SECTION 01 2300
ALTERNATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Description of Alternates.

1.02 SCHEDULE OF ALTERNATES

A. Alternate No. 01 - Omit Site Lighting:
   1. Base Bid Item: Section 265600 and Drawing number ES101 and E601 including Lighting Fixture 'J1 & J2', pole and base per detail A3/E-001.
   2. Alternate Item: Omit the scope of work.

B. Alternate No. 02 - Omit Building:
   1. Base Bid Item: Section 265600 and Drawing number All Architecture, Plumbing, Mechanical and E100, E130, & E-505. including Building scope of work.
   2. Alternate Item: Omit the scope of work.

C. Alternate No. 03 - Metal Panel Exterior Cladding:
   1. Base Bid Item: Section 07 4246 and Drawing number A-201 including Fiber Cement Panels (FP-1).
   2. Alternate Item: Corrugated Metal Panel: BoD - PacClad Box Rib 1. Finish to match selected finish for FP-1.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 2300

SECTION 07 2500
WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water-Resistive Barrier: Under exterior wall cladding, over sheathing or other substrate; not air tight or vapor retardant.

B. Air Barriers: Materials that form a system to stop passage of air through exterior walls, joints between exterior walls and roof, and joints around frames of openings in exterior walls.

1.02 RELATED REQUIREMENTS

1.03 DEFINITIONS

A. Weather Barrier: Assemblies that form either water-resistive barriers, air barriers, or vapor retarders.

B. Air Barrier: Air tight barrier made of material that is relatively air impermeable but water vapor permeable, both to the degree specified, with sealed seams and with sealed joints to adjacent surfaces. Note: For the purposes of this specification, vapor impermeable air barriers are classified as vapor retarders.

1.04 REFERENCE STANDARDS

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on material characteristics, performance criteria, and limitations.

1.06 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

A. Air Barrier:

1. On outside surface of single wythe masonry and concrete exterior walls use air barrier coating.
2. On outside surface of sheathing of exterior walls use air barrier coating.

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

A. Air Barrier, Fluid Applied: Vapor permeable, elastomeric waterproofing.

1. Air Barrier Membrane:
   a. Material: Water-based acrylic.

b. Air Permeance: 0.00006 cfm/sq ft, maximum, when tested in accordance with ASTM E2178.
c. Water Vapor Permeance: 15 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure B (Water Method) at 73.4 degrees F.
d. Ultraviolet (UV) and Weathering Resistance: Approved in writing by manufacturer for up to six months of weather exposure.
e. Elongation: 250 percent, minimum, when tested in accordance with ASTM D412.
f. Nail Sealability: Pass, when tested in accordance with ASTM D1970/D1970M.
g. VOC Content: 30g or less per liter.
h. Code Acceptance: Comply with applicable requirements of ICC-ES AC212.
i. Sealants, Tapes and Accessories: As recommended by coating manufacturer.
j. Manufacturers:
    1) Carlisle Coatings and Waterproofing, Inc.: www.carlisleccw.com.
    2) Basis of Design: GCP Applied Technologies; Perm-A-Barrier VPL: www.gcpat.com.
    3) Parex USA, Inc.: www.parexusa.com.
    4) Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com.

2.03 ACCESSORIES

A. Sealants, Tapes, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.
B. Flexible Flashing: Self-adhesive sheet flashing complying with ASTM D1970/D1970M, except slip resistance requirement is waived if not installed on a roof.
    1. Composition: Modified bituminous sheet laminated to polyethylene sheet.
    2. Thickness: 40 mil, 0.040 inch, nominal; exception from ASTM D1970/D1970M.
    3. Manufacturers:
        a. Basis of Design: GCP Applied Technologies; Perm-A-Barrier Wall Flashing: www.gcpat.com.
        b. DuPont de Nemours, Inc; FlexWrap NF: www.dupont.com/#sle.
        c. Fortifiber Building Systems Group; FortiFlash: www.fortifiber.com/#sle.
        d. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.03 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

C. Apply sealants and adhesives within recommended application temperature ranges. Consult manufacturer if temperature is out of this range.

D. Coatings:

1. Prepare substrate in manner recommended by coating manufacturer; treat joints in substrate and between dissimilar materials as recommended by manufacturer.
2. Use flashing to seal to adjacent construction and to bridge joints.

E. Openings and Penetrations in Exterior Weather Barriers:

1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
3. At openings to be filled with non-flanged frames, seal weather barrier to each side of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.04 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION 07 2500

SECTION 07 4246
CEMENTITIOUS WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cementitious wall panels.

1.02 RELATED REQUIREMENTS

A. Section 07 2100 - Thermal Insulation.
B. Section 07 2500 - Weather Barriers.
C. Section 07 6200 - Sheet Metal Flashing and Trim.
D. Section 07 9200 - Joint Sealants.

1.03 REFERENCE STANDARDS

A. AAMA 509 - Voluntary Test and Classification Method for Drained and Back Ventilated Rainscreen Wall Cladding Systems; 2022.
B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.
C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
D. ASTM C1186 - Standard Specification for Flat Fiber-Cement Sheets; 2022, with Editorial Revision (2023).
E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
F. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).
G. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components; 2012.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.
B. Product Data: Provide manufacturer's data sheets for each product, including preparation instructions, storage and handling requirements, and installation instructions.
C. Test Reports: Indicate wall system complies with AAMA 509.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of type specified in this section with minimum three years of documented experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. See Section 01 7419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Store products under waterproof cover, well-ventilated, and elevated above grade on flat surface.

C. Protect materials from harmful environmental elements, construction dust, direct sunlight, and other detrimental conditions.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Cementitious Wall Panel System Manufacturers:

1. Nichiha USA; ____: www.nichiha.com
2. Equitone; ____: www.equitone.com/#sle.
3. Allura USA; www.allurausa.com.
4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 CEMENTITIOUS WALL PANELS

A. Description: Factory-fabricated, drained and back-ventilated (D/BV) rainscreen panel system, site assembled; comply with AAMA 509.

B. Performance Requirements:

1. Design and size components to support assembly dead loads and withstand live loads caused by positive and negative wind pressure acting normal to plane of wall.
2. Structural Performance:
   a. Comply with ASTM E330/E330M, using test pressure 1.5 times design wind pressure, with 10-second maximum load duration.
   b. Maximum Allowable Deflection of Panel: L/300 for length (L) of span.
3. Fire Performance: Comply with NFPA 285.
4. Panel Surface Burning Characteristics: Maximum flame spread index of 0 and maximum smoke developed index of 5 when tested in accordance with ASTM E84.

5. Movement:
    a. Accommodate movement within system without damage to components or seal deterioration.
    b. Accommodate movement between system and perimeter components when subject to seasonal temperature cycling, dynamic loading, load release, and support framing deflection.
6. Drainage: Provide positive drainage to exterior for moisture entering system and condensation occurring within system.

C. Cementitious Wall Panels: Fiber-cement sheets complying with ASTM C1186, Type A, Grade IV; with manufacturer's standard factory-trimmed edges.
1. Thickness: 0.3 inch.
2. Panel Orientation: As indicated on drawings.
3. Surface Texture: Smooth.
4. Color: As indicated on drawings.

2.03 SUPPORT FOR CLADDING AND CONTINUOUS INSULATION

A. Continuous Thermal Z-Girts:
1. Material: Fiberglass-reinforced plastic.
2. Depth: As required for insulation thickness.
3. Length: 6 inches for clips, 96 inches for girts.
4. Spacing: 16 inches on center vertically.
5. Fasteners: As recommended by clip manufacturer.

2.04 FABRICATION

A. Trim 0.6 inch from panel edges. Seal trimmed edges with transparent sealer recommended by panel manufacturer.

2.05 ACCESSORIES

A. Furring Strips: Galvanized metal channels.
B. Trim: Same material and texture as panel.
C. Metal Trim: Extruded aluminum, ASTM B221, clear anodized.
1. Dimensions, Profile, and Layout: As indicated on drawings.
D. Flashing: See Section 07 6200.
E. Sealant: ASTM C920, Class 35; elastomeric, polyurethane, silyl-terminated polyether, or silyl-terminated polyurethane.

2.06 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for additional requirements.

B. Testing of Drainable and Back-Ventilated (D/BV) Rain Screen Panel System: Submit results in accordance with AAMA 509 for D/BV wall panel system similar to system specified.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrate; clean and repair to eliminate conditions detrimental to installation.
B. Verify installation of water-resistive barrier.
C. Correct conditions that do not meet manufacturer's requirements before beginning installation.

3.02 PREPARATION

A. Touch up field cut edges.
B. Protect surrounding areas and adjacent surfaces from damage during execution of work.

3.03 INSTALLATION

A. Install panel system in accordance with manufacturer's installation instructions and approved shop drawings.
B. Install wall panels minimum 6 inches above surface of ground and minimum 1 inch away from surfaces where water may collect.
C. Ensure supports for cladding and continuous insulation are plumb and plane.
D. Control and Expansion Joints: Install as recommended by wall panel manufacturer.
E. Sheet Metal Flashing: Install in accordance with wall panel manufacturer's instructions.
F. See Section 07 9200 for installation of sealants and backers around penetrations and between wall panels and adjacent construction.

3.04 CLEANING

A. See Section 01 7000 - Execution and Closeout Requirements for additional requirements.
B. Immediately after installation, wipe panels clean. Remove excess sealer, handling marks, and debris. Leave panels unmarked and free from dents or other finish damage.

3.05 PROTECTION

A. Protect installed products until Date of Material Completion.

END OF SECTION 07 4246

SECTION 07 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, gutters, and downspouts.
B. Sealants for joints within sheet metal fabrications.
C. Precast concrete splash pads.

1.02 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2014 (2015 Errata).
B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.
C. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
D. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2014.
E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
F. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).
G. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) requirements and standard details, except as otherwise indicated.
B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Aluminum: ASTM B209 (ASTM B209M); 20 gage, (0.032 inch) thick; anodized finish of color as selected.
   1. Clear Anodized Finish: AAMA 611 AA-M12C22A41 Class I clear anodic coating not less than 0.7 mils thick.

B. Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 20 gage, (0.032 inch) thick; plain finish shop pre-coated with fluoropolymer coating.
   1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
   2. Color: As selected by Design Professional from manufacturer's full colors.

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. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

F. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

2.03 GUTTER AND DOWNSPOUT FABRICATION

A. Gutters: SMACNA (ASMM) Rectangular profile.

B. Downspouts: Square profile.

C. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 10 years in accordance with SMACNA (ASMM).

D. Accessories: Profiled to suit gutters and downspouts.
   1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
   2. Gutter Supports: Brackets.
   3. Downspout Supports: Brackets.

E. Splash Pads: Precast concrete type, of size and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.

F. Downspout Boots: Cast iron.

G. Seal metal joints.

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 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.
B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.02 INSTALLATION

A. Secure flashings in place using concealed fasteners.
B. Apply plastic cement compound between metal flashings and felt flashings.
C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
D. Seal metal joints watertight.
E. Secure gutters and downspouts in place with concealed fasteners.
F. Slope gutters 1/4 inch per 10 feet, minimum.
G. Connect downspouts to downspout boots, and grout connection watertight.
H. Set splash pads under downspouts.

END OF SECTION 07 6200

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