

Description:

The purpose of the section is to highlight the current applicable UMD Design Standards for minimum design and performance requirements expected for roof assemblies and moisture control methods at the University.

Related Sections:

- 07 70 00

Effective Date:

January 1, 2020

Applicable/Related Standards:

- TBD

General Requirements:

Tailoring of this guideline is required to fit the type of roof designated to meet the specific design conditions. Additional data and specific guidance for a project shall be obtained from the various manufacturers specified.

General:

- Design for copper or stainless steel flashing.
- Design sloped metal caps on parapet walls. Coping shall be minimum 20 oz. copper or 32 gage factory finish aluminum, installed with continuous cleats.
- Each roof shall be covered by a 20 year, no dollar limit, manufacturers guarantee covering the complete roofing system including flashing. Longer warranties may be appropriate depending upon the type of roof specified and accepted by FM.
- Roof top equipment shall be raised a minimum of 18" from top of finished roof to bottom of unit for access during roof replacement and maintenance.
- Provide minimum 30# live load for roofs.

Metal Coping:

- Design for a slope of one (1) inch slope per foot (to the roof side) on the top of coping.
- If parapet wall is to be covered by a metal coping, specify a continuous treated wood blocking, covered by a layer of building paper and metal coping to be cleated on both sides.

Gravel Stop and Counter-Cap Flashing:

- Specify copper or lead coated copper, all seams and miters to be soldered.
- Face of metal flashing to be cleated 30 inches on center.

Roof Drains, Through-Wall Scuppers and Overflow Drainage Systems:

- Design all roof drains and through-wall scuppers (not overflow scuppers) to be sloped 2 ft. on center using taper insulation or taper edge strip for positive drainage. Design that incorporating through-wall scuppers are not encouraged.
- Install a copper gravel stop 1 inch x 4 inches and 36 inches square minimum, set in flashing cement around roof drains on built-up aggregate roofing systems. Apply a reflective aluminum coating from gravel stop to drain clamping ring.
- All through wall scuppers shall empty into a conductor head and downspout assembly.
- All overflow scuppers shall be set high enough above the finished roof to ensure that water doesn't drain through the overflow with a normal rainfall.

Built-up Roofing Specifications

- **Substrate**
 - Provide a minimum roof slope of 1/4" to 1/2" per foot using light weight fill or taper insulation toward drainage system (gutters, roof drains, or through wall scuppers).
 - Slope built-up roof 6' square with taper insulation toward roof drain and install gravel stop 3' square minimum.
 - Specify conventional standard 4 ply fiberglass felt built-up roof system with an aggregate finished surface using #7 stone conforming to ASTM # A - 4/7, minimum.
 - Provide walk out access to all roof levels for maintenance personnel by use of penthouse stairs or scuttle trap doors and stairway. Access ladders from one level to another are required.
- **Insulation**
 - The thickness shall be such that the insulation's only value is equivalent to a minimum of a R-30 value. This value is for the insulation only, not the complete roofing system value.
 - All insulation shall be installed conforming to U.L./F.M. class 120 wind uplift guide.
- **Base Flashing**
 - All base flashing, shall be a minimum of 8 inches high from the finished roof surface.
 - Mechanically fasten top of base flashing, and seal the top of all base flashing with approved roofing cement and fabric before applying metal counter flashing or metal cap flashing.
- **Finished Surface**
 - Clean gravel or slag (embed in bitumen flood coat) meeting ASTM D 1863, which applies to aggregates specified for use in bituminous roofing.
 - White mineral surfaced cap sheet over ply sheets of the built-up roofing system.
- **Guarantee**
 - The contractor shall provide the University with a written standard roofer's guarantee, applicable to any leaks or failures due to defective materials or workmanship, occurring in the roof system or flashing within two years from date of completion of the roof work. This does not include any limiting penal sum.
 - The material's manufacturer shall provide the University with a 20 year unlimited labor and material guarantee similar to that offered by Schuller in its "Signature Series, No Dollar Limit, (NDL) Watertite Roofing System".
- ~~**Access**
 - Provide access to all roof levels by means of penthouse doors, access ladders, or roof hatch. Provide inorganic walking pads from roof access points, up to and surrounding all roof mounted equipment for servicing.~~

Slate Roofing System

- Slate shall be 1/4 inch thick Buckingham, Vermont, Evergreen or equal and shall conform to physical requirements of grade S1 classifications.
- Winter/Guard or equal shall be installed on hips, ridges, rakes, roof penetrations, eaves, and low pitched roof slopes (between 2/12 and 4/12).
- Install snow guards on all "A" frame substrate roofing systems to protect entrances, gutters and pedestrian traffic at lower levels.
- **Guarantee**
 - A written guarantee shall be furnished that states the materials used are in strict accordance with the specifications, and that any and all repairs required on the roof due to defective materials or workmanship furnished under the contract shall be made without cost to the owner for a period of five years.

Shingle Roofing System

- Shingle shall be 25 year Class A fiberglass composition.
- Winter/Guard or equal shall be installed on hips, ridges, rakes, roof penetrations, eaves, and low pitched roof slopes (2/12 and 4/12).
- Install snow guards on all "A" frame substrate roofing systems to protect entrances and gutters.
- The contractor shall provide the University with a written standard roofer's guarantee, applicable to any leaks or failures due to defective materials or workmanship, occurring in the roof system or flashing within two years from date of completion of the roof work. This does not include any limiting penal sum.
- The material's manufacturer shall provide the University with a 25 year unlimited labor and material guarantee for a Watertite Roofing System.