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## SECTION 074216 - INSULATED-CORE METAL WALL PANELS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Honeycomb-core metal wall panels.

- B. Related Sections:

- 1. Division 05 Section "Cold-Formed Metal Framing" for cold-formed metal framing supporting metal wall panels.
- 2. Division 07 Section "Metal Wall Panels" for single-skin, through-the-face-fastened metal wall, liner, and soffit panels.
- 3. Division 07 Section "Metal Plate Wall Panels" for solid metal plate wall panels.
- 4. Division 07 Section "Composite Wall Panels" for metal-faced composite wall panels.
- 5. Division 07 Section "Sealants" for materials required for use with honeycomb-core metal wall panels.
- 6. Division 07 Section "Sheet Metal Flashing and Trim" for field-formed flashings and other sheet metal work not part of metal wall panel assemblies.

#### 1.3 DEFINITIONS

- A. Metal Wall Panel Assembly: Honeycomb-core metal wall panels, attachment system components, integral flashings miscellaneous metal framing, and accessories necessary for a complete weathertight wall system.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Metal wall panel assemblies shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Delegated Design: Design metal wall panel assembly, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Air Infiltration: Air leakage through assembly of not more than **[0.06 cfm/sq. ft. (0.3 L/s per sq. m)]** <Insert rate> of wall area when tested according to ASTM E 283 at the following test-pressure difference:
1. Test-Pressure Difference: **[1.57 lbf/sq. ft. (75 Pa)]** <Insert pressure>.
- D. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 331 at the following test-pressure difference:
1. Test-Pressure Difference: **[6.24 lbf/sq. ft. (300 Pa)]** <Insert pressure >.
- E. Structural Performance: Metal wall panel assemblies shall withstand the effects the following loads and stresses within limits and under conditions indicated, based on testing according to ASTM E 330:
1. Wind Loads: Determine loads based on the following minimum design wind pressures:
    - a. Uniform pressure of **[20 lbf/sq. ft. (958 Pa)]** **[30 lbf/sq. ft. (1436 Pa)]** <Insert design wind pressure>, acting inward or outward.
    - b. Uniform pressure as indicated on Drawings.
  2. Deflection Limits: Metal wall panel assemblies shall withstand wind loads with horizontal deflections no greater than **[1/180]** **[1/240]** <Insert deflection> of the span.
- F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): **[120 deg F (67 deg C), ambient; 180 deg F (100 deg C)]** <Insert temperature range>, material surfaces.
- G. Panel Manufacturing Tolerances:
1. Panel bow shall be no more than 0.5 percent of panel dimension in width and length.

2. Panels shall allow for field adjustment, as recommended by manufacturer, where final dimensions cannot be established by field measurement.
3. Panel lines, breaks, and angles shall be sharp and true, and surfaces shall be free from warp or buckle.

## 1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of wall panel and accessory.
- B. Shop Drawings: Show fabrication and installation layouts of metal wall panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details. Distinguish between factory-, shop-, and field-assembled work.
  1. Accessories: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches (1:10):
    - a. Flashing and trim.
    - b. Anchorage systems.
- C. Samples for Initial Selection: For each type of metal wall panel indicated with factory-applied color finishes.
  1. Include similar Samples of trim and accessories involving color selection.
  2. Include manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each sealant exposed to view.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.
  1. Metal Wall Panels: 12 inches (305 mm) long by 12 inches (305 mm) wide. Include fasteners, battens, closures, and other metal wall panel accessories.
  2. Trim and Closures: 12 inches (305 mm) long. Include fasteners and other exposed accessories.
  3. Accessories: 12-inch- (305-mm-) long Samples for each type of accessory.
- E. Delegated-Design Submittal: For metal wall panel assembly indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- F. Coordination Drawings: Exterior elevations, drawn to scale, and coordinating penetrations and wall-mounted items. Show the following:
  1. Wall panels and attachments.
  2. [Girts] [Stud framing].
  3. Wall-mounted items including doors, windows, louvers, and lighting fixtures.
  4. Penetrations of wall by pipes and utilities.

- G. Qualification Data: For [**Installer**] [**professional engineer**] [**and**] [**testing agency**].
- H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.
- I. Field quality-control reports.
- J. Maintenance Data: For honeycomb-core metal wall panels to include in maintenance manuals.
- K. Warranties: Sample of special warranties.

## 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers approved by manufacturer.
- B. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.
- C. Source Limitations: Obtain each type of metal wall panel from single source from a single manufacturer.
  - 1. Manufacturer Qualifications: Minimum of five years experience in the manufacture of panels comparable to those required in this Section.
- D. Fire-Test-Response Characteristics: Provide metal wall panels and system components with the following fire-test-response characteristics as determined by testing identical panels and system components per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.
  - 1. Surface-Burning Characteristics: Provide wall panels with flame-spread index of 25 or less and smoke-developed index of 450 or less, per ASTM E 84.
- E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  - 1. Build mockup of typical [**wall**] [**corner**] panel as shown on Drawings; [**one bay wide by one story high**] <Insert size> by full thickness, including insulation, supports, attachments, and accessories.
  - 2. Conduct water spray test of mockup of metal wall panel assembly, testing for water penetration according to AAMA 501.2.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Preinstallation Conference: Conduct conference at [**Project site**] <Insert location>.
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, metal wall panel Installer, metal wall panel manufacturer's representative,

structural-support Installer, and installers whose work interfaces with or affects metal wall panels including installers of doors, windows, and louvers.

2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal wall panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that will affect metal wall panels.
6. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
7. Review temporary protection requirements for metal wall panel assembly during and after installation.
8. Review wall panel observation and repair procedures after metal wall panel installation.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

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

#### 1.8 PROJECT CONDITIONS

- A. **Weather Limitations:** Proceed with installation only when existing and forecasted weather conditions permit assembly of metal wall panels to be performed according to manufacturers' written instructions and warranty requirements.
- B. **Field Measurements:** Verify locations of structural members and wall opening dimensions by field measurements before metal wall panel fabrication, and indicate measurements on Shop Drawings.

#### 1.9 COORDINATION

- A. Coordinate metal wall panel assemblies with rain drainage work, flashing, trim, and construction of **[girts,]** **[studs,]** soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

## 1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal wall panel assemblies that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Structural failures, including rupturing, cracking, or puncturing.
    - b. Deterioration of metals and other materials beyond normal weathering.
  2. Warranty Period: One **<Insert number>** years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal wall panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  2. Finish Warranty Period: **[20] [10] <Insert number>** years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PANEL MATERIALS

- A. Aluminum Sheet: Coil-coated sheet, **ASTM B 209 (ASTM B 209M)**, alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.
1. Surface: **[Smooth, flat] [Embossed]** finish.
  2. Exposed Coil-Coated Finishes:
    - a. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - b. Three-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - c. Four-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat and clear coats. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

- d. Mica Fluoropolymer: AAMA 620. Two-coat fluoropolymer finish with suspended mica flakes containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  - e. Metallic Fluoropolymer: AAMA 620. Three-coat fluoropolymer finish with suspended metallic flakes containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
3. Exposed Anodized Finish:
- a. Clear Anodic Finish: AAMA 611, [AA-M12C22A41, Class I, 0.018 mm] [AA-M12C22A31, Class II, 0.010 mm] or thicker.
  - b. Color Anodic Finish: AAMA 611, [AA-M12C22A42/A44, Class I, 0.018 mm] [AA-M12C22A32/A34, Class II, 0.010 mm] or thicker.
- B. Stainless-Steel Sheet: ASTM A 240/A 240M, Type [304] [316], fully annealed.
- 1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
  - 2. Polished Finish: Grind and polish surfaces to produce uniform finish, free of cross scratches.
    - a. Run grain of directional finishes with long dimension of each piece.
    - b. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
    - c. Directional Satin Finish: No. 4 or No. 8.
  - 3. Bright, Cold-Rolled, Unpolished Finish: No. 2B.
- C. Panel Sealants:
- 1. Joint Sealant: ASTM C 920; elastomeric polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in aluminum wall panels and remain weathertight, and as recommended in writing by metal wall panel manufacturer.
- 2.2 INSULATION FOR PANEL CORES
- A. Kraft-Paper Honeycomb Core: Manufacturer's standard phenolic-resin impregnated paper, with not less than 18 percent resin content by weight and chemically treated for fire resistance; with maximum 3/4-inch (19-mm) cell size.
- 2.3 MISCELLANEOUS METAL FRAMING
- A. Miscellaneous Metal Framing, General: ASTM C 645, cold-formed metallic-coated steel sheet, [ASTM A 653/A 653M, G40 (Z120) hot-dip galvanized] [ASTM A 653/A 653M, G60 (Z180) hot-dip galvanized], or coating with equivalent corrosion resistance unless otherwise indicated.
  - B. Subgirts: Manufacturer's standard C- or Z-shaped sections, 0.064-inch (1.63-mm) nominal thickness.

- C. Zee Clips: **0.064-inch (1.63-mm)** nominal thickness.
- D. Base or Sill [**Angles**] [**Channels**]: **0.064-inch (1.63-mm)** nominal thickness.
- E. Hat-Shaped, Rigid Furring Channels:
  - 1. Nominal Thickness: [**As indicated**] [**As required to meet performance requirements**] [**0.064-inch (1.63-mm)**] <Insert thickness>.
  - 2. Depth: [**As indicated**] [**7/8 inch (21 mm)**] [**1-1/2 inches (38 mm)**] <Insert depth>.
- F. Cold-Rolled Furring Channels: Minimum **1/2-inch- (13-mm-)** wide flange.
  - 1. Nominal Thickness: [**As indicated**] [**As required to meet performance requirements**] [**0.064 inch (1.63 mm)**] <Insert thickness>.
  - 2. Depth: [**As indicated**] [**3/4 inch (19 mm)**] <Insert depth>.
  - 3. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with **0.064-inch (1.63-mm)** nominal thickness.
  - 4. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, **0.062-inch- (1.52-mm-)** diameter wire, or double strand of **0.048-inch- (1.22-mm-)** diameter wire.
- G. Fasteners for Miscellaneous Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous metal framing members to substrates.

## 2.4 MISCELLANEOUS MATERIALS

- A. Panel Fasteners: **Concealed, corrosion-resistant type** as recommended by panel manufacturer.

## 2.5 HONEYCOMB-CORE METAL WALL PANELS

- A. General: Provide factory-formed and -assembled metal wall panels fabricated from two metal facing sheets and honeycomb-core material laminated or otherwise securely bonded to facing sheets during fabrication without use of contact adhesives or pinch rollers, and with joints between panels designed to form weathertight seals. Include accessories required for weathertight installation.
  - 1. Panel Performance:
    - a. Fatigue: No evidence of delamination, core cracking, or permanent bowing when tested to a **20-lbf/sq. ft. (958-kPa)** positive and negative wind load and with deflection of L/180 for 2 million cycles.
    - b. Autoclave: No delamination when exposed to **2-psi (13.8-kPa)** pressure at a temperature of **212 deg F (100 deg C)** for 2-1/2 hours.
  - B. Wrapped-Edge, Honeycomb-Core Metal Wall Panels <**Insert drawing designation**>: Formed with flush exterior panel facing wrapped over panel edges; designed for independent installation by mechanically attaching [**panels to supports using staggered, concealed side clips engaging panel edges**] [**through extended panel edges to supports using concealed fasteners**]; with [**sealant**] [**gasketed**] joints.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Firestone Metal Products; UNA-CORE Series [**10 Calked Joint System**] [**30 Glazing Panel**] [**45 Spandrel Panel**] [**2000 Concealed Sealant System**], or a comparable product by one of the following:
  - a. Architectural Specialty Products, Inc.; Series 500.
  - b. Industrial Building Panels, Inc.; Honeycomb 1000 Series.
  - c. Protean Construction Products, Inc.; HC-100 Panel.
  - d. **<Insert manufacturer's name; product name or designation>**.
2. Facings: Fabricate panel with exterior and interior facings of same material and thickness.
  - a. Material: Aluminum sheet, [**0.032 inch (0.81 mm)**] [**0.040 inch (1.02 mm)**] [**0.050 inch (1.27 mm)**] [**0.063 inch (1.60 mm)**] thick.
  - b. Exterior Facing Finish: [**2-coat fluoropolymer**] [**3-coat fluoropolymer**] [**4-coat fluoropolymer**] [**Mica fluoropolymer**] [**Metallic fluoropolymer**] [**FEVE fluoropolymer**] [**Siliconized polyester**] [**Plastisol**] [**Clear anodized**] [**Color anodized**] **<Insert finish>**.
    - 1) Color: [**As indicated by manufacturer's designations**] [**Match Architect's samples**] [**As selected by Architect from manufacturer's full range**] **<Insert color>**.
  - c. Interior Facing Finish: Manufacturer's standard primer or polyester.
3. Kraft-Paper Honeycomb Core: Manufacturer's standard phenolic-resin impregnated paper, with not less than 18 percent resin content by weight and chemically treated for fire resistance; with maximum **3/4-inch (19-mm)** cell size.
  - a. Core Thickness: **0.920 inch (23.4 mm)** **<Insert thickness>**.
  - b. Wall Thickness: **0.118 inch (3.0 mm)**.
  - c. Cell Size: **3/4 inch (19 mm)** **<Insert thickness>**.
  - d. Cell Walls: Perforated and kerfed.
4. Aluminum Honeycomb Core: Manufacturer's standard **0.003-inch- (0.08-mm-)** thick, commercial grade 3003 aluminum alloy structure, fabricated with maximum **3/4-inch (19-mm)** cell size.
  - a. Core Thickness: **0.920 inch (23.4 mm)** **<Insert thickness>**.
  - b. Wall Thickness: **0.118 inch (3.0 mm)**.
  - c. Cell Size: **3/4 inch (19 mm)** **<Insert thickness>**.
  - d. Cell Walls: Perforated and kerfed.
5. Core Adhesive: Two-part, 100 percent solids, epoxy adhesive designed specifically for wall panel laminations and recommended by adhesive manufacturer for that purpose.
  - a. Adhesive shall produce a semi-elastic bond resistant to heat, cold, and moisture.
  - b. Contact adhesives shall not be used.
6. Clips: Manufacturer's standard one piece, formed from [**zinc-coated (galvanized) steel**] [**aluminum-zinc alloy-coated steel**] [**stainless steel**].
7. Gaskets: Extruded, dry seal silicone.
8. Sealant: Manufacturer's standard silicone.

9. Panel Thickness: [0.25 inch (6 mm)] [1.0 inch (25 mm)] [2.0 inches (51 mm)] [3.0 inches (76 mm)] <Insert dimension>.

## 2.6 ACCESSORIES

- A. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.
- B. Flashing and Trim: Formed from 0.040-inch- (1.02-mm-) minimum thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal wall panels.

## 2.7 FABRICATION

- A. General: Fabricate and finish metal wall panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Fabricate metal wall panels in a manner that eliminates condensation on interior side of panel and with joints between panels designed to form weathertight seals.
- C. Honeycomb-Core Metal Wall Panels: Fabricate panels using manufacturer's standard thermosetting structural adhesive in a lamination process that bonds panel under minimum 10-psi (69-kPa) pressure. Use of contact adhesives with pinch-roll process is not acceptable.
1. Panel Bow Tolerance: Not more than 0.5 percent of panel width or length.
- D. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.
1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
3. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended by metal wall panel manufacturer.
- a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

## 2.8 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

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

### 3.2 PREPARATION

- A. Miscellaneous Framing: Install subgirts, base angles, sills, furring, and other miscellaneous wall panel support members and anchorages according to ASTM C 754 and metal wall panel manufacturer's written recommendations.

### 3.3 METAL WALL PANEL INSTALLATION, GENERAL

- A. General: Install metal wall panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts and subgirts unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.
1. Commence metal wall panel installation and install minimum of [300 sq. ft. (27.9 sq. m.)] <Insert size> in presence of factory-authorized representative.
  2. Shim or otherwise plumb substrates receiving metal wall panels.
  3. Flash and seal metal wall panels with weather closures at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until weather barrier and flashings that will be concealed by metal wall panels are installed.
  4. Install screw fasteners in predrilled holes.
  5. Locate and space fastenings in uniform vertical and horizontal alignment.
  6. Install flashing and trim as metal wall panel work proceeds.
  7. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
  8. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated or, if not indicated, as necessary for waterproofing.
  9. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
  10. Provide weathertight escutcheons for pipe and conduit penetrating exterior walls.
- B. Fasteners:
1. Aluminum Wall Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized steel fasteners for surfaces exposed to the interior.
  2. Stainless-Steel Wall Panels: Use stainless-steel fasteners.
- C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by metal wall panel manufacturer.
- D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weathertight performance of metal wall panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal wall panel manufacturer.
1. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

### 3.4 INSULATED-CORE METAL WALL PANEL INSTALLATION

- A. Honeycomb-Core Metal Wall Panels:
1. Wrapped-Edge Panels: Mechanically attach wall panels to supports using staggered, concealed side clips engaging wrapped panel edges. Install clips to supports with self-tapping fasteners. Seal joints with [backer rod and sealant] [manufacturer's standard gaskets].
  2. Wrapped-Edge Panels: Mechanically attach wall panels through extended edge of panels to supports using self-tapping fasteners. Seal joints with [backer rod and sealant] [manufacturer's standard gaskets].

3. Framed-Edge Panels: Mechanically attach wall panels through integral, extruded edge members to supports using self-tapping fasteners. Seal joints with manufacturer's standard gaskets.

### 3.5 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
  1. Install components required for a complete metal wall panel assembly including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
  1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
  2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (605 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

### 3.6 INSTALLATION TOLERANCES

- A. Shim and align metal honeycomb wall panel units within an installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m), non-accumulative, on level, plumb, and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

### 3.7 CLEANING AND PROTECTION

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

END OF SECTION 074216

SAMPLE