

Compliance: The installation/construction and repair/modification of all roofing/water-protection systems should be in complete compliance with the current revision of the *NRCA Roofing and Waterproofing Manual*. This manual shall be viewed as the “final authority” for establishing the minimum requirements for roofing and waterproofing systems. The requirements of these *Guidelines* often exceed the minimum requirements of the *Manual*. When they do, they should be complied with. Additional technical information is found in the *Division 07 Technical Sections* of these *Standards*. Once a roofing system has been selected, use the appropriate technical sections.

Sloped Roofs:

1. **Slate Roofing:** Slate roofing is the preferred option for sloped roofs. All valleys on slate roofs should be of open, sheet-copper construction. The weight of the copper sheeting should be a minimum of 16 OZ./SF. Some synthetic composite substitutes for slate are also permitted. This should be discussed with F&S Engineering Services prior to design.
2. **Metal Roofing:** Some metal roofing systems are also allowable. In order to be considered for approval, a metal roofing system must be warranted for leak-tightness for a minimum of 20 years.
3. **Shingle Roofing:** Shingle roofing is not allowed on permanent University buildings.
4. **Underlayment:** A minimum of one layer of No. 30, non-perforated, Asphalt saturated, organic felt conforming to ASTM-D-226, Type II shall be installed beneath all sloped roofing systems.
5. **Ice Dam Protection:** Additional ice dam protection should be installed that extends up the roof from each of its lower edges to a point 24” inside the exterior wall line of the building (as a minimum). Ice dam membrane shall also be provided at eaves, rakes, hips, ridges, penetrations, etc.

Flat Roofs:

1. **Membrane Systems:** A fully adhered, 60 mil, EPDM membrane system is the standard flexible membrane system for use on University buildings. These systems must have a 15 year warranty, minimum.
2. **Built-up Systems:** A four-ply asphalt system is the preferred built-up roofing system. Modified-bitumen cap sheets are acceptable but are not preferred. These systems must have a 20 year warranty, minimum.
3. **Insulation:** Polyisocyanurate board/sheet type insulation should be used with all roofing systems. Sheets should be 4 x 4 ft. maximum dimensions, should be installed with joints staggered and should be a minimum of 2 layers deep. Joints should be butted tight, with a maximum gap of 1/8”.
4. **Slope:** A slope of ¼” per ft. (minimum) is required on all flat roofs. Sloping the deck is preferred to sloping the insulation.

Roof Replacement: When a roof replacement is undertaken, the load bearing capacity and structural integrity of the roof should be reviewed. Structural repairs/upgrades should be accomplished in conjunction with the roof replacement project as appropriate. The same is true of the roof drainage system.

Roof Mounted Equipment: Each piece of roof-mounted equipment should be installed on an approved box curb that is appropriately flashed into the roofing system. Otherwise, it should be supported so as to provide a minimum of 3’ of clear space between the surface of the roof and the bottom of the equipment support structure to facilitate roof maintenance and replacement.

At the time of roof replacement, existing equipment shall be evaluated. Equipment that is no longer used shall be removed, along with associated curbs, piping, pipe supports, etc.

ROOFS & WATERPROOFING

Green Roofs: It is the preference of the University of Illinois that storm water detention and heat island effect be dealt with in ways other than putting a green roof on a building. In the event that a green roof is still chosen, some design issues to consider are the following:

1. **Access:** Provide direct access onto the roof by means of a door that discharges from an upper level on to the green roof level. This is to accommodate grounds workers for maintenance of plants. Access by means of a ladder shall NOT suffice.
2. **Fall Protection:** Provide a parapet that is an extension of the building wall, high enough to meet OSHA requirements for fall protection
3. **Existing Building:** For an existing building that does not have a parapet, provide a perimeter guard rail that complies with OSHA requirements
4. **Plant Selection:** Plant selection shall be approved by an F&S horticulturist. Species shall be chosen to require the minimum amount of maintenance and care.
5. **Maintenance Funding:** A funding source and responsibility shall be identified prior to bidding or installation. Recognizing that even the simplest of green roofs require some maintenance of plant material, and that they therefore will generate maintenance cost beyond the normal maintenance cost of a membrane roof, funding outside of the F&S maintenance budget shall be identified and committed to in writing.

Waterproofing: All below grade spaces shall be water proofed, not merely damp proofed. Waterproofing shall consist of the waterproofing membrane, a drainage board with filter fabric, insulation/protection board, and granular fill. All elevator pits shall be waterproofed on all four sides as well as under the pit floor slab.