

PART 1: GENERAL

1.01 Scope Of Standard

- A. This standard provides general guidance concerning the specific preferences of the Sam Houston State University for roofing systems.
- B. SHSU recognizes that project conditions and requirements vary, thus precluding the absolute adherence to the items identified herein in all cases. However, unless there is adequate written justification, it is expected that these guidelines will govern the design and specifications for SHSU projects.

1.02 Reference Standards

- A. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual
- B. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) Architectural Sheet Metal
- C. Air Barrier Association of America (ABAA)

1.03 Quality Control

- A. Roofing contractors shall be certified by the roofing system manufacturer as qualified to install the specified system and to receive the specified warranty & have minimum of 10 years experience with roof system.
- B. A minimum of half the amount of time contractor is working on roof, an on-site inspection by an independent quality control observer shall be provided for each day of roofing installation. Once a week, Observer shall submit to SHSU project representative, copies of his daily reports. Weekly reports shall also include photographs to document the relative completion of project and any specific details or items of concern.
- C. All roofs shall be installed according to manufacturers guidelines. Corrections due to workmanship shall be at contractors expense.

1.04 General Requirements

- A. Roof shall be historically accurate and shall be coordinated with Master Plan.
- B. Always provide ¼" minimum slope. Design primary roof slopes for new buildings into structural frame and not by roof insulation. Re-roof shall also have ¼" minimum slope.
- C. Provide minimum 6 inch diameter roof drains. Always provide cast iron, domed strainers at drains.
- D. Entire assembly shall resist UL Wind Uplift I90.
- E. Minimum insulation value equal to wall insulation, but never less than R = 30.

- F. At vertical projections through roof, provide minimum 8” clearance between top of flashing and roof surface. Always provide cricket on uphill side of any projection that interferes with drainage.
- G. At areas where foot traffic will occur (mechanical units, particularly), provide walk pads. Path of pads shall follow most convenient route between roof access and destination and 360 degrees around roof top equipment.
- H. Provide two-year contractor’s warranty in addition to manufacturer’s warranty.
- I. Fall protection to allow safe roof top work shall be incorporated into the roofing system.
- J. Carefully detail roof expansion joints & flashing. All expansion & flashing material to be aluminum, stainless or copper. (galvanized metal is not allowed.)
- K. NO NAILS ALLOWED – SCREWS ONLY
- L. NO SKYLIGHTS ALLOWED – use clerestories
- M. NOT USED

PART 2: PRODUCTS

2.01 Built Up

A. General

- 1. Provide 20-year manufacturer roof system’s no dollar limit warranty on labor and materials.
- 2. All base flashing shall be aluminum faced.

B. Substrate: No lightweight fill shall be allowed.

C. Insulation: Provide minimum two layers of near equal thickness. Taper is to be insulation.

D. Systems

- 1. SBS Mod. Bit-torch.
- 2. Single Ply
 - a. PVC/TPO Single Ply – Preferred
 - i. 60 mil minimum
 - ii. Walk pads to all roof equipment

2.02 NOT USED

2.03 Shingles

NOTE: Shingles are not a standard roof on a Sam Houston State University. Special permission from the

Owner is required prior to specifying shingles.

- A. Provide minimum 3/4" plywood substrate.
- B. Elk "Prestige" line shingles, or approved equal.
- C. No wood shingles shall be allowed, except where historically required.

2.04. Metal Roofing

NOTE: Metal roofs are infrequently used on a Sam Houston State University. Special permission from the Owner is required prior to specifying metal roofing.

- A. Copper is first choice. If steel is used, provide 24 gage minimum with Kynar 500 finish, or approved equal, from manufacturer's standard colors (exemption possible by special permission of University).
- B. Provide standing seam, double-lock connections.

2.05 Urethane Foam

NOTE: Foam roofs are not used on Sam Houston State.

2.06 Sheet Metal

A. Counter flashing

- 1. If steel is used, provide 22 gage minimum. For exposed steel, provide Kynar 500 finish, or approved equal, from manufacturer's standard colors (20 Year warranty on color) (exemption possible by special permission of SHSU project representative). Metal not visible from ground or windows shall be stainless.
- 2. No surface mounted counter flashing shall be allowed. Always provide reglet.

B. Drains/Scuppers/Gutters/Down spouts

1. General

- a. All detailing shall conform to SMACNA standards. (Refer to item 1.03.)
- b. Where architecturally acceptable, 16 oz. copper is preferred. If steel (22 gauge minimum) is used, provide Kynar 500 finish, or approved equal, from the manufacturer's standard colors, and galvanized if not visible. Match existing, where historical demands require.
- c. Secondary Drains are preferred to scuppers.

- 2. Overflow Scuppers: Make exterior perimeter high and place overflow scuppers such that bottom of scupper is 1/2" above top of finished roof.

3. Scuppers and gutters as part of roof drainage system.
 - a. Place crickets between scuppers.
 - b. Provide conductor head with down spout at scupper or top of down spout.
 - c. Where possible, connect all down spouts to underground storm drainage systems. If not, configure down spout so that it, and its discharge, drain away from base of building. Provide cleanout at base of down spout.
 - d. Provide expansion joints in gutters.
 - e. Internal gutters are not allowed

PART 3: EXECUTION

3.01 General

A. Built-up

1. All roofs shall have minimum 1/4" slope over entire roof area and sloped to roof drains.
2. Install per manufacturer's requirements. A copy of manufacturer's installation requirements shall be submitted
3. No kettles allowed on project without special permission of ODSR (a fire protection plan shall also be submitted with the request).
4. When determining set-up location, keep well away from fresh air intakes on adjacent buildings (and existing buildings on re-roofs).

B. Shingles

1. Minimum 4" per foot slope.

C. Metal Roofing

1. Minimum 2" per foot slope.

3.02 Re-roofing

- I. All Re-roofs shall have minimum 1/4" slope over entire roof area and sloped to roof drains.

A. Inspect existing roof:

1. Core existing roof to verify conditions.
2. Pull-out testing is required.

3. If existing roof is mechanically fastened, determine how to remove roof and methods to repair substrate.
 - B. Test for asbestos, lead, and asphaltic substances whose removal may require abatement or special environmental considerations.
 - C. Inspect existing skylights and report to SHSU project representative whether it would be prudent to include skylight re-work with roof repairs. Likewise, for roof scuttle and other rooftop accessories.
 - D. Remove existing roof to substrate unless approved by SHSU. Never remove more roof than can be dried-in prior to completion of day's work or in the event of rain.
 - E. Provide for substrate repair/replacement in Base Bid (by assumed quantities or percentages, and unit prices, if necessary).
 - F. Replace all nailers. Provide unit prices with bid to allow existing nailers to remain if determined to be satisfactory.
 - G. Re-use of existing counter flashing is permissible if SHSU project representative agrees. Verify height of finished roof and include repairs to counter flashing in Base Bid. Re-caulk top of existing counter flashing where caulking exists.
 - H. Re-oakum all existing drains.

END OF STANDARD 07500