

SECTION

PREFORMED METAL ROOFING

1. WORK SPECIFIED HEREIN

1.1 All labor, material, equipment, and services necessary to furnish and install metal roofing as shown or specified, including accessories contiguous with the roofing.

2. SPECIFIED PRODUCTS AND SUBSTITUTIONS

2.1 In accordance with Section 01600.

3. SUBMITTALS

3.1 Submittals required in accordance with Section 01300.

3.2 Submit detailed Product Data including complete installation details.

3.3 Submit Shop Drawings showing seams, flashing, ridges, gutters, and fascia details. Show size, type of joints and locations, fasteners, special shapes and construction details of work, including provisions for expansion and contraction, prior to fabrication and delivery.

3.4 Submit 12 inch by 12 inch Samples of sheet metal material. Sample shall indicate finish, color and thickness.

3.5 Submit complete color chart for Architect's color selection.

3.6 Submit evidence of panel system's compliance with the following test standards:

3.6.1 UL-580 (Uplift Resistance)

3.6.2 ASTM E-1680-95 (Air Leakage Resistance)

3.6.3 ASTM E-1646-95 (Water Penetration Resistance)

3.6.4 ASTM 1592-95 (Uniform Static Air Pressure Difference).

4. QUALITY ASSURANCE

4.1 Applicable standards:

4.1.1 SMACNA: "Architectural Sheet Metal Manual", Sheet Metal and Air Conditioning Contractors National Association, Inc.

4.1.2 AISC: "Steel Construction Manual", American Institute of Steel Construction.

4.1.3 AISI: "Cold Form Steel Design Manual", American Iron and Steel Institute.

4.1.4 ASTM A 792-83-AZ50: "Specifications for Steel Sheet, Aluminum-Zinc Alloy Coated (Galvanized) by the Hot Dip Process, General Requirements (Zincalume®) or (Galvalume®)", American Society for Testing and Materials.

4.1.5 UL: "Tests for Uplift Resistance of Roof Assemblies", Underwriters Laboratories, Inc.

4.1.6 ASTM E 1592-95: "Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference", American Society for Testing and Materials.

4.1.7 ASTM E 1680-95: "Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems", American Society for Testing and Materials.

4.1.8 ASTM E 1646-95: "Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference", American Society for Testing and Materials.

- 4.2 Manufacturer's qualifications:
 - 4.2.1 Manufacturer has a minimum of three years experience in manufacturing panels of this nature.
- 4.3 Installer's qualifications:
 - 4.3.1 Installer of the system shall be an approved installer, certified by the manufacturer, and meet the following minimum criteria:
 - 4.3.2 Maintain general liability coverage for each loss as required by contract.
 - 4.3.3 Maintain sufficient worker's compensation coverage as mandated by law.
 - 4.3.4 Has no viable claims pending regarding negligent acts or defective workmanship on previously performed or current projects.
 - 4.3.5 Has not filed for protection from creditors under any state or federal insolvency or debtor relief statutes or codes.
 - 4.3.6 Project foreman is the person having received specific training in the proper installation of the specified system and will be present to supervise whenever material is being installed.
 - 4.3.7 Provide five references from five different architects or building owners for projects that have been in service for a minimum of two years, stating satisfactory performance by the installer.
 - 4.3.8 Provide certification letter that installer has a minimum of three years of metal product installation experience immediately preceding the date upon which work is to commence.
- 4.4 Pre-installation Conference:
 - 4.4.1 Prior to installation of roofing system, conduct a pre-installation conference at the project site.
 - 4.4.2 Attendance: Owner, Architect, Contractor, Project Superintendent, and Roof Applicator
 - 4.4.3 Agenda:
 - 4.4.3.1 Roofing details and agenda
 - 4.4.3.2 Critical work sequencing and review of phasing plan
 - 4.4.3.3 Inspection sequencing
- 5. **MATERIALS**
 - 5.1 **Metal roof system profile:**
 - 5.1.1 Products –Ultra Seam ® US150, as manufactured by AARA Architectural Metals.
 - 5.1.2 1-1/2" -inch high minimum rib x 20 inch, wide panel (nominal).
 - 5.2 Panel style:
 - 5.2.1 Mechanically field seamed
 - 5.3 Gauge:
 - 5.3.1 24 gauge (UL-90 rated - Underwriters Laboratories).
 - 5.4 Substrate:
 - 5.4.1 Zinalume®, Galvalume®, or galvanized steel sheet
 - 5.5 Clip:
 - 5.5.1 24 GA two (2) piece sliding clip allowing for thermal movement.

- 5.6 Texture:
 - 5.6.1 Striations (minimizes oil canning effect).
- 5.7 Finish:
 - 5.7.1 Fluoropolymer coating produced with Kynar 500 or Hylar 5000 resin (20 year warranty).
- 5.8 Color:
 - 5.8.1 Selected from standard colors.
- 5.9 **Acceptable manufacturer:**
 - 5.9.1 Ultra Seam Inc., 14432 State Route 141 S. Clay, KY 4404, (800) 874-7326
- 5.10 Other manufacturers desiring approval comply with Section 01600.
- 5.11 **Fasteners:**
 - 5.11.1 Roof fasteners shall be approved by the metal roof manufacturer.
 - 5.11.1.1 Use compatible fasteners for all applications. Any exposed fasteners shall be color of metal roof system.
 - 5.12.1.2 Locate and space any exposed fasteners in a true vertical and horizontal alignment.
- 6. **Accessories:**
 - 6.1 Provide all components required per the metal roof system manufacturer's approved shop drawings for a complete metal roof system to include panels, panel clips, trim/flashing, fascias, ridge, closures, sealants, fillers and any other required items.
 - 6.1.1 All tape seal is to be a pressure sensitive, 100 percent solids, polyisobutylene compound sealing tape with a release paper backing. Provide permanently elastic, non-sagging, non-toxic, non-staining tape seal approved by the metal roof system manufacturer.
 - 6.1.2 All joint sealant is to be a one-part elastomeric polyurethane sealant approved by the metal roof system manufacturer.
 - 6.2 **Fabrication:**
 - 6.2.1 Roll form panels in continuous lengths, from eave to ridge.
 - 6.2.2 Panels to be jobsite or factory formed in continuous lengths. Spliced panels are not acceptable.
 - 6.2.3 Fabricate trim/flashing and accessories to detailed profiles.
 - 6.2.4 Fabricate trim/flashing from same material as panel.
 - 6.3 **Prefabricated Roof Jacks:**
 - 6.3.1 Pipe flashings shall be a one piece EPDM (ethylene propylene diene monomer) molded rubber boot having a serviceable temperature range of -30°F to 250°F (for standard applications) or silicone molded rubber boot having a serviceable temperature range up to 390°F (for high temperature applications)] and shall be resistant to ozone and ultraviolet rays. Units shall have an aluminum flanged base ring. Install pipe flashing through flat portion of the panel when possible.
 - 6.3.2 Construction Fasteners - Wyomissing, PA.
 - 6.3.3 ITW Buildex - Itasca, IL.
 - 6.4 Underlayment: (Contact manufacturer for job specific underlayment)
 - 6.4.1 30 lbs. ASTM felt underlayment shall be installed under all roofing panels.

OR

6.4.1 Self Adhering Roof Underlayment shall be installed under all roofing panels. Provide "Rainproof 40" as manufactured by Protecto Wrap, Inc., or approved equal. 30 lbs. ASTM felt underlayment shall be installed under all roofing panels.

6.5 Insulation Board: (Contact manufacturer for job specific underlayment)

6.5.1 Polyisocyanurate Insulation Board shall be installed per manufacturer's instructions. Provide Multimax Insulation Board as manufactured by RMAX Roofing Corporation or approved equal.

OR

6.5.1 Polyisocyanurate Insulation Board with nailer base shall be installed per manufacturer's instructions. Provide Nailable Base Insulation Board as manufactured by RMAX Roofing Corporation or approved equal.

6.6 Gypsum Roof Board: (Contact manufacturer for job specific underlayment)

6.6.1 5/8" Type X Firecord Core Gypsum sheathing

OR

6.6.1 1/4" or 1/2" GP Dens-Dek Prime Roof Board

7. EXECUTION

7.1 Inspect installed work of other trades and verify that such work is complete to a point where this work may continue.

7.2 Verify that installation is made in accordance with approved shop drawings and manufacturer's instructions.

7.3 Installation

7.3.1 Install metal roof system so that it is weather-tight. Allow for expansion and contraction.

7.3.2 Provide concealed anchors at all panel attachment locations.

7.3.3 Install panels plumb, level and straight with seams and ribs parallel, conforming to design as indicated.

8. CLEANING

8.1 Dispose of excess materials and remove debris from site.

8.2 Clean work in accordance with manufacturer's recommendations.

8.3 Touch up minor scratches and abrasions.

9. PROJECT CLOSE-OUT

9.1 Issue a written warranty to the Owner to maintain the roof and flashing in a watertight condition for a period of two years from the date of substantial completion.

9.2 Issue a written 20-year guarantee from the manufacturer for the panel finish system.

END OF SECTION