4, P grade.
 - a. Species: Eastern white, Idaho white, lodgepole, ponderosa, radiata, or sugar pine .
 - b. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less.
 - 2. Hardwood Moldings: MMPA WM 4, P-grade.
 - a. Species: Aspen, basswood, cottonwood, gum, magnolia, soft maple, tupelo, or yellow poplar .
 - b. Maximum Moisture Content: 9 percent.
 - 3. Finger Jointing: Allowed .

4. Optional Material: Primed MDF.

2.3 SHELVING AND CLOTHES RODS

- A. Exposed Closet Shelving: Made from one of the following materials, **3/4 inch** thick:
 1. MDO softwood plywood with solid-wood edge.
 2. Wood boards as specified above for lumber trim for opaque or hardwood lumber trim for transparent finish.
 3. Softwood Boards:
 - a. Kiln-dried eastern white, Idaho white, lodgepole, ponderosa, radiata, or sugar pine; NeLMA, NLGA, or WWPAC Select (Choice) .
 - b. Kiln-dried Douglas fir-larch, Douglas fir south, or hem-fir; SPIB Superior or C & Btr finish; NLGA, WCLIB, or WWPAC; or southern pine; B & B finish.
- B. Shelf Cleats: **3/4-by-3-1/2-inch** boards , as specified above for shelving .
- C. Shelf Brackets with Rod Support: BHMA A156.16, B04051; prime-painted formed steel.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. A&M Hardware, Inc.
 - b. EPCO, Engineered Products Co.
 - c. Knappe & Vogt Manufacturing Company.
- D. Shelf Brackets without Rod Support: BHMA A156.16, B04041; prime-painted formed steel.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. A&M Hardware, Inc.
 - b. EPCO, Engineered Products Co.
 - c. Knappe & Vogt Manufacturing Company.
- E. Standards for Adjustable Shelf Brackets: BHMA A156.9, B04102; powder-coat-finished steel.
- F. Adjustable Shelf Brackets: BHMA A156.9, B04112; powder-coat-finished steel black-anodized aluminum .
- G. Standards for Adjustable Shelf Supports: BHMA A156.9, B04071; powder-coat-finished steel.
- H. Adjustable Shelf Supports: BHMA A156.9, B04081 or B04091; powder-coat-finished steel.

- I. Wood Clothes Rods: ~~1-1/2-inch-~~ diameter, clear, kiln-dried hardwood Douglas fir or southern pine.
- J. Metal Clothes Rods: ~~1-5/16-inch-~~ diameter, aluminum tubes chrome-plated-steel tubes color-coated-steel tubes .
- K. Metal Rod Flanges: Aluminum Chrome-plated steel .

2.4 MISCELLANEOUS MATERIALS

- A. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
- B. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer for general carpentry use.
- C. Paneling Adhesive: Comply with paneling manufacturer's written instructions for adhesives.
- D. Multipurpose Construction Adhesive: Formulation, complying with ASTM D3498, that is recommended for indicated use by adhesive manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours unless longer conditioning is recommended by manufacturer.

3.2 INSTALLATION, GENERAL

- A. Install interior finish carpentry level, plumb, true, and aligned with adjacent materials.
 - 1. Use concealed shims where necessary for alignment.
 - 2. Scribe and cut interior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 3. Where face fastening is unavoidable, countersink fasteners, fill surface flush, and sand unless otherwise indicated.

4. Install to tolerance of **1/8 inch in 96 inches** for level and plumb. Install adjoining interior finish carpentry with **1/32-inch** maximum offset for flush installation and **1/16-inch** maximum offset for reveal installation.
5. Coordinate interior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate interior finish carpentry.

3.3 INSTALLATION OF STANDING AND RUNNING TRIM

- A. Install trim with minimum number of joints as is practical, using full-length pieces from maximum lengths of lumber available.
 1. Do not use pieces less than **24 inches** long, except where necessary.
 2. Stagger joints in adjacent and related standing and running trim.
 3. Cope at returns, miter at outside corners, and cope at inside corners to produce tight-fitting joints with full-surface contact throughout length of joint.
 4. Use scarf joints for end-to-end joints.
 5. Plane backs of casings to provide uniform thickness across joints where necessary for alignment.
 6. Match color and grain pattern of trim for transparent finish (stain or clear finish) across joints.
 7. Install trim after gypsum-board joint finishing operations are completed.
 8. Install without splitting; drill pilot holes before fastening where necessary to prevent splitting.
 9. Fasten to prevent movement or warping.
 10. Countersink fastener heads on exposed carpentry work and fill holes.

3.4 INSTALLATION OF SHELVING AND CLOTHES RODS

- A. Cut shelf cleats at ends of shelves about **1/2 inch** less than width of shelves and sand exposed ends smooth.
 1. Install shelf cleats by fastening to framing or backing with finish nails or trim screws, set below face and filled.
 2. Space fasteners not more than **16 inches** o.c. Use two fasteners at each framing member or fastener location for cleats **4 inches nominal** in width and wider.
 3. Apply a bead of multipurpose construction adhesive to back of shelf cleats before installing.
 4. Remove adhesive that is squeezed out after fastening shelf cleats in place.
- B. Install shelf brackets according to manufacturer's written instructions, spaced not more than **32 inches** o.c. Fasten to framing members, blocking, or metal backing, or use toggle bolts or hollow wall anchors.

- C. Install standards for adjustable shelf supports according to manufacturer's written instructions. Fasten to framing members, blocking, or metal backing, or use toggle bolts or hollow wall anchors. Space fasteners not more than 12 inches o.c.
- D. Install standards for adjustable shelf brackets according to manufacturer's written instructions, spaced not more than 36 inches o.c. and within 6 inches of ends of shelves. Fasten to framing members, blocking, or metal backing, or use toggle bolts or hollow wall anchors.
- E. Cut shelves to neatly fit openings with only enough gap to allow shelves to be removed and reinstalled.
 - 1. Install shelves, fully seated on cleats, brackets, and supports.
 - 2. Fasten shelves to cleats with finish nails or trim screws, set flush.
 - 3. Fasten shelves to brackets to comply with bracket manufacturer's written instructions.
- F. Install rod flanges for rods as indicated.
 - 1. Fasten to shelf cleats, framing members, blocking, or metal backing, or use toggle bolts or hollow wall anchors.
 - 2. Install rods in rod flanges.

END OF SECTION 062023

SECTION 064116 - PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plastic-laminate-clad architectural cabinets.
2. Cabinet hardware and accessories.
3. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-clad architectural cabinets that are not concealed within other construction.

1.2 PREINSTALLATION MEETINGS

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

1.3 ACTION SUBMITTALS

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

1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

- B. Shop Drawings:

1. Include plans, elevations, sections, and attachment details.
2. Apply AWI Quality Certification Program label to Shop Drawings.

- C. Samples: For each exposed product and for each color and texture specified.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer and Installer.

- B. Field quality control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

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1.6 QUALITY ASSURANCE

1.7 FIELD CONDITIONS

- A. Environmental Limitations with Humidity Control: 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 and relative humidity between 25 and 55 percent during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 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. Provide labels and certificates from AWI certification program indicating that woodwork complies with requirements of grades specified.
- B. Architectural Woodwork Standards Grade: Custom .
- C. Type of Construction: Frameless Face frame.
- D. Door and Drawer-Front Style: Flush overlay.
- E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by quality standard.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Pionite; a Panolam Industries International, Inc. brand.
 - c. Wilsonart LLC.
- F. Laminate Cladding for Exposed Surfaces:
 - 1. Horizontal Surfaces: Grade HGS .
 - 2. Postformed Surfaces: Grade HGP.
 - 3. Vertical Surfaces: Grade HGS .
 - 4. Edges: Grade HGS Grade VGS PVC tape, 0.018-inch minimum thickness, matching laminate in color, pattern, and finish PVC T-mold matching laminate in color, pattern, and finish PVC edge banding, 3.0 mm thick, matching laminate in color, pattern, and finish.
 - 5. Pattern Direction: Vertically for drawer fronts, doors, and fixed panels .

- G. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.
- H. 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.
- I. 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 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.

2.2 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: 4 to 9 percent.
- B. Composite 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. Softwood Plywood: DOC PS 1 , medium-density overlay.
 - 2. Thermally Fused Laminate (TFL) Panels: Particleboard or MDF finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Materials, General: Where fire-retardant-treated materials are indicated, use materials that are acceptable to authorities having jurisdiction as determined by testing performed on identical products by a qualified testing agency.
 - 1. Use treated materials that comply with requirements of referenced quality standard. Do not use materials that are warped, discolored, or otherwise defective.

SECTION 064116 - PLASTIC- LAMINATE-CLAD ARCHITECTURAL CABINETS

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2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
3. Identify fire-retardant-treated materials with appropriate classification marking of qualified testing agency in the form of removable paper label or imprint on surfaces that will be concealed from view after installation.

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): ANSI/BHMA A156.9, B01602, 135 degrees of opening.
- C. Wire Pulls: Back mounted, solid metal , 4 inches long, 5/16 inch in diameter .
- D. Catches: Magnetic catches, ANSI/BHMA A156.9, B03141 .
- E. Adjustable Shelf Standards and Supports: ANSI/BHMA A156.9, B04071; with shelf rests, B04081 .
- F. Shelf Rests: ANSI/BHMA A156.9, B04013; metal .
- G. Drawer Slides: ANSI/BHMA A156.9.
 1. Heavy-Duty (Grade 1HD-100 and Grade 1HD-200): Side mount .
 - a. Type: Full extension.
 - b. Material: Aluminum Epoxy-coated polymer Stainless steel slides.
 - c. Motion Feature: Push to open and Soft close dampener .
- H. Door Locks: ANSI/BHMA A156.11, E07121.
- I. Drawer Locks: ANSI/BHMA A156.11, E07041.
- J. Door and Drawer Silencers: ANSI/BHMA A156.16, L03011.
- K. Grommets for Cable Passage: 1-1/4-inch OD, molded-plastic grommets and matching plastic caps with slot for wire passage.
 1. Color: Black .
- L. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with ANSI/BHMA A156.18 for ANSI/BHMA finish number indicated.
 1. Dark, Oxidized, Satin Bronze, Oil Rubbed: ANSI/BHMA 613 for bronze base; ANSI/BHMA 640 for steel base; match Architect's sample.

2. Satin Brass, Blackened, Bright Relieved, Clear Coated: ANSI/BHMA 610 for brass base; ANSI/BHMA 636 for steel base.
 3. Satin Stainless Steel: ANSI/BHMA 630.
- M. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in ANSI/BHMA A156.9.

2.5 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber Fire-retardant-treated softwood 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 or adhesive specified above for faces.

2.6 FABRICATION

- A. 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.
- B. 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.
- C. Install glass to comply with applicable requirements in Section 088000 "Glazing" and in GANA's "Glazing Manual."
1. For glass in frames, secure glass with removable stops.
 2. For exposed glass edges, polish and grind smooth.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.
- B. Architectural Woodwork Standards Grade: Install cabinets to comply with quality standard grade of item to be installed.
- 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 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 o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips .

3.2 FIELD QUALITY CONTROL

- A. Inspections: Provide inspection of installed Work through AWI's Quality Certification Program certifying that woodwork, including installation, complies with requirements of the Architectural Woodwork Standards for the specified grade.
 - 1. Inspection entity shall prepare and submit report of inspection.

END OF SECTION 064116

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Extruded polystyrene foam-plastic board insulation.
2. Molded (expanded) polystyrene foam-plastic board insulation.
3. Polyisocyanurate foam-plastic board insulation.
4. Glass-fiber blanket insulation.
5. Mineral-wool blanket insulation.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Extruded polystyrene foam-plastic board insulation.
2. Molded (expanded) polystyrene foam-plastic board insulation.
3. Polyisocyanurate foam-plastic board insulation.
4. Glass-fiber blanket insulation.
5. Mineral-wool blanket insulation.

1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.

PART 2 - PRODUCTS

2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD INSULATION

A. Extruded Polystyrene Board Insulation, Type X : ASTM C578, Type X, 15-psi minimum compressive strength; unfaced.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Chemical Company (The).
 - b. DuPont de Nemours, Inc.
 - c. Owens Corning.
2. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.

3. Smoke-Developed Index: Not more than 450 when tested in accordance with ASTM E84.
 4. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
 5. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.
- B. Extruded Polystyrene Board Insulation, Type IV : ASTM C578, Type IV, 25-psi minimum compressive strength; unfaced.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Chemical Company (The).
 - b. DuPont de Nemours, Inc.
 - c. Owens Corning.
 2. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
 3. Smoke-Developed Index: Not more than 450 when tested in accordance with ASTM E84.
 4. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
 5. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.
- C. Extruded Polystyrene Board Insulation, Type VI : ASTM C578, Type VI, 40-psi minimum compressive strength
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Chemical Company (The).
 - b. DuPont de Nemours, Inc.
 - c. Owens Corning.
 2. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
 3. Smoke-Developed Index: Not more than 450 when tested in accordance with ASTM E84.
 4. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.
- D. Extruded Polystyrene Board Insulation, Type VII : ASTM C578, Type VII, 60-psi minimum compressive strength.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Chemical Company (The).
 - b. DuPont de Nemours, Inc.
 - c. Owens Corning.
 2. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.

3. Smoke-Developed Index: Not more than 450 when tested in accordance with ASTM E84.
 4. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.
- E. Extruded Polystyrene Board Insulation, Type V : ASTM C578, Type V, **100-psi** minimum compressive strength.
1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Chemical Company (The).
 - b. DuPont de Nemours, Inc.
 - c. Owens Corning.
 2. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
 3. Smoke-Developed Index: Not more than 450 when tested in accordance with ASTM E84.
 4. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.

2.2 MOLDED (EXPANDED) POLYSTYRENE FOAM-PLASTIC BOARD INSULATION

- A. Molded (Expanded) Polystyrene Board Insulation, Type I : ASTM C578, Type I, **10-psi** minimum compressive strength.
1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Atlas Roofing Corporation - Molded Polystyrene.
 - b. DiversiFoam Products.
 - c. Insulfoam; Carlisle Construction Materials Company.
 2. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.
- B. Molded (Expanded) Polystyrene Board Insulation, Type II : ASTM C578, Type II, **15-psi** minimum compressive strength.
1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Atlas Roofing Corporation - Molded Polystyrene.
 - b. DiversiFoam Products.
 - c. Insulfoam; Carlisle Construction Materials Company.
 2. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.
- C. Molded (Expanded) Polystyrene Board Insulation, Type IX : ASTM C578, Type IX, **25-psi** minimum compressive strength.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Atlas Roofing Corporation - Molded Polystyrene.
 - b. DiversiFoam Products.
 - c. Insulfoam; Carlisle Construction Materials Company.
2. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.

2.3 POLYISOCYANURATE FOAM-PLASTIC BOARD INSULATION

- A. Polyisocyanurate Board Insulation, Foil Faced : ASTM C1289, foil faced, Type I, Class 1 or 2.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlisle Coatings & Waterproofing Inc.
 - b. Dow Chemical Company (The).
 - c. DuPont de Nemours, Inc.
 - d. Firestone Building Products.
 - e. Johns Manville; a Berkshire Hathaway company.
 2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
 3. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.

2.4 GLASS-FIBER BLANKET INSULATION

- A. Glass-Fiber Blanket Insulation, Unfaced : ASTM C665, Type I; passing ASTM E136 for combustion characteristics.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Owens Corning.
 2. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
 3. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.
 4. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.
- B. Glass-Fiber Blanket Insulation, Polypropylene-Scrim-Kraft Faced : ASTM C665, Type II (nonreflective faced), Class A (faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier).

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Owens Corning.
 2. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.
- C. Glass-Fiber Blanket Insulation, Kraft Faced : ASTM C665, Type II (nonreflective faced), Class C (faced surface not rated for flame propagation); Category 1 (membrane is a vapor barrier).
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Owens Corning.
 2. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.
- D. Glass-Fiber Blanket Insulation, Reinforced-Foil Faced : ASTM C665, Type III (reflective faced), Class A (faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Owens Corning.
 2. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.
- E. Glass-Fiber Blanket Insulation, Foil Faced : ASTM C665, Type III (reflective faced), Class B (faced surface with a flame-propagation resistance of 0.12 W/sq. cm); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Owens Corning.
 2. Labeling: Provide identification of mark indicating R-value of each piece of insulation **12 inches** and wider in width.

2.5 MINERAL-WOOL BLANKET INSULATION

- A. Mineral-Wool Blanket Insulation, Unfaced : ASTM C665, Type I (blankets without membrane facing); consisting of fibers; passing ASTM E136 for combustion characteristics.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Johns Manville; a Berkshire Hathaway company.
 - b. Owens Corning.
 - c. ROCKWOOL.
 2. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
 3. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.
 4. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.
- B. Mineral-Wool Blanket Insulation, Reinforced-Foil Faced : ASTM C665, Type III (reflective faced); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.
1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Owens Corning.
 2. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
 3. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.
 4. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.

2.6 ACCESSORIES

- A. Insulation for Miscellaneous Voids:
1. Spray Polyurethane Foam Insulation: ASTM C1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84.
- B. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.
- C. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

- D. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide ventilation between insulated attic spaces and vented eaves.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Install insulation with manufacturer's R-value label exposed after insulation is installed.
- D. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- E. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.2 INSTALLATION OF SLAB INSULATION

- A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.
 - 1. If not otherwise indicated, extend insulation a minimum of **36 inches** below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
 - 1. If not otherwise indicated, extend insulation a minimum of **24 inches** in from exterior walls.

3.3 INSTALLATION OF FOUNDATION WALL INSULATION

- A. Butt panels together for tight fit.

- B. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors.
- C. Adhesive Installation: Install with adhesive or press into tacky waterproofing or dampproofing according to manufacturer's written instructions.

3.4 INSTALLATION OF CAVITY-WALL INSULATION

- A. Foam-Plastic Board Insulation: Install pads of adhesive spaced approximately 24 inches o.c. both ways on inside face and as recommended by manufacturer.
 - 1. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions, and with faces flush.
 - 2. Press units firmly against inside substrates.
 - 3. Supplement adhesive attachment of insulation by securing boards with two-piece wall ties designed for this purpose and specified in Section 042000 "Unit Masonry."

3.5 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
 - 4. Attics: Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
 - 5. For wood-framed construction, install blankets according to ASTM C1320 and as follows:
 - a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.
 - 6. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.
 - a. Exterior Walls: Set units with facing placed toward as indicated on Drawings.
 - b. Interior Walls: Set units with facing placed toward areas of high humidity .
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft..
2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

END OF SECTION 072100

SECTION 072500 - WEATHER BARRIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wrap.
2. Flexible flashing.
3. Drainage material.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For water-resistive barrier and flexible flashing, from ICC-ES.

PART 2 - PRODUCTS

2.1 WATER-RESISTIVE BARRIER

A. Building Wrap: ASTM E 1677, Type I air barrier; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Chemical Company (The).
 - b. DuPont de Nemours, Inc.
 - c. Raven Industries, Inc.
 - d. TYPAR.
2. Water-Vapor Permeance: Not less than 20 perms per ASTM E 96/E 96M, Desiccant Method (Procedure A).
3. Flame Propagation Test: Materials and construction shall be as tested according to NFPA 285.

B. Building-Wrap Tape: Pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.

2.2 FLEXIBLE FLASHING

- A. 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 **0.040 inch**.
1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. DuPont de Nemours, Inc.
 - b. Raven Industries, Inc.
 - c. TYPAR.
 2. Flame Propagation Test: Materials and construction shall be as tested according to NFPA 285.
- B. Rubberized-Asphalt Flashing: Composite, self-adhesive, flashing product consisting of a pliable, rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than **0.040 inch**.
1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Advanced Building Products Inc.
 - b. Carlisle Coatings & Waterproofing Inc.
 - c. GCP Applied Technologies Inc.
 - d. TYPAR.
 2. Flame Propagation Test: Materials and construction shall be as tested according to NFPA 285.

2.3 DRAINAGE MATERIAL

- A. Drainage Material: Product shall maintain a continuous open space between water-resistive barrier and exterior cladding to create a drainage plane and shall be used under siding .
1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Advanced Building Products Inc.
 - b. DuPont de Nemours, Inc.
 - c. TYPAR.
 2. Flame Propagation Test: Materials and construction shall be as tested according to NFPA 285.

PART 3 - EXECUTION

3.1 WATER-RESISTIVE BARRIER INSTALLATION

- A. Cover sheathing with water-resistive barrier as follows:
 - 1. Cut back barrier **1/2 inch** on each side of the break in supporting members at expansion- or control-joint locations.
 - 2. Apply barrier to cover vertical flashing with a minimum **4-inch** overlap unless otherwise indicated.
- B. Building Paper: Apply horizontally with a **2-inch** overlap and a **6-inch** end lap; fasten to sheathing with galvanized staples or roofing nails.
- C. Building Wrap: Comply with manufacturer's written instructions and warranty requirements.
 - 1. Seal seams, edges, fasteners, and penetrations with tape.
 - 2. Extend into jambs of openings and seal corners with tape.

3.2 FLEXIBLE FLASHING INSTALLATION

- A. Apply flexible flashing where indicated to comply with manufacturer's written instructions.
 - 1. Lap seams and junctures with other materials at least **4 inches** except that at flashing flanges of other construction, laps need not exceed flange width.
 - 2. Lap flashing over water-resistive barrier at bottom and sides of openings.
 - 3. Lap water-resistive barrier over flashing at heads of openings.

3.3 DRAINAGE MATERIAL INSTALLATION

- A. Install drainage material over building wrap and flashing to comply with manufacturer's written instructions.

END OF SECTION 072500

SECTION 072600 - VAPOR RETARDERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Polyethylene vapor retarders.
2. Reinforced-polyethylene vapor retarders.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete" for under-slab vapor retarders.
2. Section 072100 "Thermal Insulation" for vapor retarders integral with insulation products.

1.2 ACTION SUBMITTALS

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

1.3 INFORMATIONAL SUBMITTALS

- A. Product test reports.

PART 2 - PRODUCTS

2.1 POLYETHYLENE VAPOR RETARDERS

- A. Polyethylene Vapor Retarders: ASTM D 4397, 10-mil- thick sheet, with maximum permeance rating of 0.1 perm.

2.2 REINFORCED-POLYETHYLENE VAPOR RETARDERS

- A. Reinforced-Polyethylene Vapor Retarders: Sheet with outer layers of polyethylene film laminated to an inner reinforcing layer consisting of either nylon cord or polyester scrim and weighing not less than 20 lb/1000 sq. ft. , with maximum permeance rating of 0.1 perm.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ISI Building Products.

- b. Raven Industries, Inc.
- c. Reef Industries, Inc.
- d. W.R. Meadows, Inc.

PART 3 - EXECUTION

3.1 INSTALLATION OF VAPOR RETARDERS ON FRAMING

- A. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives, vapor retarder fasteners, or other anchorage system as recommended by manufacturer. Extend vapor retarders 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 no fewer than two studs and sealing with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Locate all joints over framing members or other solid substrates.
- C. 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 retarders.
- D. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

3.2 INSTALLATION OF VAPOR RETARDERS IN CRAWL SPACES

- A. Install vapor retarders over prepared grade. Lap joints a minimum of 12 inches and seal with manufacturer's recommended tape. Install second layer over pathways to equipment.
- B. Extend vapor retarder over footings and seal to foundation wall or grade beam with manufacturer's recommended tape.
 - 1. Extend vapor retarder vertically minimum 24 inches above top of footing.
- C. Seal around penetrations such as utilities and columns in order to create a monolithic, airtight membrane at grade surface, perimeter, and all vertical penetrations.

END OF SECTION 072600

SECTION 073113 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Glass-fiber-reinforced asphalt shingles.
2. Underlayment materials.
3. Ridge vents.
4. Metal flashing and trim.

1.2 PREINSTALLATION MEETINGS

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

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

1. Asphalt shingles.
2. Underlayment materials.
3. Ridge vents.
4. Asphalt roofing cement.
5. Elastomeric flashing sealant.

- B. Shop Drawings: For metal flashing and trim.

- C. Samples: For each exposed product and for each color and blend specified.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.6 QUALITY ASSURANCE

1.7 WARRANTY

- A. Materials Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail within specified warranty period.
 - 1. Materials Warranty Period: 40 years from date of Substantial Completion, prorated, with first 10 years nonprorated.
 - 2. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 100 mph for 15 years from date of Substantial Completion.
 - 3. Algae-Resistance Warranty Period: Asphalt shingles will not discolor for 20 years from date of Substantial Completion.
 - 4. Workmanship Warranty Period: Two 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 in accordance with 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.
- B. Wind Resistance: Provide asphalt shingles that comply with requirements of ASTM D3161/D3161M, Class F, and with ASTM D7158/D7158M, Class H.
- C. Energy Performance, ENERGY STAR: Provide asphalt shingles that are listed on the DOE's "ENERGY STAR Roof Product List" for steep-slope roof products.

2.2 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

- A. Impact-Resistant, Laminated-Strip Asphalt Shingles: ASTM D3462/D3462M, laminated, multi-ply overlay construction; glass-fiber reinforced, mineral-granule surfaced, and self-sealing; with impact resistance complying with UL 2218, Class 4.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Atlas Roofing Corporation - Molded Polystyrene.
 - b. Certainteed; SAINT-GOBAIN.
 - c. GAF.
 - 2. Butt Edge: Straight cut.

3. Strip Size: Manufacturer's standard .
 4. Algae Resistance: Granules resist algae discoloration.
 5. Color and Blends: As selected by Architect from manufacturer's full range .
- B. Hip and Ridge Shingles: Manufacturer's standard units to match asphalt shingles .

2.3 UNDERLAYMENT MATERIALS

- A. Organic Felt: Asphalt-saturated organic felts, nonperforated and complying with the following:
1. ASTM D226/D226M: Type II.
 2. ASTM D4869/D4869M: Type II .
- B. Glass-Reinforced Felt: ASTM D6757/D6757M, asphalt-saturated, glass-reinforced organic felt or inorganic fiber-based felt.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. GAF.
 - c. Owens Corning.
- C. Synthetic Underlayment: UV-resistant polypropylene, polyolefin, or polyethylene polymer fabric with surface coatings or treatments to improve traction underfoot and abrasion resistance; evaluated and documented to be suitable for use as a roof underlayment under applicable codes by a testing and inspecting agency acceptable to authorities having jurisdiction.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. GAF.
 - c. Owens Corning.
- D. Self-Adhering, Polymer-Modified Bitumen Sheet: ASTM D1970/D1970M, minimum **55-mil-** thick sheet; glass-fiber-mat-reinforced, polymer-modified asphalt; with slip-resistant top surface and release backing; cold applied. Provide primer for adjoining concrete, masonry, and metal surfaces to receive underlayment.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. GAF.
 - c. Owens Corning.

2. Top Surface: Granule .

2.4 RIDGE VENTS

- A. Rigid Ridge Vent: Manufacturer's standard, rigid-section, high-density, UV-stabilized plastic ridge vent for use under ridge shingles.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. GAF.
 - c. Owens Corning.
 2. Minimum Net Free Area: Per Drawings .
 3. Width: Per Drawings. .
 4. Thickness: Per Drawings. .
 5. Features:
 - a. Nonwoven geotextile filter strips.
 - b. External deflector baffles.
 - c. .

2.5 ACCESSORIES

- A. Asphalt Roofing Cement: ASTM D4586/D4586M Type II, asbestos free.
- B. Elastomeric Flashing Sealant: ASTM C920, Type S, Grade NS, one-part, non-sag, elastomeric polymer sealant; of class and use classifications required to seal joints and remain watertight; recommended in writing by manufacturer for installation of flashing systems.
- C. Roofing Nails: ASTM F1667, aluminum, stainless steel, copper, or hot-dip galvanized-steel wire shingle nails, minimum ~~0.120-inch~~ diameter, sharp-pointed, with a ~~3/8- to 7/16-inch~~ diameter flat head and of sufficient length to penetrate ~~3/4 inch~~ into solid wood decking or extend at least ~~1/8 inch~~ through sheathing less than ~~3/4 inch~~ thick.
 1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.
- D. Underlayment Nails: Aluminum, stainless steel, or hot-dip galvanized-steel wire nails with low-profile metal or plastic caps, ~~1-inch~~ minimum diameter.
 1. Provide with minimum ~~0.0134-inch~~ thick metal cap, ~~0.010-inch~~ thick power-driven metal cap, or ~~0.035-inch~~ thick plastic cap; and with minimum ~~0.083-inch~~ thick ring shank or ~~0.091-inch~~ thick smooth shank of length to penetrate at least ~~3/4 inch~~ into roof sheathing or to penetrate through roof sheathing less than ~~3/4 inch~~ thick.

2.6 METAL FLASHING AND TRIM

- A. Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."
 - 1. Sheet Metal: Copper .
- B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item unless otherwise indicated on Drawings.
 - 1. Vent-Pipe Flashings: ASTM B749, Type L51121, at least 1/16 inch thick. Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof, and extending at least 4 inches from pipe onto roof.

PART 3 - EXECUTION

3.1 INSTALLATION OF UNDERLAYMENT MATERIALS

- A. Comply with asphalt shingle and underlayment manufacturers' written installation instructions and with recommendations in NRCA's "The NRCA Roofing Manual: Steep-Slope Roof Systems" applicable to products and applications indicated unless more stringent requirements are specified in this Section or indicated on Drawings.
- B. Asphalt-Saturated Felt: Install on roof deck parallel with and starting at eaves and fasten with underlayment nails.
 - 1. Single-Layer Installation:
 - a. Lap sides a minimum of 4 inches over underlying course.
 - b. Lap ends a minimum of 4 inches.
 - c. Stagger end laps between succeeding courses at least 72 inches.
 - 2. Install felt underlayment over areas protected by self-adhering, polymer-modified bitumen sheet unless otherwise specified in this Section or indicated on Drawings.
 - a. Lap sides of felt over self-adhering sheet not less than 4 inches in direction that sheds water.
 - b. Lap ends of felt not less than 6 inches over self-adhering sheet.
 - 3. Install fasteners in a grid pattern of 12 inches between side laps with 6-inch spacing at side and end laps.
 - 4. Terminate felt extended up not less than 4 inches against sidewalls, curbs, chimneys, and other roof projections.
- C. Synthetic Underlayment:
 - 1. Install on roof deck parallel with and starting at the eaves.

- a. Lap sides and ends as recommended in writing by manufacturer, but not less than 4 inches for side laps and 6 inches for end laps.
 - b. Stagger end laps between succeeding courses at interval recommended in writing by manufacturer, but not less than 72 inches.
 - c. Fasten with underlayment nails in accordance with manufacturer's written instructions.
 - d. Cover underlayment within period recommended in writing by manufacturer.
 2. Install in single layer on roofs sloped at 4:12 and greater.
 3. Install in double layer on roofs sloped at less than 4:12.
 4. Install synthetic underlayment over areas protected by self-adhering, polymer-modified bitumen sheet unless otherwise specified in this Section or indicated on Drawings.
 - a. Lap sides of underlayment over self-adhering sheet not less than 4 inches in direction to shed water.
 - b. Lap ends of underlayment not less than 6 inches over self-adhering sheet.
 5. Install fasteners in a grid pattern of 12 inches between side laps with 6-inch spacing at side and end laps.
 6. Terminate synthetic underlayment extended up not less than 4 inches against sidewalls, curbs, chimneys, and other roof projections.
- D. Self-Adhering, Polymer-Modified Bitumen Sheet: Install, wrinkle free, on roof deck in locations indicated on Drawings.
1. Comply with low-temperature installation restrictions of underlayment manufacturer.
 2. Install lapped in direction that sheds water.
 - a. Lap sides not less than 4 inches.
 - b. Lap ends not less than 6 inches, staggered 24 inches between succeeding courses.
 - c. Roll laps with roller.
 3. Prime concrete, masonry, and metal surfaces to receive self-adhering sheet.
 4. Cover underlayment within seven days.
- E. Metal-Flushed, Open-Valley Underlayment: Install two layers of minimum 36-inch-wide underlayment centered in valley.
1. Use same underlayment as installed on field of roof.
 2. Stagger end laps between layers at least 72 inches.
 3. Lap ends of each layer at least 12 inches in direction that sheds water, and seal with asphalt roofing cement.
 4. Fasten each layer to roof deck with underlayment nails located as far from valley center as possible and only to extent necessary to hold underlayment in place until installation of valley flashing.
 5. Lap roof-deck underlayment over first layer of valley underlayment at least 6 inches.

3.2 INSTALLATION OF METAL FLASHING AND TRIM

- A. Install metal flashings and trim to comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."
 - 1. Install metal flashings in accordance with recommendations in ARMA's "Asphalt Roofing Residential Manual - Design and Application Methods" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
 - 2. Bed flanges of metal flashings using asphalt roofing cement or elastomeric flashing sealant.
- B. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

3.3 INSTALLATION OF ASPHALT SHINGLES

- A. Install asphalt shingles in accordance with manufacturer's written instructions and recommendations in ARMA's "Asphalt Roofing Residential Manual - Design and Application Methods" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
- B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip with self-sealing strip face up at roof edge.
 - 1. Extend asphalt shingles **1/2 inch** over fasciae at eaves and rakes.
 - 2. Install starter strip along rake edge.
- C. Install first and remaining courses of laminated asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- D. Install first and remaining courses of three-tab-strip asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- E. Fasten asphalt shingle strips with a minimum of five roofing nails, but not less than the number indicated in manufacturer's written instructions for roof slope and design wind speed indicated on Drawings and for warranty requirements specified in this Section.
 - 1. Locate fasteners in accordance with manufacturer's written instructions.
 - 2. Where roof slope exceeds 18:12, hand seal self-sealing asphalt shingles to improve the shingles' positive bond by applying asphalt roofing cement spots between course overlaps after nailing the upper course.
 - 3. Where roof slope is less than 4:12, hand seal self-sealing asphalt shingles to improve the shingles' positive bond by applying asphalt roofing cement spots between course overlaps after nailing the upper course.

4. When ambient temperature during installation is below 50 deg F , hand seal self-sealing asphalt shingles by applying asphalt roofing cement spots between course overlaps after nailing the upper course.
- F. Open Valleys: Cut and fit asphalt shingles at open valleys, trimming upper concealed corners of shingle strips.
1. Maintain uniform width of exposed open valley from highest to lowest point.
 2. Extend shingle a minimum of 4 inches over valley metal.
 3. Set valley edge of asphalt shingles in a 3-inch- wide bed of asphalt roofing cement.
 4. Do not nail asphalt shingles to metal open-valley flashings.
- G. Ridge Vents: Install continuous ridge vents over asphalt shingles in accordance with manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.
- H. 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.
1. Fasten with roofing nails of sufficient length to penetrate sheathing.
 2. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

END OF SECTION 073113

SECTION 074633 - PLASTIC SIDING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes vinyl siding and soffit.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. For vinyl siding, include VSI's official certification logo printed on Product Data.
- B. Samples: For vinyl siding and soffit including related accessories.

1.3 INFORMATIONAL SUBMITTALS

- A. Product certificates.
- B. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 QUALITY ASSURANCE

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

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 25 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 VINYL SIDING

- A. Vinyl Siding: Integrally colored product complying with ASTM D 3679.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Alside.
 - b. Certaineed; SAINT-GOBAIN.
 - c. Mastic Home Exteriors; PLY GEM Siding Group.
- B. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.
- C. Horizontal Pattern: 8-inch exposure in plain, single-board style.
- D. Horizontal Pattern: 9-inch exposure in plain, board style.
- E. Horizontal Pattern: 10-inch exposure in double, 5-inch board style.
- F. Vertical Pattern: 8-inch exposure in beaded-edge, double, 4-inch board style.
- G. Vertical Pattern: 12-inch exposure in V-grooved, board style.
- H. Shingle Pattern: 48-inch- wide, staggered-edge notched sheets with wood-grain texture.
- I. Texture: Wood grain .
- J. Nominal Thickness: 0.040 inch .
- K. Minimum Profile Depth (Butt Thickness): 5/8 inch .
- L. Nailing Hem: Double thickness.
- M. 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.

2.2 VINYL SOFFIT

- A. Vinyl Soffit: Integrally colored product complying with ASTM D 4477.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Alside.

- b. Certainteed; SAINT-GOBAIN.
 - c. Mastic Home Exteriors; PLY GEM Siding Group.
- B. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.
- C. Pattern: 6-inch exposure in beaded-edge, triple, 2-inch board style.
- D. Pattern: 12-inch exposure in V-grooved, board style.
- E. Texture: Smooth .
- F. Ventilation: Provide perforated soffit unless otherwise indicated.
- G. Nominal Thickness: 0.040 inch .
- H. Minimum Profile Depth: 1/2 inch .
- I. 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 adjacent siding unless otherwise indicated.
- B. Vinyl Accessories: Integrally colored vinyl accessories complying with ASTM D 3679 except for wind-load resistance.
 - 1. Texture: Wood grain .
- C. Colors for Decorative Accessories: As selected by Architect from manufacturer's full range of colors .
- D. Flashing: Provide aluminum flashing complying with Section 076200 "Sheet Metal Flashing and Trim" at window and door heads and where indicated.
 - 1. Finish for Aluminum Flashing: Factory-prime coating .
- E. Fasteners:
 - 1. For fastening to wood, use siding nails of sufficient length to penetrate a minimum of 1 inch into substrate.
 - 2. For fastening vinyl, use hot-dip galvanized fasteners. Where fasteners are exposed to view, use prefinished aluminum fasteners in color to match item being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 - 1. Center nails in elongated nailing slots without binding siding to allow for thermal movement.
- B. Install vinyl siding and soffit and related accessories according to ASTM D 4756.
 - 1. Install fasteners for horizontal vinyl siding no more than 16 inches o.c.
 - 2. Install fasteners for vertical vinyl siding no more than 12 inches o.c.
- C. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.

3.2 ADJUSTING AND CLEANING

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

END OF SECTION 074633

SECTION 074646 - FIBER-CEMENT SIDING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes fiber-cement siding and soffit.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For fiber-cement siding and soffit including related accessories.

1.3 INFORMATIONAL SUBMITTALS

- A. Product certificates.
- B. Product test reports.
- C. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 QUALITY ASSURANCE

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 25 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 FIBER-CEMENT SIDING

- A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. James Hardie Building Products, Inc.
 - c. Nichiha Architectural Panels.
- B. Labeling: Provide fiber-cement siding that is tested and labeled according to ASTM C 1186 by a qualified testing agency acceptable to authorities having jurisdiction.
- C. Nominal Thickness: Not less than **5/16 inch**.
- D. Horizontal Pattern: Boards **6-1/4 to 6-1/2 inches** **<Insert dimensions>** wide in plain beaded-edge style.
 - 1. Texture: Rough sawn Wood grain .
- E. Vertical Pattern: **48-inch-** wide sheets with wood-grain texture and grooves **12 inches** o.c.
- F. Shingle Pattern: **48-inch-** wide, staggered-edge notched sheets with wood-grain texture.
- G. Panel Texture: **48-inch-** wide sheets with wood-grain texture.
- H. Factory Priming: Manufacturer's standard acrylic primer.

2.2 FIBER-CEMENT SOFFIT

- A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Certainteed; SAINT-GOBAIN.
 - b. James Hardie Building Products, Inc.
 - c. Nichiha Architectural Panels.
- B. Nominal Thickness: Not less than **5/16 inch**.

- C. Pattern: ~~12-inch- 16-inch-~~ wide sheets with smooth texture.
- D. Factory Priming: Manufacturer's standard acrylic primer.

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.
- B. Flashing: Provide aluminum flashing complying with Section 076200 "Sheet Metal Flashing and Trim" at window and door heads and where indicated.
 - 1. Finish for Aluminum Flashing: Factory-prime coating .
- C. Fasteners:
 - 1. For fastening to wood, use siding nails of sufficient length to penetrate a minimum of ~~1 inch~~ into substrate.
 - 2. For fastening fiber cement, use hot-dip galvanized fasteners.
- D. Insect Screening for Soffit Vents: Aluminum, ~~18-by-16~~ mesh .
- E. Continuous Soffit Vents: Aluminum, hat-channel shape.
 - 1. Net-Free Area: ~~6 sq. in./linear ft.~~ .
 - 2. Finish: White paint .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 - 1. Install fasteners no more than ~~24 inches~~ o.c.
- B. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.

3.2 ADJUSTING AND CLEANING

- A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.

- B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 074646

SECTION 077200 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Smoke vents.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of roof accessory.
- B. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.5 WARRANTY

- A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finishes or replace roof accessories that show evidence of deterioration of factory-applied finishes within 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 EQUIPMENT SUPPORTS

- A. Equipment Supports: metal equipment supports capable of supporting superimposed live and dead loads between structural supports, including equipment loads and other construction indicated on Drawings, spanning between structural supports; capable of meeting performance requirements; with welded or mechanically fastened and sealed corner joints, and integrally formed structure-mounting flange at bottom.

SECTION 077200 - ROOF ACCESSORIES

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1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. AES Industries, Inc.
 - c. Custom Solution Roof and Metal Products.
 - d. Greenheck Fan Corporation.
 - e. Pate Company (The).
 - f. Roof Products and Systems (RPS); a division of Hart & Cooley, Inc.
- B. Size: Coordinate dimensions with roughing-in information or Shop Drawings of equipment to be supported.
- C. Construction:
 1. Curb Profile: compatible with roofing system.
 2. On ribbed or fluted metal roofs, form deck-mounting flange at perimeter bottom to conform to roof profile.
 3. Fabricate equipment supports to minimum height of 12 inches above roofing surface unless otherwise indicated.

2.2 METAL MATERIALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, G90 coating designation and mill phosphatized for field painting where indicated.
 1. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.
- B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, AZ50 coated.
 1. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.
- C. Aluminum Sheet: ASTM B209, manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.
 1. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
- D. Aluminum Extrusions and Tubes: ASTM B221, manufacturer's standard alloy and temper for type of use, finished to match assembly where used; otherwise mill finished.

- E. Stainless Steel Sheet and Shapes: ASTM A240/A240M or ASTM A666, Type 304.
- F. Steel Shapes: ASTM A36/A36M, hot-dip galvanized according to ASTM A123/A123M unless otherwise indicated.
- G. Steel Tube: ASTM A500/A500M, round tube.
- H. Galvanized-Steel Tube: ASTM A500/A500M, round tube, hot-dip galvanized according to ASTM A123/A123M.
- I. Steel Pipe: ASTM A53/A53M, galvanized.

2.3 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Acrylic Glazing: ASTM D4802, thermoformable, monolithic sheet, manufacturer's standard, Type UVA (formulated with UV absorber), Finish 1 (smooth or polished).
- C. Polycarbonate Glazing: Thermoformable, monolithic polycarbonate sheets manufactured by extrusion process, burglar-resistance rated according to UL 972 with an average impact strength of 12 to 16 ft-lbf/in. of width when tested according to ASTM D256, Method A (Izod).
- D. Cellulosic-Fiber Board Insulation: ASTM C208, Type II, Grade 1, thickness as indicated.
- E. Glass-Fiber Board Insulation: ASTM C726, nominal density of 3 lb/cu. ft., thermal resistivity of 4.3 deg F x h x sq. ft./Btu x in. at 75 deg F, thickness as indicated.
- F. Polyisocyanurate Board Insulation: ASTM C1289, thickness and thermal resistivity as indicated.
- G. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, acceptable to authorities having jurisdiction, containing no arsenic or chromium, and complying with AWWA C2; not less than 1-1/2 inches thick.
- H. Security Grilles: 3/4-inch diameter, ASTM A1011/A1011M steel bars spaced 6 inches o.c. in one direction and 12 inches o.c. in the other, shop-primed for field finish. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- I. Underlayment:

1. Polyethylene Sheet: 6-mil- thick polyethylene sheet complying with ASTM D4397.
- J. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:
- K. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, or silicone or a flat design of foam rubber, sponge neoprene, or cork.
- L. Elastomeric Sealant: ASTM C920, elastomeric polymer sealant as recommended by roof accessory manufacturer for installation indicated; low modulus; of type, grade, class, and use classifications required to seal joints and remain watertight.
- M. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for expansion joints with limited movement.
- N. Asphalt Roofing Cement: ASTM D4586/D4586M, asbestos free, of consistency required for application.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Verify dimensions of roof openings for roof accessories. Install roof accessories according to manufacturer's written instructions.
 1. Install roof accessories level; plumb; true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
 2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
 3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
 4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Coat concealed side of uncoated aluminum roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
 2. Underlayment: Where installing roof accessories directly on cementitious or wood substrates, install a course of underlayment and cover with manufacturer's recommended slip sheet.
- C. Security Grilles: Weld bar intersections and , using tamper-resistant bolts, attach the ends of bars to structural frame or primary curb walls.
- D. Seal joints with elastomeric or butyl sealant as required by roof accessory manufacturer.

3.2 REPAIR AND CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A780/A780M.
- B. Touch up factory-primed surfaces with compatible primer ready for field painting according to Section 099113 "Exterior Painting."
- C. Clean exposed surfaces according to manufacturer's written instructions.
- D. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 077200

SECTION 079100 - PREFORMED JOINT SEALS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preformed, foam joint seals.

1.2 PREINSTALLATION MEETINGS

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

1.3 ACTION SUBMITTALS

- A. Product data.
- B. Samples: Manufacturer's color sheets, showing full range of available colors for each type of exposed preformed joint seal.

1.4 INFORMATIONAL SUBMITTALS

- A. Test and Evaluation Reports:
 - 1. Product Test Reports: For each preformed joint seal, for tests performed by qualified testing agency .
- B. Sample warranties.

1.5 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace preformed joint seals that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer agrees to furnish preformed joint seals to repair or replace those that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PREFORMED, FOAM JOINT SEALS

- A. Preformed, Foam Joint Seals : Manufacturer's standard joint seal manufactured from urethane or EVA (ethylene vinyl acetate) foam with minimum density of 10 lb/cu. ft. and impregnated with a nondrying, water-repellent agent. Factory produce them in precompressed sizes in roll or stick form to fit joint widths based on design criteria indicated, with factory- or field-applied adhesive for bonding to substrates.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corp. - Watson Bowman Acme Corp.
 - b. EMSEAL Joint Systems, Ltd.
 - c. Nystrom.
 - d. Pecora Corporation.
 - 2. Design Criteria:
 - a. Nominal Joint Width: 1/2" .
 - b. Movement Capability: -25 percent/+25 percent .
 - 3. Joint Seal Color: As selected by Architect from full range of industry colors .

2.2 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by preformed joint seal manufacturer for joint substrates indicated.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to preformed joint seal manufacturer, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces, and formulated to promote best adhesion to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with preformed joint seals and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing preformed joint seals to comply with preformed joint seal manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of preformed joint seal, including dust, paints (except for

- permanent protective coatings tested and approved for seal adhesion and compatibility by seal manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimal bond with preformed joint seals. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Unglazed surfaces of ceramic tile.
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint seals. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by preformed joint seal manufacturer or as indicated by tests or prior experience. Apply primer to comply with joint seal manufacturer's written instructions. Confine primers to areas of joint seal bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of adhesive or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove smears. Remove tape immediately after tooling without disturbing joint seal.
- ### 3.2 INSTALLATION
- A. General: Comply with preformed joint seal manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Installation of Preformed, Foam Joint Seals:
1. Install each length of seal immediately after removing protective wrapping.
 2. Firmly secure compressed joint seals to joint gap side to obtain full bond using exposed pressure-sensitive adhesive or field-applied adhesive as recommended by manufacturer.
 3. Do not pull or stretch material. Produce seal continuity at splices, ends, turns, and intersections of joints.
 4. For applications at low ambient temperatures, heat foam joint seal material in compliance with manufacturer's written instructions.

3.3 PROTECTION

- A. Protect preformed joint seals from damage resulting from construction operations or other causes so seals are without deterioration or damage at time of Substantial Completion.
- B. Cut out, remove, and repair damaged or deteriorated seals so repaired areas are indistinguishable from original work.

END OF SECTION 079100

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.

1.2 ACTION SUBMITTALS

- A. Product data.**
- B. Joint-sealant schedule.**

1.3 INFORMATIONAL SUBMITTALS

1.4 CLOSEOUT SUBMITTALS

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Installers: Authorized representative who is trained and approved by manufacturer.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

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

2.2 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- Adfast.
 - GE Construction Sealants; Momentive Performance Materials Inc.
 - Pecora Corporation.
 - Sika Corporation; Joint Sealants.
 - The Dow Chemical Company.

2.3 URETHANE JOINT SEALANTS

- A. Urethane, S, NS, 100/50, T, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade NS, Class 100/50, Uses T and NT.
1. Manufacturers: Subject to compliance with requirements, provide products by the following:
- Sika Corporation; Joint Sealants.
- B. Urethane, M, NS, 50, NT: Multicomponent, nonsag, plus 50 percent and minus 50 percent movement capability nontraffic-use, urethane joint sealant; ASTM C920, Type M, Grade NS, Class 50, Use NT.
1. Manufacturers: Subject to compliance with requirements, provide products by the following:
- Pecora Corporation.

2.4 LATEX JOINT SEALANTS

- A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- Everkem Diversified Products, Inc.
 - Franklin International.
 - Pecora Corporation.
 - Sherwin-Williams Company (The).
 - Tremco Incorporated.

2.5 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Adfast.
 - b. Alcot Plastics Ltd.
 - c. Construction Foam Products; a division of Nomaco, Inc.
 - d. Master Builders Solutions.
- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) Type O (open-cell material) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

2.6 MISCELLANEOUS MATERIALS

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

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - d. Exterior insulation and finish systems.
 - e. .
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.
 - e. .
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

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

3.3 JOINT-SEALANT SCHEDULE

- A. Exterior joints in horizontal traffic surfaces JS-#:
 - 1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Tile control and expansion joints.
 - c. Joints between different materials listed above.
 - d. .
 - 2. Joint Sealant: Urethane, M, P, 50, T, NT .
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors .
- B. Exterior joints in vertical surfaces and horizontal nontraffic surfaces JS-#:
 - 1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Control and expansion joints in unit masonry.
 - c. Joints in exterior insulation and finish systems.
 - d. Joints between different materials listed above.
 - e. Perimeter joints between materials listed above and frames of doors windows and louvers.
 - f. Control and expansion joints in ceilings .
 - g. .
 - 2. Joint Sealant: Silicone, nonstaining, S, NS, 50, NT .
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors .
- C. Interior joints in horizontal traffic surfaces JS-#:
 - 1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Control and expansion joints in tile flooring.
 - c. .
 - 2. Joint Sealant: Urethane, S, P, 25, T, NT .
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors .
- D. Interior joints in vertical surfaces and horizontal nontraffic surfaces JS-#:
 - 1. Joint Locations:
 - a. Tile control and expansion joints.
 - b. Vertical joints on exposed surfaces of walls .
 - c. .
 - 2. Joint Sealant: Urethane, S, NS, 25, NT .
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors .

- E. Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement JS-#:
1. Joint Locations:
 - a. Control joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
 - c. .
 2. Joint Sealant: Acrylic latex .
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors .
- F. Concealed mastics JS-#:
1. Joint Locations:
 - a. Aluminum thresholds.
 - b. Sill plates.
 - c. .
 2. Joint Sealant: Butyl-rubber based .
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors .

END OF SECTION 079200

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Five-ply flush wood veneer-faced doors for transparent finish.
2. Five-ply flush wood doors for opaque finish.
3. Solid-core flush wood doors with plastic-laminate-faces.
4. Factory finishing flush wood doors.
5. Factory fitting flush wood doors to frames and factory machining for hardware.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including the following:

1. Door core materials and construction.
2. Door edge construction
3. Door face type and characteristics.
4. Door louvers.
5. Door trim for openings.
6. Door frame construction.
7. Factory-machining criteria.
8. Factory- finishing specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:

1. Door schedule indicating door location, type, size, fire protection rating, and swing.
2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
3. Details of frame for each frame type, including dimensions and profile.
4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
5. Dimensions and locations of blocking for hardware attachment.
6. Clearances and undercuts.
7. Requirements for veneer matching.
8. Apply Program label to Shop Drawings.

C. Samples: For plastic-laminate door faces polymer edging factory-finished doors and factory-finished door frames.

1.3 INFORMATIONAL SUBMITTALS

1.4 CLOSEOUT SUBMITTALS

- A. Quality Standard Compliance Certificates: Program certificates.
- B. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Certification: Licensed participant in .

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with ANSI/WDMA I.S. 1A.
 - 1. Provide labels and certificates from certification program indicating that doors comply with requirements of grades specified.
 - a. Contractor shall register the Work under this Section with the AWI Quality Certification Program at www.awiqcp.org or by calling 855-345-0991.

2.3 SOLID-CORE FIVE-PLY FLUSH WOOD DOORS FOR OPAQUE FINISH

- A. Interior Solid-Core Doors Solid Core Wood Door (SCM) :
 - 1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Lambton Doors.
 - b. Masonite Architectural.
 - c. Oshkosh Door Company.
 - d. VT Industries Inc.
 - 2. Performance Grade: ANSI/WDMA I.S. 1A as indicated on Drawings.
 - 3. Performance Grade:
 - a. ANSI/WDMA I.S. 1A Heavy Duty unless otherwise indicated on Drawings.

- b. ANSI/WDMA I.S. 1A Extra Heavy Duty: Classrooms public toilets janitor's closets assembly spaces exits and patient rooms and where indicated on Drawings.
 - c. ANSI/WDMA I.S. 1A Standard Duty: Closets (not including janitor's closets) and private toilets Bedrooms and where indicated on Drawings.
- 4. Architectural Woodwork Standards Grade: Custom.
- 5. Faces: MDO .
 - a. Apply MDO to standard-thickness, closed-grain, hardwood face veneers or directly to high-density hardboard crossbands.
- 6. Exposed Vertical and Top Edges: Any closed-grain hardwood.
 - a. Mineral-Core Doors: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
 - 1) Screw-Holding Capability: **550 lbf** in accordance with WDMA T.M. 10.
- 7. Core for Non-Fire-Rated Doors:
 - a. ANSI A208.1, Grade LD-1 particleboard.
 - 1) Blocking: Provide wood blocking in particleboard-core doors as follows:
 - a) **5-inch** top-rail blocking, in doors indicated to have closers.
 - b) **5-inch** bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
 - c) **5-inch** midrail blocking, in doors indicated to have exit devices.
 - 2) Provide doors with glued-wood-stave or WDMA I.S. 10 structural-composite-lumber cores instead of particleboard cores for doors scheduled to receive exit devices in Section 087111 "Door Hardware (Descriptive Specification."
 - b. Glued wood stave.
 - c. WDMA I.S. 10 structural composite lumber.
 - 1) Screw Withdrawal, Face: **550 lbf** .
 - 2) Screw Withdrawal, Edge: **550 lbf** .
 - d. Either glued wood stave or WDMA I.S. 10 structural composite lumber.
- 8. Construction: Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

2.4 SOLID-CORE FLUSH WOOD DOORS WITH PLASTIC-LAMINATE FACES

A. Interior Doors Solid Core Wood Door (SCM) :

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABS-American Building Supply, Inc.
 - b. Lambton Doors.
 - c. Masonite Architectural.

- d. Oshkosh Door Company.
- e. VT Industries Inc.
- 2. Performance Grade: ANSI/WDMA I.S. 1A as indicated on Drawings.
- 3. Performance Grade:
 - a. ANSI/WDMA I.S. 1A Heavy Duty unless otherwise indicated on Drawings.
 - b. ANSI/WDMA I.S. 1A Extra Heavy Duty: Classrooms public toilets janitor's closets assembly spaces exits and patient rooms and where indicated on Drawings.
 - c. ANSI/WDMA I.S. 1A Standard Duty: Closets (not including janitor's closets) and private toilets Bedrooms and where indicated on Drawings.
- 4. Architectural Woodwork Standards Grade: Custom.
- 5. Plastic-Laminate Faces: High-pressure decorative laminates complying with NEMA LD 3, Grade HGS .
- 6. Colors, Patterns, and Finishes: As selected by Architect from laminate manufacturer's full range of products.
- 7. Exposed Vertical and Top Edges: Plastic laminate that matches faces, applied before faces [or] .
 - a. Mineral-Core Doors: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
 - 1) Screw-Holding Capability: 550 lbf in accordance with WDMA T.M. 10.
- 8. Core for Non-Fire-Rated Doors:
 - a. ANSI A208.1, Grade LD-1 particleboard.
 - 1) Blocking: Provide wood blocking in particleboard-core doors as follows:
 - a) 5-inch top-rail blocking, in doors indicated to have closers.
 - b) 5-inch bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
 - c) 5-inch midrail blocking, in doors indicated to have exit devices.
 - 2) Provide doors with glued-wood-stave or WDMA I.S. 10 structural-composite-lumber cores instead of particleboard cores for doors scheduled to receive exit devices in Section 087111 "Door Hardware (Descriptive Specification."
 - b. Glued wood stave.
 - c. WDMA I.S. 10 structural composite lumber.
 - 1) Screw Withdrawal, Face: 550 lbf .
 - 2) Screw Withdrawal, Edge: 550 lbf .
 - d. Either glued wood stave or WDMA I.S. 10 structural composite lumber.
- 9. Construction: Three plies, hot-pressed or cold-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before faces are applied.
- 10. Construction: Five plies, hot-pressed or cold-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before faces and crossbands are applied.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated.
 - 1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 - 2. Comply with NFPA 80 requirements for fire-rated doors.
- B. Openings: Factory cut and trim openings through doors.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.
 - 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."
 - 3. Louvers: Factory install louvers in prepared openings.
- C. Exterior Doors: Factory treat exterior doors with water repellent after fabrication has been completed but before factory priming or finishing.
 - 1. Flash top of outswinging doors with manufacturer's standard metal flashing.

2.6 FACTORY FINISHING

- A. Comply with referenced quality standard for factory finishing.
 - 1. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 - 2. Finish faces, all four edges, edges of cutouts, and mortises.
 - 3. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors that are indicated on Drawings to receive transparent finish.
- C. Transparent Finish:
 - 1. Architectural Woodwork Standards Grade: Custom.
 - 2. Finish: Architectural Woodwork Standards System-9, UV Curable, Acrylated Epoxy, Polyester or Urethane.
 - 3. Staining: As selected by Architect from manufacturer's full range .
 - 4. Effect: Semifilled finish, produced by applying an additional finish coat to partially fill the wood pores.
 - 5. Sheen: Satin .
- D. Opaque Finish:
 - 1. Architectural Woodwork Standards Grade: Custom.

2. Finish: Architectural Woodwork Standards System-9, UV Curable, Acrylated Epoxy, Polyester, or Urethane.
3. Color: As selected by Architect from manufacturer's full range.
4. Sheen: Satin .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Hardware: For installation, see Section 087111 "Door Hardware (Descriptive Specification)."
- B. Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
- C. Install frames level, plumb, true, and straight.
 1. Shim as required with concealed shims. Install level and plumb to a tolerance of **1/8 inch in 96 inches**.
 2. Anchor frames to anchors or blocking built in or directly attached to substrates.
 - a. Secure with countersunk, concealed fasteners and blind nailing.
 - b. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork.
 - 1) For factory-finished items, use filler matching finish of items being installed.
 3. Install fire-rated doors and frames in accordance with NFPA 80.
 4. Install smoke- and draft-control doors in accordance with NFPA 105.
- D. Job-Fitted Doors:
 1. Align and fit doors in frames with uniform clearances and bevels as indicated below.
 - a. Do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors.
 2. Machine doors for hardware.
 3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 4. Clearances:
 - a. Provide **1/8 inch** at heads, jambs, and between pairs of doors.
 - b. Provide **1/8 inch** from bottom of door to top of decorative floor finish or covering unless otherwise indicated on Drawings.
 - c. Where threshold is shown or scheduled, provide **1/4 inch** from bottom of door to top of threshold unless otherwise indicated.
 - d. Comply with NFPA 80 for fire-rated doors.
 5. Bevel non-fire-rated doors **1/8 inch in 2 inches** at lock and hinge edges.

- 6. Bevel fire-rated doors **1/8 inch in 2 inches** at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- E. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- F. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.2 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

SECTION 083113 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Access doors and frames.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of access door and frame and for each finish specified.
- C. Product Schedule: For access doors and frames. Use same designations indicated on Drawings.

1.3 CLOSEOUT SUBMITTALS

- A. Record Documents: For fire-rated doors, list of applicable room name and number in which access door is located.

1.4 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

2.2 ACCESS DOORS AND FRAMES

- A. Flush Access Doors with Exposed Flanges Attic Access Panel :
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. ACUDOR Products, Inc.
 - c. Babcock-Davis.
 - d. Milcor; a division of Hart & Cooley, Inc.

2. Description: Face of door flush with frame, with exposed flange and concealed hinge.
3. Optional Features: Gasketing .
4. Locations: Wall and ceiling .
5. Uncoated Steel Sheet for Door: Nominal 0.060 inch , 16 gage , factory finished.
6. Frame Material: Same material, thickness, and finish as door .
7. Latch and Lock: Cam latch, screwdriver operated with interior release.

B. Flush Access Doors with Concealed Flanges Attic Access Panel :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. ACUDOR Products, Inc.
 - c. Babcock-Davis.
 - d. Milcor; a division of Hart & Cooley, Inc.
2. Description: Face of door flush with frame; with concealed flange for gypsum board installation and concealed hinge.
3. Optional Features: Gasketing .
4. Locations: Wall and ceiling .
5. Uncoated Steel Sheet for Door: Nominal 0.060 inch , 16 gage , factory finished.
6. Frame Material: Same material and thickness as door .
7. Latch and Lock: Cam latch, screwdriver operated with interior release.

C. Lightweight Flush Access Doors Attic Access Panel :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. ACUDOR Products, Inc.
 - c. Babcock-Davis.
 - d. Nystrom.
2. Description: Face of door flush with exposed flange, with exposed piano hinge; frameless for surface installation.
3. Optional Features: Gasketing .
4. Locations: Wall and ceiling .
5. Uncoated Steel Sheet for Door: Nominal 0.018 inch , 26 gage , factory finished.
6. Frame Material: Aluminum, nominal 0.045 inch , mill finish .
7. Latch and Lock: Cam latch, screwdriver operated with interior release.

D. Interior Flush GFRG Access Doors with Concealed Flanges Attic Access Panel :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. ACUDOR Products, Inc.

- c. Babcock-Davis.
- d. Milcor; a division of Hart & Cooley, Inc.
- 2. Description: Face of drop-in or concealed-hinge door flush with frame, with concealed flange for gypsum board installation.
- 3. Optional Features: Gasketing .
- 4. Locations: Wall and ceiling .
- 5. Door Size: Per Drawings. .
- 6. Door Type Drop in, square corner or Concealed-hinge, square corner.
- 7. Door and Frame Material: Unpainted glass-fiber-reinforced gypsum, with frames reinforced for hardware and fastenings.
- 8. Latch and Lock: Cam latch, screwdriver operated .

2.3 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- B. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A879/A879M, with cold-rolled steel sheet substrate complying with ASTM A1008/A1008M, Commercial Steel (CS), exposed.
- C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with minimum G60 or A60 metallic coating.
- D. Stainless Steel Plate, Sheet, and Strip: ASTM A240/A240M or ASTM A666, Type 304 . Remove tool and die marks and stretch lines, or blend into finish.
- E. Stainless Flat Bars: ASTM A666, Type 304 . Remove tool and die marks and stretch lines, or blend into finish.
- F. Frame Anchors: Same material as door face.
- G. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A153/A153M or ASTM F2329.

2.4 FABRICATION

- A. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- B. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish mounting holes, attachment devices and fasteners of type required to secure access doors to types of supports indicated.
- C. Latch and Lock Hardware:

1. Quantity: Furnish number of latches and locks required to hold doors tightly closed.
2. Keys: Furnish two keys per lock and key all locks alike.
3. Mortise Cylinder Preparation: Where indicated, prepare door panel to accept cylinder specified in Section 087111 "Door Hardware (Descriptive Specification)."

2.5 FINISHES

- A. Painted Finishes: Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
 1. Factory Primed: Apply manufacturer's standard, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.
 2. Factory Finished: Apply manufacturer's standard baked-enamel or powder-coat finish immediately after cleaning and pretreating, with minimum dry-film thickness of **1 mil** for topcoat.
 - a. Color: As selected by Architect from full range of industry colors .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Adjust doors and hardware, after installation, for proper operation.

END OF SECTION 083113

SECTION 083123 - FLOOR DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aluminum floor doors.
2. Steel floor doors.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

1.4 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 ALUMINUM FLOOR DOORS

A. Angle Frame Aluminum Floor Door:

1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Babcock-Davis.
 - b. BILCO Company (The).
 - c. U.S.F. Fabrication.
2. Frame: Mill finish aluminum, angle profile.
3. Door: Single leaf; 1/4-inch-thick, smooth mill-finish aluminum plate.
4. Loading Capacity: 150 lbf/sq. ft. pedestrian live load .
5. Options: Odor gasket .
6. Hardware:
 - a. Material and Finish: Manufacturer's standard .
 - b. Hinges: Heavy-duty butt hinges with stainless steel pins.
 - c. Operating Mechanism: Adjustable counterbalancing springs, heavy-duty hold-open arm that automatically locks door open at 90 degrees, release handle with vinyl grip that allows for one-handed closure, and recessed lift handle.
 - d. Latch: Stainless steel slam latch.

- e. Lock: Latch with removable handle .

B. Safety Accessories: Safety .

2.2 STEEL FLOOR DOORS

A. Angle Frame Steel Floor Door:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BILCO Company (The).
 - b. U.S.F. Fabrication.
 - c. Williams Bros. Corporation of America (The).
2. Frame: Prime-painted steel, angle profile.
3. Door: Single leaf; manufacturer's standard thickness **3/16- or 1/4-inch-thick** , smooth ; prime-painted steel plate.
4. Loading Capacity: **150 lbf/sq. ft.** pedestrian live load .
5. Options: Odor gasket .
6. Hardware:
 - a. Material and Finish: Manufacturer's standard .
 - b. Hinges: Heavy-duty butt hinges with stainless steel pins.
 - c. Operating Mechanism: Adjustable counterbalancing springs, heavy-duty hold-open arm that automatically locks door open at 90 degrees, release handle with vinyl grip that allows for one-handed closure, and recessed lift handle.
 - d. Latch: Stainless steel slam latch.
 - e. Lock: Latch with removable handle .

B. Safety Accessories: Safety .

2.3 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- B. Rolled-Steel Floor Plate: ASTM A786/A786M, rolled from plate complying with ASTM A36/A36M or ASTM A283/A283M, Grade C or D.
- C. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A879/A879M, with cold-rolled steel sheet substrate complying with ASTM A1008/A1008M, Commercial Steel (CS), exposed.
- D. Aluminum Extrusions: **ASTM B221**, Alloy 6063-T6.
- E. Aluminum-Alloy Rolled Tread Plate: ASTM B632/B632M, Alloy 6061-T6.
- F. Aluminum Sheet: **ASTM B209**, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.

- G. Frame Anchors: Same material as door face.
- H. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A153/A153M or ASTM F2329.

2.4 FABRICATION

- A. General: Provide floor doors manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure floor doors to types of supports indicated.
- D. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.
 - 1. For cylinder locks, furnish two keys per lock and key all locks alike.
 - 2. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.
- E. Aluminum: After fabrication, apply manufacturer's standard protective coating on aluminum that comes in contact with concrete.

2.5 FINISHES

- 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: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
- E. Prime Painted Steel: Apply manufacturer's standard, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.

- F. Stainless Steel Finish: Bright, cold-rolled, unpolished ASTM A480/A480M No. 2B finish.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION, GENERAL

- A. Comply with manufacturer's written instructions for installing floor doors.

3.3 ADJUSTING

- A. Adjust doors and hardware, after installation, for proper operation.

END OF SECTION 083123

SECTION 083613 - SECTIONAL DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sectional-door assemblies.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type and size of sectional door and accessory.
- B. Shop Drawings: For each installation and for components not dimensioned or detailed in manufacturer's product data.
- C. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with provisions in the U.S. Department of Justice's "2010 ADA Standards for Accessible Design" U.S. Department of Transportation's "ADA Standards for Transportation Facilities" the United States Access Board's "Architectural Barriers Act (ABA) Standards" 41 CFR, Appendix A to Subpart 101-19.6, "Uniform Federal Accessibility Standards" ICC A117.1 applicable to sectional doors.

1.6 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of sectional doors that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

- B. Finish Warranty: Manufacturer agrees to repair or replace components that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Provide sectional doors that comply with performance requirements specified without failure from defective manufacture, fabrication, installation, or other defects in construction and without requiring temporary installation of reinforcing components.
- B. Structural Performance, Exterior Doors: Capable of withstanding the design wind loads.
 - 1. Design Wind Load: Uniform pressure (velocity pressure) of 20 lbf/sq. ft. , acting inward and outward .
 - 2. Testing: In accordance with ASTM E330/E330M or DASMA 108 for garage doors and complying with DASMA 108 acceptance criteria .
- C. Windborne-Debris Impact Resistance: Provide sectional doors complying with the following requirements:
 - 1. Glazed Openings: Pass ASTM E1886 Large Missile Test and cyclic-pressure tests in accordance with ASTM E1996 for basic protection and Wind Zone applicable to basic design wind speed indicated on Drawings .
 - 2. Garage-Door Glazed Openings: Pass DASMA 115.

2.2 SECTIONAL-DOOR ASSEMBLY Insulated Overhead Garage Door

- A. Steel Aluminum Sectional Door: Provide sectional door formed with hinged sections and fabricated so that finished door assembly is rigid and aligned with tight hairline joints; free of warp, twist, and deformation; and complies with requirements in DASMA 102.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Clopay Building Products.
 - b. Haas Door.
 - c. Overhead Door Corporation.
 - d. Raynor Garage Doors.
 - e. Wayne-Dalton Corp.

- B. Operation Cycles: Door components and operators capable of operating for not less than 50,000 operation cycles. One operation cycle is complete when door is opened from closed position to the open position and returned to closed position.
- C. Air Infiltration: Maximum rate of 0.4 cfm/sq. ft. when tested in accordance with ASTM E283 or DASMA 105.
- D. U-Value: 0.052 Btu/sq. ft. x h x deg F .
- E. Steel Door Sections: ASTM A653/A653M, zinc-coated (galvanized), cold-rolled, commercial steel sheet with G60 zinc coating.
 - 1. Door-Section Thickness: 1-3/4 inches .
 - 2. Section Faces:
 - a. Thermal-Break Construction: Provide sections with continuous thermal-break construction separating the exterior and interior faces of door.
 - b. Exterior Face: Fabricated from single sheets, not more than 24 inches high; with horizontal meeting edges rolled to continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove, weather-and pinch-resistant seals and reinforcing flange return.
 - 1) Steel Sheet Thickness: 0.028-inch nominal coated thickness.
 - 2) Surface: Manufacturer's standard, paneled as indicated on the Drawings .
 - c. Interior Face: Enclose insulation completely within steel exterior facing and interior facing material, with no exposed insulation. Provide the following interior-facing material:
 - 1) Zinc-Coated (Galvanized) Steel Sheet: With minimum nominal coated thickness of [0.028 inch] or dimension recommended in writing by manufacturer to comply with performance requirements .
 - 3. End Stiles: Enclose open ends of sections with channel end stiles formed from galvanized-steel sheet not less than 0.064-inch nominal coated thickness and welded to door section.
 - 4. Intermediate Stiles: Provide intermediate stiles formed from not less than 0.064-inch- thick galvanized-steel sheet, cut to door section profile, and welded in place. Space stiles not more than 48 inches apart.
 - 5. Section Reinforcing: Horizontal and diagonal reinforcement as required to stiffen door and for wind loading. Provide galvanized-steel bars, struts, trusses, or strip steel, formed to depth and bolted or welded in place. Ensure that reinforcement does not obstruct vision lites.
 - a. Bottom Section: Reinforce section with a continuous channel or angle conforming to bottom-section profile and allowing installation of astragal (weatherseal).
 - b. Hardware Locations: Provide reinforcement for hardware attachment.
 - 6. Thermal Insulation: Insulate interior of steel sections with door manufacturer's standard CFC-free insulation of type indicated below:

- a. Board Insulation: Polystyrene or polyurethane, secured to exterior face sheet.
 - b. Foamed-in-Place Insulation: Polyurethane, foamed in place to completely fill interior of section and pressure bonded to face sheets to prevent delamination under wind load.
 - c. Fire-Resistance Characteristics: Maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, in accordance with ASTM E84.
- F. Aluminum Sections: **ASTM B221** extruded-aluminum stile and rail members of alloy and temper standard with manufacturer for type of use and finish indicated; in minimum thickness required to comply with requirements ; with rail and stile dimensions and profiles indicated on Drawings; and with overlapped or interlocked weather- and pinch-resistant seal at meeting rails.
1. Door-Section Thickness: **1-3/4 inches** .
 2. Section Reinforcing: Continuous horizontal and diagonal reinforcement as required to stiffen door and for wind loading. Ensure that reinforcement does not obstruct vision lites.
 - a. Hardware Locations: Provide reinforcement for hardware attachment.
 3. Insulated Stiles and Rails: Fill stiles and rails manufacturer's standard polyurethane expanding foam .
 4. Glazed Panels: Manufacturer's standard, aluminum-framed section with glazing sealed with glazing tape and aluminum glazing bead. Glazing as follows:
 - a. Insulating Glass Units: Manufacturers' standard unit with tempered glass lites complying with ASTM C1048, Kind FT (fully tempered), Condition A (uncoated), Type I, Class 1 (clear), Quality-Q3.
 - b. .
 5. Solid Aluminum Panels: **ASTM B209**, alloy and temper standard with manufacturer for use and finish indicated.
 - a. Description: **1/2-inch-** thick overall insulated panel composed of **0.050-inch** aluminum interior and exterior panels with an extruded polystyrene (EPS) core .
 - b. Attachment to Frame: Sealed with glazing tape and aluminum glazing bead.
 - c. Aluminum Surface: Smooth .
 6. .
- G. Track: Manufacturer's standard, galvanized-steel, standard-lift track system. Provide complete system including brackets, bracing, and reinforcement to ensure rigid support of ball-bearing roller guides.
1. Material: Galvanized steel, ASTM A653/A653M, minimum **G60** zinc coating.
 2. Size: As recommended in writing by manufacturer for door size, weight, track configuration and door clearances indicated on Drawings .

3. Track Reinforcement and Supports: Provide galvanized-steel members to support track without sag, sway, and vibration during opening and closing of doors. Slot vertical sections of track spaced 2 inches apart for door-drop safety device.
 - a. Vertical Track: Incline vertical track to ensure weathertight closure at jambs. Provide continuous reverse angle attached to track and wall.
 - b. Horizontal Track: Provide continuous reinforcing angle from curve in track to end of track, attached to track and supported at points by laterally braced attachments to overhead structural members.
- H. Weatherseals: Replaceable, adjustable, continuous, compressible weather-stripping gaskets of flexible vinyl, rubber, or neoprene fitted to bottom top and jambs of door. Provide combination bottom weatherseal and sensor edge for bottom seal.
- I. Windows: Manufacturer's standard window units of shape and size and in locations indicated on Drawings. Set glazing in vinyl, rubber, or neoprene glazing channel. Provide removable stops of same material as door-section frames. Provide the following glazing:
 1. Insulating Glass Units: Manufacturer's standard .
 2. .
- J. Hardware: Heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless steel, or other corrosion-resistant fasteners, to suit door type.
 1. Hinges: Heavy-duty, galvanized-steel hinges of not less than 0.079-inch nominal coated thickness at each end stile and at each intermediate stile, in accordance with manufacturer's written recommendations for door size.
 - a. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners where access to nuts is impossible.
 2. Rollers: Heavy-duty rollers with steel ball bearings in case-hardened steel races, mounted to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Match roller-tire diameter to track width.
 - a. Roller-Tire Material: Manufacturer's standard .
 3. Push/Pull Handles: Equip each door with galvanized-steel lifting handles on each side of door, finished to match door.
 4. .
- K. Locking Device:
 1. Slide Bolt: Fabricate with side-locking bolts to engage through slots in tracks for locking by padlock, located on single-jamb side, operable from inside only.

L. Counterbalance Mechanism:

1. Torsion Spring: Adjustable-tension torsion springs complying with requirements of DASMA 102 for number of operation cycles indicated, mounted on torsion shaft.
2. Cable Drums and Shaft for Doors: Cast-aluminum cable drums mounted on torsion shaft and grooved to receive door-lifting cables as door is raised.
 - a. Mount counterbalance mechanism with manufacturer's standard ball-bearing brackets at each end of torsion shaft.
3. Cables: Galvanized-steel, multistrand, lifting cables.
4. Cable Safety Device: Include a spring-loaded steel or bronze cam mounted to bottom door roller assembly on each side and designed to automatically stop door if lifting cable breaks.
5. Bracket: Provide anchor support bracket as required to connect stationary end of spring to the wall and to level the shaft and prevent sag.
6. Bumper: Provide spring bumper at each horizontal track to cushion door at end of opening operation.
7. .

M. Electric Door Operator: Electric door operator assembly of size and capacity recommended by door manufacturer for door and operation cycles specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, control stations, control devices, integral gearing for locking door, and accessories required for proper operation.

1. Comply with NFPA 70.
2. Control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6; with NFPA 70, Class 2 control circuit, maximum 24 V ac or dc.
3. Safety: Listed in accordance with UL 325 by a qualified testing agency for commercial or industrial use ; moving parts of operator enclosed or guarded if exposed and mounted at 8 ft. or lower .
4. Usage Classification: Standard duty, up to 25 cycles per hour and up to 90 cycles per day <Insert classification>.
5. Operator Type: Manufacturer's standard for door requirements Trolley Jackshaft, center mounted Jackshaft, side mounted As indicated on Drawings .
6. Motor: Reversible-type with controller (disconnect switch) for interior, clean, and dry exterior, dusty, wet, or humid motor exposure. Use adjustable motor-mounting bases for belt-driven operators.
 - a. Motor Size: As required to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. and not more than 12 in./sec. , without exceeding nameplate ratings or service factor .
 - b. Electrical Characteristics:
 - 1) Phase: Single phase .
 - 2) Volts: 115 V.

7. Limit Switches: Equip motorized door with adjustable switches interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.
8. Obstruction Detection: Automatic external entrapment protection consisting of automatic safety sensor capable of protecting full width of door opening. Activation of device immediately stops and reverses downward door travel.
 - a. Unmonitored Entrapment Protection: Retro-reflective photo sensor .
9. Control Station: Surface mounted, three-position (open, close, and stop) control.
 - a. Operation: Push button interior and key exterior .
 - b. Interior-Mounted Unit: Full-guarded, surface-mounted, standard-duty, weatherproof-type, NEMA ICS 6, Type 4 enclosure.
 - c. Exterior-Mounted Unit: Full-guarded, surface-mounted, standard-duty, weatherproof type, NEMA ICS 6, Type 4 enclosure.
 - d. Features: Provide the following:
 - 1) Vehicle detection operation.
 - 2) Radio-control operation.
 - 3) Card-reader control.
 - 4) Photocell operation.
 - 5) Door-timer operation.
 - 6) Explosion- and dust-ignition-proof control wiring.
 - 7) Audible and visual signals that comply with regulatory requirements for accessibility.
 - 8) .
10. Emergency Manual Operation: Push-up Chain type designed so required force for door operation does not exceed **25 lbf** .
11. Emergency Operation Disconnect Device: Hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.
12. Motor Removal: Design operator so motor can be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.

N. Metal Finish:

1. Factory Prime Steel Finish: Compatible with field-applied finish and in manufacturer's standard color.
2. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard baked-on finish consisting of prime coat and thermosetting topcoat.
 - a. Color and Gloss: As selected by Architect from manufacturer's full range .
3. Anodized Aluminum Finish:
 - a. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.
 - 1) Color: As selected by Architect from manufacturer's full range .

4. High-Performance, Organic, Aluminum Finish (Two-Coat Fluoropolymer): Containing not less than 70 percent polyvinylidene fluoride resin by weight).
 - a. Color and Gloss: As selected by Architect from manufacturer's full range .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install sectional doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; in accordance with manufacturer's written instructions.
- B. Tracks:
 1. Fasten vertical track assembly to opening jambs and framing with fasteners spaced not more than 24 inches apart.
 2. Hang horizontal track assembly from structural overhead framing with angles or channel hangers attached to framing by welding or bolting, or both. Provide sway bracing, diagonal bracing, and reinforcement as required for rigid installation of track and door-operating equipment.
- C. Accessibility: Install sectional doors, switches, and controls along accessible routes in compliance with regulatory requirements for accessibility.
- D. Power-Operated Doors: Install automatic garage doors openers in accordance with UL 325.

3.2 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sectional doors.

END OF SECTION 083613

SECTION 085200 - WOOD WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes aluminum-clad wood windows.

1.2 PREINSTALLATION MEETINGS

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

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
- C. Samples: For each exposed product and for each color specified.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample warranties.

1.5 QUALITY ASSURANCE

1.6 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace wood windows that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period:
 - a. Window: 10 years from date of Substantial Completion.
 - b. Glazing Units: 10 years from date of Substantial Completion.
 - c. Aluminum-Cladding Finish: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 WINDOW PERFORMANCE REQUIREMENTS

- A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.
 - 1. Window Certification: WDMA certified with label attached to each window.
- B. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of 0.30 Btu/sq. ft. x h x deg F .

2.2 WOOD WINDOWS

- A. Aluminum-Clad Wood Windows:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Pella Corporation.
- B. Wood Windows:
 - 1. Manufacturers: Subject to compliance with requirements, undefined:
 - a. Pella Corporation.
- C. Operating Types: As indicated on Drawings .
- D. Frames and Sashes: Fine-grained wood lumber complying with AAMA/WDMA/CSA 101/I.S.2/A440; kiln dried to a moisture content of not more than 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch deep by 2 inches wide; water-repellent preservative treated.
 - 1. Exterior Finish: Aluminum-clad wood.
 - a. Aluminum Finish: Manufacturer's standard baked-on enamel finish .
 - b. Exposed Unfinished Wood Surfaces: Pine .
 - c. Color: As selected by Architect from manufacturer's full range .
 - 2. Interior Finish: Manufacturer's standard stain-and-varnish finish .
 - a. Exposed Unfinished Wood Surfaces: Pine .
 - b. Color: As selected by Architect from manufacturer's full range .
- E. Glass: Clear annealed glass, ASTM C 1036, Type 1, Class 1, q3.
 - 1. Kind: Fully tempered where indicated on Drawings .
- F. Insulating-Glass Units: ASTM E 2190.

1. Glass: ASTM C 1036, Type 1, Class 1, q3.
 - a. Tint: Clear .
 - b. Kind: Fully tempered where indicated on Drawings .
 2. Lites: Three.
 3. Filling: Fill space between glass lites with air argon.
 4. Low-E Coating: Sputtered on second surface .
- G. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal .
- H. Hardware, General: Provide manufacturer's standard corrosion-resistant hardware sized to accommodate sash weight and dimensions.
1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range .
- I. Projected Window Hardware:
1. Gear-Type Rotary Operators: Complying with AAMA 901 when tested according to ASTM E 405, Method A. Provide operators that function without requiring the removal of interior screens or using screen wickets.
 - a. Type and Style: As selected by Architect from manufacturer's full range of types and styles .
 2. Hinges: Manufacturer's standard type for sash weight and size indicated.
 3. Single-Handle Locking System: Operates positive-acting arms that pull sash into locked position. Provide one arm on sashes up to 29 inches tall and two arms on taller sashes.
 4. Limit Devices: Limit clear opening to 4 inches for ventilation; with custodial key release.
- J. Hung Window Hardware:
1. Counterbalancing Mechanism: AAMA 902.
 2. Locks and Latches: Operated from the inside only.
 3. Tilt Hardware: Releasing tilt latch allows sash to pivot about horizontal axis.
- K. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.
- L. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.
1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

2.3 ACCESSORIES

- A. Dividers (False Muntins): Provide divider grilles in designs indicated for each sash lite.
 - 1. Quantity and Type: One permanently located between insulating-glass lites .
 - 2. Material: Manufacturer's standard .
 - 3. Pattern: As indicated on Drawings .
 - 4. Profile: As selected by Architect from manufacturer's full range .
 - 5. Color: As selected by Architect from manufacturer's full range .
- B. Blinds: Slimshade.
 - 1. 15 mm aluminum slat raise and lower blinds with polyester cord ladder.
 - 2. Installed in Pella® Lifestyle Series triple-pane glazing system between panes of glass.
 - 3. Operated with cordless operator.
 - 4. Controlled by built-in operating mechanism.
 - 5. Type: Snap-in/snap-out, attached to top of hinged-glass panel.
 - 6. Color: As Selected by Architect from manufacturer's full range.

2.4 INSECT SCREENS

- A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.
 - 1. Type and Location: Full, inside for project-out Full, outside for double-hung Half, outside for single-hung Full, outside for sliding Half, outside for sliding sashes.
- B. Aluminum Frames: Complying with SMA 1004 or SMA 1201.
 - 1. Finish for Interior Screens: Baked-on organic coating in color selected by Architect from manufacturer's full range .
 - 2. Finish for Exterior Screens: Baked-on organic coating in color selected by Architect from manufacturer's full range .
- C. Glass-Fiber Mesh Fabric: 18-by-14 or 18-by-16 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. Comply with ASTM D 3656/D 3656M.
 - 1. Mesh Color: Manufacturer's standard .

2.5 FABRICATION

- A. Fabricate wood windows in sizes indicated. Include a complete system for installing and anchoring windows.
- B. Glaze wood windows in the factory.
- C. Weather strip each operable sash to provide weathertight installation.
- D. Mullions: Provide mullions and cover plates, 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. Provide mullions and cover plates capable of withstanding design wind loads of window units.
- E. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.
- B. Install windows level, plumb, square, true to line, without distortion, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.
- C. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.
- D. Clean exposed surfaces immediately after installing windows. Remove excess sealants, glazing materials, dirt, and other substances.
- E. Remove and replace sashes if glass has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 085200

SECTION 087111 - DOOR HARDWARE (DESCRIPTIVE SPECIFICATION)

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Mechanical door hardware for the following:
 - a. Swinging doors.
2. Cylinders for door hardware specified in other Sections.

1.2 PREINSTALLATION MEETINGS

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

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product in each finish specified.
- C. Keying schedule.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.6 QUALITY ASSURANCE

1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Three years from date of Substantial Completion unless otherwise indicated below:
 - a. Electromagnetic and Delayed-Egress Locks: Five years from date of Substantial Completion.
 - b. Exit Devices: Two years from date of Substantial Completion.
 - c. Manual Closers: 10 years from date of Substantial Completion.
 - d. Concealed Floor Closers: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
- B. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the USDOJ's "2010 ADA Standards for Accessible Design" the DOT's "ADA Standards for Transportation Facilities" the ABA standards of the Federal agency having jurisdiction ICC A117.1 HUD's "Fair Housing Accessibility Guidelines" and .

2.2 HINGES

- A. Hinges: BHMA A156.1.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allegion plc.
 - b. Hager Companies.
 - c. McKinney Products Company; an ASSA ABLOY Group company.
 - d. Stanley Commercial Hardware; a division of Stanley Security Solutions.
- B. Antifriction-Bearing Hinges:
 1. Mounting: Full mortise (butts) Half mortise Full surface Half surface.
 2. Bearing Material: Manufacturer's standard antifriction bearing .
 3. Grade: 2 (standard weight).
 4. Base and Pin Metal:
 - a. Exterior Hinges: Brass with stainless steel pin body and brass protruding heads.
 - b. Interior Hinges: Brass with stainless steel pin body and brass protruding heads .
 - c. Hinges for Fire-Rated Assemblies: Steel with steel pin .
 5. Pins: Non-rising loose unless otherwise indicated .

- a. Outswinging Exterior Doors: Nonremovable.
 - b. Outswinging Corridor Doors with Locks: Nonremovable.
- 6. Tips: Flat button .
- 7. Corners: **5/32-inch** radius .
- 8. Features: Raised barrel .
- C. Plain-Bearing Hinges: Grade 3 (standard weight).
 - 1. Mounting: Full mortise (butts) Half mortise Full surface Half surface.
 - 2. Base and Pin Metal: Brass with stainless steel pin body and brass protruding heads .
 - 3. Pins: .
 - a. Outswinging Corridor Doors with Locks: Nonremovable.
 - 4. Tips: Flat button .
 - 5. Corners: **5/32-inch** radius .
 - 6. Features: Raised barrel .
- D. Swing-Clear Hinges: Reversible.
 - 1. Mounting: Full mortise (butts) Half mortise Full surface Half surface.
 - 2. Bearing and Grade: Antifriction bearing, Grade 2 (standard weight) Plain bearing, Grade 3 (standard weight).
 - 3. Base Metal: Wrought brass or bronze .
 - 4. Pins: Non-rising loose unless otherwise indicated .
 - a. Outswinging Exterior Doors: Nonremovable.
 - b. Outswinging Corridor Doors with Locks: Nonremovable.
 - 5. Tips: Flat button .
 - 6. Corners: **5/32-inch** radius .
 - 7. Features: Raised barrel .

2.3 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
 - 1. Bored Locks: Minimum **1/2-inch** latchbolt throw.
 - 2. Deadbolts: Minimum **1.25-inch** bolt throw.
- C. Lock Backset: **2-3/4 inches** unless otherwise indicated.
- D. Lock Trim:
 - 1. Description: As indicated on Drawings .
 - 2. Levers: Cast.
 - a. As Indicated on drawings .
 - b. Construction: Solid .
 - 3. Escutcheons (Roses): Cast.

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4. Dummy Trim: Match lever lock trim and escutcheons.
- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 3. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.
 4. Rabbet Front and Strike: Provide on locksets for rabbeted meeting stiles.
- F. Bored Locks: BHMA A156.2; Grade 1 ; Series 4000.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allegion plc.
 - b. Corbin Russwin, Inc.; an ASSA ABLOY Group company.
 - c. Hager Companies.
 - d. SARGENT Manufacturing Company; ASSA ABLOY.
 - e. Stanley Commercial Hardware; a division of Stanley Security Solutions.

2.4 AUXILIARY LOCKS

- A. Bored Auxiliary Locks: BHMA A156.36: Grade 1 ; with strike that suits frame.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allegion plc.
 - b. Hager Companies.
 - c. SARGENT Manufacturing Company; ASSA ABLOY.
 - d. Stanley Commercial Hardware; a division of Stanley Security Solutions.
 2. Backset: 2-3/8 inches .
 3. Material: Aluminum Brass Bronze Zinc alloy.
 4. Deadlatches: Deadlocking latchbolt operated by key outside and turn inside .
 5. Deadlocks: Deadbolt operated by key outside and turn inside .

2.5 SURFACE BOLTS

- A. Surface Bolts: BHMA A156.16.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allegion plc.
 - b. Don-Jo Mfg., Inc.

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c. Trimco.

- B. Half-Round Surface Bolts: Grade 1 , 6-inch polished-brass or burnished-steel, half-round rod and knob; minimum 7/8-inch throw; with universal strike.
- C. Interlocking Surface Bolts: Grade 1 , 6-inch extruded-brass or aluminum, interlocking track and rod; minimum 15/16-inch throw; with universal or mortise strike.

2.6 MANUAL FLUSH BOLTS

- A. Manual Flush Bolts: BHMA A156.16; minimum 3/4-inch throw; designed for mortising into door edge.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Adams Rite Manufacturing Co; an ASSA ABLOY Group company.
 - b. Allegion plc.
 - c. Don-Jo Mfg., Inc.
 - d. Trimco.
- B. Manual-Extension Flush Bolts: Grade 1 , fabricated from extruded brass or aluminum, with 12-inch rod actuated by flat lever.
 - 1. Strike: Dustproof.
 - 2. Fire Rated: Listed and labeled for use in fire-rated assemblies.
- C. Top-Bolt Extension Rod Length: As required to locate operating mechanism at not more than 72 inches above the finished floor at all times.
- D. Dustproof Strikes: Locking type, Grade 1, polished wrought brass, with 3/4-inch-diameter, spring-tension plunger.

2.7 LOCK CYLINDERS

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver. Provide cylinder from same manufacturer of locking devices.
- B. Standard Lock Cylinders: BHMA A156.5; Grade 1 permanent cores; face finished to match lockset.
 - 1. Core Type: Removable.
 - 2. Number of Pins: Five .

3. Lock Type: Bored-lock type.

2.8 KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, appendix. Provide one extra key blank for each lock. Incorporate decisions made in keying conference.
 1. No Master Key System: Only change keys operate cylinders.
 - a. Provide three cylinder change keys.
 2. Keyed Alike: Key all cylinders to same change key.
- B. Keys: Brass.
 1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
 - a. Notation: "DO NOT DUPLICATE."

2.9 MECHANICAL STOPS AND HOLDERS

- A. Wall- and Floor-Mounted Stops: BHMA A156.16; polished cast brass, bronze, or aluminum base metal.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allegion plc.
 - b. Don-Jo Mfg., Inc.
 - c. Hager Companies.
 - d. Rockwood Manufacturing Company; an ASSA ABLOY Group company.
 - e. Trimco.
- B. Rigid-Type Floor Stop: Grade 1 ; with rubber bumper.
 1. Installation: Surface-screw installation.

2.10 DOOR GASKETING

- A. Door Gasketing: BHMA A156.22; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hager Companies.
 - b. National Guard Products, Inc.
 - c. Pemko; an ASSA ABLOY Group Company.

- B. Maximum Air Leakage: When tested in accordance with ASTM E283 with tested pressure differential of 0.3-inch wg, as follows:
 - 1. Smoke-Rated Gasketing: 0.3 cfm/sq. ft. of door opening.
 - 2. Gasketing on Single Doors: 0.3 cfm/sq. ft. of door opening.
 - 3. Gasketing on Double Doors: 0.50 cfm per ft. of door opening.
- C. Adhesive-Backed Perimeter Gasketing: Vinyl bulb Sponge silicone Sponge neoprene gasket material applied to frame rabbet with self-adhesive.
- D. Adjustable, Housed, Perimeter Gasketing: Screw-adjustable, sponge silicone silicone bulb vinyl bulb vinyl brush nylon brush thermoplastic elastomer gasket material held in place by housing; fastened to frame stop with screws.
 - 1. Housing Material: Brass or bronze .
- E. Overlapping Astragals for Meeting Stiles: EPDM strip Vinyl strip Nylon brush gasket material held in place by housing and overlapping when doors are closed; mounted to face of meeting stile with screws.
 - 1. Housing Material: Bronze.
 - 2. Mounting: Surface mounted on face of one door.
- F. Door Sweeps: Neoprene,Vinyl,Nylon brush, orPolyurethane gasket material held in place by flat housing or flange; surface mounted to face of door with screws.
 - 1. Housing or Flange Material: Bronze.
- G. Door Shoes: Thermoplastic elastomer Brush pile gasket material held in place by housing; mounted to bottom edge of door with screws.
 - 1. Housing Material: Bronze.
 - 2. Extended Housing: One side of door.
 - 3. Mounting: Mortised into bottom edge of door.

2.11 THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hager Companies.
 - b. National Guard Products, Inc.
 - c. Pemko; an ASSA ABLOY Group Company.
 - d. Rixson Specialty Door Controls; an ASSA ABLOY Group company.
- B. Saddle Thresholds:

1. Type: Fluted top, barrier free.
 2. Base Metal: Aluminum .
- C. Half-Saddle Thresholds: Fluted-top metal member; and base metal of aluminum .
- D. Plate Thresholds: Solid metal plate.
1. Top Surface: Fluted with slip-resistant abrasive.
 2. Base Metal: Aluminum .
- E. Ramped Thresholds: Modular, interlocking, sloped, fluted-top metal assemblies with closed return ends; 1:12 slope.
1. Top Surface: Fluted with slip-resistant abrasive.
 2. Base Metal: Aluminum .

2.12 AUXILIARY DOOR HARDWARE

- A. Auxiliary Hardware: BHMA A156.16.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allegion plc.
 - b. Don-Jo Mfg., Inc.
 - c. Hager Companies.
 - d. Trimco.
- B. Coat Hooks: Grade 1 ; two curved hooks with rounded ends; 3-inch projection from wall; for surface-screw application.
1. Material: Burnished cast aluminum.
- C. Garment Hooks: Grade 1 ; one long hat hook and one small coat hook; 3-3/4-inch projection from wall with 7-inch overall height; for surface-screw application.
1. Material: Burnished cast aluminum.
- D. Wide-Angle Door Viewers: Grade 1 ; solid brass with optical glass lenses; adjustable to door thickness and permitting one-way observation with minimum 190-degree viewing angle.
- E. House Numbers: Grade 1; wrought, cast, or forged brass ; 4 inches high; for screw application.
- F. Silencers for Wood Door Frames: Grade 1; neoprene or rubber; minimum 5/8 by 3/4 inch; fabricated for drilled-in application to frame.

2.13 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
 - 1. Wood Doors: DHI's "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.
- C. Hinges: Install types and in quantities indicated in door hardware schedule, but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Lock Cylinders: Install construction cores to secure building and areas during construction period.
 - 1. Replace construction cores with permanent cores as directed by Owner.
 - 2. Furnish permanent cores to Owner for installation.
- E. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."
- F. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- G. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
 - 1. Do not notch perimeter gasketing to install other surface-applied hardware.

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- H. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- I. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.2 ADJUSTING

- A. Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

END OF SECTION 087111

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Gypsum wallboard.
2. Impact-resistant gypsum board.
3. Mold-resistant gypsum board.
4. Interior trim.
5. Joint treatment materials.
6. Laminating adhesive.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

2.2 GYPSUM BOARD, GENERAL

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

2.3 INTERIOR GYPSUM BOARD

A. Gypsum Wallboard: ASTM C1396/C1396M.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Georgia-Pacific Gypsum LLC.
 - b. National Gypsum Company.
 - c. USG Corporation.
2. Thickness: **5/8 inch.**
3. Long Edges: Tapered .

- B. Impact-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Georgia-Pacific Gypsum LLC.
 - b. National Gypsum Company.
 - c. USG Corporation.
 2. Core: **5/8 inch** , Type X.
 3. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 2 requirements.
 4. Indentation: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 5. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 2 requirements.
 6. Hard-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 2 requirements according to test in Annex A1.
 7. Long Edges: Tapered.
 8. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- C. Mold-Resistant Gypsum Board: ASTM C1396/C1396M. With moisture- and mold-resistant core and paper surfaces.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Georgia-Pacific Gypsum LLC.
 - b. National Gypsum Company.
 - c. USG Corporation.
 2. Core: As indicated .
 3. Long Edges: Tapered.
 4. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.4 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. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. L-Bead: L-shaped; exposed long flange receives joint compound.
 - d. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - e. Expansion (control) joint.

2.5 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 , rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
 - 4. Finish Coat: For third coat, use setting-type, sandable topping compound.
 - 5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.

2.6 AUXILIARY MATERIALS

- A. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
 - 1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."
- E. Vapor Retarder: As specified in Section 072600 "Vapor Retarders."

PART 3 - EXECUTION

3.1 INSTALLATION AND FINISHING OF PANELS

- A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- B. Comply with ASTM C840.
- C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide ~~1/4-~~ to ~~1/2-inch-~~ wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- D. For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- E. Prefill open joints , rounded or beveled edges, and damaged surface areas.
- F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 - 1. Level 2: Panels that are substrate for tile Where indicated on Drawings
Panels that are substrate for FRP wall panels .
 - 2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated .
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.2 PROTECTION

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

END OF SECTION 092900

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

1.1 PRODUCTS

A. Resilient Base: Thermoplastic rubber .

1. Style and Location:
 - a. Straight: In areas with carpet .
 - b. Cove: In areas with resilient flooring .
2. Minimum Thickness: 0.125 inch .
3. Height: 4 inches As indicated on Drawings.
4. Outside Corners: Job formed or preformed.
5. Inside Corners: Job formed or preformed.

B. Resilient Stair Accessories:

1. Stair Treads: Rubber, vulcanized thermoset Rubber, thermoplastic Vinyl, thermoplastic.
 - a. Surface: Smooth, flat .
 - b. Features: Embedded abrasive strips Contrasting color for the visually impaired.
 - c. Nosing Style: Square, adjustable to cover angles between 60 and 90 degrees .
 - d. Nosing Height: 1-1/2 inches .
2. Risers: Separate.
3. Stringers.
4. Landing tile.

C. Resilient Accessories: Rubber .

1. Stair-tread nosing.
2. Cap for cove carpet.
3. Cap for cove resilient flooring.
4. Carpet bar for tackless installations.
5. Carpet edge for glue-down applications.
6. Nosing for carpet.
7. Nosing for resilient flooring.
8. Reducer strip for resilient flooring.
9. Joiner for tile and carpet.
10. Transition strips.
11. .

D. Installation Materials:

1. Trowelable leveling and patching compounds.
2. Adhesives.
3. Stair-tread-nose filler.

4. Metal edge strips.
5. Floor polish.

END OF SECTION 096513

SECTION 096519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid vinyl floor tile.
2. Rubber floor tile.
3. Vinyl composition floor tile.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and pattern specified.

1.3 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.4 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For resilient floor tile, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 SOLID VINYL FLOOR TILE LVT

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Armstrong Flooring, Inc.
 2. Congoleum Corporation.
 3. Interface.

- 4. Mannington Mills, Inc.
- B. Tile Standard: ASTM F 1700.
 - 1. Class: As indicated by product designations .
 - 2. Type: A, Smooth Surface .
- C. Thickness: 0.120 inch <Insert dimension>.
- D. Size: 25CM by 1M .
- E. Colors and Patterns: Match Architect's samples .

2.3 VINYL COMPOSITION FLOOR TILE VCT

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Armstrong Flooring, Inc.
 - 2. Interface.
 - 3. Johnsonite; a Tarkett company.
- B. Tile Standard: ASTM F 1066, Class 2, through pattern .
- C. Wearing Surface: Smooth .
- D. Thickness: 0.125 inch .
- E. Size: 12 by 12 inches.
- F. Colors and Patterns: Match Architect's samples .

2.4 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
- C. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
- B. Access Flooring Panels: Remove protective film of oil or other coating using method recommended by access flooring manufacturer.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor tiles until materials are the same temperature as space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.2 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 - 1. Lay tiles square with room axis .
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 - 1. Lay tiles with grain running in one direction .
- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- H. Adhere floor tiles to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- I. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.
 - 1. Apply two coat(s).

END OF SECTION 096519

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Primers.
2. Finish coatings.
3. Floor sealers and paints.

1.2 ACTION SUBMITTALS

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

1.3 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, undefined:
1. Behr Paint Company; Behr Process Corporation.
 2. Benjamin Moore & Co.
 3. PPG Paints.
 4. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 5. Sherwin-Williams Company (The).

2.2 PAINT PRODUCTS, GENERAL

- A. Material Compatibility:
1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by topcoat manufacturer for use in paint system and on substrate indicated.

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

2.3 PRIMERS

- A. Exterior, Alkali-Resistant, Water-Based Primer: Pigmented, water-based primer formulated for use on alkaline surfaces, such as exterior plaster, vertical concrete, and masonry.

1. Manufacturers: Subject to compliance with requirements, undefined:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - e. Sherwin-Williams Company (The).

- B. Exterior, Latex Wood Primer: White, waterborne-emulsion primer formulated for resistance to extractive bleeding, mold, and microbials; for hiding stains; and for use on exterior wood subject to extractive bleeding.

1. Manufacturers: Subject to compliance with requirements, undefined:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - e. Sherwin-Williams Company (The).

- C. Exterior, Latex Block Filler: Water-based, pigmented, high-solids, emulsion coating formulated to bridge and fill porous surfaces of exterior concrete masonry units in preparation for specified subsequent coatings.

1. Manufacturers: Subject to compliance with requirements, undefined:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Sherwin-Williams Company (The).
2. Minimum Solids Content: Manufacturer's standard percentage solids by volume.

- D. Water-Based Bonding Primer: Pigmented, water-based-emulsion primer formulated for exterior use and to promote adhesion of subsequent specified coatings.

1. Manufacturers: Subject to compliance with requirements, undefined:
 - a. Behr Paint Company; Behr Process Corporation.

- b. Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - e. Sherwin-Williams Company (The).
- E. Quick-Drying, Alkyd Metal Primer: Corrosion-resistant, solvent-based, modified-alkyd primer; lead and chromate free; formulated for quick-drying capabilities and for use on cleaned, exterior steel surfaces.
 - 1. Manufacturers: Subject to compliance with requirements, undefined:
 - a. Benjamin Moore & Co.
 - b. PPG Paints.
 - c. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - d. Sherwin-Williams Company (The).
- F. Water-Based, Galvanized-Metal Primer: Corrosion-resistant, pigmented, acrylic primer; formulated for use on cleaned/etched, exterior, galvanized metal to prepare it for subsequent water-based coatings.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - e. Sherwin-Williams Company (The).

2.4 FINISH COATINGS

- A. Exterior Latex Paint, Semigloss: Water-based, pigmented emulsion coating formulated for alkali, mold, microbial, and water resistance and for use on exterior surfaces, such as masonry, portland cement plaster, and primed wood and metal.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - e. Sherwin-Williams Company (The).
 - 2. Gloss Level: Manufacturer's standard semigloss finish .
- B. Exterior, Water-Based, Light Industrial Coating, Semigloss: Corrosion-resistant, water-based, pigmented, emulsion coating formulated for resistance to blocking (sticking of two painted surfaces), water, alkalis, moderate abrasion, and mild chemical exposure and for use on exterior, primed, wood and metal surfaces.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - c. Sherwin-Williams Company (The).
2. Gloss Level: Manufacturer's standard semigloss finish .

2.5 FLOOR SEALERS AND PAINTS

- A. Latex Floor Paint, Low Gloss: Water-based, pigmented coating formulated to hide stains, for alkali and incidental water resistance, and for use on exterior, concrete and primed-wood surfaces subject to low to medium foot traffic.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. PPG Paints.
 - c. Sherwin-Williams Company (The).
 2. Gloss and Sheen Level: Manufacturer's standard low-gloss finish .
- B. Latex Deck Coating: Water-based, high-solids, acrylic-emulsion coating; formulated for use on exterior, concrete and wood-board traffic surfaces.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Pratt & Lambert.
 - c. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - d. Sherwin-Williams Company (The).
 2. Gloss Level: Manufacturer's standard .
 3. Minimum Solids Content: Manufacturer's standard percentage solids by volume.
 4. Surface Texture: Smooth .
- C. Alkyd Floor Enamel, Gloss: Solvent-based, alkyd enamel; self-priming where applied to bare wood; formulated to hide stains, for durability, for microbial and abrasion resistance, and for use on exterior, wood-board, traffic surfaces.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Benjamin Moore & Co.
 - b. Pratt & Lambert.
 2. Gloss Level: Manufacturer's standard gloss finish .
 3. Slip-Resistant Aggregate: Manufacturer's standard additive .
- D. Water-Based, Concrete-Floor Sealer: Clear, water-based, acrylic-copolymer-emulsion sealer formulated for oil, gasoline, alkali, and water resistance and for use on exterior, concrete traffic surfaces.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. PPG Paints.
 - c. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - d. Sherwin-Williams Company (The).
- E. Solvent-Based, Concrete-Floor Sealer: Clear, acrylic, solvent-based sealer formulated for oil, gasoline, alkali, and water resistance and for use on exterior, concrete traffic surfaces.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Benjamin Moore & Co.
 - b. H&C® Decorative Concrete Products; a brand of Sherwin-Williams Co.
 - c. Sherwin-Williams Company (The).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.
- B. Proceed with coating application only after unsatisfactory conditions have been corrected.
 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.

3.3 INSTALLATION

- A. Apply paints in accordance with manufacturer's written instructions.
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

- A. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- B. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Nontraffic Surfaces:
 1. Latex System :
 - a. Prime Coat: Exterior, alkali-resistant, water-based primer .
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, semigloss .
- B. Concrete Masonry Unit Substrates:
 1. Latex System :
 - a. Prime Coat: Exterior, latex block filler.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, semigloss .
- C. Steel and Iron Substrates:
 1. Water-Based, Light Industrial Coating System :
 - a. Prime Coat: .
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior, water-based, light industrial coating, semigloss .

2. Alkyd System :
 - a. Prime Coat: Alkyd metal primer .
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior alkyd enamel, semigloss .
- D. Galvanized-Metal Substrates:
 1. Latex System :
 - a. Prime Coat: Water-based, galvanized-metal primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, semigloss .
 2. Water-Based, Light Industrial Coating System :
 - a. Prime Coat: .
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior, water-based, light industrial coating, semigloss .
- E. Dressed-Lumber Substrates: Trim Architectural woodwork Doors Windows .
 1. Latex over Latex Primer System :
 - a. Prime Coat: Exterior, latex wood primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, semigloss .
- F. Cementitious Composition Board Substrates: Siding Trim Panels .
 1. Latex System :
 - a. Prime Coat: Matching topcoat.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, low sheen .
- G. Fiberglass Substrates:
 1. Latex System :
 - a. Prime Coat: Solvent-based bonding primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, low sheen .
- H. Plastic-Trim-Fabrication Substrates:
 1. Latex System :
 - a. Prime Coat: Water-based bonding primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior latex paint, semigloss .
 2. Water-Based, Light Industrial Coating System :
 - a. Prime Coat: -based bonding primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Exterior, water-based, light industrial coating, semigloss .

END OF SECTION 099113

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Primers.
2. Water-based finish coatings.
3. Floor sealers and paints.
4. Dry fall coatings.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of topcoat product.
- C. Product Schedule: Use same designations indicated on Drawings and in the Interior Painting Schedule to cross-reference paint systems specified in this Section. Include color designations.

1.3 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); or comparable product by one of the following:
1. Behr Paint Company; Behr Process Corporation.
 2. Benjamin Moore & Co.
 3. PPG Paints.

2.2 PAINT PRODUCTS, GENERAL

- A. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from manufacturer's full range .

2.3 PRIMERS

A. Interior/Exterior Latex Block Filler: Water-based, high-solids, emulsion coating formulated to bridge and fill porous surfaces of exterior concrete masonry units in preparation for specified subsequent coatings.

1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); PrepRite Block Filler or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.

B. Interior Latex Primer Sealer: Water-based latex sealer used on new interior plaster, concrete, and gypsum wallboard surfaces.

1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); Multi-Purpose Interior/Exterior Latex Primer or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.

C. Water-Based Rust-Inhibitive Primer: Corrosion-resistant, water-based-emulsion primer formulated for resistance to flash rusting when applied to cleaned, interior ferrous metals subject to mildly corrosive environments.

1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); Pro-Cryl or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.

D. Water-Based Galvanized-Metal Primer: Corrosion-resistant, acrylic primer; formulated for use on cleaned/etched, exterior, galvanized metal to prepare it for subsequent water-based coatings.

1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); Pro-Cryl or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
- E. Water-Based Bonding Primer: Water-based-emulsion primer formulated to promote adhesion of subsequent specified coatings.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); Extreme Bond Primer or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.

2.4 WATER-BASED FINISH COATS

- A. Interior, Latex, Flat: Pigmented, water-based paint for use on primed/sealed interior plaster and gypsum board, and on primed wood and metals.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); ProMar 200 or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 2. Gloss and Sheen Level: Manufacturer's standard flat finish .
- B. Interior, Latex, Eggshell: Pigmented, water-based paint for use on primed/sealed interior plaster and gypsum board, and on primed wood and metals.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); ProMar 200 or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 2. Gloss and Sheen Level: Manufacturer's standard eggshell finish .
- C. Interior, Latex, Semigloss: Pigmented, water-based paint for use on primed/sealed interior plaster and gypsum board, and on primed wood and metals.

1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); SuperPaint Interior Acrylic Latex or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 2. Gloss Level: Manufacturer's standard semigloss finish .
- D. Interior, Water-Based Light-Industrial Coating, Semigloss: Pigmented, water-based emulsion coating for interior primed wood and metal surfaces (e.g., walls, doors, frames, trim, and sash), providing resistance to moderate abrasion and mild chemical exposure and corrosive conditions.
1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); Pro-Industrial Acrylic or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.
 - c. PPG Paints.
 2. Gloss Level: Manufacturer's standard semigloss finish .

2.5 SOLVENT-BASED FINISH COATS

2.6 FLOOR SEALERS AND PAINTS

- A. Water-Based Concrete Floor Sealer: Clear, water-based, acrylic-copolymer-emulsion sealer formulated for oil, gasoline, alkali, and water resistance and for use on concrete traffic surfaces.
1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); ClariShield or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. PPG Paints.
 - c. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.

2.7 DRY FALL COATINGS

- A. Dry Fall, Latex, Flat: Pigmented, water-based, emulsion-type, fast-drying coating for use on interior plaster, concrete, gypsum board, primed wood, and metal ceilings.
1. Basis-of-Design Product: Subject to compliance with requirements, provide [Sherwin-Williams Company \(The\)](#); Pro Industrial or comparable product by one of the following:
 - a. Behr Paint Company; Behr Process Corporation.
 - b. Benjamin Moore & Co.

- c. PPG Paints.
- 2. Gloss and Sheen Level: Manufacturer's standard flat finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- B. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
- C. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

3.3 INSTALLATION

- A. Apply paints according to manufacturer's written instructions.
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- C. Painting Fire-Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in equipment rooms:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.
 - c. Pipe hangers and supports.
 - d. Metal conduit.

- e. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
- f. .
- 2. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 CLEANING AND PROTECTION

- A. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- B. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

- A. Cement Board Substrates:
 - 1. High-Performance Architectural Latex System PT-5 :
 - a. Prime Coat: Alkali-resistant, water-based primer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Interior, latex, high-performance architectural coating, eggshell .
- B. CMU Substrates:
 - 1. Latex System :
 - a. Block Filler: Interior/exterior latex block filler.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Interior, latex, flat eggshell semigloss .
- C. Gypsum Board and Plaster Substrates:
 - 1. Latex over Latex Sealer System :
 - a. Prime Coat: Interior latex primer sealer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Interior, latex, flat eggshell semigloss .
 - 2. Latex over Alkyd Primer System (for Plaster Only) :
 - a. Prime Coat: Interior alkyd primer sealer.
 - b. Intermediate Coat: Matching topcoat.
 - c. Topcoat: Interior, latex, flat eggshell semigloss .
- D. Insulation-Covering Substrates: Including .

END OF SECTION 099123

SECTION 099300 - STAINING AND TRANSPARENT FINISHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wood stains.
 - 2. Transparent finishes.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of finish system and in each color and gloss of finish required.

1.3 MOCKUPS

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, undefined:
 - 1. Benjamin Moore & Co.
 - 2. PPG Paints.
 - 3. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - 4. Sherwin-Williams Company (The).

2.2 MATERIALS, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service

and application as demonstrated by manufacturer, based on testing and field experience.

- B. Stain Colors: As selected by Architect from manufacturer's full range .

2.3 WOOD STAINS

- A. Stain, Interior, Semitransparent, for Interior Wood: Solvent-based, oil or oil/alkyd, semitransparent, pigmented stain for new interior wood surfaces that are to be finished with a clear varnish.
1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. PPG Paints.
 - b. Pratt & Lambert.
 - c. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - d. Sherwin-Williams Company (The).
- B. Shellac: Alcohol-based, shellac type, clear or light amber-colored coating for use as a sealer on stains and knots or as a wash coat to even the porosity of some wood types.
1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - b. Sherwin-Williams Company (The).
- C. Danish Oil: Solvent-based, oil-type, penetrating stain for application by brush or wiping on interior wood surfaces.
1. **Manufacturers:** Subject to compliance with requirements, provide products by the following:
 - a. Sherwin-Williams Company (The).

2.4 TRANSPARENT FINISHES

- A. Varnish, Interior Polyurethane, Moisture Cured, Gloss: Solvent-based, moisture-curing polyurethane clear-coating with a gloss finish for interior wood surfaces,
1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Benjamin Moore & Co.
 - b. Sherwin-Williams Company (The).
 2. Gloss Level: Manufacturer's standard gloss finish .
- B. Varnish, Interior, Water Based, Clear, Satin: Water-based clear satin coating for interior wood trim, frames, doors, paneling and cabinetry.

SECTION 099300 - STAINING AND TRANSPARENT FINISHING

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1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Benjamin Moore & Co.
 - b. Lenmar Lacquers; Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Sherwin-Williams Company (The).
- C. Varnish, Interior, Water Based, Clear, Semigloss: Water-based clear semigloss coating for interior wood trim, frames, doors, paneling and cabinetry.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Benjamin Moore & Co.
 - b. Lenmar Lacquers; Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Sherwin-Williams Company (The).
 2. Gloss Level: Manufacturer's standard semigloss finish .
- D. Varnish, Interior, Water Based, Clear, High Gloss: Water-based clear high-gloss coating for interior wood trim, frames, doors, paneling and cabinetry.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Benjamin Moore & Co.
 - b. Lenmar Lacquers; Benjamin Moore & Co.
 - c. PPG Paints.
 - d. Sherwin-Williams Company (The).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Maximum Moisture Content of Interior Wood Substrates: 15 percent, when measured with an electronic moisture meter.

3.2 PREPARATION

- A. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.
 1. After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

SECTION 099300 - STAINING AND TRANSPARENT FINISHING

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- B. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each substrate condition and as specified.
 - 1. Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.
 - 2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.

3.3 APPLICATION

- A. Apply finishes according to manufacturer's written instructions.
- B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

3.4 CLEANING AND PROTECTION

- A. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- B. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

3.5 INTERIOR WOOD-FINISH-SYSTEM SCHEDULE

- A. Wood Substrates, Wood Trim Architectural Woodwork Doors Windows :
 - 1. Water-Based Varnish System :
 - a. Prime Coat: Water-based varnish matching topcoat.
 - b. Intermediate Coat: Water-based varnish matching topcoat.
 - c. Topcoat: Varnish, water based, clear, semigloss .
 - 2. Polyurethane Varnish System :
 - a. Prime Coat: Polyurethane varnish matching topcoat.
 - b. Intermediate Coat: Polyurethane varnish matching topcoat.
 - c. Topcoat: Varnish, interior, polyurethane, oil modified, satin .

END OF SECTION 099300

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Public-use washroom accessories.
2. Public-use shower room accessories.
3. Private-use bathroom accessories.
4. Childcare accessories.
5. Custodial accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 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. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

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- B. Structural Performance: Design accessories and fasteners to comply with the following requirements:
 - 1. Grab Bars: Installed units are able to resist 250 lbf concentrated load applied in any direction and at any point.
 - 2. Shower Seats: Installed units are able to resist 360 lbf applied in any direction and at any point.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

A. Toilet Tissue (Roll) Dispenser TPD :

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
- 2. Description: Single-roll dispenser .
- 3. Mounting: Recessed .
- 4. Operation: Noncontrol delivery with standard spindle .
- 5. Capacity: Designed for 4-1/2- or 5-inch- diameter tissue rolls.
- 6. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin) .

B. Waste Receptacle :

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
- 2. Mounting: Freestanding Undercounter .
- 3. Minimum Capacity: No Min. .
- 4. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin) .
- 5. Liner: Reusable vinyl liner .
- 6. Lockset: Tumbler type for waste receptacle.

C. Soap Dispenser :

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
- 2. Description: Designed for manual operation and dispensing soap in lather form.
- 3. Mounting: Deck mounted on vanity .

4. Capacity: .
5. Materials: .
6. Lockset: Tumbler type.
7. Refill Indicator: Window type.

D. Grab Bar GB- :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, **0.05 inch** thick.
 - a. Finish: Smooth, ASTM A480/A480M No. 4 finish (satin) on ends and slip-resistant texture in grip area.
4. Outside Diameter: **1-1/4 inches** .
5. Configuration and Length: As indicated on Drawings .

E. Mirror Unit MR :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Frame: Stainless steel, adjustable tilt.
 - a. Corners: Welded and ground smooth.
3. Size: As indicated on Drawings .
4. Shelf:
 - a. Type: Integral, welded Concealed mounting .
 - b. Depth: **5 inches** .
5. Hangers: Manufacturer's standard rigid, tamper and theft resistant .

F. Hook HK :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Description: Double-prong unit .
3. Mounting: Exposed.
4. Material and Finish: Polished chrome-plated brass .

G. Adjustable Height Adult Changing Station :

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

- a. Foundations Worldwide, Inc.
 - b. Pressalit Care Inc.
 - c. Smirthwaite USA LLC.
2. Description: Height adjustable horizontal unit electrically operated with wired hand control and with safety rail .
 - a. Engineered to support minimum of 350-lb static load when opened.
3. Mounting: Surface mounted, foldable by pneumatic shock-absorbing mechanism.
4. Electrical Characteristics: Manufacturer's standard actuator and control system, with integrated 24-V dc transformer, powered by a single 120-V electrical receptacle.
5. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin), with PVC mattress .

2.3 PUBLIC-USE SHOWER ROOM ACCESSORIES

A. Shower Curtain Rod :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Description: 1-1/4-inch- outside diameter, straight rod.
3. Configuration: As indicated on Drawings
4. Mounting Flanges: Exposed fasteners; in material and finish matching rod .
5. Rod Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin) .

B. Shower Curtain :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Size: Minimum 6 inches wider than opening by 72 inches high.
3. Material: Nylon-reinforced vinyl, minimum 9 oz. or 0.008-inch- thick vinyl, with integral antibacterial and flame-retardant agents .
4. Color: White .
5. Grommets: Corrosion resistant at minimum 6 inches o.c. through top hem.
6. Shower Curtain Hooks: Chrome-plated or stainless steel, spring wire curtain hooks with snap fasteners , sized to accommodate specified curtain rod. Provide one hook per curtain grommet.

C. Folding Shower Seat FDB :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Configuration: Rectangular seat .
3. Seat: Phenolic or polymeric composite of slat-type or one-piece construction in color as selected by Architect .
4. Mounting Mechanism: Stainless steel, ASTM A480/A480M No. 4 finish (satin) .
5. Dimensions: .

D. Soap Dish :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Description: Surface mounted, with the following features:
 - a. Washcloth bar.
 - b. .
3. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin) .

2.4 PRIVATE-USE BATHROOM ACCESSORIES

A. Private-Use Toilet Tissue Dispenser TPD :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Description: Single -roll dispenser with the following features:
 - a. Hood.
 - b. .
3. Mounting: Recessed .
4. Capacity: Designed for ~~4-1/2-~~ or ~~5-inch-~~ diameter tissue rolls.
5. Material and Finish: Solid brass, polished .

B. Private-Use Shower Curtain Rod :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.

2. Description: 1-1/4-inch- outside diameter, straight rod.
3. Configuration: As indicated on Drawings
4. Mounting Flanges: Designed for concealed fastening, in in material and finish matching rod .
5. Rod Material and Finish: Solid brass, polished .
6. Features: Integral chrome-plated brass glide hooks.

C. Private-Use Folding Shower Seat FDB :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Configuration: Rectangular seat .
3. Seat: Phenolic or polymeric composite of slat-type or one-piece construction in color as selected by Architect .
4. Mounting Mechanism: Stainless steel, ASTM A480/A480M No. 4 finish (satin) .
5. Dimensions: .

D. Private-Use Soap Dish :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Description: .
3. Mounting: Surface mounted.
4. Material and Finish: Solid brass, polished .

E. Private-Use Robe Hook :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Description: Single-prong unit.
3. Material and Finish: Solid brass, polished .

2.5 CHILDCARE ACCESSORIES

A. Diaper-Changing Station :

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

- a. American Specialties, Inc. (ASI).
 - b. Bradley Corporation.
 - c. Koala Kare Products; a Division of Bobrick.
2. Description: Horizontal unit that opens by folding down from stored position and with child-protection strap.
 - a. Engineered to support minimum of 250-lb static load when opened.
3. Mounting: Surface mounted, with unit projecting not more than 4 inches from wall when closed .
4. Operation: By pneumatic shock-absorbing mechanism.
5. Material and Finish: HDPE with plastic-laminate insert in color selected by Architect .
6. Liner Dispenser: Provide built-in dispenser for disposable sanitary liners.

B. Child-Protection Seat :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bradley Corporation.
 - c. Koala Kare Products; a Division of Bobrick.
2. Description: Unit that opens by folding down from stored position and with child-protection strap.
 - a. Engineered to support minimum of 150-lb static load when opened.
3. Mounting: Surface mounted, with unit projecting not more than 4-1/2 inches from wall when closed.
4. Material and Finish: HDPE in manufacturer's standard color .

2.6 CUSTODIAL ACCESSORIES

A. Custodial Utility Shelf :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc. (ASI).
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Description: With exposed edges turned down not less than 1/2 inch and supported by two triangular brackets welded to shelf underside.
3. Size: 16 inches long by 6 inches deep .
4. Material and Finish: Not less than nominal 0.05-inch- thick stainless steel, ASTM A480/A480M No. 4 finish (satin).

2.7 FABRICATION

- A. 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.
 - 1. Remove temporary labels and protective coatings.
- B. Grab Bars: Install to comply with specified structural-performance requirements.
- C. Shower Seats: Install to comply with specified structural-performance requirements.

END OF SECTION 102800

SECTION 104413 - FIRE PROTECTION CABINETS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-protection cabinets for portable fire extinguishers.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of exposed finish required.

1.3 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.4 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.
- B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E814 for fire-resistance rating of walls where they are installed.

2.2 FIRE-PROTECTION CABINET F.E.C.

- A. Cabinet Type: Suitable for fire extinguisher.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.

- b. Babcock-Davis.
 - c. Larsens Manufacturing Company.
- B. Cabinet Construction: Nonrated .
 - 1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from ~~0.043-inch~~ thick cold-rolled steel sheet lined with minimum ~~5/8-inch~~ thick fire-barrier material. Provide factory-drilled mounting holes.
- C. Cabinet Material: .
- D. Recessed Cabinet:
 - 1. Exposed Flat Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface, with exposed trim face and wall return at outer edge (backbend).
- E. Cabinet Trim Material: Copper-alloy bronze sheet Same material and finish as door.
- F. Door Material: Copper-alloy bronze sheet.
- G. Door Style: Center glass panel with frame .
- H. Door Glazing: Tempered float glass (clear) Wire glass .
- I. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
- J. Accessories:
 - 1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire-protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
 - 2. Lettered Door Handle: One-piece, cast-iron door handle with the word "FIRE" embossed into face.
 - 3. Door Lock: Cam lock that allows door to be opened during emergency by pulling sharply on door handle .
 - 4. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as directed by Architect .
 - a. Identify fire extinguisher in fire-protection cabinet with the words " FIRE EXTINGUISHER . "
 - 1) Location: Applied to cabinet door .
 - 2) Application Process: Silk-screened .
 - 3) Lettering Color: White.
 - 4) Orientation: Vertical .
- K. Materials:

1. Copper Alloy, Bronze: ASTM B36/B36M alloy as standard with manufacturer .
 - a. Finish: As selected by Architect from full range of industry finishes .
2. Tempered Float Glass: ASTM C1048, Kind FT, Condition A, Type I, Quality q3, 3 mm thick, Class 1 (clear) .
3. Wire Glass: ASTM C1036, Type II, Class 1, Form 1, Quality q8, Mesh m1 (diamond), 6 mm thick.

2.3 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Prepare recesses for recessed fire-protection cabinets as required by type and size of cabinet and trim style.
- B. Install fire-protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.
- C. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
- D. Identification: Apply decals at locations indicated.
- E. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.

END OF SECTION 104413

SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes portable, hand-carried fire extinguishers.

1.2 ACTION SUBMITTALS

1.3 INFORMATIONAL SUBMITTALS

1.4 CLOSEOUT SUBMITTALS

1.5 COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. Ansul by Johnson Controls Company.
 - c. Babcock-Davis.
 - d. Buckeye Fire Equipment Company.
 - e. Guardian Fire Equipment, Inc.
 - f. Kidde Residential and Commercial Division.
 - g. Larsens Manufacturing Company.

- h. Potter Roemer LLC; a Division of Morris Group International.
- 2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B , and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.
- B. Regular Dry-Chemical Type : UL-rated 10lb nominal capacity, with sodium bicarbonate-based dry chemical in manufacturer's standard enameled container.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine fire extinguishers for proper charging and tagging.
 - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

END OF SECTION 104416

SECTION 113013 - RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cooking appliances.
2. Kitchen exhaust ventilation.
3. Refrigeration appliances.
4. Cleaning appliances.

1.2 PREINSTALLATION MEETINGS

1.3 ACTION SUBMITTALS

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

1.4 INFORMATIONAL SUBMITTALS

- A. Product certificates.**
- B. Sample warranties.**

1.5 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.**

1.6 QUALITY ASSURANCE

1.7 WARRANTY

- A. Special Warranties:** Manufacturer agrees to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Appliances: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Gas-Fueled Appliances: Certified by a qualified testing agency for each type of gas-fueled appliance according to ANSI Z21 Series standards.

2.2 COOKTOPS

- A. Electric Cooktop :
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Electrolux Home Products (Frigidaire).
 - b. GE Appliances; Haier Group.
 - c. Maytag; a division of Whirlpool Corporation.
 - d. Whirlpool Corporation.
 - 2. Electric Burner Elements: Four induction-type burners.
 - 3. Top Material: Ceramic glass .

2.3 RANGES

- A. Electric Range RNG : Slide-in range with one oven(s) and complying with AHAM ER-1.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Electrolux Home Products (Frigidaire).
 - b. GE Appliances; Haier Group.
 - c. Maytag; a division of Whirlpool Corporation.
 - d. Whirlpool Corporation.
 - 2. Electric Burner Elements: Four induction-type burners.
 - 3. Anti-Tip Device: Manufacturer's standard.
 - 4. Material: Stainless steel with ceramic-glass cooktop.

2.4 MICROWAVE OVENS

- A. Microwave Oven MV :
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Electrolux Home Products (Frigidaire).
 - b. GE Appliances; Haier Group.

- c. Maytag; a division of Whirlpool Corporation.
 - d. Whirlpool Corporation.
2. Mounting: Wall cabinet .
3. Capacity: 2.0 cu. ft. .
4. Microwave Power Rating: Manufacturer's standard .
5. Material: Stainless steel .

2.5 KITCHEN EXHAUST VENTILATION

A. Overhead Exhaust Hood RH :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Electrolux Home Products (Frigidaire).
 - b. GE Appliances; Haier Group.
 - c. Maytag; a division of Whirlpool Corporation.
 - d. Whirlpool Corporation.
2. Type: Wall-mounted, exhaust-hood system.
3. Exhaust Fan: Three-speed fan built into hood and with manufacturer's standard capacity.
 - a. Venting: Nonvented, recirculating type with charcoal filter .
4. Finish: Stainless steel .

2.6 REFRIGERATOR/FREEZERS

A. Refrigerator/Freezer REF : Two-door refrigerator/freezer with freezer on bottom and complying with AHAM HRF-1 .

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Electrolux Home Products (Frigidaire).
 - b. GE Appliances; Haier Group.
 - c. Maytag; a division of Whirlpool Corporation.
 - d. Whirlpool Corporation.
2. Type: Freestanding .
3. Storage Capacity:
 - a. Refrigeration Compartment Volume: 15.6 cu. ft. .
 - b. Freezer Volume: 5.13 cu. ft. .
4. General Features:
 - a. Dispenser in door for ice and cold water with dispenser lock.
 - b. Interior light in refrigeration compartment.
 - c. Automatic defrost.
 - d. Interior light in freezer compartment.
 - e. Automatic icemaker and storage bin.
5. ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling program.
6. Front Panel(s): Stainless steel .

2.7 DISHWASHERS

A. Dishwasher DW : Complying with AHAM DW-1 .

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Electrolux Home Products (Frigidaire).
 - b. GE Appliances; Haier Group.
 - c. Maytag; a division of Whirlpool Corporation.
 - d. Whirlpool Corporation.
2. Type: Built-in undercounter .
3. ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling program.
4. Front Panel: Stainless steel .

2.8 CLOTHES WASHERS AND DRYERS

A. Clothes Washer W : Complying with AHAM HLW-1 .

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Electrolux Home Products (Frigidaire).
 - b. GE Appliances; Haier Group.
 - c. Maytag; a division of Whirlpool Corporation.
 - d. Whirlpool Corporation.
2. Type: Freestanding , top -loading unit.
3. Capacity: **3.8 cu. ft.** .
4. Pedestal: Manufacturer's standard height laundry pedestal with storage drawer, matching appliance finish.
5. ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling program.
6. Water-Efficient Clothes Washer: Provide clothes washer with modified energy factor greater than or equal to 2.0 and water factor less than 5.5.
7. Appliance Finish: Enamel .
8. Front-Panel Finish: Porcelain enamel .

B. Clothes Dryer D : Complying with AHAM HLD-1 .

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Electrolux Home Products (Frigidaire).
 - b. GE Appliances; Haier Group.
 - c. Maytag; a division of Whirlpool Corporation.
 - d. Whirlpool Corporation.
2. Type: Freestanding , frontloading, electric unit.
3. Capacity: **7.0 cu. ft.** .
4. Features:
 - a. Interior drum light.

- b. Stacking kit to stack dryer over washer.
- c. Pedestal: Manufacturer's standard height laundry pedestal with storage drawer, matching appliance finish.
- 5. Appliance Finish: Enamel .
- 6. Front-Panel Finish: Porcelain enamel .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Built-in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and that rough openings are completely concealed.
- B. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.
- C. Range Anti-Tip Device: Install at each range according to manufacturer's written instructions.

3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Perform visual, mechanical, and electrical inspection and testing for each appliance according to manufacturers' written recommendations. Certify compliance with each manufacturer's appliance-performance parameters.
 - 2. Leak Test: After installation, test for leaks. Repair leaks and retest until no leaks exist.
 - 3. Operational Test: After installation, start units to confirm proper operation.
 - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and components.
- B. An appliance will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 113013

SECTION 123623.13 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Plastic-laminate-clad countertops.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For plastic-laminate-clad countertops.
 - 1. Apply AWI Quality Certification WI Certified Compliance Program label to Shop Drawings.
- C. Samples: Plastic laminates in each type, color, pattern, and surface finish required.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For the following:
 - 1. Composite wood products.
 - 2. High-pressure decorative laminate.
 - 3. Adhesives.
- B. Quality Standard Compliance Certificates: .

1.4 QUALITY ASSURANCE

1.5 FIELD CONDITIONS

- A. Environmental Limitations without Humidity Control: Do not deliver or install wood countertops 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 with Humidity Control: Do not deliver or install wood countertops until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 20 and 50 percent during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 FABRICATORS

2.2 PLASTIC-LAMINATE-CLAD COUNTERTOPS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of plastic-laminate-clad countertops indicated for construction, finishes, installation, and other requirements.
 - 1. Provide inspections of fabrication and installation together with labels and certificates from AWI WI certification program indicating that countertops comply with requirements of grades specified.
- B. Grade: Premium .
- C. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGS .
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Nevamar; a Panolam Industries International, Inc. brand.
 - c. Pionite; a Panolam Industries International, Inc. brand.
 - d. Wilsonart LLC.
- D. 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 manufacturer's designations.
 - 2. Match Architect's sample.
 - 3. As selected by Architect from 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 with grain running parallel to length of countertop.
 - d. Patterns, matte finish.
- E. Edge Treatment: As indicated on Drawings.

- F. Core Material: Particleboard made with exterior glue MDF made with exterior glue Exterior-grade plywood .
- G. Core Material at Sinks: exterior-grade plywood .
- H. Core Thickness: 1-1/8 inch.
 - 1. Build up countertop thickness to 1-1/2 inches at front, back, and ends with additional layers of core material laminated to top.
- I. Backer Sheet: Provide plastic-laminate backer sheet, NEMA LD 3, Grade BKL, on underside of countertop substrate.

2.3 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard unless otherwise indicated.
 - 1. Wood Moisture Content: 4 to 9 percent.
- B. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of countertop and quality grade specified unless otherwise indicated.
 - 1. MDF: Medium-density fiberboard, ANSI A208.2, Grade 130 .
 - 2. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 - 3. Softwood Plywood: DOC PS 1.

2.4 ACCESSORIES

2.5 MISCELLANEOUS MATERIALS

- A. Adhesive for Bonding Plastic Laminate: As selected by fabricator to comply with requirements.
 - 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.6 FABRICATION

- A. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch over base cabinets. Ease edges to radius indicated for the following:
 - 1. Solid-Wood (Lumber) Members: 1/16 inch unless otherwise indicated.

- B. Complete fabrication, including assembly, 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.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
 - 1. Provide cutouts for appliances, plumbing fixtures, 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.
 - 2. Seal edges of cutouts by saturating with varnish.
- C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
 - 1. Secure field joints in countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten in accordance with manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.
- D. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Countertop Installation: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Install countertops level and true in line. Use concealed shims as required to maintain not more than a 1/8-inch-in-96-inches variation from a straight, level plane.
 - 2. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
 - 3. Seal joints between countertop and backsplash, if any, and joints where countertop and backsplash abut walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

- F. Protection: Provide Kraft paper or other suitable covering over countertop surfaces, taped to underside of countertop at a minimum of 48 inches o.c. Remove protection at Substantial Completion.

END OF SECTION 123623.13

SECTION 123661.16 - SOLID SURFACING COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid surface material countertops.
2. Solid surface material backsplashes.
3. Solid surface material end splashes.
4. Solid surface material apron fronts.

1.2 ACTION SUBMITTALS

- A. Product Data: For countertop materials.
- B. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.
- C. Samples: For each type of material exposed to view.

PART 2 - PRODUCTS

2.1 SOLID SURFACE COUNTERTOP MATERIALS

- A. Solid Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Avonite Surfaces.
 - b. E. I. du Pont de Nemours and Company.
 - c. Formica Corporation.
 - d. LG Chemical, Ltd.
 - e. Samsung Chemical USA, Inc.
 - f. Wilsonart LLC.
 2. Type: Provide Standard type or Veneer type made from material complying with requirements for Standard type, as indicated unless Special Purpose type is indicated.
 3. Colors and Patterns: As selected by Architect from manufacturer's full range.
- B. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.

- C. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

2.2 COUNTERTOP FABRICATION

- A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."
 - 1. Grade: Premium .
- B. Countertops: ~~3/4-inch-~~ thick, solid surface material with front edge built up with same material.
- C. Backsplashes: ~~1/2-inch-~~ thick, solid surface material.
- D. Joints: Fabricate countertops without joints.
- E. Cutouts and Holes:
 - 1. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.

2.3 INSTALLATION MATERIALS

- A. Adhesive: Product recommended by solid surface material manufacturer.
- B. Sealant for Countertops: Comply with applicable requirements in Section 079200 "Joint Sealants."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fasten subtops to cabinets by screwing through subtops into cornerblocks of base cabinets. Shim as needed to align subtops in a level plane.
- B. Secure countertops to subtops with adhesive according to solid surface material manufacturer's written instructions.
- C. Install backsplashes and end splashes by adhering to wall and countertops with adhesive.
- D. Install aprons to backing and countertops with adhesive.

- E. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
- F. Apply sealant to gaps at walls; comply with Section 079200 "Joint Sealants."

END OF SECTION 123661.16

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Chain-link fences.
 - 2. Swing gates.

1.2 PREINSTALLATION MEETINGS

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of fence and gate assembly.
 - 1. Include plans, elevations, sections, details, and attachments to other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Product certificates.
- B. Sample warranty.

1.5 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design chain-link fence and gate frameworks.
- B. Structural Performance: Chain-link fence and gate frameworks shall withstand the design wind loads and stresses for fence height(s) and under exposure conditions indicated according to ASCE/SEI 7 :
 - 1. Design Wind Load: .
 - a. Minimum Post Size: Determine according to ASTM F 1043 for post spacing not to exceed 10 feet for Material Group IA, ASTM F 1043, Schedule 40 steel pipe .

2.2 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
 - 1. Fabric Height: As indicated on Drawings.
 - 2. Aluminum Wire Fabric: ASTM F 1183, with mill finish, and wire diameter of 0.148 inch .
 - a. Mesh Size: 2 inches .
 - 3. Selvage: Knuckled at both selvages .

2.3 FENCE FRAMEWORK

- A. Posts and Rails : ASTM F 1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 or ASTM F 1083 based on the following:
 - 1. Fence Height: 72 inches .
 - 2. Horizontal Framework Members: Intermediate top and bottom rails according to ASTM F 1043.
 - 3. Brace Rails: ASTM F 1043.
 - 4. Metallic Coating for Steel Framework:
 - a. Coatings: Any coating above.

2.4 SWING GATES

- A. General: ASTM F 900 for gate posts and single swing gate types.

1. Gate Leaf Width: 36 inches .
 2. Framework Member Sizes and Strength: Based on gate fabric height of 72 inches or less .
- B. Pipe and Tubing:
1. Aluminum: ASTM B 429/B 429M; mill finish.
 2. Gate Posts: Round tubular aluminum .
 3. Gate Frames and Bracing: Round tubular aluminum .
- C. Frame Corner Construction: assembled with corner fittings.
- D. Extended Gate Posts and Frame Members: Fabricate gate posts and frame end members to extend as indicated above top of chain-link fabric at both ends of gate frame to attach barbed wire assemblies.
- E. Hardware:
1. Hinges: 360-degree inward and outward swing.
 2. Latch: Permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.
 3. Lock: Manufacturer's standard internal device.
 4. Padlock and Chain: .
 5. Closer: Manufacturer's standard .
 6. .
- 2.5 FITTINGS
- A. Provide fittings according to ASTM F 626.
- B. Finish:
1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. of zinc.
 - a. Polymer coating over metallic coating.
 2. Aluminum: Mill finish.
- 2.6 GROUT AND ANCHORING CEMENT
- A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing

protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Posts Set into Holes in Concrete: Form or core drill holes not less than 5 inches deep and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed according to anchoring material manufacturer's written instructions. Finish anchorage joint to slope away from post to drain water.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more . For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.

- E. Line Posts: Space line posts uniformly at 96 inches o.c.
- F. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 2-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.

3.4 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

END OF SECTION 323113

