

SECTION 07 62 00
SHEET METAL WORK

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Furnish all labor, materials, equipment and services necessary or incidental to the completion of all sheet metal work as shown on the Drawings or herein specified.
- B. This Section includes all new work and any repairs and/or modifications necessary to sheet metal components scheduled to remain that work together to produce a complete and fully functioning water collection and discharge system:
 - 1. Sheet metal gutter system on Level 4 ramp wall (Alternate #1).

1.2 RELATED SPECIFICATIONS

- A. Section 07 92 00 – JOINT SEALANTS.

1.3 REFERENCE STANDARDS

- A. The latest edition of "Architectural Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) is hereby incorporated by reference.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Fabricate and install sheet metal fabrications to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.
- B. Fabricate and install break metal components to comply with recommendations of FM Loss Prevention Data Sheet 1-49 for the following wind zone:
 - 1. Wind Zone 2: Wind pressures of 35 to 45 psf.

1.5 SUBMITTALS

- A. Submittals shall be delivered in accordance with Section 01 33 00 – SUBMITTAL PROCEDURES.
- B. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.

- C. Shop Drawings for all factory or shop formed components showing details, layout, profiles, weight, gauges or thickness of metal, joint configuration and joint spacing, installation procedures, methods of joining, and anchorage details.
 - 1. Submit typical plan view indicating the layout pattern of vertically oriented seams in the gutters.
- D. Samples of sheet metal flashings, counter-flashings, trim and accessory items in the specified material and finish. Where finish involves normal color and texture variations, include samples composed of two or more units showing the full range of variations expected.
 - 1. 8-inch square samples of specified sheet materials to be exposed as finished surfaces.
- E. Qualification data for firms and persons specified in the “Quality Assurance” Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.6 QUALITY ASSURANCE

- A. Engage an experienced Contractor who has completed sheet metal work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance on at least 5 projects.
- B. All work performed under this section must be performed by a Contractor who is both experienced in and has in-house capability, equipment and personnel to fabricate and install custom ornamental sheet metal work.
- C. Mock-up: Contractor shall furnish and install a mock-up of each type of sheet metal fabrication proposed for use on this project prior to finalizing purchase and fabrication of metal products. Mock-up shall utilize all specified preparations, fabrications and installation requirements and shall be incorporated into mock-ups required for the work of other specification sections. Install mock-ups in the color/finish selected by the Owner.

1.7 PROJECT CONDITIONS

- A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 GUTTER

- A. Gutter, general: Type 304 stainless steel, 2D mill finish. Minimum thickness shall be 18 gauge.
- B. Fasteners: use stainless steel Type 304 fasteners, such as concrete screws with rubber washers and pop rivets, where appropriate.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Samples of all joint configuration types must be submitted to the Owner's Representative for approval prior to Contractor acquisition.
- B. Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed. Fasteners shall be noncorrosive, size and thickness required for performance. Match finish of exposed fastener heads with adjacent material being fastened.
- C. Sealants and mastics to be used in conjunction with sheet metal fabrications and installations shall be as outlined in Section 07 92 00 – JOINT SEALANTS.

2.3 GENERAL FABRICATION

- A. Fabricate sheet metal components to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal and other characteristics of the item indicated.
- B. Comply with details shown to fabricate sheet metal components that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated. Exposed edges of components installed in locations where incidental contact is possible shall be folded back to form smooth radius hems without sharp edges or offsets.
- D. Fabricate nonmoving seams in sheet metal with flat-lock seams.
- E. Space movement joints to accommodate material expansion at a maximum of 10 feet with no joints allowed within 24 inches of a corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weatherproof in the Work, form expansion joints of intermeshing

hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.

- F. Form nonexpansion, but movable sealed joints in metal to accommodate sealant in compliance with SMACNA standards.
- G. Separate new metal components from non-compatible metal or corrosive substrates by providing concealed barriers at locations of contact to provide permanent separation as recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Unless otherwise indicated, install sheet metal components to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal 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 weatherproof.
- B. Install exposed sheet metal Work 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. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Provide for thermal expansion of exposed sheet metal work. Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints. Expansion joints to be shop fabricated with sheet metal cap. Install per SMACNA requirements with a value of "E" of 170°F.
- D. Clean surfaces to be bonded, removing oils and foreign matter. Fill joint completely and remove extruded materials from any exposed surfaces.

- E. Form nonexpansion, but movable sealed joints in metal to accommodate sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.
 - 1. Use joint adhesive for nonmoving joints.
- F. Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder. Surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.
- G. Separate new metal from non-compatible metal or corrosive substrates by installing a permanent isolation/separation membrane at all locations of contact as recommended by the manufacturer.
- H. Coordinate installation of counterflashing and reglets with installation of assemblies to be protected by counterflashing. Install counterflashings in existing reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches and bed with mastic.
- I. Surfaces to receive sheet metal shall be smooth, sound, clean, dry and free from defects that might affect the application.
- J. Cutting, fitting, drilling and other operations in connection with sheet metal required to accommodate work of other trades shall be performed by sheet metal mechanics.
- K. Provide weathertight juncture where sheet metal abuts or extends into adjacent materials.

3.3 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Coordinate installation such that painting can commence in a timely manner to prevent unnecessary deterioration of the metal.
- C. Provide final protection and maintain conditions that ensure sheet metal components and work installed during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION