

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

SECTION 07612

STANDING SEAM SHEET METAL ROOFING

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Preformed, prefinished metal roofing panels roofing.
- B. Miscellaneous trim, flashing, closures drip flashing and accessories
- C. Sealant
- D. Fastening devices.

1.02 RELATED SECTIONS

- A. Section 05210: Structural Steel Framing.
- B. Section 05500: Miscellaneous metal fabrication.
- C. Section 06100: Rough Carpentry.
- D. Section 07620: Flashing and Sheet Metal Trim, Gutters and Downspouts.
- E. Section 07900: Sealants.

1.03 REFERENCES

- A. American Iron & Steel Institute (AISI) Specification for the Design of Coldform Steel Structural Members.
- B. ASTM A-653 & ASTM A924 Steel Sheet, Zinc-Coated (Galvanized)
- C. ASTM E-283-84
- D. ASTM E-331-86
- E. ASTM E-1592
- F. Spec Data Sheet – Galvalume Sheet Metal by Bethlehem Corp.
- G. SMACNA – Architectural Sheet Metal Manual.
- H. Building Materials Directory-Underwriter's Laboratories, Test Procedure 580.

1.04 ASSEMBLY DESCRIPTION

- A. The roofing assembly includes preformed sheet metal panels, related accessories, valleys, hips, ridges, eaves, corners, rakes, miscellaneous flashing and attaching devices.

- B. Roofing sheet overlaps should be avoided. For roofing panels over 40 feet in length, panels should be rolled on-site using manufacturer's approved methods and equipment.

1.05 SUBMITTALS

- A. Submit detailed drawings showing layout of panels, anchoring details, joint details, trim, flashing and accessories. Show details of weatherproofing, terminations, and penetrations of metal work.
- B. Submit a sample of each type of roof panel, complete with factory finish.
- C. Submit results indicating compliance with minimum requirements of the following performance tests.
 - 1. Air Infiltration ASTM E-1680-95
 - 2. Water Infiltration ASTM E-1646-95
 - 3. Wind Uplift – U.L. 90
- D. Submit calculations with registered engineer seal, verifying roof panel and attachment method resists wind pressures imposed on it pursuant to applicable building codes.

1.06 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in Architectural Sheet Metal Products with ten (10) years minimum experience.
- B. No product substitutions shall be made after the Bid Date.
- C. Manufacturer's qualified field representative or engineer is to be present on site at installation.
- D. No Substitutions shall be made after the Bid Date.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Upon receipt of panels and other materials, installer shall examine the shipment for damage and completeness.
- B. Panels should be stored in a clean, dry place. One end should be elevated to allow moisture to run off.
- C. Panels with strippable film must not be stored in the open, exposed to the sun.
- D. Stack all materials to prevent damage and to allow for adequate ventilation.

1.08 WARRANTY

- A. Paint finish shall have a twenty-year guarantee against cracking, peeling and fade (not to exceed 5 N.B.S. unites).
- B. The roofing manufacturer shall have the sole and exclusive obligation for all warranty work commencing on the date of substantial completion.
- C. During the warranty period, the roofing manufacturer shall take appropriate action to cause any non-performing portions of the roof system to perform their proper function.
- D. Submit specimen copy of W/T warranty; including evidence of application for warranty and manufacturer's acceptance of the applicator and warranty conditions.
- E. Provide "Day One" Warranty:

1. Certified installer shall be required to be on the job at all times.
 2. There shall be a minimum of three (3) field inspections during the installation by a field technical representative of the Manufacturer.
 3. Inspection reports shall be determine if action is required.
 4. Manufacturer is responsible for all warranty work from date of Substantial Completion.
 5. Installer is responsible for warranty work until roof has been leak-free for 24 consecutive months.
 6. The Installer is responsible for proper installation of the roof system for the full warranty term.
- F. Applicator shall furnish a guarantee covering watertightness of the roofing system for the period of two (2) years from the date of substantial completion.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Berridge Manufacturing Company, Houston, Texas.
- B. CSI – Consolidated Steel, Inc., Columbia, South Carolina
- C. ABC - Architectural Building Components, Houston, Texas
- D. McElroy
- F. Englert, Inc., Perth Amboy, New Jersey
- G. MBCI

2.02 METAL ROOF PANEL: (For the purposes of these specifications the BERRIDGE STRAIGHT OR CURVED HIGH STANDING SEAM TEE-PANEL is specified. Metal Roof Panels shall not be limited to manufacturer specified herein but shall meet or exceed the product standard specified)

A. PRODUCT DESCRIPTION

1. Panels shall have 12 ¾ inch on-center seam spacing with a seam height of 1-1/2 inch.
2. Panels shall be site-formed with the manufacturer's recommended portable roll former (SS-21) in continuous lengths from ridge to eave or factory-formed to 40' maximum or the roll former approved by the manufacturer used.
3. Snap-on seams shall be 1-1/2 inch height and shall contain Berridge factory-applied Extruded Vinyl Weather Seal Insert to prevent siphoning of moisture through the standing seam or the weather seal insert by the manufacturer used.
4. Concealed anchor clips shall be spaced as required to meet uplift loads (maximum of 24 inches on center).
5. When required, panel assembly to bear Underwriters Laboratories Label UL90, pursuant to Construction Numbers 296 and applicable Fire Ratings.
6. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage beyond tolerances through the system when tested in accordance with ASTM E-331-86 and E-283-84.
7. The structural standing seam is for use over open purlins or solid sheathing.
8. UL listed for fire resistance.
9. Tested using ASTM E-1592
10. FMI-120 rated.
11. Corps of Engineers GEGS 07416 approved.
12. ASTM air and water tested.
13. Continuous lengths when site-formed.

2.03 SHEET MATERIALS

- A. Prefinished Metal shall be Hot-Dipped Galvanized – ASTM A446-85 Grade C G90 Coating A525-86 24 Gauge core steel or prefinished Galvalume – ASTM 792-86 AZ-55.
- B. Unfinished Metal shall be Grade C Galvalume ASTM 792-86, AZ 55, “Satin Finish”.
- C. For the purposes of bidding the Base Bid the Contractor shall bid on the following finish: Finish shall be full strength Kynar 500 fluoropolymer coating selected by the Architect from the manufacturer’s full range of **Premium Metallic Colors**, applied by manufacturer on a continuous coil coating line, with a top side dry film thickness of 0.70 to 0.90 mil over 0.25 to 0.35 mil prime coat, to provide a total dry film thickness of 0.95 to 1.25 mil. Bottom side shall be coated with primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500 finish supplier.

Optional Finish from Standard Colors: If the Architect and Owner decide to use a Standard Color equal to Berridge Color Finishes for Standard Colors the following shall be used: Finish Shall be Kynar 500 or Hylar 5000 resin with a 20 year guarantee against cracking, peeling and fading (not to exceed 5 N.B.S. units.) The Contractor shall give the Owner a credit for the difference of the cost of the Premium Metallic Colors and the Standard Kynar colors.

- D. Strippable film shall be applied to the topside of the painted coil to protect the finish during fabrication, shipping and field handling. This strippable film must be removed before installation.

2.04 ACCESSORY MATERIALS

- A. Fasteners: Galvanized Steel with washers where required.
- B. Sealant: As specified in Section 07900 for the type recommended by the manufacturer.
- C. Vinyl Weatherseal Insert.

2.05 FABRICATION

- A. All exposed adjacent flashing shall be of the same material and finish as the roof panels.
- B. Hem all exposed edges of flashing on underside, ½ inch.

PART 3 EXECUTION

3.01 INSPECTION

- A. Substrate:
 - 1. Examine Integral Roof Deck Assembly to ensure proper attachment to framing.
 - 2. Inspect roof deck to verify deck is clean and smooth, free of depressions, waves or projections, level to +/- ¼” in 20’, and properly sloped to valleys or eaves.
 - 3. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.
 - 4. Verify deck is dry and free of snow or ice. Flutes in steel deck are to be clean and dry.
- B. Underlayment
 - 1. See Section 05300 Integral Roof Deck Assembly for underlayment requirements.

3.02 INSTALLATION

- A. Comply with manufacturers standard instructions and conform to standards set forth in the Architectural Sheet Metal Manual published by SMACNA, in order to achieve a watertight installation.
- B. Install panels in such a manner that horizontal lines are true and level and vertical lines are plumb.
- C. Install starter and edge trim before installing roof panels.
- D. Remove protective strippable film prior to installation of roof panels.
- E. Attach panels using manufacturer's standard clips and fasteners, spaced in accordance with approved shop drawings.
- F. Install sealants for preformed roofing panels as approved on shop drawings.
- G. Do not allow panels or trim to come into contact with dissimilar materials.
- H. Do not allow traffic on completed roof. If required, provide cushioned walk boards.
- I. Protect installed roof panels and trim from damage caused by adjacent construction until completion of installation.
- J. Remove and replace any panels or components that are damaged beyond successful repair.

3.03 CLEANING

- A. Clean any grease, finger marks or stains from the panels per manufacturer's recommendations.
- B. Remove all scrap and construction debris from the site.

3.04 FINAL INSPECTION

- A. Final inspection will be performed by a firm appointed and paid for by the owner in accordance with section 01001.

END OF SECTION – 07612