

## MANUFACTURER

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## SECTION 07610 PREFORMED METAL ROOFING

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

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

#### 1.02 RELATED SECTIONS

- A. Section 05120: Structural Steel Framing.
- B. Section 05500: Miscellaneous Metal Fabrication.
- C. Section 06100: Rough Carpentry.
- D. Section 07631: Flashing and Sheet Metal Gutters.
- E. Section 07900: Sealants.

#### 1.03 REFERENCES

- A. American Iron & Steel Institute (AISI) Specification for the Design of Cold formed Steel Structural Members.
- B. ASTM A-653-09 Steel Sheet, Zinc-Coated (Galvanized)
- C. ASTM 792-86 AZ-50 Aluminum Zinc Alloy Coated Steel (Galvalume Sheet Metal
- D. ASTM E-1680
- E. ASTM E-1646
- F. ASTM E-1592
- G. Spec Data Sheet - Aluminum Zinc Alloy Coated Steel (Galvalume) Sheet Metal by Bethlehem Corp.
- H. SMACNA - Architectural Sheet Metal Manual.
- I. Building Materials Directory - Underwriter's Laboratories, Test Procedure 580 - UL-90.

#### 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.

#### 1.05 SUBMITTALS

- A. Submit detailed shop drawings showing layout of panels, anchoring details, joint details, trim, flashing, and accessories. Show details of weatherproofing, terminations, and penetrations of metal work at 0'-3"= 1'-0" scale.
- 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
  - 2. Water Infiltration - ASTM E 1646
  - 3. Wind Uplift - UL 90
- D. Submit calculations with registered engineer seal, verifying roof panel and attachment method resist 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 permitted without meeting specifications.
- C. Substitutions shall be submitted 10 days prior to bid date and acceptance put forth in an addendum.
- 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 allowing 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 adequate ventilation.

#### 1.08 WARRANTY

- A. Paint finish shall have a twenty-year warranty against cracking, peeling and fading (not to exceed 5 N.B.S. units).
- B. Galvalume material shall have a twenty-year warranty against failure due to corrosion, rupture or perforation.
- C. Roofing Installer shall furnish guarantee covering watertightness of the roofing system for the period of two (2) years from the date of substantial completion.
- D. When required, Roofing Installer to furnish, Manufacturer's standard watertightness warranty; Roofing Installer to comply with Manufacturer's watertightness warranty program and submit to manufacture all required documents. Watertightness warranty program to include roofing installation inspections which Roofing Installer shall participate.

### PART 2 PRODUCT

#### 2.01 ACCEPTABLE MANUFACTURERS

- A. Berridge Manufacturing Company, San Antonio, Texas.
- B. Substitutions shall fully comply with specified requirements.

#### 2.02 SHEET MATERIALS

- A. Prefinished metal shall be Aluminum-Zinc Alloy Coated (AZ-50 Galvalume®) Steel Sheet, 24-Gauge or 22-Gauge\*, ASTM 792-08, Grade 40, yield strength 40 ksi min.
- B. Finish shall be full strength Kynar 500® or Hylar 5000™ fluoropolymer coating applied by the manufacturer on a continuous coil coating line, with a top side dry film thickness of 0.75 ± 0.05 mil over 0.20 ± 0.05 mil prime coat, to provide a total top side dry film thickness of 0.95 ± 0.10 mil. Bottom side shall be coated with a primer (non-metallics only) and beige urethane coating with a total dry film thickness of 0.35 ± 0.05 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500® or Hylar 5000™ finish supplier.
- C. Strippable film shall be applied to the top side of all prefinished metal to protect the finish during fabrication, shipping and field handling. This strippable film MUST be removed immediately before installation.
- D. Unpainted metal shall be Aluminum-Zinc Alloy Coated (AZ-55 Acrylic Coated Galvalume®) Steel Sheet, 24-Gauge or 22-Gauge\*, ASTM 792-08, Grade 40, yield strength 40 ksi min., with clear acrylic coating on both sides of material.
- E. Field protection must be provided by the contractor at the job site so stacked or coiled material is not exposed to weather and moisture.
- F. Flashing maybe factory fabricated or field fabricated. Unless otherwise specified all exposed adjacent flashing shall be of the same material and finish as panel system.

#### 2.03 ACCESSORY MATERIALS

- A. Fasteners: [Galvanized Steel] or [Stainless Steel] with washers at exposed fasteners where approved by architect.
- B. Sealant: Sealant shall be an ultra low modulus, high performance, one-part, moisture curing silicone joint sealant. [Tremco Spectrum One] or [Dow 790] or [Pecora 890NST] or [Duralink] or [Titebond Metal Roof Sealant] (Do not use a clear sealant or sealants which release a solvent or acid during curing).
- C. Sealant must be resistant to environmental conditions such as wind loading, wind driven rain, snow, sleet, acid rain, ozone, ultraviolet light and extreme temperature variations.
- D. Features must include joint movement capabilities of +100% & -50% ASTM C-719, capable of taking expansion, compression, transverse and longitudinal movement, service temperature range -65°F to 300°F (-54°C to 149°C), Flow, sag or slump: ASTM C-639; Nil, Hardness (Shore A): ASTM C-661; 15, Tensile strength at maximum elongation: ASTM D-412; 200 psi, Tensile strength at 100% elongation: ASTM D-412; 35 psi, Tear strength, (die "C"); ASTM D-624; 40 pli, Peel strength (Aluminum, Glass, Concrete): ASTM C-794; 30 pli
- E. Vinyl Weatherseal Insert.

#### 2.04 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.

#### 2.05 BERRIDGE STANDING SEAM CURVED TEE-PANEL

1. Panels shall have 12 ¾" on-center seam spacing with a seam height of 1" and shall have no exposed fasteners.
2. Panels shall be site-formed with the Berridge Model SS-14 Portable Roll Former in continuous lengths with a 4' min. radius for convex and 6' min radius for concave to conform to solid-sheathed curved substrate, and shall have no exposed fasteners (factory fabrication not available).
3. Snap-on seams shall be 1" in height and shall contain the Berridge factory-applied Extruded Vinyl Weather Seal Insert (Patent No. 4641475) to prevent siphoning of moisture through the standing seam.
4. Concealed anchor clips shall be spaced as required to meet uplift loads (maximum of 24" on center).

5. When required, Panel assembly shall bear Underwriter's Laboratories Label UL90, pursuant to Construction Number 296 and applicable Fire Ratings.
6. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E-1680 and E-1646.

## PART 3 EXECUTION

### 3.01 INSPECTION

#### A. Substrate

1. Examine plywood or metal deck 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 to be clean and dry] or [joints in wood deck to be solidly supported and nailed].

#### B. Underlayment:

1. Verify [#30 unperforated asphalt saturated roofing felt underlayment has been installed over solid plywood or OSB sheathing and fastened in place] or [ice & water shield membrane on metal deck].
2. One (1) layer of #30 asphalt roofing felt paper for roof slopes of 3:12 and up, two (2) layers for roof slopes of 1:12 - 3:12 in moderate climates (check with Berridge).
3. Ice & Water Shield underlayment to be used on all curved applications and on low (less than 1:12) slope or complex roofs per Berridge recommendation.
4. Underlayment materials approved by Berridge for a watertightness warranty include - Grace Ice & Water Shield (40 mil), Grace Ultra (30 mil), Tamko TW Underlayment (40 mil), Tamko TW Metal & Tile (75 mil), Carlisle WIP 300 HT (40 mil), Soprema Lastobond Shield HT (40 mil), Polyglass Polystick MTS (60 mil), and Mid-States Asphalt Quik-Stick HT Pro (60 mil) \*PLEASE NOTE, NO OTHER MID-STATES ASPHALT PRODUCTS WITH SIMILAR NAMES OR OTHERWISE ARE APPROVED FOR THE BERRIDGE WATERTIGHTNESS WARRANTY PROGRAM
5. Ensure felt installed horizontally, starting at eave to ridge with a 6" minimum overlap and 18" endlaps.
6. Ensure that all nail heads and felt caps are totally flush with the substrate. Fasteners shall be galvanized roofing nails or zinc-coated fasteners with Berridge Coated Felt Caps.

### 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 which 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 01410.

## END OF SECTION

NOTE: Please reference Berridge Manufacturing Company's current Sweet's Catalog 07 61 00/BER , Sweet's BuyLine 49510 and 07 41 00/BER and Berridge's web site at [www.berridge.com](http://www.berridge.com) for standard product offering with regard to materials, gauges, finishes and colors available.