

**NEW PASSENGER TERMINAL  
DULUTH INTERNATIONAL AIRPORT  
DULUTH, MINNESOTA**

**SECTION 07413 – INSULATED CORE  
METAL WALL PANELS**

SECTION 07413 - 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 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Foamed-insulation-core metal wall panels.

- B. Related Sections:

1. Division 5 Section "Cold-Formed Metal Framing" for cold-formed metal framing supporting metal wall panels.
2. Division 7 Section "Metal Wall Panels" for single-skin, through-the-face-fastened metal wall, liner, and soffit panels.

1.3 DEFINITIONS

- A. Metal Wall Panel Assembly: Insulated-core metal wall panels, attachment system components, 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**)] 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)**]

- 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)**
  2. Water Leakage: Uncontrolled water infiltrating the system or appearing on system's normally exposed interior surfaces from sources other than condensation. Water controlled by flashing and gutters that is drained back to the exterior and cannot damage adjacent materials or finishes is not water leakage.
- 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)**, acting inward or outward.
  2. Deflection Limits: Metal wall panel assemblies shall withstand wind loads with horizontal deflections no greater than **1/240** 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)**, material surfaces.
- G. Thermal Performance: Provide insulated metal wall panel assemblies with thermal-resistance value (R-value) indicated when tested according to ASTM C 518.

## 1.5 ACTION 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. Anchorage systems.
- C. 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 actual panel width. 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.
- D. 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.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Exterior elevations, drawn to scale, and coordinating penetrations and wall-mounted items. Show the following:
1. Wall panels and attachments.
  2. Girts and Stud framing.
  3. Wall-mounted items including doors, windows, louvers, and lighting fixtures.
  4. Penetrations of wall by pipes and utilities.
- B. Qualification Data: For Installer.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.
- D. Field quality-control reports.
- E. Warranties: Sample of special warranties.

## 1.7 CLOSEOUT SUBMITTALS

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

## 1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and 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.
- 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

INSULATED CORE METAL WALL PANELS

Outline Specification

06220 - 3

below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

1. Fire-Resistance Characteristics: Provide materials and construction tested for fire resistance per ASTM E 119.
2. Intermediate-Scale Multistory Fire Test: Tested mockup, representative of completed multistory wall assembly of which wall panel is a part, complies with NFPA 285 for test method and required fire-test-response characteristics of exterior non-load-bearing wall panel assemblies.
3. Radiant Heat Exposure: No ignition when tested according to NFPA 268.
4. Potential Heat: Acceptable level when tested according to NFPA 259.
5. 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. Preinstallation Conference: Conduct conference at Project site.

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.

## 1.9 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.

#### 1.10 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.

#### 1.11 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.

#### 1.12 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: Five years from date of Substantial Completion.
  3. 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.
  4. Finish Warranty Period: ten years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PANEL MATERIALS

- A. Metallic-Coated Steel Sheet: Restricted flatness steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, **G90 (Z275)** coating designation; structural quality.
  2. Surface: **Smooth, flat** finish.
  3. Exposed Coil-Coated Finish:
    - a. Metallic Fluoropolymer: AAMA 621. 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.
  4. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of **0.5 mil (0.013 mm)**.
- B. Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 temper.
1. Exposed Finish: Apply the following finish, as specified or indicated on Drawings.
    - a. Pre-patinated: ASTM B 882. Copper sheets artificially aged by chemical reaction to convert surface to inorganic crystalline structure with color range and durability of naturally-formed patina.
- C. Panel Sealants:
1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape **1/2 inch (13 mm)** wide and **1/8 inch (3 mm)** thick.
  2. Joint Sealant: ASTM C 920; elastomeric polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal wall panels and remain weathertight; and as recommended in writing by metal wall panel manufacturer.

### 2.2 INSULATION FOR PANEL CORES

- A. Polyisocyanurate Insulation: Closed cell, modified polyisocyanurate foam using a non-CFC blowing agent, **[foamed-in-place] [board]** type, with maximum flame-spread index of 25 and smoke-developed index of 450.
1. Closed-Cell Content: 90 percent when tested according to ASTM D 2856.

## 2.3 MISCELLANEOUS METAL FRAMING

- A. Miscellaneous Metal Framing, General: ASTM C 645, cold-formed metallic-coated steel sheet, 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: **0.079-inch (2.01-mm)** nominal thickness.
- D. Base or Sill Angles/Channels: **0.079-inch (2.01-mm)** nominal thickness.
- E. Hat-Shaped, Rigid Furring Channels:
  - 1. Nominal Thickness: As required to meet performance requirements.
  - 2. Depth: As indicated.
- F. Cold-Rolled Furring Channels: **Minimum 1/2-inch- (13-mm-)** wide flange.
  - 1. Nominal Thickness: As required to meet performance requirements
  - 2. Depth: As indicated.
  - 3. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with **0.040-inch (1.02-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: Self-tapping screws; bolts and nuts; self-locking rivets and bolts; end-welded studs; and other suitable fasteners designed to withstand design loads. Provide exposed fasteners with heads matching color of metal wall panels by means of plastic caps or factory-applied coating. Provide EPDM, PVC, or neoprene sealing washers.

## 2.5 FOAMED-INSULATION-CORE METAL WALL PANELS

- A. Concealed-Fastener, Foamed-Insulation-Core Metal Wall Panels. Formed with tongue-and-groove panel edges; designed for sequential installation by interlocking panel edges and mechanically attaching panels to supports using concealed clips or fasteners.
  - 1. Products: Subject to compliance with requirements,
    - a. CENTRIA Architectural Systems; **CS-620, Concept Series with 3" insulated metal wrap liner panels**
    - b. Coldmatic Building Systems.
    - c. Galvamet Inc.

- d. Insulated Panel Systems, Div. of NCI Building Systems.
  - e. Metecno-Aluma Shield, Metecno Panel Systems, Inc.
  - f. Metl-Span.
  - g. Steelox Systems, L.L.C.
2. Facings: Fabricate panel with exterior and interior facings of same material and thickness.
- a. Material: Zinc-coated (galvanized) steel sheet, [**0.022-inch (0.56-mm)**] [**0.028-inch (0.71-mm)**] [**0.034-inch (0.86-mm)**] nominal thickness.
  - b. Exterior Facing Finish: 3-coat metallic fluoropolymer.
- 1) Color: Match Architect's samples.
- c. Interior Facing Finish: Manufacturer's standard siliconized polyester.
  - d. Exterior Surface: Smooth, flat.
3. Panel Coverage: 16 inches nominal.
4. Panel Thickness: 4 inches nominal.
5. Thermal-Resistance Value (R-Value):

## 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.
- 1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal wall panels.
  - 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
  - 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum **1-inch (25-mm-)** thick, flexible closure strips; cut or premolded to match metal wall panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- B. Flashing and Trim: Formed from **0.018-inch- (0.46-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. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- D. Fabricate metal wall panel joints with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will minimize noise from movements within panel assembly.
- E. 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. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
  - 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
  - 4. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
  - 5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
  - 6. 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. 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.)** 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. Steel Wall Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized steel fasteners for surfaces exposed to the interior.
2. 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.
3. Copper Wall Panels: Use copper, stainless-steel, or hardware-bronze fasteners.
4. 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. Seal metal wall panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by metal wall panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

### 3.4 INSULATED-CORE METAL WALL PANEL INSTALLATION

A. General: Apply continuous ribbon of sealant to panel joint on concealed side of insulated-core metal wall panels as vapor seal; apply sealant to panel joint on exposed side of panels for weather seal.

1. Fasten insulated-core metal wall panels to supports with fasteners at each lapped joint at location and spacing and with fasteners recommended by manufacturer.
2. Lap ribbed or fluted sheets one full rib corrugation. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

3. Provide metal-backed washers under heads of exposed fasteners on weather side of insulated metal wall panels.
  4. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
  5. Provide sealant tape at lapped joints of insulated metal wall panels and between panels and protruding equipment, vents, and accessories.
  6. Apply a continuous ribbon of sealant tape to panel side laps and elsewhere as needed to make panels weathertight.
- B. Foamed-Insulation-Core Metal Wall Panels: Fasten metal wall panels to supports with concealed clips at each joint at location and spacing and with fasteners recommended by manufacturer. Fully engage tongue and groove of adjacent panels.
1. Install clips to supports with self-tapping fasteners.
- C. Laminated-Insulation-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 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 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Water-Spray Test: After completing the installation of ~~75-foot-~~ (23-m-) by-2-story minimum area of metal wall panel assembly, test assembly for water penetration according to AAMA 501.2 in a 2-bay area directed by Architect.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect and test completed metal wall panel installation, including accessories.
- D. Remove and replace metal wall panels where tests and inspections indicate that they do not comply with specified requirements.
- E. Additional tests and inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 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 07413