



**SPECIAL PROVISIONS
FOR
SHEET METAL ROOFING**

**Woodbury County
IM-NHS-029-7(37)149--03-97**

**Effective Date
December 20, 2011**

THE STANDARD SPECIFICATIONS, SERIES 2009, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

090161.01 DESCRIPTION.

This specification describes the requirements for sheet metal roofing to be installed on the bridge abutment towers at each of four locations on the project. This work includes the entire sheet metal roof system complete with all related fasteners, underlayment, flashing and accessories required for a complete installation.

090161.02 MATERIALS.

A. Acceptable Sheet Metal Roofing Manufacturers.

- Peterson Aluminum Corporation
- Integris Metals
- MBCI Lockseam
- Centria ADP 100
- MM Systems Corporation
- Engineer approved equal

B. Materials.

1. Sheet metal roofing to be standing seam sheet metal with the following requirements:
 - a. All sheet metal roofing shall be 22 gauge hot-dipped galvanized steel commercial quality smooth primed and finished one side with a fluoropolymer of polyvinylidene fluoride (PVDF) coating to 1.0 mil dry film thickness. Coating composition shall include a minimum of 70% PVDF resins. Qualifying products include Kynar 500 PVDF and Hylar 5000 PVDF. A wash coat of 0.3 to 0.4 mil dry film thickness shall be applied to the reverse side.
 - b. The prefinished side shall be provided with a factory applied strippable vinyl film for protection of finished surface during shipping, fabrication and installation.
 - c. Standing seams shall be spaced 12 inches on center and may be integral or snap-on seams at contractor's option. Maximum height of seams shall be 1 1/2 inches.

2. Flashing and trim shall be of the same thickness, coating type, color and composition as the sheet metal roofing. Provide flashing, vented ridge cap, hip caps, eave trim, outside corner trim, fascia trim/flashing, soffit finish panels and/or other similar required components and accessories.
3. Underlayment shall be one of the following:
 - Ice and Water Shield by Grace
 - Storm Guard HT by GAF Materials Corp.
 - TAMKO TW Moisture Guard
 - Polyguard Deck Guard
 - Carlisle Dri-Start
 - Engineer approved equal
4. Plastic cement: Where required, Federal Specification SS-C-153, Type 1.
5. Fasteners shall be provided by manufacturer as required. Manufacturer and Contractor shall take care in determining the length of fasteners to avoid contact with corrugated steel decking beneath the plywood roof sheathing.
6. Other materials not specifically described, but required for a complete and proper installation, are to be as selected by the Contractor and subject to the approval of the Engineer.

C. Submittals.

1. Product Data Required:
 - a. Materials list of items proposed to be provided under these Special Provisions.
 - b. Manufacturer's specifications and other data necessary to prove compliance with the specified requirements.
 - c. Manufacturer's recommended installation procedures which, when approved by the Engineer, will become the basis for accepting or rejecting actual installation procedures used on the work.
 - d. Shop drawings in sufficient detail to show fabrication, installation, anchorage and interface of the work with other construction.
2. Samples Required:
 - a. Provide samples of prefinished metal finishes. Submit all manufacturer's available medium to dark brown and medium to dark bronze colors for selection of final color to be used on the project. Minimum sample size shall be 4 inches by 6 inches and samples shall be actual finishes on prepared sheet metal substrate. Deliver samples to: Iowa Department of Transportation, Office of Bridges and Structures, Attn: Aesthetic Bridge Specialist, 800 Lincoln Way, Ames Iowa 50010.
 - b. Provide one of each type and length of fastener to be employed, with attached labels indicating intended usage and locations.
3. Warranties:

The manufacturer of the prefinished sheet metal shall furnish a written warranty covering color fade, chalking and film integrity of the prefinished sheet metal for a minimum period of 20 years from the completion and acceptance of the project. Submit the warranty in two copies to the Engineer.

090161.03 CONSTRUCTION.**A. Installer Experience.**

Installer of sheet metal roofing shall have a minimum of 5 years of experience with similar work of all types required under these Special Provisions, and shall have performed similar work within a period 3 years prior to the beginning of work on this project.

B. Installation.

Start of work indicates acceptance of roof deck as satisfactory for the installation of the roofing as specified.

1. Install ice and water shield over the entire roof substrate to receive roofing system. Lap ends and edges 6 inches down slope over the lower sheet.
2. Provide ice dam under all edges of the metal roof that has metal flashing.
3. Ensure that no sheet metal shall come into direct contact with pressure treated lumber. Coat all metals coming into contact with pressure treated lumber with asphaltum paint.

C. Sheet Metal Work.

All sheet metal work shall conform to standards set forth in the Sheet Metal and Air Conditioning Contractor's National Association (SMACNA) Architectural Sheet Metal Manual and the following:

1. Keep cutting edges sharp, clean, properly dressed and closely aligned. Exercise care during fabrication and erection to avoid damage.
2. Fabricate items to maximum length possible with minimum number of joints.
3. Blind fasten all sheet metal work wherever possible. If not possible, provide neoprene gasket type washers under exposed screw and nail heads. Install all fasteners per manufacturer's directions. Do not use galvanized fasteners in pressure treated lumber.
4. All fabrication and installation shall be accomplished with protective strippable film in place.
5. Fabricate and install all work with lines and corners true and accurate. Form exposed faces flat and free of buckles, waves and tool marks.
6. Exposed edges on flashing shall be blind. Turn back 1/2 inch.
7. On vertical joints, lap flashings a minimum of 6 inches.
8. Erect sheet metal level, plumb, in proper plane and make watertight. Shim and seal under units as required to provide continuous, level, plumb lines.
9. Immediately remove any metal filings from drilling or cutting operations as these can melt through the strippable film and into the paint causing rust spots.
10. Immediately remove strippable film after installation is complete to avoid damage to paint coating underneath due to reactions of the strippable film with ultraviolet light or other environmental conditions.

D. Clean Up and Acceptance.

Only minor scratches and abrasions shall be allowed to be touched up, and only according to the manufacturer's instructions and with manufacturer approved products and methods. Any other damaged material shall be completely replaced.

1. Upon completion of installation, immediately and thoroughly clean all sheet metal surfaces with a manufacturer approved cleaner and wash down with water. Repair all damaged areas and leave work in perfect condition.
2. The completed sheet metal roofing system shall be free of paint blemishes, overbending, deformations, stretching, distortion, waves, and buckles to the satisfaction of the Engineer.

090161.04 METHOD OF MEASUREMENT.

All costs associated with Sheet Metal Roofing shall be paid for on a lump sum basis under the bid item, "Sheet Metal Roofing" and no special measurement will be made.

090161.05 BASIS OF PAYMENT.

Payment shall be full compensation for all labor, materials, equipment, services, and incidentals necessary to perform the work of this specification.