

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

07 00 00 GENERAL THERMAL AND MOISTURE PROTECTION

PART 1 - GENERAL

- A. Preferred Roofing Types for the Main Campuses include Metal, Composition Shingles, and Membrane.
- B. WSU is moving away from asphalt-based roofs. Use of asphalt-based roofing requires specific approval from the WSU Project Manager.

1.02 DESIGN CRITERIA

- A. All roof insulation shall be a minimum average of R-38.
- B. No roofing material shall contain asbestos in any quantity or any form.
- C. Comply with manufacturer's recommendations on installation of roofing systems under adverse environmental conditions.
- D. Specific Requirements
 - 1. Drains:
 - i. Roof drains shall be provided with a metal drain basket.
 - ii. All drains shall and overflows shall be provided with snow/ice melt protection.
 - iii. Scuppers may be used to replace overflow drains.
 - 1) Provide snowmelt to scupper to ensure ice free performance in winter.
 - 2. Expansion Joints:
 - i. All expansion joints particularly those which abut existing walls shall have an 8 inch curb above the waterproof membrane plane.
 - ii. Structural deck shall slope away from expansion joints or parallel to the joints.
 - 3. Integration of Moisture Protection System with other Surfaces:
 - i. New Construction: Wherever possible, employ through-wall counter flashing for new construction. At brick parapets, through-veneer two-piece sheet metal reglet and counter flashing fully installed in the mortar bed in a stair-stepped fashion is required.
 - ii. Re-roofing or renovation: Surface-mounted termination bars are acceptable for re-roofing and renovation of existing structures.
 - iii. Counter flashing shall extend down and cover a minimum of 1 inch of any adjacent materials.

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- iv. Parapets shall have roof base and reinforcing extended up a minimum of 1 foot with clamp bar and adequate cover of flashing.
- v. Penthouse walls shall have roof base and reinforcing extended up a minimum of 1 foot with clamp bar and adequate flashing.
- vi. Skylights/roof hatches shall have curbs that extend a minimum of 1 foot above the adjacent membrane surfaces. All roof hatches and skylights shall have crickets on the up-hill side of each unit.
- vii. Roof mounted equipment shall have vibration dampening, concrete slabs as well as vibration isolation mechanisms for support.

4. Design for Foot Traffic

- i. Designs should deter casual, unauthorized roof access except for periodic inspection and maintenance by authorized personnel. The design should limit unwanted access through windows, over parapet walls, etc.
- ii. Penthouses should have direct access from within the structure. Designs for new facilities shall emphasize that all mechanical equipment is housed in the penthouse. WSU's desire is to eliminate all roof mounted equipment and restrict foot traffic on the roof. Simplified roof areas reduce the likelihood of leaks.
- iii. Roofs that require foot traffic shall be designed so that a walking surface extends from roof access point to mechanical equipment, ladders, drains, gutters, electrical, telecommunication and satellite equipment. All access points, ladders, etc. shall have hard protective walking surface at entry point.

5. Moisture Protection Edge Details:

- i. Parapets:
 - 1) Wherever possible, roofs shall have parapets. Parapet height shall be a minimum of 42 inches. Parapets shall have a permanent waterproof coping, cap or cap stone. Zinc-coated galvanized steel cap flashing is a minimum; Kynar 500 factory-applied finish is preferred. All parapets involving masonry shall have the back vertical surface covered. Capstones and masonry shall have Zinc-coated galvanized steel through-wall flashing which extends over the moisture protection system.
- ii. Termination of Moisture System on Vertical Walls:
 - 1) All moisture protection systems shall be terminated with a clamping bar with reglet and flashing above. Along brick walls, through-veneer two-piece sheet metal reglet and counter flashing fully installed in the mortar bed in a stair-stepped fashion is required.
- iii. Scuppers and Overflows:

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- 1) Scuppers and overflows shall be through wall so that water discharges 4-6 inches away from the face of the structure.

6. Ballast:

- i. Ballasted roofs shall not be accepted.

E. Warranty: All products shall be specified having manufacturer's warranty and roofing contractor's warranty. The materials manufacturers shall provide a written warranty, including a flashing endorsement, for a minimum of 10 years from date of project acceptance, agreeing to provide all labor and materials necessary to correct all defects in the thermal and moisture protection systems, including water entry or abnormal deterioration of materials. Included in the warranty is the responsibility for removal and replacement of all work concealing the moisture protection system.

F. Guarantee: Part 1 of the Roofing Specification shall require the roofing contractor to provide a written guarantee, signed by the contractor which states the contractor shall maintain the moisture protection system in a water tight condition for two (2) years from the date of Substantial Completion. Further, the guarantee shall state that all workmanship and materials in the completed moisture protection system are installed as specified and as required by the manufacturer.

G. Manufacturer's Qualifications

1. Shall be a nationally recognized manufacturer in good standing with the National Roofing Contractors Association.
2. Shall have had a minimum of twenty years continuous service manufacturing roofing products.
3. Shall have at least three approved applicators of proposed system located within 200 mile radius of project site.
4. Shall be able to show five installations similar to the proposed system within a 200 mile radius of the Washington State University.
5. Shall have regular manufacture representative (not the installing contractor) to make on-site visits during the application of roofing to ensure the quality of the installation.

H. Installer's Qualifications:

1. Shall be a certified applicator of the approved thermal and moisture protection system manufacturers. Provide a copy of certification.

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2. Shall have had a minimum of five continuous years of experience with similar system applications.
3. Shall be able to show two installations, at least two years old, similar to proposed system, in satisfactory condition.
4. Installer shall maintain a full-time supervisor/foreman on job site during all times work is in progress. Supervisor shall be certified to have had a minimum of five years' experience with applications similar in nature and scope to specified system.

1.03 EXISTING ROOF PROTECTION REQUIREMENTS

- A. Protection of existing roofs shall require:
- B. Authorization for access to or use of existing roofs, issued by WSU Facilities Services in writing.
 1. Entire roof surface shall be thoroughly inspected by a team including the Owner's Representative, Facilities Services Roofing Shop and the Contractor's Representative. A written documentation of any existing roofing flaws will be signed and dated by all team members. Roof damage occurring after written document is accepted by contractor shall be repaired by the University, or by an approved roofer, at the contractor's expense, with no exceptions.
 2. Prior to access for inspection of a "steep" pitched roof with a significant fall hazard potential, Owner's Representative shall consult with a WSU Environmental Health and Safety (EH&S) industrial hygienist/safety professional competent in fall protection hazard recognition.
- C. All existing roof areas adjacent to new additions and/or new construction shall be protected by a minimum of 1" rigid foam insulation covered with a 3/4" thick layer of exterior grade plywood.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION