

SECTION 07 42 93 – METAL SOFFIT 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. Metal soffit panels.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 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 soffit panels; details of edge conditions, side-seam and endlap joints, panel profiles, corners, anchorages, trim, flashings, closures, and accessories; and special details specific to project. Distinguish between factory- and field-assembled work.
- C. Samples for Initial Selection: For each type of metal soffit panel indicated with factory-applied color finishes.
 - 1. Include similar Samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.
 - 1. Metal Soffit Panels: 12 inches (305 mm) long by actual panel width. Include fasteners, closures, and other metal soffit 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.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer, Installer, and manufacturer's technical representative.

1. Submit Installer qualifications in the form of an original letter on manufacturer's letterhead signed by authorized manufacturer representative.
- B. Material Certificates: For thermal insulation, from manufacturer.
- C. Product Test Reports: Based on evaluation of current comprehensive tests performed by a qualified independent testing agency, for each product. Indicate compliance with requirements in Performance Requirements Article:
 1. Air Infiltration.
 2. Water Penetration.
- D. Field quality-control reports.
- E. Warranties: Sample of special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal soffit panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer of plant-fabricated metal soffit panel systems listed in this Section and meeting performance requirements, with a minimum of five years' experience providing metal soffit panel systems for projects of similar type and scope, offering warranty, and technical inspection specified.
- B. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing similar work, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to furnish warranty of type specified.
- C. Manufacturer's Technical Representative Qualifications: An authorized full-time employee representative of manufacturer experienced in the installation and maintenance of the specified soffit panel system and qualified to determine Installer's compliance with the requirements of this Project.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver metal soffit panels, and other manufactured items so as not to be damaged or deformed. Package metal soffit panels for protection during transportation and handling.
- B. Unload, store, and erect metal soffit panels in a manner to prevent bending, warping, twisting, and surface damage.

- C. Stack metal soffit panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal soffit panels to ensure dryness, with positive slope for drainage of water. Do not store metal soffit panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal soffit panel for period of metal soffit panel installation.

1.9 PROJECT CONDITIONS

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

1.10 COORDINATION

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

1.11 WARRANTY

- A. Refer to warranty requirements of Division 07 Roofing Section(s) for terms and conditions of warranties covering work of this Section.
- B. Warranty, General: Warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- C. Special Warranty on Panel Finishes: Written warranty in which Manufacturer agrees to repair finish or replace metal soffit panels that show evidence of deterioration of factory-applied finishes under normal atmospheric conditions 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 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer/Product: The roof system specified in this Section is based upon products of Tremco, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com, that are named in other Part 2 articles. Subject to compliance with requirements, provide the named product or an approved comparable product by one of the following:
 1. AEP-Span.
 2. CENTRIA Architectural Systems.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Metal soffit panel assemblies shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. 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).
- C. 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).
- D. Structural Performance: Provide metal soffit panel assemblies capable of withstanding the effects the following loads and stresses within limits and under conditions indicated, based on testing according to ASTM E 1592:
 1. Wind Loads: Determine loads based on the following minimum design wind pressures:
 - a. Uniform pressure as indicated on Drawings.
 - b. Design pressure resulting from wind speed of 90 mph (40.2 m/s).
 2. Deflection Limits: Metal soffit panel assemblies shall withstand wind loads with horizontal deflections no greater than 1/240 of the span.
- E. 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), material surfaces.

2.3 METAL SOFFIT PANELS

- A. General: Provide factory-formed metal soffit panels designed to be installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners in side laps. Include accessories required for weathertight installation.
- B. Concealed-Fastener Metal Soffit Panels: Solid and vented panels formed with vertical panel edges and flat pan between panel edges.
 1. Basis-of-Design Product: Tremco, Inc. Soffit Panel.
 2. Metallic-Coated Steel Sheet: Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 50 (Class AZM150 coating designation, Grade 340); structural quality. Prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
 - a. Minimum Thickness: 0.0236-inch/24 ga. (0.71-mm).
 - b. Surface: Smooth, flat finish.
 - c. Exposed Coil-Coated Finish: Two-coat fluoropolymer.
 - d. Color: As selected by Architect from manufacturer's full range.
 3. Panel Profile: Flush pan, roll-formed with center rib for planked appearance, with interlocking tabs.
 - a. Provide panels with vents
 4. Panel Coverage: 12 inches (300 mm).
 5. Panel Height: 3/8 inch (10 mm).

2.4 ACCESSORIES

- A. Panel Accessories: Provide components required for a complete metal 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 soffit panels, unless otherwise indicated.
- 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. Finish flashing and trim with same finish system as adjacent metal soffit panels.

2.5 MISCELLANEOUS METAL FRAMING

- A. Miscellaneous Metal Framing, General: ASTM C 645, cold-formed metallic-coated steel sheet, ASTM A 653/A 653M, G60 (Z180) hot-dip galvanized or coating with equivalent corrosion resistance unless otherwise indicated.

- B. Hat-Shaped, Rigid Furring Channels:
 - 1. Nominal Thickness: 0.025 inch (0.64 mm).
 - 2. Depth: 7/8 inch (22 mm).
- C. Cold-Rolled Furring Channels: Minimum 1/2-inch- (13-mm-) wide flange.
 - 1. Nominal Thickness: 0.064 inch (1.63 mm).
 - 2. Depth: 3/4 inch (19 mm).
 - 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- (1.57-mm-) diameter wire, or double strand of 0.048-inch- (1.22-mm-) diameter wire.
- D. 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.

2.6 MISCELLANEOUS MATERIALS

- A. Panel 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 soffit panels by means of plastic caps or factory-applied coating. Provide EPDM sealing washers.

2.7 FABRICATION

- A. General: Fabricate and finish metal soffit 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. Site-rolled fabrication of panels or shop-rolling of panels using fixed equipment designed for site-rolling applications does not meet the requirements of this Section.
- B. Fabricate metal soffit 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. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
 3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
 4. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended by metal soffit panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal soffit 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.

2.9 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. 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 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.
- C. Steel Panels and Accessories:
 1. Two-Coat Fluoropolymer: AAMA 621. 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.
- 2. 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).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal soffit panel supports, and other conditions affecting performance of work.
- B. Examine roughing-in for components and systems penetrating metal soffit panels to verify actual locations of penetrations relative to seam locations of metal soffit panels before metal soffit 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 soffit panel manufacturer's written recommendations.
 - 1. Soffit Framing: Wire-tie or clip furring channels to supports.

3.3 METAL SOFFIT PANEL INSTALLATION

- A. General: Install metal soffit 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 soffit panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Commence metal soffit panel installation and install minimum of 300 sq. ft. (27.8 sq. m.) in presence of factory-authorized representative.
 - 2. Shim or otherwise plumb substrates receiving metal soffit panels.
 - 3. Flash and seal metal soffit panels 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 soffit 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 soffit panel work proceeds.

7. Apply sealant continuously as necessary for weatherproofing.
 8. Align bottom of metal soffit panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
 9. Provide weathertight escutcheons for pipe and conduit penetrating exterior walls.
- B. Metal Soffit Panels: Provide metal soffit panels full width of soffits. Install panels perpendicular to support framing.
1. Flash and seal panels with weather closures where metal soffit panels meet walls and at perimeter of all openings.
- C. Fasteners:
1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized steel fasteners for surfaces exposed to the interior.
- D. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by metal soffit panel manufacturer.
- E. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weathertight performance of metal soffit panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal soffit panel manufacturer.
- F. Lap-Seam Metal soffit panels: Fasten metal soffit panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.

3.4 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 soffit 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).

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Technical Representative: Engage a qualified manufacturer's technical representative acceptable to Owner to perform substrate examination, interim observations, and final roof inspections, and to prepare reports.
- B. Provide for a minimum of two 4-hour days per 40-hr work week, on site to perform wall panel tests and inspections and to prepare start up, interim, and final reports.
 1. Provide a written report after each day on site indicating the exact hours present; include the following information in the report:
 - a. Date, time and duration of the visit.
 - b. Observations of the progress of the Work and quality of workmanship.
 - c. Recommendations made and instructions given during the visit.
 - d. Identify conditions detrimental to the Work, and recommend corrective actions.
- C. Remove and replace metal soffit panels where inspections indicate that they do not comply with specified requirements.
- D. Additional tests and inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.6 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal soffit panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal soffit panel installation, clean finished surfaces as recommended by metal soffit panel manufacturer. Maintain in a clean condition during construction.
- B. After metal soffit panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

- C. Replace metal soffit panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION