SECTION 07412

METAL WALL PANEL SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Factory-formed and field-assembled, exposed-fastener, lap-seam exterior metal wall panels with associated flashing, subgirts, sealants, and fasteners necessary to form a weathertight single skin panel system on exterior as shown on the Drawings and/or specified herein.

1. Drawing designation "**Metal Wall Panel System A**".
2. Coordinate design of steel assemblies necessary for support of ribbed metal panels and for transfer of dead and wind loads to the building structure.
3. Ribbed metal wall panels with related accessories shall be galvanized steel with factory-applied finish as specified herein.
4. Metal Copings
5. Metal Fencing
6. Trim

B. Related Sections:

1. Section 05100 - Structural Steel
2. Section 05400 - Cold-Formed Metal Framing
3. Section 07210 - Building Insulation
4. Section 07272 - Vapor Permeable, Fluid-Applied Membrane Air Barriers: Weather-resistant barrier installed over sheathing.
5. Section 07410 - Prefinished Insulated Metal Panel System
6. Section 07415 - Composite Metal Panel System
7. Section 07620 - Sheet Metal Flashing and Trim
8. Section 07920 - Joint Sealants
9. Section 09255 - Exterior Sheathing

1.2 REFERENCES

A. All references listed below shall be latest edition, unless otherwise indicated.

B. American Society for Testing and Materials (ASTM):

1. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
2. ASTM E 283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
3. ASTM E 331 Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

C. American Iron and Steel Institute (AISI):

1. Specification for the Design of Cold-Formed Steel Structural Members

D. American Institute of Steel Construction (AISC):

1. Code of Standard Practice

E. The International Building Code, 2003 Edition.

F. **ASCE 7** Minimum Design Loads for Buildings and Other Structures

1.3 SYSTEM DESCRIPTION

A. **Exterior Metal wall panel Contractor** shall provide all labor, materials, equipment, and services to perform all operations necessary for a complete installation in accordance with the requirements and intent of this section.

1. Work includes design, engineering, fabrication, installation and testing of the exterior metal wall panels.
2. Exterior Metal wall panel Contractor shall coordinate with Cold-Formed Metal Framing contractor in order to provide a complete installation.

B. **Design Requirements:**

1. Uninsulated single skin exposed fastener metal wall panel system with ribs/corrugations oriented in the horizontal direction.
2. Metal panel system shall be manufactured and installed to withstand specified design loads and maintain performance requirements without defects, damage, or failure.

C. **Performance Requirements:**

1. Panels, windows and secondary support systems shall be designed for component and cladding wind loads determined in accordance with the International Building Code, 2003 Edition, and the referenced standard ASCE 7-02 for the parameters specified and the following criteria:
   a. Basic wind gust - V = 130 mph.
   b. Importance factor - = Category 2.
   c. Exposure - B.
2. Missile Impact Ratings:
   a. Large Missile Impact (LMI) - from elevation 0 to 30 feet
   b. Small Missile Impact (SMI) - from elevation 30 to 60 feet.
   c. Not Impact Resistant (NIR): above elevation 60 feet.
3. Structural performance of the metal panels shall be derived from ASTM E72 Chamber Method with a deflection limit of l/180 applied to positive load. Ultimate structural values shall be achieved without the use of backside mechanical attachments to the structure.
4. Air infiltration of the metal panel system shall be limited to 0.06 CFM/ft2 at a positive pressure differential of 1.57 psf when tested in accordance with ASTM E 283.
5. There shall be no uncontrolled water penetration to the building interior when the metal panel system is tested per ASTM E 331 at a positive pressure differential of 6.24 psf or 20% of the design wind pressure whichever is greater. The test pressure need not exceed 12 psf.
6. Thermal Movements: Provide metal wall panel assemblies that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   a. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 SUBMITTALS

A. Product Data: Submit test reports, and certifications in accordance with quality assurance and performance requirements specified herein.

B. Test Reports: Provide certified test reports as evidence of compliance with the following requirements of this Section:

1. System performance
2. Finish performance
3. Code compliance and fire resistance under PERFORMANCE REQUIREMENTS and QUALITY ASSURANCE headings in this specification.

C. Shop And Erection 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 including erection drawings. Submit small-scale layouts of panels and large scale details of edge conditions, joints, fastener and sealant placement, flashings, penetrations, and special details. Distinguish between factory- and field-assembled work. Indicate the section moduli of wind-load-bearing members, and illustrate worst-case deflection calculations for the required design loads.

1. Erection procedures will be included where required to clearly explain proper installation of fasteners, trim, gaskets and sealants.
2. Calculations supporting structural performance shall be prepared and drawings stamped by a Professional Engineer in the state of Louisiana.
3. Materials and finish for each component shall be defined.
4. Drawings must be approved prior to fabrication.

D. Design Calculations: Submit structural design calculations, in accordance with the AISI Specification for the Design of Cold-Formed Steel Structural Members, for the metal wall panel system.

1. Submit design calculations with a Professional Engineer's stamp and signature to confirm compliance with structural criteria required by applicable codes. Engineer must be licensed in the state of Louisiana.
2. Panel size, gauge, spacing and structural support spacing of connections to comply with all applicable codes.

E. Samples for selection: Manufacturer's standard color range equal to Centria's Prismatic colors.

F. Samples for Verification: For each type of metal wall panel indicated with factory-applied color finishes.

G. Samples:

1. Panel: Full panel width by 12 inches long.
2. Fasteners: Two (2) of each type with statement of intended use.
3. Closure: One (1) metal closure and one (1) foam closure as required.
4. Sealants: One (1) sample of each type with statement of intended use.

H. Maintenance Data: For metal wall panel to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Manufacturers Qualifications: The manufacturer shall have had a minimum of eight (8) years experience in the successful completion of projects employing similar materials, applications, and performance requirements.

1. Manufacturer shall provide a list of five (5) similar completed projects with addresses of the project location, architect, and owner.

B. **Installers Qualifications:** The wall systems contractor shall have had a minimum of ten (10) years experience in the successful completion of projects employing similar materials, applications, and performance requirements.

1. The wall systems contractor shall provide a list of five (5) similar completed projects with addresses of the project location, architect, and owner.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

C. **Field Water Test:** Perform testing in accordance with AAMA 501.2 "Field Check for Water Leakage" on a completed portion of the installation at the Architect's direction. In the event that such testing should result in uncontrolled leakage, eliminate the causes of such leakage at no additional cost. Remedial measures must maintain standards of quality and durability and are subject to approval.

1.6 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.

1. Materials shall be unloaded and stored per the manufacturer's instructions to prevent damage due to handling and weather.

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. Protect strippable protective covering on metal wall panels from exposure to sunlight and high humidity, except to extent necessary for period of metal wall panel installation.

1.7 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.

1.8 COORDINATION

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

1.9 WARRANTIES

A. General: The specified warranties shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents

B. Installation Warranty: Furnish written warranty signed jointly by the Installer and the Contractor, agreeing to replace without cost to the Owner workmanship and materials which are discovered to have defects (including but not limited to leaks and failure to withstand specified wind conditions) within the warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures, including rupturing, cracking, or puncturing.
   b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty period: 5 years after the date of Substantial Completion

C. 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. High-Performance Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
   a. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer/Product

1. CENTRIA, “Style Rib”

B. Approved Manufacturers: Approved manufacturers provided the following can meet or exceed all specified criteria and provide the type, finish and style of metal panel system specified:

   a. Fabral
   b. Metal Sales Manufacturing Corporation
   c. MBCI; Div. of NCI Building Systems.
   d. Pac-Clad

C. Substitutions: Materials, accessories, and testing specified shall establish the minimum level of quality, performance, dimension, and appearance required of any substitution.

1. No substitution will be considered unless, written request for approval has been received by the specifying architect at least seven (7) days prior to the bid date. Request shall include evidence submitted to demonstrate equivalency to the products and performance levels specified. Substitution submission shall include (in addition to requirements outlined in Section 01630):
   a. A complete description of the substitution including details referenced to the wall conditions shown on the contract drawings.
   b. Verification manufacturer and installer/fabricator comply with QUALITY ASSURANCE article of this specification section.
   c. Independent test reports verifying compliance with specified performance requirements.

2.2 EXPOSED-FASTENER, LAP-SEAM METAL WALL PANELS

A. General: Provide factory-formed metal wall panels designed to be field assembled by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using exposed fasteners in side laps. Include accessories required for weathertight installation.

B. Vee-Rib-Profile, Exposed-Fastener Metal Siding: Formed with raised, V-shaped ribs and recesses that are approximately same size, evenly spaced across panel width, and with rib/recess sides angled at approximately 45 degrees.

1. Rib Spacing: 7.2 inches (183 mm) o.c.
2. Panel Coverage: 36 inches (914 mm).
3. Panel Height: 1.5 inches (38 mm).

2.3 PANEL MATERIALS

A. Metallic-Coated Steel Sheet Prepainted with Coil Coating: 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 446 Grade A (minimum 33,000 psi yield) unless higher strength grade is necessary to comply with design criteria ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality.
   a. 22 gauge minimum.
2. Smooth finish
3. Exposed Finishes: Apply the following coil coating:
   a. High-Performance PVDF Organic Finish (2-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coating; Organic Coating: manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2604 and with coating and resin manufacturers' written instructions.
   b. Coating Thickness: 1.6 mils.
   c. Color and Gloss: As selected by Architect from Manufacturer's standard colors.
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.

B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy and temper recommended by manufacturer for type of use and finish indicated.

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.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.4 MISCELLANEOUS METAL FRAMING

A. Support Assemblies: Provide panel support members of adequate size and thickness to withstand the specified design loads in addition to dead loads without damage to the panels, secondary supports, or building structure. Supports shall be designed in accordance with applicable standards of the AISC and AISI.

1. Deflection design criteria shall be L/240 with a maximum of 3/4-inch.
2. Provide adjustable connections and anchorages to accommodate building movements and construction tolerances in accordance with Section 7 of the AISC Specifications and/or ACI 301 Specifications for structural concrete.
3. Applicable Wind Loads - See PERFORMANCE REQUIREMENTS in Part 1 of this specification.
4. Cold Rolled Members: Minimum 14-gauge structural quality galvanized steel sheet complying with ASTM A 446, Grade A (33,000 psi minimum yield), with ASTM A 525 G90 zinc coating.
5. Hot Rolled Shapes, Plates and Bars: Structural steel, ASTM A 36; rust-inhibitive shop -applied prime paint finish.
6. Fabrication: Comply with requirements of Section 05120 and 05400 which are applicable to the work required under this Section 07415

B. Subgirts: C- or Z-shaped sections fabricated from 0.0598-inch (1.5-mm) bare steel thickness, shop-painted, cold-formed, metallic-coated steel sheet.

C. Base or Sill Angles and Channels: 0.079-inch (2.0-mm) bare steel thickness, cold-formed, galvanized steel sheet.

D. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base Metal Thickness: As indicated.
2. Depth: As indicated.

2.5 MISCELLANEOUS MATERIALS

A. Fasteners: Self-tapping screws, bolts, 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.

1. Fasteners for Metal panels: Self-drilling or self-tapping 410 stainless steel hex washer head, with EPDM or PVC washer under heads of fasteners bearing on weather side of metal wall panels.
2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling 410 stainless steel screws with hex washer head.
3. Blind Fasteners: Stainless steel rivets.
4. Stainless steel washers shall be coated to match the exterior panel color

2.6 MITERED CORNERS

A. Mitered corner assemblies

1. Mitered corner assemblies shall be notched, bent, and structurally bonded.
2. Mitered corner assemblies shall be factory coil coated to match adjacent panels.
   a. Paint finish shall meet specified warranty requirements.

B. Manufacturers:

1. Horizontal exterior profile panel outside and/or inside corners shall be trimless MicroSeam™ 9 corners as manufactured by CENTRIA or approved equal.

C. **Mitered corner assemblies** with exposed rivets or fasteners are unacceptable.

2.7 ACCESSORIES

A. **Exterior Metal Wall Panel Accessories:** Provide components required for a complete metal wall panel assembly including trim, fasciae, 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. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
2. 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. **Extruded reveals and closure strips**: Extruded aluminum components as provided by wall panel manufacturer and as shown on Drawings.

C. **Flashing and Trim:** Formed from 0.0179-inch- (0.45-mm-) thick, 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.

1. All exterior flashing and trim shall have the same, finish, and color as the exterior profile, unless otherwise noted.
2. Break metal trim to match panel skin exteriors to be furnished at copings areas across entire structure.
    a. Coping shall have integral internal stiffeners.

D. Closures shall be metal and/or foam as required by manufacturer. Foam shall be a pre-cut profile closure of closed cell foam. Metal closures shall be fabricated from the same material, gage, finish, and color as the exterior metal panel.

2.8 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.

1. Fabricate metal panels with panel stiffeners as required to maintain fabrication tolerances and to withstand design loads.

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. **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 Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
3. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
4. 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.

2.9 FINISHES, GENERAL

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 2-1/2 mil 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. Contractor shall check the alignment of the structural supports. Alignment exceeding tolerances defined in the AISC Code of Standard Practice shall be corrected prior to proceeding with the installation of the metal panel system
2. Examine primary and secondary 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.
3. Examine 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.

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.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Mark location of studs on Self-Adhering Sheet Waterproofing.

3.2 PREPARATION

A. **Install** flashings and other sheet metal to comply with requirements specified in Division 7 Section "Sheet Metal Flashing and Trim."

B. **Install** fasciae and copings to comply with requirements specified in Division 7 Section "Sheet Metal Flashing and Trim" and "Roof Accessories."

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

3.3 INSTALLATION

A. **General:** Install metal wall panels 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. Manufacturer shall provide detailed instructions covering the tools, fasteners, sealants, and assembly procedures required to achieve the structural, thermal, and weathering performance specified.
2. Field cutting of metal wall panels by torch is not permitted.
3. Shim or otherwise plumb substrates receiving metal wall panels.
4. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Predrill panels.
5. Flash and seal metal wall panels with weather closures at eaves, rakes, and 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.
6. Install screw fasteners in predrilled holes.
7. Locate and space fastenings in uniform vertical and horizontal alignment.
8. Install flashing and trim as metal wall panel work proceeds.
9. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
10. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated or, if not indicated, as necessary for waterproofing.
11. 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.
12. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.
13. Copings shall have fasteners at 12" O.C. maximum.

B. **Minimum Installation Tolerances:** Shim and align panel units within installed tolerance of 1/4 inch in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

C. **Fasteners**: Use stainless-steel fasteners at exterior and at interior, exposed or unexposed.

D. **Metal Protection:** Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact

surface, or by other permanent separation as recommended by metal wall panel manufacturer.

E. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof 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 FIELD-ASSEMBLED EXTERIOR METAL WALL PANEL INSTALLATION

A. Lap-Seam Metal Wall Panel: Fasten metal wall panel to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. 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.
2. Provide metal-backed washers under heads of exposed fasteners bearing on weather side of metal wall panels.
3. 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.
4. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
5. Provide sealant tape at lapped joints of metal wall panels and between panels and protruding equipment, vents, and accessories.
6. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps, and on side laps of nesting-type panels; on side laps of corrugated nesting-type, ribbed, or fluted panels; and elsewhere as needed to make panels weatherproof to driving rains.
7. At panel splices, nest panels with minimum 6-inch (150-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

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 (600 mm) of corner or intersection. Where lapped or bayonet-type 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).

C. Metal filings caused by cutting and drilling shall be immediately removed from finished surfaces to prevent rusting and staining.

D. The metal panel systems contractor shall coordinate work with other trades as required to insure proper flashing and seals with adjoining construction.

3.6 DAMAGED MATERIAL AND CLEANING

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. Architect shall determine which panels shall be replaced.

D. **Final cleaning** is to be done in accordance with the manufacturer’s instructions.

END OF SECTION