

**DIVISION 7 – THERMAL AND MOISTURE PROTECTION  
SHEET METAL ROOFING**

**07612-1**

**DESIGN STANDARDS**

1. **GENERAL:** The intent of these standards is to provide general guidelines for the design and installation of sheet metal roofing. All metal roof systems shall be a standing seam design.
2. Metal roofing shall be copper unless otherwise approved by the University's Project Manager for copper, except as otherwise specified or detailed, comply with application recommendations and details by the Copper Development Association, Inc. (CDA) and SMACNA Architectural Sheet Metal manual.
3. The metal roof system must be installed with a minimum 3:12 slope. Provide a solid underlayment over structural support to resist required wind load. The entire assembly shall meet local fire resistance requirements.
4. Panels shall be secured with concealed clips. Seams shall be of structural seam design. No batten systems are permitted.
5. For copper roof system, standard weathering copper shall be selected unless otherwise approved by the University's Project Manager.
6. Design metal roof to allow for the thermal movement, including expansion joints, clip details, and panel terminations, resulting from a maximum ambient temperature change of 120 Deg F (67 Deg C) and 180 Deg F (100 Deg) material surface change. Comply with SMACNA Architectural Sheet Metal manual and CDA (for copper systems).
7. Design and specify that all details and attachment avoid contact of non-compatible metals and of metal contact with corrosive substrates. If contact is unavoidable, provide permanent coating on concealed surfaces as recommended by manufacturer/fabricator.
8. Provide components and completed assembly that complies with Class A fire rating and the local code.
9. **Submittals:** Submit plans for roof installation that include details, sections, and attachments to other working including:
  - 9.1 Seams, ridges, valleys, expansion joints, crickets, and vertical abutments.
  - 9.2 Include clear definition in all details and direction of movement for accommodation of thermal expansion.
10. **Coordination Drawings:** Draw roof plans to scale and include all roof penetrations and roof-mounted items including roof hatches, equipment supports, pipes, and equipment curbs. Include associated details.

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11. Samples: Review with the University's Project Manager to determine required samples for verification. Samples may include panel sections, counter flashings, clips, or a sample of completed seams, valley, or ridge.
12. Mock-up: Review with the University's Project Manager to determine need for large scale mock-up. If required, provide full description of requirements including size, materials to be demonstrated, typical details as well as special details.

**PRODUCT STANDARDS**

1. Approved Manufacturers:

1.1 For cooper roofing systems, subject to compliance with requirements, manufacturers that may offer materials under this section include, but are not limited to:

1.1.1 Hussey Cooper Ltd., Outokumpu American Brass & Revere Copper Products.

1.1.2 Copper Sheet: ASTM B-320 Cold Rolled Copper Roofing sheets with minimum 20 oz. weight or as otherwise recommended by manufacturer's applications.

1.2 For other metal roofing systems, subject to compliance with requirements, manufacturers that may offer materials under this section include:

1.2.1 Berridge or approved equal.

2. Underlayment Materials

2.1 Self-adhering, Polyethylene-Faced Sheet: ASTM 1970, 40 mils ( 1.0 mm) thick minimum, consisting of slip-resisting polyethylene-film reinforcing and top surfaces laminated to SBS-modified asphalt adhesive, with release paper backing. Cold applied.

2.2 Self-Adhering, High temperature Sheet: 30 to 40 mil (0.76 to 1 mm) thick minimum. Consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Cold Applied. Provide primer when recommended by the manufacturer.

**PERFORMANCE STANDARDS**

1. The Architect shall be familiar with and had experience with similar roof installations as required in this section. If the Architect lacks such experience, he should consort with the University's Project Manager regarding retaining the services of a roofing consultant.
2. The Installer: The installer shall have a minimum of ten years of experience in the field and a minimum of ten projects completed with similar scope. The installer shall be licensed by the manufacturer.

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3. Pre-roofing Conference: A pre-roofing conference attended by the University's Project Manager, Architect, general contractor, and the roofing subcontractor shall be scheduled prior to ordering materials and beginning work. The following issues shall be reviewed and discussed:
  - 3.1 City of Houston, FM, and UL requirements, as applicable.
  - 3.2 Flashing requirements.
  - 3.3 Shop drawings revisions.
  - 3.4 Define work and storage areas.
  - 3.5 Conditions that require a temporary roof, if any.
  - 3.6 On-site monitoring by Owner, Architect, and local authorities.
  - 3.7 Changes procedure and written agreement, if any.
4. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair or replace sheet metal roofing that shows evidence of deterioration of factory-applied finishes within the warranty period.
  - 4.1 Warranty Period: 10/20 years after date of Substantial Completion.
5. Special Installer's Warranty: Roofing installer's warranty, on warranty form at end of this Section, signed by roofing installer, in which roofing installer agrees to repair or replace components of custom-fabricated sheet metal roofing that fail in materials or workmanship within specified warranty period.
  - 5.1 Failures include, but are not limited to, the following:
    - 5.1.1 Structural failures.
    - 5.1.2 Loose parts.
    - 5.1.3 Wrinkling or buckling.
    - 5.1.4 Failure to remain weathertight, including uncontrolled water leakage.
    - 5.1.5 Deterioration of metals, metal finishes, and other materials beyond normal weathering, including nonuniformity of color or finish.
    - 5.1.6 Galvanic action between sheet metal roofing and dissimilar materials.
  - 5.2 Warranty Period: Two years from date of Substantial Completion.