

CC ARCHITECT
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Chuck Campbell Architect PLLC
127 Union Road Waldoboro, Maine 04572

Addendum 1

September 10, 2026

1. There will be a mandatory site walk on September 21st at 5:00. We will meet at the Friendship Town Office.
2. The bid date has been moved to October 13th at 6:00pm.
3. Bonding is required.
4. The wrong lift was listed on the plan. The proper lift is a Savaria V1504. This lift requires a 3" deep pit.
5. The column footing size was not called out on sheet A1.1. The footing size is 30" square.
6. Security/safety fencing needs to be provided around the site work area.
7. The basement exit doors need to be alarmed so the librarian is aware when the doors are opened.
8. Library addition flooring to be hardwood. White Oak. Floor to be sanding and finished after installation.
9. Existing library to receive new hardwood flooring to match the flooring in the library addition.
10. Lighting in the existing library to remain in place.
11. Include 6 security cameras to be placed at owners requested locations.
12. Payment requisitions shall be monthly and shall be made on AIA G701 form.
13. Electrical shall be design build. Design shall meet the electrical code requirements.
14. HVAC shall be design build. The HVAC shall be designed to meet MUBEC.
15. Outline specification is attached.
16. Bid shall be on the attached Bid Form.



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Chuck Campell Architect PLLC
127 Union Road Waldoboro, Maine 04572

Sincerely,

Chuck Campbell LEED AP BD+C
Maine Licensed Architect
MUBEC TPI

Chuck Campbell Architect PLLC
127 Union Road
Waldoboro, ME 04572
Tel: (207)557-0448

**SECTION 004100
BID FORM****THE PROJECT AND THE PARTIES****1.01 TO:**

- A. Owner
Town of Friendship
6 Harbor Road
Friendship, ME 04547
Friendship, MaineProject Location ZIP

1.02 DATE: _____ (BIDDER TO ENTER DATE)**1.03 SUBMITTED BY: (BIDDER TO ENTER NAME AND ADDRESS)**

- A. Bidder's Full Name _____
1. Address _____
2. City, State, Zip _____

1.04 OFFER

- A. Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Bid Documents prepared by Chuck Campbell Architect PLLC for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:
- B. _____ dollars
(\$ _____), in lawful money of the United States of America.

1.05 ACCEPTANCE

- A. This offer shall be open to acceptance and is irrevocable for thirty days from the bid closing date.
- B. If this bid is accepted by Owner within the time period stated above, we will:
1. Execute the Agreement within seven days of receipt of Notice of Award.
 2. Commence work within seven days after written Notice to Proceed of this bid.

1.06 CONTRACT TIME

- A. If this Bid is accepted, we will:
- B. Complete the Work in _____ calendar weeks from Notice to Proceed.

1.07 CHANGES TO THE WORK

- A. When Architect establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with General Conditions, our percentage fee will be:
1. ___10___ percent overhead and profit on the net cost of our own Work;
 2. ___10___ percent on the cost of work done by any Subcontractor.
- B. On work deleted from the Contract, our credit to Owner shall be Architect-approved net cost plus ___100___ of the overhead and profit percentage noted above.

1.08 ADDENDA

- A. The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.
1. Addendum # _____ Dated _____.
 2. Addendum # _____ Dated _____.
 3. Addendum # _____ Dated _____.

1.09 BID FORM SIGNATURE(S)

- A. The Corporate Seal of
- B. _____
- C. (Bidder - print the full name of your firm)
- D. was hereunto affixed in the presence of:
- E. _____
- F. (Authorized signing officer, Title)
- G. (Seal)
- H. _____
- I. (Authorized signing officer, Title)

1.10 IF THE BID IS A JOINT VENTURE OR PARTNERSHIP, ADD ADDITIONAL FORMS OF EXECUTION FOR EACH MEMBER OF THE JOINT VENTURE IN THE APPROPRIATE FORM OR FORMS AS ABOVE.

END OF SECTION

**SECTION 000101
PROJECT TITLE PAGE**

PROJECT MANUAL

FOR

FRIENDSHIP PUBLIC LIBRARY

**3 MAIN STREET
FRIENDSHIP , MAINE**

DATE: AUGUST 05, 2026

PREPARED BY: CHUCK CAMPBELL

CHUCK CAMPBELL ARCHITECT PLLC

END OF SECTION

**SECTION 000110
TABLE OF CONTENTS**

PROCUREMENT AND CONTRACTING REQUIREMENTS

1.01 DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

- A. 000101 - Project Title Page
- B. 000110 - Table of Contents
- C. 007200 - General Conditions

SPECIFICATIONS

2.01 DIVISION 01 -- GENERAL REQUIREMENTS

- A. 015000 - Temporary Facilities and Controls

2.02 DIVISION 03 -- CONCRETE

- A. 030516 - Underslab Vapor Barrier
- B. 031000 - Concrete Forming and Accessories
- C. 032000 - Concrete Reinforcing
- D. 033000 - Cast-in-Place Concrete

2.03 DIVISION 04 -- MASONRY

2.04 DIVISION 05 -- METALS

2.05 DIVISION 06 -- WOOD, PLASTICS, AND COMPOSITES

- A. 061000 - Rough Carpentry
- B. 062000 - Finish Carpentry

2.06 DIVISION 07 -- THERMAL AND MOISTURE PROTECTION

- A. 071113 - Bituminous Dampproofing
- B. 072100 - Thermal Insulation
- C. 072500 - Weather Barriers
- D. 073113 - Asphalt Shingles
- E. 074623 - Wood Siding
- F. 074633 - Plastic Siding
- G. 076200 - Sheet Metal Flashing and Trim
- H. 079200 - Joint Sealants

2.07 DIVISION 08 -- OPENINGS

- A. 080671 - Door Hardware Schedule
- B. 081113 - Hollow Metal Doors and Frames
- C. 081416 - Flush Wood Doors
- D. 085200 - Wood Windows
- E. 087100 - Door Hardware
- F. 088000 - Glazing

2.08 DIVISION 09 -- FINISHES

- A. 090561 - Common Work Results for Flooring Preparation
- B. 092116 - Gypsum Board Assemblies
- C. 093000 - Tiling

- D. 096433 - Laminated Wood Flooring
- E. 099000 - Painting and Coating - LEED v4/Green Product Guide Spec
- F. 099113 - Exterior Painting
- G. 099123 - Interior Painting

2.09 DIVISION 10 -- SPECIALTIES

- A. 101400 - Signage
- B. 102800 - Toilet, Bath, and Laundry Accessories

2.10 DIVISION 22 -- PLUMBING

2.11 DIVISION 23 -- HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

2.12 DIVISION 26 -- ELECTRICAL

2.13 DIVISION 31 -- EARTHWORK

- A. 312200 - Grading
- B. 312316 - Excavation

END OF SECTION

**SECTION 015000
TEMPORARY FACILITIES AND CONTROLS**

PART 1 GENERAL

1.01 DEWATERING

- A. Provide temporary means and methods for dewatering all temporary facilities and controls.
- B. Maintain temporary facilities in operable condition.

1.02 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.

1.03 EXTERIOR ENCLOSURES

- A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.04 WASTE REMOVAL

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 024100 DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of building elements for alteration purposes.

1.02 REFERENCE STANDARDS

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition,

PART 2 PRODUCTS

2.01 MATERIALS

- A. Not Used

PART 3 EXECUTION

3.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 3. Provide, erect, and maintain temporary barriers and security devices.
- B. Do not begin removal until built elements to be salvaged or relocated have been removed.
- C. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- D. Protect the floor of adjacent spaces to be traversed during demolition and construction.

3.02 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation only.
- B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

- C. Remove existing work as indicated and as required to accomplish new work.
- D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
- E. Protect existing work to remain.

3.03 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site and dispose of lawfully.

END OF SECTION

**SECTION 030516
UNDERSLAB VAPOR BARRIER - STEGO**

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Submit manufacturers' data on manufactured products.
- B. Samples: Submit samples of underslab vapor barrier to be used.
- C. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent construction.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Underslab Vapor Barrier:
 - 1. Minimum permeance: ASTM E-96, not greater than 0.01 perms.
 - 2. Thickness: ACI 302.1 R-96, not less than 15 mils
 - 3. Tensile Stenght: ASTM E154 or D638, Class A - over 45 lbf/in.
 - 4. Puncture resistance: ASTM E-154, Class B - over 1700 grams
 - 5. Water Vapor Barrier: ASTM E-1745, meets or exceeds Class B
 - a. Stego Industries LLC; Stego Wrap Vapor Barrier (15-mil):
www.stegoindustries.com/#sle.
- B. Available products: Subject to compliance with requirements, products that may be incorporated into the work include but are not limited to the following
 - 1. Stego Wrap. 15 mil thick vapor retarder by Stego Industries LLC
 - 2. Vapoguard by Reef Industries
 - 3. Sealtight Premoulded Membrane by W.R. Meadows, Inc.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Comply with maunfacturer's written instructions applicable to products and application indicated.
- B. Extend barriers in thickness indicated ot envelop entire area to be covered. Cut and fit tightly around obstructions. Remove projections that interfere with placement.
- C. Protect installed vapor barriers from damage due to weather exposure, physical abuse or other causes. Provide temporary coverings where vapor barriers are subject to damage and cannot be concealed and protected by permanent construction immeditely after installation.

END OF SECTION

**SECTION 031000
CONCRETE FORMING AND ACCESSORIES**

PART 1 GENERAL

PART 2 PRODUCTS

2.01 FORMWORK - GENERAL

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
- B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.
- C. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

PART 3 EXECUTION

3.01 ERECTION - FORMWORK

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.
- B. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and to adjacent materials.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces.
- D. Admixtures: comply with manufacturer's instructions for use of admixtures.
- E. Provisions for other trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.
- F. Leaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement as required to eliminate mortar leaks and maintain proper alignment.

3.02 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

END OF SECTION

SECTION 032000 CONCRETE REINFORCING

PART 2 PRODUCTS

1.01 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).
 - 1. Deformed billet-steel bars.
 - 2. Unfinished.
- B. Steel Welded Wire Reinforcement (WWR): Galvanized, deformed type; ASTM A1064/A1064M.
 - 1. Form: Flat Sheets.
- C. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing. Supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI recommendations, unless otherwise acceptable.

1.02 FABRICATION

- A. Locate reinforcing splices not indicated on drawings at point of minimum stress.

PART 3 EXECUTION

2.01 PLACEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. All steel bars and wire shall be of size, gauge and length indicated, accurately bent or formed to shapes detailed or scheduled by experienced shops using methods that will not injure the material.
 - 2. Steel reinforcing shall not be bent in a manner that will injure the material or the embedding concrete. Bars with kinks or bends not shown on the plans shall not be used. Heating of reinforcement for bending will not be permitted. Bars shall be bent only once.
 - 3. All details of reinforcement not shown or indicated on the drawings or specifically called for in the specifications shall conform to ACI 315.
 - 4. Lap all bars at splices, corners and intersections a minimum of 36 bar diameters unless otherwise indicated.
 - 5. Splices of reinforcement shall not be made at points of maximum stress. Splice lengths shall be a minimum of 36 bar diameters unless otherwise indicated.
 - 6. Where obstructions (pipes, conduit, ducts, etc) prevent the intended placement of reinforcing,
 - provide additional reinforcing as directed by the engineer or his representative around the obstruction.
 - 7. Provide additional stirrups, ties, trim bars, etc., as directed around all openings, sleeves, pipes and conduits, which pass through structural elements.
- B. Do not displace or damage vapor barrier. Repair damage and reseal vapor retarder before placing concrete.
- C. Comply with applicable code for concrete cover over reinforcement.

END OF SECTION

SECTION 033000 CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test result, or other circumstances warrant adjustments.
 - 1. provide cement manufacturer's letter of certification and chemical content test results stating that the Portland cement is in compliance with ASTM designation C 150.
- C. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, "Details of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- D. Welding certificates: Copies of certificates for welding procedures and personnel.
- E. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.02 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
- E. Welding: Qualify procedures and personnel according to AWS D1.4 "Structural Welding Code -- Reinforcing Steel."

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches (38 mm) of concrete surface.

2.02 REINFORCEMENT MATERIALS

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).
- B. Steel Welded Wire Reinforcement (WWR): Plain type, ASTM A1064/A1064M.
 - 1. Form: Flat Sheets.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M, Type II - Moderate Portland type.
- B. Fine and Coarse Aggregates: ASTM C33/C33M.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Calcined Pozzolan: ASTM C618, Class N.

- E. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.
- F. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. High Range Water Reducing Admixture: ASTM C494/C494M Type F.

2.05 ACCESSORY MATERIALS

- A. Underslab Vapor Retarder: Sheet material complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.

2.06 CURING MATERIALS

- A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.

2.07 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- C. Normal Weight Concrete:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch (20.7 MPa).
 - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
 - 3. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.
 - 4. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.
 - 5. Water-Cement Ratio: Maximum 40 percent by weight.
 - 6. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
 - 7. Maximum Slump: 4 inches (100 mm).

PART 3 EXECUTION

3.01 PREPARATION

- A. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
- B. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips: use strike-off templates or compacting-type screeds.

3.02 INSTALLING EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with item to be embedded.
 - 2. Install anchor bolts, accurately located, to elevations required

3.03 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement

1. All steel bars and wire to be of size, gauge, and length indicated, accurately bent or formed to shapes detailed or scheduled by experienced shops using methods that will not injure the materials.
2. Steel reinforcing shall not be bent in a manner that will injure the material or the embedding concrete. Bars with kinks or bends not shown on the plan shall not be used. Heating of reinforcement for bending will not be permitted. Bars shall be bent only once (no rebending or straightening allowed) unless shown as such on the drawings.
3. All details of reinforcement not shown or indicated on the drawings or specifically called for in the specifications shall conform to ACI 315.
4. Lap all bars at splices, corners and intersections a minimum of 36 bar diameters unless otherwise indicated.
5. All intersecting concrete walls shall be tied with #4L bars 3'-0" long, bent 18"x18" spaced 12" on center, outside face only unless otherwise indicated
6. Splices of reinforcement shall not be made at points of maximum stress. Splice lengths shall be a minimum of 36 bar diameters unless otherwise indicated and shall provide sufficient lap to transfer the stress between bars by bond and shear. Stagger splices of adjacent bars where possible. All splices and laps at corners and intersections shall be tied with wire at each end.
7. Where obstructions (pipes, conduits, ducts, etc.) prevent the intended placement of reinforcing, provide additional reinforcing around the obstruction to match that reinforcing interrupted
8. Provide additional stirrups, ties, trim bars, etc., as directed around all openings, sleeves, pipes, and conduits, which pass through structural elements.
9. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.04 CONCRETE MIXING

- A. General: The concrete shall be mixed in the quantities required for immediate use, and any which has developed initial set or exceed the time limit of ASTM C 94 shall not be used. No retempering of mortar or concrete shall be allowed under any circumstances.
- B. Final proportions shall be in accordance with approved mix design.

3.05 PLACING CONCRETE

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Remove loose dirt, mud, standing water, and foreign matter from excavations or from cavities.
- C. Thoroughly clean reinforcement and other embedded items free from loose rust and other matter. Assure reinforcing is held securely in place.
- D. Equipment shall be maintained clean and of sufficient quantity and capacity to efficiently execute the work required.
- E. Do not add water to concrete during delivery, at project site, or during placement, unless approved by engineer.
- F. Before placing concrete, water may be added at project site, subject to limitations of ACI 301.
- G. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
- H. Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic to avoid cold joints.
 1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.

- a. concrete shall be vibrated into final position in forms with an internal type vibrating machine. The vibration shall have a frequency of not less than 8000 vibrations per minute.
- b. The vibration shall be of sufficient intensity and duration to cause flow or settlement of the concrete and complete consolidation. Over vibration, especially of mixtures that are too wet, may cause segregation and will be avoided. A sufficient number of vibrators shall be provided to permit consolidation of each batch before the batch is delivered and without delaying the delivery.
- c. The vibrations shall be applied directly to the concrete, and vibration through the forms shall not be permitted. Vibration shall be applied at the point of deposit and in the area of freshly deposited concrete. The concrete shall be placed in layers of uniform thickness.
- d. Dropping of concrete a distance of more than 6 feet unless confined by closed chutes or pipes will not be permitted. The concrete shall be deposited at or as near as possible to its final position.
2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.
3. When conditions make puddling difficult, or where reinforcement is congested, batches of mortar containing the same proportions of cement and sand used in the concrete shall be deposited in the forms. The operation of filling with the regularly specified mix shall be carried on at such a rate that the mix is at all times plastic and flows readily into the spaces between the bars.
4. In thin walls or inaccessible portions of the forms where rodding is impractical, the concrete shall be worked into place by tapping or hammering forms adjacent to the freshly deposited concrete.
5. The contractor's attention is called to the importance of making the concrete dense, and shall provide sufficient labor to avoid air pockets and voids in exposed sections and leave smooth uniform surfaces after forms are removed.
6. Should any honeycombed concrete be disclosed upon form removal, the contractor shall immediately cut out the said honeycombed portion back to solid concrete and shall fill the opening thus formed with concrete of the same proportions at that specified for the section of work in which the fault occurs.
7. When placing fresh concrete upon hardened concrete, the latter shall be thoroughly roughened and cleaned of all loose materials, scum or latency. The bonding compound shall be applied and the new concrete placed while bonding agent is still tacky.
8. The contractor's attention is called to the importance of properly and carefully placing concrete around reinforcement, as the reinforcement metal must not be exposed; and in cases where reinforcement metal becomes exposed on the surface, that portion of work must be removed and re-laid as the covering of same by plastering with cement mortar will not be allowed. All reinforcing rods or other reinforcing material shall be lightly tapped so that they will retain their original position.
9. No concrete shall be retempered except as allowed in ASTM C 94 nor shall set concrete be used as aggregate.
- I. Deposit and consolidate concrete floors and slabs in a continuous operation, within limits of construction joints, until placement of panel is complete
 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.

- Reinforcement, unless otherwise indicated, shall be placed one-half the thickness of the slab.
- a. Reinforcement, unless otherwise indicated, shall be placed one-half the thickness of the slab.
 3. Screed slab surface with a straight edge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps and hollows, before starting finishing operation.
- J. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing action, or low temperatures.
1. When air temperature has fallen to or is expected to fall below 40 Deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 Deg F and not more than 80 Deg F at point of placement.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
 4. Contractor shall have on the job, ready to install, adequate equipment for heating the materials and the freshly placed concrete and for enclosing the work in accordance with the requirement specified herein.
- K. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows.
1. Cool ingredients before mixing to maintain temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature. Provide water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is contractor's option.
 2. Cover steel reinforcement with water soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

FLOOR FLATNESS AND LEVELNESS TOLERANCES

- A. Maximum Variation of Surface Flatness:
1. Exposed Concrete Floors: 1/4 inch (6 mm) in 10 feet (3 m).
 2. Under Seamless Resilient Flooring: 1/4 inch (6 mm) in 10 feet (3 m).
 3. Under Carpeting: 1/4 inch (6 mm) in 10 feet (3 m).
- B. Correct the slab surface if tolerances are less than specified.
- C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.06 CONCRETE FINISHING

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
1. All interior concrete floor slabs shall be finished true and smooth by steel troweling or finishing machine.
 2. Exterior floor slabs to have a broom finish.
 3. When a section of concrete floor is completed, it shall be left entirely undisturbed until the concrete is thoroughly hardened.
 4. Adequate provisions will be made to eliminate the possibility of accidental encroachment upon the newly concreted area.

- C. Float Finish: Consolidate surface with power-driven floats or by hand if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill in low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces indicated, to surfaces to receive trowel finish.
- D. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven-trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor covering.
 - 1. Apply a trowel finish to surfaces indicated and to floor and slab surfaces exposed to view.
 - 2. Finish surfaces to the following tolerances, measured within 24 hours according to ASTM E 1155/e 1155M for randomly trafficked floor surface.
 - a. Tolerances will be in accordance with ACI Publication #117 - Class AX Depression in floor between hight spots shall not be greater than 3/16' in 10'-0" +/- 1/16", and the measurement will be taken by the straight edge metod no later than the day after the floor has been poured.

3.07 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

END OF SECTION

**SECTION 061000
ROUGH CARPENTRY**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. structural dimension lumber framing.
- B. Non-structural dimension lumber framing.
- C. Rough opening framing for doors, windows, and roof openings.
- D. Sheathing.
- E. Preservative treated wood materials.
- F. Miscellaneous framing and sheathing.
- G. communication and electric room mounting boards.
- H. concealed wood blocking, nailers, and supports.
- I. Miscellaneous wood nailers, furring, and grounds.
- J. Water resistive barrier over wall sheathing.

1.02 RELATED REQUIREMENTS

- A. Section 072500 - Weather Barriers: Air barrier over sheathing.

1.03 REFERENCE STANDARDS

- A. APA PRP-108 - Performance Standards and Qualifications Policy for Structural-Use Panels (Form E445); 2001
- B. ASTM A 153/A 153M - Standard Specification for Zinc-Coating (Hot-Dip) on iron and steel hardware; 2009.
- C. ASTM A 653/A 53M - Standard Specification for steel sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process; 2009a.
- D. ASTM E 84 - standard Test Method for Surface Burning Characteristics of Building Materials; 2010.
- E. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes; American Wood Protection Association; 2003.
- F. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood protection Association; 2010.
- G. PS 1 - Structural Plywood; 2007.
- H. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; National Institute of Standards and Technology, U.S. Department of Commerce; 2004.
- I. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

1.04 SUBMITTALS

- A. Product Data: Provide technical data on insulated sheathing, wood preservative materials, and application instructions.

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

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture
- B. Stack lumber, plywood and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

2.02

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
 3. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

2.03 DIMENSION LUMBER

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Stud Framing (2 by 2 through 2 by 6 (50 by 50 mm through 50 by 150 mm)):
1. Species: Spruce-Pine-Fir.
 2. Grade: No. 2.
- D. Rafter and Small Beam Framing (2 by 6 through 4 by 16 (50 by 150 mm through 100 by 400 mm)):
1. Species: Spruce-Pine-Fir.
- E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
1. Lumber: S4S, No. 2 or Standard Grade.
 2. Boards: Standard or No. 3.

2.04 STRUCTURAL COMPOSITE LUMBER

- A. At Contractor's option, structural composite lumber may be substituted for concealed dimension lumber and timbers.
- B. Structural Composite Lumber: Factory fabricated beams, headers, and columns, of sizes and types indicated on drawings; structural capacity as published by manufacturer.
 - 1. Beams: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber with manufacturer's published E (modulus of elasticity): 1,800,000 psi (12,410 MPa), minimum.

2.05 CONSTRUCTION PANELS

- A. Roof Sheathing: oriented strand board wood structural panel; PS 2, Exposure 1.
 - 1. Thickness: 5/8 inch nominal.
 - 2. Span Rating: 32/16
 - 3. Edges: Tongue and groove.
 - 4. Exposure Time: Sheathing undamaged; water-resistive and air barrier layer intact after exposure to weather for up to 300 days.
 - 5. Provide fastening guide on top panel surface with separate markings indicating fastener spacing for 16 inches and 24 inches on center respectively.
 - 6. Manufacturers:
 - a. Huber Engineered Wood, LLC; Product: Advantech sheathing.
www.advantechperforms
- B. Composite Insulating Wall Sheathing: Oriented-strand board Exposure 1 sheathing 7/16 inch thick, with factory-laminated water-resistive barrier exterior facer, and with rigid foam plastic insulating board laminated to interior face.
 - 1. Span Rating and Performance Category of sheathing layer: Not less than 24/16; 7/16 Performance Category.
 - 2. Thickness: 1-1/2 inch
 - 3. Thermal Resistivity (R Value): 6.6.
 - 4. Edge Profile: Square edge.
 - 5. Exterior Facer: Medium-density, phenolic-impregnated polymer-modified sheet material meeting requirements for ASTM D779 Grade D weather resistive barrier in accordance with ICC AC38 and AC310, with fastener spacing symbols on exterior facer for 16 inch and 24 inch on center spacing, with the following characteristics.
 - a. Water resistance Coatings, ASTM D2247: Pass 14 day exposure test.
 - b. Moisture Vapor Transmission, ASTM E96: Not less than 12 perms.
 - c. Water Penetration, ASTM E331: Pass at 2.86 lbf/sq.ft.
 - d. Wind Driven Rain, TAS-100: Pass.
 - e. Accelerated Weathering, ASTM G154: Pass
- C. Sub-floor: Oriented strand board combination subfloor-underlayment wood structural panel Exposure 1
 - 1. Span Rating and Performance Category: not less than 24 oc, 23/32 performance category.
 - 2. Thickness: 3/4 inch.
 - 3. Edge Detail: Tongue and groove.
 - 4. Surface Finish: Fully sanded face

2.06 FASTENERS

- A. General: Provide fasteners of size and type complying with manufacturer's written instructions
 - 1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 553M.
- B. Nails, Brads, and Staples: ICC AC116 and ICC AC201.
- C. Power Driven Fasteners: ICC-ES-1539 or NER-272
- D. Wood Screws: ASME B18.6.1.
- E. Bolts: Steel bolts complying with ASTM 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.
- F. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M)
- G. Expansion Anchors: Anchor bolts and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspection agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

2.07 METAL FRAMING ANCHORS

- A. General: Provide framing anchors made from metal indicated, of structural capacity, type, and size indicated, and as follows:
 - 1. Research/Evaluation Reports: Provide product acceptable to authorities having jurisdiction and for which model code research/evaluation report exist that show compliance of metal framing anchors, for application indicated, with building code in effect for project.
 - 2. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- B. Galvanized Steel Sheet: Hot-Dip zinc-coated steel sheet complying with ASTM A 653/A 653M, G60(Z180) coating design.
- C. Rafter Tie-Downs: Bent strap tie for fastening rafters or roof trusses to wall studs below.

2.08 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
 - 2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
- B. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions.
- C. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous roll.

2.09 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWWA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

PART 3 EXECUTION

3.01 PREPARATION

- A. Install sill gasket under sill plate of framed wall bearing on foundation; puncture gasket cleanly to fit around protruding anchor bolts.
- B. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

- A. Select material to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

3.03 FRAMING INSTALLATION

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with a minimum number of joints or optimum joint arrangement.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Securely attach rough carpentry work to substrate by fastening and anchoring as indicated, complying with the most stringent of the following:
 - 1. Published requirements of metal framing anchor manufacturer.
 - 2. Table 2304.10.1 "Fastening Schedule" in the 2015 IBC.
 - 3. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
 - 4. Use finish nails for exposed work, unless otherwise indicated. Countersink nail heads and fill with wood filler.

- E. Comply with member sizes, spacing and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrate to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.
- C. Specifically provide the following non-structural framing and blocking:
 - 1. Cabinets and shelf supports.
 - 2. Wall Brackets
 - 3. Grab Bars.
 - 4. Towel and Bath Accessories.
 - 5. Wall Mounted Door Stops.
 - 6. Chalkboards and Marker Boards.

3.05 INSTALLATION OF CONSTRUCTION PANELS

- A. Subflooring/Underlayment Combination: Glue and nail to framing. Staples are not permitted.
- B. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
 - 1. Nail panels to framing; Staples are not permitted.
- C. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails as scheduled.
 - 1. Place water-resistive barrier horizontally over wall sheathing, lapping edges and ends.
- D. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
 - 1. At fire rated walls, install board over wall board indicated as part of the fire rated assembly.
 - 2. Install adjacent boards without gaps.
 - 3. Size: 48 by 96 inches, installed horizontally at ceiling height.
- E. Wall Sheathing and roof sheathing with laminated water-resistive Barrier and Air Barrier: Secure to studs as recommended by manufacturer.
 - 1. Install with laminated water-resistive and air barrier on exterior side of sheathing.
 - 2. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
 - 3. Apply manufacturer's standard seam tape to joints between sheathing panels. Use tape gun or hard rubber rollers as recommended by manufacturer.

3.06 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (other than floors): 1/4 inch in 10 feet maximum.
- C. indicated, but not less than required by applicable codes.

3.07 CLEANING

- A. Waste Disposal:
 - 1. Comply with applicable regulations..
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA or ACA to co-generation facilities or "waste to energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system..

END OF SECTION

**SECTION 062000
FINISH CARPENTRY**

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the following:
 - 1. Interior standing and running trim.
 - 2. Wood Shelving.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- B. Section 09 90 00 - Painting and Coating: Painting and finishing of finish carpentry items.

1.03 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.04 SUBMITTALS

- A. Shop drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
 - 1. Minimum scale of Detail Drawings: 1-1/2 inch to 1 foot.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with a minimum five years of documented experience.

1.06 DELIVERY AND STORAGE

- A. Protect materials against weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.
- B. Deliver interior finish carpentry only when environmental conditions meet requirements specified for installation areas. If finish carpentry must be stored in other than installation areas, store only where environmental conditions meet requirements specified for installation areas.

PART 2 PRODUCTS

2.01 EXTERIOR STANDING AND RUNNING TRIM

- A. PVC trim: solid polyvinyl chloride (PVC) material produces in stock sizes to match wood lumber and trim. Flame spread index of 25 in accordance with ASTM E84.
 - 1. Available Products.
 - a. Azek by Azek Building products.
 - b. Celtec 550 by Lumber Specialties, Inc.
 - c. Kleer Lumber, LLC
 - d. Koma B
 - e. by Kommerling USA, Inc
 - f. Versatex by Wolfpac Technologies, Inc

2.02 INTERIOR STANDING AND RUNNING TRIM

- A. Wood Trim for Opaque Finish(Painted): Finished lumber (S4S). either finger-jointed or solid lumber, of the following species and grades.
 - 1. Grade: premium or No. 2 Eastern white pine; NELMA or NLGA

2.03 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.

PART 3 EXECUTION

3.01 PREPARATIONS

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this w
- C. Clean substrates of projections and substances detrimental to application.
 - 1. Before installing finish carpentry, condition material to average prevailing humidity in installation area for a minimum of 24 hours.
- D. Prime lumber for exterior applications to be painted, including both faces and edges. Cut to required lengths and prime ends. Comply with requirements of division 9 Section "Painting".

3.02 INSTALLATION, GENERAL

- A. Do not use materials that are unsound., warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install finish carpentry level. plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.

1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
2. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.
3. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining finish carpentry with 1/32 inch maximum offset for flush installation and 1/16 inch maximum offset for reveal installation.
4. Coordinate finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate finish carpentry.

3.03 STANDING AND RUNNING TRIM

- A. install with a minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches long, except where necessary. Stagger joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment,
 1. Match color and grain pattern across joint.
 2. Install trim after gypsum board joint finishing operations are completed.
 3. Drill pilot holes in cedar before fastening to prevent splitting. Fasten to prevent movement or warping, Countersink fastener heads on exposed carpentry work and fill holes.

3.04 ADJUSTING

- A. Replace finish carpentry that is damaged or does not comply with requirements. Finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.05 CLEANING

- A. Clean finish carpentry on exposed and semi exposed surfaces. Touch up factory applied finishes to restore damaged or soiled areas.

END OF SECTION

**SECTION 071113
BITUMINOUS DAMPPROOFING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Bituminous dampproofing

1.02 REFERENCE STANDARDS

- A. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing. 2
- B. ASTM D 449 - Standard Specification for Asphalt Used in Dampproofing and Waterproofing: 2003 (Reapproved 2008).
- C. ASTM D 1227 - Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing: 1995 (Reapproved 2007).
- D. ASTM D 2822 - Standard Specification for Asphalt Roof Cement, Asbestos-Containing: 2005.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated. Include recommendations for method of application, primer, number of coats, coverage or thickness, and protection course.
- B. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention. Material Certificates: For each product, signed by manufacturer.

1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain primary dampproofing materials and primers through one source from a single manufacturer. Provide secondary materials recommended by manufacturer of primary materials.
- B.

1.05 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit asphalt dampproofing to be performed according to manufacturer's written instructions.
- B. Ventilation: Provide adequate ventilation during application of dampproofing in enclosed spaces. Maintain ventilation until dampproofing has thoroughly cured.

PART 2 PRODUCTS

2.01 COLD ASPHALTIC MATERIALS

- A. Bitumen: Emulsified asphalt, ASTM D 1227; with fiber reinforcement other than asbestos (Type II).
- B. Asphalt Primer: ASTM D 41, compatible with substrate.
- C. Sealing Mastic: Asphalt roof cement, ASTM D 2822, Type I.

PART 3 EXECUTION

3.01 PREPARATION

- A. Foundation Walls: Apply two coats of asphalt dampproofing.
- B. Foundation Walls: Patch disturbed areas of existing dampproofing with two additional coats of dampproofing of the same generic type.
- C. Protect adjacent surfaces not designated to receive dampproofing.
- D. Clean and prepare surfaces to receive dampproofing in accordance with manufacturer's instructions.
- E. Do not apply dampproofing to surfaces unacceptable to manufacturer
- F. Apply mastic to seal penetrations, small cracks, or minor honeycomb in substrate.

3.02 APPLICATION, GENERAL

- A. Foundation Wall: Apply two coats of Asphalt dampproofing.
- B. Apply Bitumen with mop.
- C. Apply bitumen in one coat, continuous and uniform, at a rate of 25 sq.ft./gal per coat.
- D. Apply from 2" below finish grade elevation down to top of footings.
- E. Seal items projecting through dampproofing surface with mastic. Seal watertight.

3.03 COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING

- A. On Exterior Face of Concrete Walls: Apply one brush or spray coat not less than 1.25 gal./100 sq.ft..

3.04 CLEANING

- A. Remove dampproofing materials from surfaces not intended to receive dampproofing.

END OF SECTION

SECTION 072100 THERMAL INSULATION

PART 2 PRODUCTS

1.01 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with the requirements and with referenced standards.
- B. Batt Insulation: ASTM C 655, Type 1 (blankets without membrane facing); consisting of fibers manufactured from glass or mineral wool; with maximum flame-spread and smoke developed indices of 25 and 50 respectively; passing ASTM E 136 for combustible characteristics
 - 1. Available Products:
 - a. Certainteed Corporation.
 - b. Guardian Building Products.
 - c. Johns Manville Corporation
 - d. Owens Corning
 - e. Rockwool
- A. Expanded Polystyrene (EPS) Board Insulation: Complies with ASTM C578.
 - 1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
 - 3. Board Thickness: 2 inch (51 mm).

1.02 BATT INSULATION MATERIALS

- A. Mineral Fiber Batt Insulation: Flexible or semi-rigid preformed batt or blanket, complying with ASTM C665; friction fit; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
 - 1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.

1.03 ACCESSORIES

- A. Polyethylene Vapor Barrier: ASTM D 4397, 6 mils thick, with maximum permeance rating of 0.13 perm.
- B. Vapor Barrier Tape: Pressure sensitive tape of type recommended by vapor-barrier manufacturer for sealing joints and penetrations in vapor barrier.
 - 1. Available Products: 3M Builder's Sealing Tape No. 8086

1.04 AUXILLIARY INSULATING MATERIALS

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

PART 3 EXECUTION

2.01 INSTALLATION, GENERAL

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

2.02 INSTALLATION OF GENERAL BUILDING INSULATION

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

Install insulation batts in cavities formed by framing members according to the following requirements:

- 1. Use blanket widths and lengths that fill the cavities formed by framing members' If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
- 2. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

2.03 PROTECTION

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

2.04 BATT INSTALLATION

- A. Install insulation and vapor retarder in accordance with manufacturer's instructions.
- B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.

END OF SECTION

SECTION 072100 THERMAL INSULATION - ROCKWOOL

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.02 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials and accessories in insulation manufacturer's original packaging with identification labels intact and in sizes to suit project. Ensure insulation materials are not expose to moisture during delivery. Replace wet or damaged insulation materials.
- B. Storage and Handling: Store materials off ground in dry location and protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer. Store in original packaging until installed.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Thermal Insulation and acoustical insulation:
 - 1. Product: Rockwool Comfortbatt for wood stud; unfaced.
 - a. R-Value: R-15, R-23, R-30
 - b. Density: >2lbs/ft3, nominal.
 - c. Surface Burning Characteristics: Tested in accordance with ASTM E 84
 - 1) Unfaced: Flame spread 0 and smoke developed
 - d. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104
 - e. Corrosion Resistance: Non-corrosive/passed, when tested in accordance with ASTM C665 for steel & ASTM C795 for stress Corrosion Cracking Tendency of Austentic Stainless Steel.
 - f. Fungi resistance: Zero mold growth to ASTM 1338.
 - g. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
 - h. Environmental Product Declaration (EPD): Material must be included on UL Certified EPD in accordance with EN 15804 and ISO 14025.
 - i. GREENGUARD Gold Certified.
 - 2. Product: Rockwool Acoustical Fire Batts (AFB) for wood studs; unfaced.
 - a. Density: >2.5 lbs/ft3 nominal
 - b. Melting Point: Minimum melting point temperature of 2150 degrees F.
 - c. Surface Burning Characteristics: Tested in accordance with ASTM E 84.
 - 1) Unfaced: Flame spread 0 and smoke developed 0.
 - d. Non-Combustible: classified non-combustible per CAN/ULC S114
 - e. Non-Combustible per ASTM E 136 at 750 degrees C.

- f. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
- g. Corrosion Resistance: Non-corrosive/passed, when tested in accordance with ASTM C665 for steel & ASTM C795 for stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
- h. Fungi resistance: Zero mold growth to ASTM 1338.
- i. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
- j. Environmental Product Declaration (EPD): Material must be included on UL Certified EPD in accordance with EN 15804 and ISO 14025.
- k. Air Erosion: Maximum air velocity of 1,000 fpm per UL 181
- l. UL Classification Code: BZJZ
- m. ULC Classification Code: BZJtified.
- n. GREENGUARD Gold Certified.
- o. MEA Approval, New York City Approved - 338-97-M
- p. City of Los Angeles Approval - RR 25444
- q.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work of this section will be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install insulation in accordance with manufacturer's written installation instructions.
- B. install insulation to maintain continuity of thermal protection to building elements and spaces. Ensure that insulation installation maintains continuity of thermal protection to building interior spaces.
- C. Do not compress insulation to fit into spaces. Ensure that insulation installation maintains continuity of thermal protection to building interior spaces.
- D. Co-ordinate installation of firestopping insulation.
- E. Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
- F. Keep insulation minimum 3" from heat emitting devices such as recessed light fixtures, and minimum 2" from sidewalls of chimneys and vents.

3.03 PROTECTION

- A. Store the material to protect against weathering and physical damage, including humidity. Unpack the material at the installation site. Open a door or open a window to ensure good ventilation during installation on the construction site. Cover open ventilation ducts to reduce particulate in the ducts.

END OF SECTION

SECTION 072500 WEATHER BARRIERS

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the following
 - 1. Vapor barriers under slabs-on-grade

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: 12 inch square units for each type of vapor retarder, vapor barrier, or air barrier indicated.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for insulation products.
 - 1. Moisture emission tests.
 - 2. Surface alkalinity tests.

1.03 DELIVERY, STORAGE, AND HANDLING

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

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Available Manufacturers and Products: Subject to compliance with requirements' manufacturers offering products that may be incorporated into the work include, but are not limited to, the following products listed in part 2 of this section. Water-Resistive Barrier: Provide on exterior walls under exterior cladding.

2.02 VAPOR BARRIERS FOR UNDER SLABS

- A. Vapor barrier with extremely low permeance for critically sensitive, low permeance floor coverings such as rubber, vinyl, urethane, epoxy and methyl methacrylate, as well as linoleum wood, having the following qualities: Use hydrogap unless otherwise indicated.
 - 1. Minimum Permeance: ASTM E-96, not greater than 0.01 perms.
 - 2. Tensile Strength: ASTM E154 or D638, Class A - over 45 lbf/in.
 - 3. Puncture Resistance: ASTM E-154, Class B - over 1700 grams.
 - 4. Water Vapor Barrier: ASTM E-1745, meets or exceeds Class B.
 - 5. Thickness of Barrier (Plastic) ACI 302.1R-96, not less than 15 mils.
- B. Available Products: Subject to compliance with requirements, products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Stego Wrap, 15 mil thick vapor retarder by Stego Industries LLC
 - 2. Vaporguard by Reef Industries
 - 3. Sealtight Premoulded Membrane by W.R. Meadows, Inc.
- C. Vapor-Retarder/Barrier Tape (for slabs): Stego Wrap red polyethylene tape or tape as recommended by the manufacturer.
- D. Vaporlock edge tape, preformed 2" wide two-sided adhesive.

2.03 WATER-RESISTIVE BARRIER MATERIALS (NEITHER AIR BARRIER OR VAPOR RETARDER)

2.04 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

- A. Air Barrier Sheet, Mechanically Fastened:

1. Air Permeance: 0.004 cfm/sq ft (0.02 L/(s sq m)), maximum, when tested in accordance with ASTM E2178.
2. Water Vapor Permeance: 5 perms (286 ng/(Pa s sq m)), minimum, when tested in accordance with ASTM E96/E96M Procedure A (Desiccant Method) at 73.4 degrees F (23 degrees C).
3. Ultraviolet (UV) and Weathering Resistance: Approved in writing by manufacturer for up to 180 days of weather exposure.
4. Surface Burning Characteristics: Flame spread index of 25 or less, and smoke developed index of 50 or less, when tested in accordance with ASTM E84.
5. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches (50 mm) wide, compatible with sheet material; unless otherwise specified.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

- A. Comply with manufacturer's written instructions applicable to products and application indicated.
- B. Extend barriers in thickness indicated to envelop entire area to be covered. Cut and fit tightly around obstructions. Remove projections that interfere with placement. Water-Resistive Barriers: Install continuous barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.
- C. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

3.02 INSTALLATION OF UNDER-SLAB VAPOR BARRIER

- A. Moisture vapor barrier system shall be installed at all interior slabs and as otherwise indicated in the drawings in strict accordance with the manufacturer's printed instructions and as follows.
 1. Snap chalk line along inside perimeter of foundation walls at top of slab elevation.
 2. Without wetting, clean a 3" wide band on the surface of the concrete below the chalk line at approximately mid-slab height. Remove dirt, residual form release, or other bond inhibiting surface contaminates. Grind smooth any surface projections within the band.
 3. While removing the contact paper on the backside, firmly press 2" wide vaporlock perimeter strip onto wall, parallel to the chalk line on the cleaned band at mid-slab elevation.
 4. Remove contact paper on face side.
 5. Apply a 12" wide strip of vapor barrier covering only the bottom 1" of contact surface on the perimeter strip. Cut, fit, and seal corner details with vapor barrier seaming tape.
 6. Align top edge of Iso-Strip isolation joint material to chalk line, and press material onto remaining 1" of exposed perimeter strip adhesive.
 7. Roll out vapor barrier material, overlapping edge rolls and all seams by 3". Tape all seams with vapor barrier seaming tape.
 8. All tears, punctures, etc. to be repaired and taped as required to maintain the watertight integrity of the vapor barrier system.

3.03 PROTECTION

- A. Protect installed vapor barriers from damage due to harmful weather exposure, physical abuse, and other causes. Provide temporary coverings or enclosures where vapor barriers are subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

- A. Mechanically Fastened Sheets - On Exterior:

1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
- B. Openings and Penetrations in Exterior Weather Barriers:
 1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches (125 mm) onto weather barrier and at least 6 inches (150 mm) up jambs; mechanically fasten stretched edges.

**SECTION 073113
ASPHALT SHINGLES**

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes asphalt shingles for steep roofs.

1.02 SUBMITTALS

- A. Product Data: Provide for each type of product specified, including details of construction relative to materials, dimensions of individual components, profiles, textures, and colors
- B. Samples: Submit for selection in the form of manufacturer's sample finishes showing the full range of colors and profiles available for each type of asphalt shingle indicated.

1.03 QUALITY ASSURANCE

- A. Fire-Test -Response Classification: Where products with a fire-test-response classification are specified, provide asphalt shingles identical to those tested according to ASTM E 108 or UL 790 and listed by UL or another testing and inspection agency acceptable to authorities having jurisdiction. Identify each bundle of asphalt shingles with appropriate markings indicating fire-test-response classification of applicable testing and inspecting agency.
- B. Wind-Resistance-Test Characteristics: Where wind-resistant asphalt shingles are indicated, provide products identical to those tested according to ASTM D 3161 or UL 997 and passed. Identify each bundle of shingles with appropriate markings of applicable testing and inspecting agency.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in manufacturer's unopened bundles or containers with labels intact.
- B. Handle and store materials at project site to prevent water damage, staining, or other physical damage. Store rolled goods on end. Comply with manufacturers' recommendations for job-site storage, handling and protection.

1.05 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installing asphalt shingles only when existing and forecasted weather conditions will permit work to be performed according to manufacturer's recommendations and warranty requirements, and when substrate is completely dry.

1.06 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the owner of other rights the owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the contractor under requirements of the contract documents.
- B. Special warranty: Submit a written warranty signed by the manufacturer agreeing to repair or replace asphalt shingles that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation, or deterioration of asphalt shingles beyond normal weathering.
 - 1. Warranty Period: Manufacturer's standard but not less than 30 years after date of substantial completion.

1.07 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.
 - 1. Furnish 1 square coverage of asphalt shingles, identical to those installed, in unbroken bundles.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Available products: Subject to compliance with requirements, products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Ridge Vents:
 - a. Ridge Filter Shinglevent; Air Vent, Inc.
 - b. Ridge Filtervent; Air Vent, Inc.
 - c. Cobra Ridge Vent; GAF Building Materials Corporation.
 - d. Roll Vent; Obdyke: Benjamin Obdyke, Inc.
 - e. Trimline; Trimline Roof Ventilation Systems.
 - 2. Waterproof Underlayment:
 - a. Bituthane Ice and Water Shield: W.R. Grace & Co.

2.02 ASPHALT SHINGLES

- A. Asphalt Shingles: Architectural laminated Asphalt shingles
- B. Ridge Shingles: Manufacturer's standard, factory precut units to match asphalt shingles.
 - 1. Fire Resistance: Class A, complying with ASTM E108.
 - 2. Style: Laminated overlay.
 - 3. Color: as selected by owner.

2.03 SHEET MATERIALS

- A. Eave Protection Membrane:
 - 1. Eave Protection Membrane: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; 40 mil (1 mm) total thickness; with strippable treated release paper and polyethylene sheet top surface.
- B. Underlayment: Synthetic non-asphaltic sheet, recommended by manufacturer for mechanically fastened roofing underlayment without sealed seams.
 - 1. Minimum Requirements: Comply with requirements of ICC-ES AC188 for non-self-adhesive sheet.

2.04 ACCESSORIES

- A. Roofing Nails: Standard round wire shingle type, galvanized steel or aluminum roofing nails, minimum 3/8 inch (9.5 mm) head diameter, 12 gage, 0.109 inch (2.77 mm) nail shank diameter, 1-1/2 inch (38 mm) long and complying with ASTM F1667.

2.05 METAL FLASHINGS

- A. Metal Flashings: Provide sheet metal eave edge, gable edge, and other flashing indicated.
- B. Steel Sheet Metal: Prefinished and galvanized steel sheet, 26 gage, 0.0179 inch (0.45 mm) minimum thickness, G90/Z275 hot-dipped galvanized.
- C. Aluminum Sheet Metal: Prefinished aluminum, 26 gage, 0.017 inch (0.43 mm) minimum thickness.

2.06 RIDGE VENT

- A. Ridge Vent: High density polypropylene, nonwoven modified polyester, or other UV-stabilized plastic design to be installed under asphalt shingles.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrate for compliance with requirements for substrates, installation tolerances, and other conditions affecting performance of asphalt shingles. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Clean substrate of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with noncorrosive roofing nails.

- B. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and are securely fastened against movement.

3.03 INSTALLATION - EAVE PROTECTION MEMBRANE

- A. Install eave protection membrane from eave edge to minimum 4 ft (1200 mm) up-slope beyond interior face of exterior wall.

3.04 INSTALLATION - UNDERLAYMENT

- A. Underlayment At Roof Slopes Greater Than 4:12: Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches (100 mm), stagger end laps of each consecutive layer, nail in place, and weather lap minimum 4 inches (100 mm) over eave protection.

3.05 INSTALLATION - FLASHING

- A. Install metal flashing and trim as indicated and according to details and recommendations of the "Asphalt Roofing" section of "The NRCA Steep Roofing Manual" and ARMA's "Residential Roofing Manual".

3.06 INSTALLATION - SHINGLES

- A. Install shingles in accordance with manufacturer's instructions manufacturer's instructions and NRCA (RM) applicable requirements.
- B. Place shingles in straight coursing pattern with 5 inch (125 mm) weather exposure to produce double thickness over full roof area, and provide double course of shingles at eaves.

END OF SECTION

**SECTION 074623
WOOD SIDING**

PART 2 PRODUCTS

1.01 SIDING

- A. Cedar Shingles
 - 1. Manufacturer - Maibec
 - 2. Materials
 - a. Eastern white cedar
 - 1) Treated with bleaching oil'
- B. Board and Batten Siding
 - 1. 10" cedar board with 2" battens
- C. Trim
 - 1. Azek trim per elevations

1.02 ACCESSORIES

- A. Preservative Treatment: Dip- or brush-type, non-discoloring.
- B. Nails: Hot dipped galvanized or stainless steel type; non-staining, of size and strength to securely and rigidly retain the work .
- C. Flashing: Aluminum as specified in Section 076200.
- D. Drainable housewrap: Hydrogap by Benjimin Obdyke

PART 3 EXECUTION

2.01 INSTALLATION

- A. Install drainable housewrap per manufacturer's recommendations.
- B. Install siding in accordance with manufacturer's instructions.
- C. Fasten siding in place, level and plumb.

END OF SECTION

**SECTION 076200
SHEET METAL FLASHING AND TRIM**

PART 1 GENERAL

1.01 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

- A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239 inch) (0.61 mm) thick base metal.

2.02 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

2.03 EXTERIOR PENETRATION FLASHING PANELS

- A. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.

2.04 ACCESSORIES

- A. Fasteners: Galvanized steel, with soft neoprene washers.
- B. Primer: Zinc chromate type.
- C. Concealed Sealants: Non-curing butyl sealant.
- D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
- E. Plastic Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..
- B. Seal metal joints watertight.

END OF SECTION

SECTION 079200 JOINT SEALANTS

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes sealants for the following applications, including those specified by reference to this section:
 - 1. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces.
 - a. Vertical control joints on exposed surfaces of interior unit masonry walls and partitions.
 - b. Perimeter joints on interior wall surfaces and frames of interior doors, and windows.
 - c. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - d. Other joints as indicated.
 - 2. Interior joints in the following horizontal traffic surfaces.
 - a. Control and expansion joints in cast-in-place concrete slabs.
 - b. Other joints as indicated.

1.02 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrate.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrate.

1.03 SUBMITTALS

- A. Product Data for each joint sealant product indicated: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
- B. Sample for selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Warranties: Special warranties specified in this section.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: an experienced installer who has specialized in installing joint sealants similar in material, design and extent to those indicated for this project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
 - 1. Deliver to manufacturer sufficient samples for testing.

2. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
3. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.

1.05 DELIVERY, STORAGE, AND HANDLING

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

1.06 PROJECT CONDITIONS

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

1.07 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this section within specified warranty period.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this section within specified warranty period.
 1. Warranty Period: Five years from date of substantial completion.
- C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
 1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agent.

4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

- A. Available products: Subject to compliance with requirements, products that may be incorporated into the work include, but are not limited to, products listed in other Part 2 articles.
- B. Scope:
 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
 - a. Wall expansion and control joints.
 - b. Joints between door, window, and other frames and adjacent construction.
 - c. Joints between different exposed materials.
 - d. Openings below ledge angles in masonry.
 - e. Other joints indicated below.
 2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 - b. Other joints indicated below.
 3. Do not seal the following types of joints.
 - a. Intentional weepholes in masonry.
 - b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
 - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - d. Joints where installation of sealant is specified in another section.
 - e. Joints between suspended panel ceilings/grid and walls.
 - f. Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
 - g. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
 - 1) Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
 - h. Interior Wet Areas: restrooms and kitchens; fixtures in wet areas include plumbing fixtures, countertops, cabinets, and other similar items.

2.02 JOINT SEALANTS - GENERAL

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

2.03 ELASTOMERIC JOINT SEALANT

- A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant, including those referencing ASTM C 920 classifications for type, grade, class, and use.
- B. Single-Component Nonsag Urethane Sealant: Where joint sealants of this type are indicated, provide products complying with the following:
 - 1. Products: Provide one of the following.
 - a. Vulkem 116; Mameco International.
 - b. Vulkem 230; Mameco International.
 - c. Sikaflex - 1a; Sika Corporation.
 - d. NP 1; Sonneborn Building Products Div., Chemrex Inc.
 - e. Dynomic; Tremco
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Class: 25
 - 4. Applications:
 - a. Joints between exterior metal frames and adjacent work.
 - b. Under exterior door thresholds.
 - c. Exterior joints for which no other sealant type is indicated.
- C. Single-Component Nonsag Urethane Sealant: Where joint sealants of this type are indicated, provide products complying with the following:
 - 1. Single-Component Nonsag Urethane Sealant: Where joint sealants of this type are indicated, provide products complying with the following:
 - a. Sikaflex - 11 FC; Sika Corporation.
 - b. Pecors - Dynaflex SC; Pecora Corporation
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Class: 12.5
- D. Mildew Resistant Silicone Sealant: Where joint sealants of this type are indicated provide products complying with the following:
 - 1. Products: provide one of the following:
 - a. 786; Dow Corning.
 - b. Sanitary 1700; GE Silicones.
 - c. 898 Silicone Sanitary Sealant; Pecora Corporation
 - d. PSI-611; Polymeric Systems, Inc.
 - e. Tremsil 600 White; Tremco'
 - 2. Type and Grade: S (single component), and NS (nonsag).
 - 3. Class: 25
 - 4. Additional Movement Capability: 50 percent movement in extension on 50 percent movement in compression for a total of 100 percent movement.
 - 5. Applications:
 - a. Use for sealing interior joints with non-porous substrates in wet areas with ceramic tile or epoxy paint around sinks, and between equipment or counters and non-porous walls. Use for sealing corner, edges and base in shower areas.

2.04 LATEX JOINT SEALANTS

- A. Latex Sealant Standard: Comply with ASTM C 834 for each product of this description indicated.

- B. Latex Sealant: Where joint sealant of this type are indicated, provide products complying with the following:
 - 1. Products: Provide one of the following.
 - a. Chem-Calk 600; Bostik Inc.
 - b. NuFlex 330; NUCO Industries, Inc.
 - c. LC 160 All Purpose Acrylic Caulk; Ohio Sealants, Inc.
 - d. AC-20; Pecora Corporation.
 - e. PSI-701; Polymeric Systems, Inc.
 - f. Sonolac; Sonneborn Building Products Div., ChemRex Inc.
 - g. Tremflex 834; Tremco.
 - 2. Applications: Interior joints in field painted vertical and overhead joints not indicated otherwise below.

2.05 NONSAG JOINT SEALANTS

- A. Not Used

2.06 JOINT-SEALANT BACKING

- A. General: Provide sealant backing of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Backer Rod: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - 1. Type C: Closed-cell material with surface skin.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler material or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.07 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
- 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 promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
 - 1. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

3.02 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 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, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil free compressed air. Porous joint surfaces include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - 3. Remove laitance and form release agents from concrete.
 - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residue capable of interfering with adhesion of joint sealants.
 - a. Metal.
 - b. Glass.
 - c. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where indicated and recommended in writing by joint manufacturer, based on 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 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.

3.03 INSTALLATION

- A. General: Comply with joint sealant manufacturer's written instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated..
- C. Install sealant backing 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 backing.
 2. Do not stretch, twist, puncture, or tear sealant backing.
 3. Remove absorbent sealant backing that have become wet before sealant application and replace them with dry materials.
- D. Install bond breaker backing tape behind sealants where sealant backings are not used between sealants and back of joints where backer rod cannot be used.
- E. Install sealant by proven techniques to 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 provided for 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 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 sealants from surfaces adjacent to joint.
 2. Use tooling agents that are approved in writing by sealant manufacturer and the do not discolor sealants or adjacent surfaces.
 3. Provide concave joint configuration per figure 5A in ASTM C 1193, unless otherwise indicated.
 - a. Use masking tape to protect adjacent surfaces of recessed tooled joints.

3.04 CLEANING

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

3.05 PROTECTION

- A. 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 and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

END OF SECTION

**SECTION 081416
FLUSH WOOD DOORS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Flush wood doors; flush configuration; non-rated.

1.02 RELATED SECTIONS

- A. section 08 71 00 - Door Hardware
- B. Section 08 12 13 - Hollow Metal Frames

1.03 SUBMITTALS

- A. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- B. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
 - 1. Indicate dimensions and locations of mortises and holes for hardware.

1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.
- B. QualityStandard: Comply with WDMA I,S.1-a, Architectural Wood Flush Doors."

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standards and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.06 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install until building is enclosed, wet work is complete, and HVAC system is in operation and will maintain temperature and relative humidity at occupancy levels (25-55% R.H.) during the remainder of the construction period.

1.07 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship,

have warped (bow, cup, or twist" more than 1/4 inch in a 42-by.84-inch section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.

1. Interior Doors: Provide manufacturer's warranty for the life of the installation.
2. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work to include, but are not limited to, the following:
 1. Flush Wood Doors:
 - a. Algoma Hardwoods Inc.
 - b. Eggers Industries; Architectural Door Division.
 - c. Graham Manufacturing.
 - d. IPIK Door Company.
 - e. Marshfield Door Systems.

2.02 DOORS CONSTRUCTION, GENERAL

- A. Adhesives: Do not use adhesives containing urea formaldehyde. .
- B. Doors for Stained Finish:
- C. Interior Doors: 1-3/4 inches (44 mm) thick unless otherwise indicated; flush construction.
 1. Provide solid core doors at each location.

2.03 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.

2.04 DOOR FACINGS

- A. Veneer Facing for Transparent Finish: Match existing species, veneer grade in accordance with quality standard indicated, quarter cut, with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.

2.05 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- C. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

2.06 FINISHES - WOOD VENEER DOORS

- A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
- B. Factory finish doors as follows:
 - 1. Stain Finish:
 - a. Stain Color: To be selected by owner.
 - b. Grade: Premium.
 - c. Finish: AWI System TR-4 conversion varnish.
 - d. Sheen: Satin.

2.07 ACCESSORIES

- A. Glazed Openings:
 - 1. Heat-Strengthened and Fully Tempered Glass: ASTM C1048.
- B. Door Window Frames: Door window frames with glazing securely fastened within door opening.
 - 1. Size: 5 inches wide by 36" high.
 - 2. Frame Material: 18 gauge, 0.0478 inch (1.21 mm), galvanized steel.
 - 3. Metal Finish: Match frame color polyester powder coating.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine doors and installed frames before hanging doors.
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after Unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
- B. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire rated doors. Machine doors for hardware. Seal cut surfaces after cutting and machining.
 - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/2 inch from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold.
- C. Factory Finished Doors: Restore finish before installation if fitting or if machining is required at project site.
- D. Coordinate installation of doors with installation of frames and hardware.

3.03 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.

END OF SECTION

SECTION 085200 WOOD WINDOWS

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the following aluminum/vinyl clad wood framed window product types'
 - 1. Awning windows.
 - 2. Double hung windows.

1.02 PERFORMANCE REQUIREMENTS

- A. General: Provide wood windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified and that are of test size indicated below.
 - 1. Minimum size required by AAMA/WDMA 101/I.S.2
 - 2. Minimum size required by gateway performance requirements for determining compliance with AAMA/WDMA 101/I.S.2 for both gateway performance requirements and optional performance grades
 - 3. Size indicated.
- B. AAMA/WDMA Performance Requirements: Provide wood windows of the performance class and grade that comply with AAMA/WDMA 101/I.S.2.
 - 1. Performance Class and Grade:
 - a. Awning windows: HC30
 - b. Double Hung Windows: HC30

1.03 SUBMITTALS

- A. Product Data: Show component dimensions, anchorage and fasteners, glass, internal drainage details, and _____.
- B. Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work, installation requirements, and _____.
- C. Test Reports: Prior to submitting shop drawings or starting fabrication, submit test report(s) by independent testing agency showing compliance with performance requirements in excess of those prescribed by specified grade.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An installer acceptable to wood window manufacturer for installation of units required for the project.
- B. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, with experience and capability to conduct the testing as documented according to ASTM E 548'
- C. Source Limitations: Obtain wood windows through one source from a single manufacturer.
- D. Product Options: Drawings indicate size, profiles, and dimensional requirements of wood windows and are based on the specific system indicated
- E. Fenestration standards: Comply with AAMA/WDMA 101/I.S.2, "Voluntary Specifications for Aluminum, Vinyl (PVC) and wood windows and glass doors," for minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.
 - 1. Provide WDMA certified wood windows with an attached label.
- F. Glazing Publications: Comply with published recommendations of glass manufacturers and GANA's "Glazing Manual" unless more stringent requirements are indicated.

1.05 PROJECT CONDITIONS

- A. Field mMeasurements: Verify window openings by field measurements before fabrication and indicate measurements on shop drawings.
 - 1. Establish Dimensions: Where fiels measurements cannot be made without delaying the work, establish opening dimensions and proceed with fabricating wood windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.06 WARRANTY

- A. Correct defective Work within a 10 year period after Date of Substantial Completion.
- B. Provide 20 year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Clad wood windows:
 - a. Andersen Windows and Doors.
 - b. Marvin Windows and Doors.

2.02 WOOD WINDOWS

- A. Wood Windows: Wood frame and sash, factory fabricated and assembled.
 - 1. Exterior Finish: Plastic clad.
 - 2. Interior Finish: Primed.
 - 3. Color: selected by owner.
 - 4. Configuration: As indicated on drawings.
 - 5. Window Product Types: AP - Awning, hopper, projected window and double hung, in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
 - 6. Factory glazed; dry glazing method.
 - 7. Wood Species: Clear pine, preservative treated using treatment type suitable for required finish.
 - 8. Frame and Sash Members: Mortise and tenon joints. Glue and steel pin joints to hairline fit, weather tight.
 - 9. Vinyl Cladding: Extruded PVC, low sheen surface, factory fit to profile of wood members.
 - 10. Fasteners: Concealed from view.

2.03 COMPONENTS

- A. Glazing: Double glazed, clear, Low-E coated, argon filled, with glass thicknesses as recommended by manufacturer for specified wind conditions.
- B. Frames: ____ inch (____ mm) wide by ____ inch (____ mm) deep profile; flush solid wood glass stops of screw fastened type, sloped for positive drainage.
- C. Sills: Plastic clad wood, with ____ inch (____ mm) nominal thickness; sloped for positive drainage; fits under sash and projects at least 1/2 inch (12 mm) beyond exterior face of wall; single piece full width of opening.
- D. Muntins/Grilles: Grilles permanently installed between panes of insulating glass.
 - 1. Pattern: Custom design, see drawings.
 - 2. Bar Width: 3/4 inch (19 mm).
 - 3. Color: Match interior and exterior of frame.
- E. Operable Sash Weatherstripping: Nylon pile; permanently resilient, profiled to effect weather seal.

- F. Wood for Casings and Trim: Clear pine, clear preservative treated, of type suitable for required finish.

2.04 PERFORMANCE REQUIREMENTS

- A. Comply with AAMA/WDMA/CSA 101/I.S.2/A440 requirements for the specific window type in accordance with the following:
 - 1. Performance Class (PC): R.
- B. Design Pressure (DP): In accordance with applicable codes.

2.05 HARDWARE

- A. Double Hung Sash: Metal and nylon spiral friction slide cylinder, each sash, each jamb.
- B. Sash lock: Lever handle with cam lock.
- C. Operator: Lever action handle fitted to projecting sash arms with limit stops; baked enamel finish.
- D. Projecting Sash Arms: Cadmium plated steel, friction pivot joints with nylon bearings, removable pivot clips for cleaning.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install windows in accordance with manufacturer's instructions.
- B. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.
- C. Set sill members in bed of sealant as indicated, for weathertight construction.
- D. Metal Protection: Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified in "Dissimilar Materials" paragraph in appendix B in AAMA/WDMA 101/I.S.s

3.02 ADJUSTING

- A. Adjust hardware for smooth operation and secure weathertight closure.

3.03 PROTECTION AND CLEANING

- A. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.
- B. Clean exposed surfaces immediately after installing window. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION

SECTION 087100 DOOR HARDWARE

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the following:
 - 1. Commercial door hardware for the following:
 - a. Swinging doors.
- B. Related sections include the following:
 - 1. Division 8 section "Steel Doors and Frames".

1.02 SUBMITTALS

- A. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Samples for Verification: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of door hardware indicated.
- C. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule".
 - 2. Organization" Organize the door hardware schedule into door hardware sets indicating complete designations of every item required for the hardware schedule.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastening and other pertinent information.
 - d. Location of each door hardware set, cross-referenced to drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Description of each electrified door hardware function, including location, sequence of operation, and interface with other building control system.
 - 4. Submittal Sequence: Submit initial draft of final schedule along with essential product data to facilitate the fabrication of other work that is critical in the project construction schedule. Submit the final door hardware schedule after samples, product data, coordination with shop drawings of other work, delivery schedules, and similar information has been completely accepted.
- D. Product Test Report: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by qualified testing agency, indicating current products complying with requirements.

- E. Maintenance Data: For each type of door hardware to include a maintenance manuals
- F. Warranties" Special warranties specified in this section.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this project and whose work has resulted in construction with a record of successful in-service performance.
- B. Supplier Qualifications: Door hardware supplier with warehousing facilities in project's vicinity and who is or employs a qualified architectural hardware consultant, available during the course of work to consult with contractor, architect, and owner about door hardware and keying.
- C. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an architectural hardware consultant and who is experienced.
- D. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to project site.
- B. Tag each item or package separately with identification related to the final door hardware schedule, and include basic installation instructions with each item or package.
- C. Deliver keys to owner by registered mail or overnight package service.

1.05 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Check shop drawings of the other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

1.06 WARRANTY

- A. Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.
 - 1. Closers: Ten years, minimum.
 - 2. Locksets and Cylinders: Three years, minimum.
 - 3. Other Hardware: Two years, minimum.

1.07 MAINTENANCE SERVICE

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

PART 2 PRODUCTS

2.01 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in this section and the door hardware schedule at the end of part 3.
 - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturer's products.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in the door hardware schedule at the end of part 3. Products are identified by using door hardware designations as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in the door hardware schedule.
- C. References to BHMA Standards: Provide products complying with these standards and requirements for description, quality, and function.
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. Fire-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.
 - 3. Hardware on Fire-Rated Doors: Listed and classified by UL (DIR), ITS (DIR), or testing firm acceptable to authorities having jurisdiction as suitable for application indicated.
 - 4. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.
 - 5. Fasteners:
 - a. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.

2.02 HINGES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Continuous Hinges:
 - 2. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
 - 3. Ball Bearing Hinge
- B. Template Requirements: Except for hinges and pivots to be installed entirely (both Leaves) into wood doors and frames, provide only template-produced units.
- C. Fasteners: Comply with the following:
 - 1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
 - 2. Wood Screws: For wood doors and frames.
 - 3. Threaded-to-the-Head Wood Screws: For Fire-rated wood doors.

4. Screws: Phillips flat head screws; machine screws (drilled and tapped holes) for metal doors, wood screws for wood doors and frames. Finish screw heads to match surface of hinges.

2.03 MORTISED LOCKS AND LATCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Mechanical Locks and Latches:
 - a. Best Lock Corporation (BLC).
 - b. Corbin Russwin Architectural Hardware; Div. of Yale Security Inc.(CR).
 - c. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
 - d. Schlage Lock Company; an Ingersoll-Rand Company (SCH).
- B. Mortise Locks: Stamped steel case with steel or brass parts, BHMA Grade 1; Series 1000.
 1. Provide one of the following manufacturers and designs:
 - a. Best H Series
 - b. Corbin/Russwin ML2000 Series
 - c. Sargent 8200 Series
 - d. Schlage L9000 Series
- C. Lock Trim: Comply with the following:
 1. Lever: Cast.
 2. Escutcheon (Rose): Forged.
 3. Dummy Trim: Match lever lock trim and escutcheons.
 4. Lockset designs: Provide the lockset design designated below or, if sets are provided by another manufacturer, provide designs that match those designated:
 - a. Best, 14 design
 - b. Corbin/Russwin, Newport design
 - c. Sargent, LNL design
 - d. Schlage, 0^A design
- D. Lock Functions as indicated in the hardware schedule shall be as follows:

Function	Sargent	Schlage	Corbin/Russwin	Best
A	04	80	57	EW
B	05	50	51	E
C	15	10	10	N
D	37	70	55	J
E	16	60	42	F
F	65	40	30	LF
- E. Lock Throw: Comply with testing requirements for length of bolts to comply with labeled for door requirements, and as follows:
 1. Mortise Locks: Minimum 3/4 inch latchbolt throw.
- F. Backset: 2 3/4 inches, unless otherwise indicated.

2.04 CYLINDERS AND KEYING

- A. Cylinder Doors: Same manufacture as for locks and latches.

- B. Standards: Comply with the following:
 - 1. Cylinders: BHMA A156.5.
- C. Cylinder Grade: BHMA Grade 1.
- D. Cylinders: Manufacturer's standard tumbler type, constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:
 - 1. Number of pins: Six
 - 2. Mortise Type: Threaded cylinders with rings and straight or clover type cam.
- E. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
 - 1. Interchangeable cores: Core insert, removable by use of a special key, and usable with other manufacturer's cylinders.

2.05 STRIKES

- A. Standards: Comply with the following:
 - 1. Strikes for Bored Locks and Latches: BHMA A156.2.
 - 2. Strikes for AUXiliary Deadlocks: BHMA A156.5.
- B. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
 - 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.

2.06 OPERATING TRIM

- A. Available manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Baldwin Hardware Corporation (BH).
 - 2. Don-Jo Mfg., Inc. (DJO).
 - 3. Ives: H. B. Ives (IVS).
 - 4. Stanley Commercial Hardware; Div. of The Stanley Works (STH)
- B. Standard: Comply with BHMA A156.6.
- C. Materials: Fabricate from stainless steel, unless otherwise indicated.
 - 1. Push-Pull Design: Door Pulls; 1 inch diameter by 10" long.
Rockwood 111; Burns 26C; Quality 163-10"

2.07 PROTECTIVE TRIM UNITS

- A. Available manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Metal Protective Trim Units:
 - a. Burns Manufacturing Incorporated (BM).
 - b. Hagar Companies (HAG).

- c. Ives: H. B. Ives (IVS).
 - d. Rockwood Manufacturing Company (RM).
- B. Standard: Comply with BHMA A156.6.
- C. Materials: Fabricate protection plates from the following:
 - 1. Stainless Steel: 0.050 inch thick: beveled top and 2 sides.
- D. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units consisting of either machine or self tapping screws.
- E. Fabricate protection plates as follows:
 - 1. Push Plates: 16" high by 8" wide'
 - 2. Kick plates: 10" high by 1-1/2" less than door width for single doors and 1" less than door width for pairs of doors. Kick plates shall be applied push side of all doors where noted.

2.08 STOPS AND HOLDERS

- A. Available manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Stops and Bumper:
 - a. Burns Manufacturing Incorporated (BM).
 - b. Glynn-Johnson: an Igersoll-Rand Company (GJ).
 - c. Hagar Companies (HAG).
 - d. Ives: H. B. Ives (IVS).
 - e. Rockwood Manufacturing Company (RM).
- B. Standards: Comply with the following:
 - 1. Stops and bumpers: BHMA A156.16
 - 2. Door Silencers: BHMA A156.16
- C. Wall Stops: BMHA Grade 1. Wall type bumpers with concealed type flange shall be used where ever possible and shall be one of the following:
 - 1. Ives - 407 1/2
 - 2. Door Controls - 3211T
 - 3. Rockwood - 409
- D. Floor Stops: Where wall type bumpers cannot be used, provide dome type, floor mounted stops of the proper height as follows:
 - 1. Ives - 436, 438
 - 2. Door Controls - 3310X, 3320X
 - 3. Rockwood - 440, 442
- E. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed as the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch sets) for color and texture.
- F. Silencers for Metal door Frames: BHMA Grade 1; neoprene or rubber, minimum diameter 1/2 inch: fabricated for drilled-in application to frame.
- G. Kick down holder. Provide kick down holder as required in the door schedule. The following will be acceptable:
 - 1. Ives - FS452
 - 2. Rockwood - 461

3. Door Controls - 3114

2.09 DOOR GASKETING

- A. Available manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Door Gasketing:
 - a. National Guard Products, Inc. (NGP).
 - b. Pemko Manufacturing Co., Inc. (PEM)
 - c. Reese Enterprises, Inc. (RE).
 - d. Zero International, Inc. (ZRO).
 - 2. Door Bottoms:
 - a. National Guard Products, Inc. (NGP).
 - b. Reese Enterprises, Inc. (RE).
 - c. Zero International, Inc. (ZRO).
- B. Standard: Comply with BHMA A156.22.

2.10 FABRICATION

- A. Manufacturer's Nameplate: Do not provide manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire rated labels and as otherwise permitted on rim of lock cylinders only. Do not paint over UL labels.
 - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials or forming methods if different from specified standards.
- C. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to commercially recognized industry standards for application intended. Provide phillips flat head screws with finished heads to match surface of door hardware, unless otherwise indicated.
 - 1. Concealed fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
 - 2. Steel Machine or Wood Screws: For the following fire-rated applications:
 - a. Mortise hinges to doors'
 - b. Strike plates to frames.
 - c. Closers to doors and frames.
 - 3. Steel Through Bolts: For the following fire rated applications, unless door blocking is provided:
 - a. Surface hinges to doors.
 - b. Closers to doors and frames.

- c. Surface mounted exit devices.
- 4. Spacers for Sex Bolts: For through bolting of hollow metal doors.
- 5. Fasteners for Wood Doors: Comply with requirements of DHI WDHS,2 "Recommended Fasteners for Wood Doors"

2.11 FINISHES

- A. Standard: Comply with BHMA A156.18
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one half of the range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and are assembled and installed to minimize contrast.
- D. Provide the following finishes:
 - 1. Continuous Hinges: 26D
 - 2. Ball Bearing Hinges: 28
Locks & Lock Trim 26D
 - 3. Door Controls - Closers: Sprayed Alum. Finish
 - 4. Mortise Locks & Latches: 26D
 - 5. Door Stops: 26D/32D
 - 6. Weatherstripping: Aluminum
 - 7. Threshold: Aluminum
 - 8. Kickplates: 32D
 - 9. Pulls: 32D
 - a. Use secondary finish in kitchens, bathrooms, and other spaces containing chrome or stainless steel finished appliances, fittings, and equipment; provide primary finish on one side of door and secondary finish on other side if necessary.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine doors and frames, with installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installations.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Steel Doors and Frames: Comply with DHI A115 series.

1. Surface Applied Door Hardware: Drill and tap doors and frames according to SDI 107.

3.03 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Mounting Heights: Mount door hardware units at heights indicated in the following applicable publications, unless specifically indicated or required to comply with governing regulation:
 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames.
- C. Use templates provided by hardware item manufacturer.
- D. Thresholds: Set threshold for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint sealants".

3.04 FIELD QUALITY CONTROL

- A. Independent Architectural Hardware Consultant: Owner will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 1. Independent Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.05 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 1. Door Closers: Adjust sweep period so that, from open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.
- B. Six Month Adjustment: Approximately six months after date of substantial completion, installer shall perform the following:
 1. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.
 2. Consult with and instruct Owner's personnel on recommended maintenance procedures'
 3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.

3.06 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of substantial completion.

3.07 DEMONSTRATION

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

3.08 DOOR HARDWARE SCHEDULE

- A. The hardware sets listed below indicate the items of hardware required for each opening. It is the bidders responsibility to accurately furnish the proper quantities, items, sizes, weights and functions as required by the plans and specifications. If an opening has, through error, been omitted from the following hardware sets, it shall be the bidders responsibility to supply hardware of equivalent quality and quantity, as that to which is specified for a comparable opening.

Hardware Set 1

Continuous Hinge

Lockset (function F)

Lever Handle

Door Stop

Kick Down Door Holder

Kickplate each side

END OF SECTION

**SECTION 092116
GYPSUM BOARD ASSEMBLIES**

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the following:
 - 1. Interior gypsum wallboard
 - 2. Metal studs and furring
 - 3. Metal suspension system
 - 4. Gypsum board finishing
 - 5. Trim and accessories

1.02 SUBMITTALS

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

1.03 SYSTEM REQUIREMENTS

- A. Performance Requirements: Fabricate and install systems as indicated but not less than that required to comply with ASTM C754 under the following conditions
 - 1. Gypsum board partitions:
 - a. Standard systems: Maximum deflection of $l/240$ of partition height.
 - b. Systems to receive moisture resistant gypsum board or backer board: Maximum deflection of $l/360$ of partition height.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

1.05 PROJECT CONDITIONS

- A. Environmental Limitations
 - 1. Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Gypsum Board and related products:
 - a. G-P Gypsum Corp.
 - b. National Gypsum Company.
 - c. United States Gypsum Co.

2.02 INTERIOR GYPSUM WALLBOARD

- A. Panel Size: Provide maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Moisture and Mold Resistant Gypsum Board: With moisture and mold resistant core and surfaces.
 - 1. Back and face side: Glass fiber mat resists growth of mold or mildew (per ASTM D 3273)
 - 2. Core: Noncombustible gypsum core (ASTM E 136).
 - 3. Thickness: 5/8 inch.
 - 4. Long Edges: Tapered.
 - 5. Basis of design Product: "DensArmor Plus: as manufactured by G-P Gypsum.

2.03 TRIM ACCESSORIES

- A. Interior trim: ASTM C 1047
 - 1. Material: Plastic where abutting masonry construction'
 - 2. Shapes:
 - a. LC-Bead: J-shaped; exposed long flange receives joint compound; use at exposed panel edges or where abutting different material.

2.04 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper.
- C. Joint Compound for Interior Mold resistant Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints and damaged surface areas, use setting type taping compound.
 - 2. Embedding at First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting type taping compound,
 - 3. Fill Coat: For second coat, use setting type, sandable topping compound or drying type, all purpose compound.
 - 4. Finish Coat: For third coat, use drying type all purpose compound.

2.05 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

2.06 BOARD MATERIALS

- 1. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - a. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 - b. Thickness:
- A. Gypsum Wallboard ACCESSORIES
 - 1. Acoustic Insulation: As specified in Section 072100.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and adjoining construction and conditions under which work is to be installed. Do not proceed with work until unsatisfactory conditions are corrected.

3.02 GENERAL INSTALLATION REQUIREMENTS

- A. Install in accordance with reference standards and manufacturer's instructions.
- B. Tolerances:
 - 1. Do not exceed 1/8 inch in 8'-0" variation from plumb or level in exposed lines of surface, except at joints between gypsum board units.
 - 2. Do not exceed 1/16 inch variation between planes of abutting edges or ends.
 - 3. Shim as required to comply with specified tolerances.
- C. Install framing to comply with ASTM C754 and with ASTM C840 requirements that apply to framing installation.
- D. Install framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment, heavy trim, grab bars, toilet accessories, furnishings or similar construction.

3.03 APPLYING AND FINISHING PANELS, GENERAL

- A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216
- B. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

- C. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Attach gypsum panels to framing provided at openings and cutouts.
- F. Isolate perimeter of non load bearing gypsum board partitions at structural abutments, except floors. Provide 1/4 to 1/2 inch wide spaces at these locations, and trim edges with LC-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- G. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.

3.04 PANEL APPLICATION METHODS

- A. Single layer application:
 - 1. On ceilings apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
- B. Single Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.05 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise attach trim according to manufacturer's written instructions.

3.06 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
 - 1. Level 1: Ceiling plenum areas and concealed areas, except provide higher level of finish as required to comply with fire resistance ratings.
 - 2. Level 2: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges.
 - 3. Level 3: Gypsum board surfaces, where textured finishes or heavy vinyl wall papering will be used.

4. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, and for fire rated and sound rated assemblies, unless otherwise indicated.
5. Level 5: Gypsum board surfaces requiring extra smooth surface for critical light, where indicated using spray-applied Primer-Surfacer, TUFF-HIDE
 - a. Surface Preparation: Complete gypsum board surface to level 4 before applying primer-surfacer.

END OF SECTION

**SECTION 096433
LAMINATED WOOD FLOORING**

PART 2 PRODUCTS

1.01 MATERIALS

- A. Laminated Wood Flooring:
 - 1. Construction: Tongue and groove, self-locking, 5-ply laminated wood planks.
 - 2. Surface Burning Characteristics: Flame Spread Index of 200, maximum; Smoke Developed Index of 450, maximum; when tested in accordance with ASTM E84.
 - 3. Color: As selected from manufacturer's full range for species specified above.
 - 4. Thickness: 3/8 inch (9.5 mm).
 - 5. Length: Random, minimum of 9 inches (230 mm).
 - 6. Treatment: Acrylic impregnated.
 - 7. Finish: Factory applied, UV cured urethane.

PART 3 EXECUTION

END OF SECTION

SECTION 099113 EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
- B. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Floors, unless specifically indicated.
 - 6. Glass.
 - 7. Concealed pipes, ducts, and conduits.

PART 2 PRODUCTS

2.01 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
 - 1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

2.02 PAINT SYSTEMS - EXTERIOR

- A. Paint E-OP - Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including primed wood and primed metal.
 - 1. Two top coats and one coat primer.
 - 2. Top Coat(s): Exterior Latex; MPI #10, 11, 15, 119, or 214.
 - 3. Primer: As recommended by top coat manufacturer for specific substrate.

2.03 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
 - 1. Alkali Resistant Water Based Primer; MPI #3.

PART 3 EXECUTION

3.01 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.

- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.02 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

END OF SECTION

**SECTION 102800
TOILET, BATH, AND LAUNDRY ACCESSORIES**

0.01 SUMMARY

- A. This section includes the following:
 - 1. Toilet and bath accessories.

0.02 QUALITY ASSURANCE

- A. Source Limitations: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in the same areas, unless approved by owner.
- B. Product options: Accessory requirements, including those for materials, finishes, dimensions, capacities, and performance, are established by specific products indicated in the toilet and bath accessory schedule.
 - 1. Other manufacturers' products with equal characteristics may be considered. See division 1 Section "Product Requirements".

0.03 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the work.

0.04 WARRANTY

- A. General warranty: Special warranty specified in this article shall not deprive owner of other rights owner may have under other provisions of the contract documents and shall be in addition to, and run concurrent with, other warranties made by contractor under requirement Manufacturer's Mirror Warranty: Written warranty, executed by mirror manufacturer agreeing to replace mirrors that develop visible silver spoilage defects within a minimum warranty period indicated.
 - 1. Minimum Warranty Period: 10 years from date of substantial completion.

PART 2 PRODUCTS

1.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Toilet and bath accessories:
 - a. A & J Washroom Accessories, Inc.

- b. American Specialties, Inc.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation
 - e. Gamco (General Accessory Manufacturing Company)
 - B. Available Products: Subject to compliance with requirements, products that may be incorporated into the work include, but are not limited to, those indicated in the toilet and bath accessory schedule at the end of part 3.
-
- A. Sheet Steel: ASTM A 366/A 366M, cold rolled, commercial quality, 0.0359 inch minimum nominal thickness, surface preparation and metal pretreatment as required for applied finish.
 - B. Galvanized Sheet Steel: ASTM A 653/A 653M, G60.
 - C. Chromium Plating: ASTM B 456, Service condition Number SC 2 (moderate service), nickel plus chromium electro deposited on base material.
 - D. Baked-Enamel Finish: Factory applied, gloss white, baked acrylic enamel coating.
 - E. Mirror Glass: ASTM C 1036, Type 1, Class 1, Quality q2, nominal 6.0 mm thick, with silvering, electroplated copper coating, and protective organic coating complying with FS DD-M-411.
 - F. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
 - G. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.
 - H. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

1.02 FABRICATION

- A. Powder Coated Framed Glass Mirror Units: Fabricate frames for glass mirror units to accommodate glass edge protection material. Provide mirror backing and support system that permits rigid, tamper-resistant glass installation and prevents moisture accumulation.
 - 1. Provide galvanized steel backing sheet, not less than 0.034 inch thick and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not acceptable filler material.
 - B. Mirror Unit Hangers: Provide mirror unit mounting system that permits rigid, tamper and theft resistant installation as follows:
 - 1. One piece, galvanized steel, wall hanger device with spring action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
 - 2. Heavy Duty wall brackets of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
-
- A. Paper Towel Dispenser: Folded paper type, stainless steel, semi-recessed, with viewing slots on sides as refill indicator and tumbler lock.
 - 1. Capacity: 300 C-fold minimum.
 - B. Soap Dispenser: Liquid soap dispenser, wall-mounted, surface, with stainless steel cover and horizontal stainless steel tank and working parts; push type soap valve, check valve, and window gauge refill indicator, tumbler lock.
 - 1. Minimum Capacity: 48 ounces (1.5 liters).

- C. Grab Bars: Stainless steel, smooth surface.
 - 1. Standard Duty Grab Bars:
 - a. Push/Pull Point Load: 250 pound-force (1112 N), minimum.
 - b. Dimensions: 1-1/4 inch (32 mm) outside diameter, minimum 0.05 inch (1.3 mm) wall thickness, exposed flange mounting, 1-1/2 inch (38 mm) clearance between wall and inside of grab bar.
 - c. Length and Configuration: As indicated on drawings.

1.03 UNDER-LAVATORY PIPE AND SUPPLY COVERS

- A. Under-Lavatory Pipe and Supply Covers:
 - 1. Insulate exposed drainage piping including hot, cold, and tempered water supplies under lavatories or sinks to comply with ADA Standards.
 - 2. Exterior Surfaces: Smooth non-absorbent, non-abrasive surfaces.
 - 3. Construction: 1/8 inch (3.2 mm) flexible PVC.
 - a. Surface Burning Characteristics: Flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
 - 4. Color: White.
 - 5. Fasteners: Reusable, snap-locking fasteners with no sharp or abrasive external surfaces.

PART 3 EXECUTION

2.01 INSTALLATION

- A. Install accessories in accordance with manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb and firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamper resistant manner with special hangers, toggle bolts, or screws. Set units level, plumb, and square at locations indicated, according to manufacture's written instructions for substrate indicated.
- C. Install grab bars to withstand a downward load of at least 250 lbf, when tested according to methods in ASTM F 446.
- D. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

2.02 ADJUSTING AND CLEANING

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

2.03 TOILET AND BATH ACCESSORY SCHEDULE

- A. Grab Bars: Where this designation is indicated, provide stainless steel grab bar complying with the following:

1. Products: Available products include the following:
 - a. Bobrick No. B-5806 Series.
 2. Stainless Steel Nominal Thickness: Minimum 0.05 inch.
 3. Mounting: Concealed with manufacturer's standard flanges and anchors.
 4. Gripping Surfaces: Manufacturer's standard slip resistant texture.
 5. Outside Diameter: 1-1.4 inch for medium duty applications.
- B. Mirror Unit: Where this designation is indicated, provide mirror unit complying with the following:
1. Products available include the following:
 - a. Bobrick No. B-165 2436.
 2. Stainless Steel, Channel Framed Mirror: Fabricate frame from stainless steel channels in manufacturer's standard satin or bright finish with square corners mitered to hairline joints and mechanically interlocked.

END OF SECTION

**SECTION 220100
PLUMBING**

PART 1 GENERAL

1.01 PLUMBING TO BE DESIGN BUILD

- A. Water is existing. existing feeds may need to be modified for new toilet.
- B. The existing building will have a new toilet where there was previously s toilet. The existing slab needs to be modified for the sanitary..
- C. There shall be an on demand water heater
- D. Waste line to be connected to existing waste line.

PART 2 PRODUCTS

END OF SECTION

**SECTION 230100
HVAC**

PART 1 GENERAL

1.01 HVAC TO BE DESIGN BUILD

- A. Heating to be tied into existing. Adequacy to be verified.
- B. Ventilation to meet ASHRAE 90.1

PART 2 PRODUCTS

END OF SECTION

**SECTION 260100
ELECTRICAL**

PART 1 GENERAL

1.01 ELECTRICAL TO BE DESIGN BUILD

- A. Electrical service is existing. Capacity of existing service to be verified.
- B. Lighting to be LED.

PART 2 PRODUCTS

END OF SECTION

SECTION 312200 GRADING

PART 1 GENERAL

1.01 SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Topsoil:
 - 1. Stockpiled on site material. Supplement with offsite material as required.
 - 2. Off site materials: Natural friable loam of region, free of clay, toxic substances, large or matted roots, debris, excess weeds, and rocks over 1" in any dimension, with acidity range of 5.5 to 7.5.

PART 3 EXECUTION

3.01 ROUGH GRADING

- A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
- C. When excavating through roots, perform work by hand and cut roots with sharp axe.

3.02 SOIL REMOVAL

- A. Stockpile excavated topsoil on site.
- B. Stockpile subsoil to be re-used on site; remove remainder from site.
- C. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet (2.5 m); protect from erosion.

3.03 FINISH GRADING

- A. Where topsoil is to be placed, scarify surface to depth of 3 inches (75 mm).
- B. Place topsoil where required to level finish grade.
- C. Remove roots, weeds, rocks, and foreign material while spreading.
- D. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
- E. Lightly compact placed topsoil.
- F. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.04 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) (30 mm) from required elevation.
- B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch) (13 mm).

END OF SECTION

- A. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.

**SECTION 312316
EXCAVATION**

PART 1 GENERAL

PART 2 PRODUCTS

2.01 MATERIALS

- A. Bedding and Fill to Correct Over-Excavation:
- B. Underground Warning Tapes:

PART 3 EXECUTION

3.01 PREPARATION

- A. Locate, identify, and protect utilities that remain and protect from damage.

3.02 EXCAVATING

- A. Excavate to accommodate new structures and construction operations.

3.03 REPAIR

- A. Correct areas that are over-excavated and load-bearing surfaces that are disturbed.

END OF SECTION