

DIVISION 07 – THERMAL AND MOISTURE PROTECTION**SECTION 071100 – WATERPROOFING**

1. Life-cycle: A/E shall provide waterproofing system to prevent the infiltration of moisture for a minimum period of 50 years.
2. Drainage: A/E shall provide subsurface drainage provisions against the waterproofing membrane.
3. Protection: A/E shall provide contractor direction to protect the waterproofing against damage during and after construction.
4. Quality Control: The University may retain an independent waterproofing consultant to review the waterproofing system designs, details and installation.
5. Leak detection: A/E shall review with the University (CPM and District) if a leak detection system is to be used on occupied or sensitive areas underground.
6. Prohibited:
 - 6.1. Installing any insulation, asphalt fill, cellular glass foam or any other absorbing material under the waterproofing membrane.
 - 6.2. Waterproofing products that rely on the biodegradation of one or more of the components of the product. For example, cardboard panels that contain bentonite are prohibited.
 - 6.3. Damp-proofing.

SECTION 072500 - SPRAYED FIREPROOFING

1. A/E shall specify that new and replacement sprayed fireproofing shall be integrally colored blue or blue-green to identify it as material that does not contain asbestos.
2. A/E shall provide a single source of specification responsibility with clear coordination of all fireproofing activities.
3. A/E shall provide details of all concealed and exposed fireproofing conditions on the contract document construction drawings. The details shall include identification of the assembly, necessary dimensions, the UL design and test numbers, the approved fire and time rating, and identification of all fireproofing products and accessories. All details shall be posted at the job site so applicators and inspectors can easily reference them.
4. A/E shall specify that a single manufacturer shall supply all fireproofing materials and accessories for each application, and that materials and accessories shall be compatible.
5. A/E shall specify that fireproofing materials shall remain in place and intact when subjected to anticipated exposure to elements that may dislodge, crack, delaminate or erode the fireproofing.
6. The University may engage an independent testing agency to test and approve all fireproofing measures.

SECTION 073000 - ROOFING SHINGLES

1. Quality Control: The University may retain a roofing consultant to review the roofing system and details.
2. Roofing Materials and Accessories: Use of staples is prohibited. Installation below 40degrees F is prohibited without use of heated enclosures.
3. Existing Building with Shingle Roof Systems: A/E shall review existing shingle roof system and recommend a replacement system complete with proper ice & water shield, under-layerment and flashing systems.
4. New Buildings with sloped Roofs: A/E shall propose a roof shingle system that aesthetically complements the building and functionally will perform with a minimum 20 year life.

5. University Standard is a Built-up roof system – the A/E proposed shingle roof system will be reviewed against the Built-up roof standard for application, cost and performance.

SECTION 07500 - MEMBRANE ROOFING AND ROOF INSULATION

1. Quality Control: The University may retain a roofing consultant to review the roofing system and details.
2. System Design: A/E shall specify a Four-Ply Built-Up Roof System with an aggregate surface that is FM Approved; refer to RoofNav.com for approved FM Assemblies. The A/E shall require, as a part of the shop drawing submittal process, a RoofNav Assembly Number that the Contractor intends to install on the Project.
3. Accessories and Details:
 - 3.1. Equipment runners, rails or pads resting on top of roofing materials without special protection and slip sheets are prohibited.
 - 3.2. Traffic areas from access doors to mechanical equipment and areas around equipment shall have additional plies, flood coat and gravel.
 - 3.3. Stripped-in gravel stop details are prohibited.
 - 3.4. Where downspouts are used, they shall have splash blocks at grade and changes at roof elevations.
 - 3.5. Roof-mounted equipment shall rest on minimum 8-inch high curbs that extend above the roof membrane. Coordinate design with mechanical systems to ensure adequate accessibility for maintenance.
 - 3.6. Roof penetrations for pipes and ducts shall have minimum 8-inch high sleeves, boots or curbs with overlapping flashing, hoods and/or draw-bands with caulking flanges. Sleeves, boots and curbs shall be properly flashed and tied into the roofing system.
 - 3.7. Membrane flashing (built-up and single-ply) on vertical surfaces shall terminate under metal counter-flashing.
 - 3.8. Leak detection: A/E shall review with the University (CPM and District) if a leak detection system is to be used on occupied or sensitive areas.
4. Warranty:
 - 4.1. Contractor Warranty: The A/E shall specify that the roofing contractor shall provide a warranty (labor and material) for the roof system and flashing will remain watertight for two years. The A/E's specifications shall also require that the contractor shall repair any defects that result from faulty craftsmanship or defective materials without further cost to the university, including replacing any wet insulation or other interior or exterior damage caused by such defects.
 - 4.2. Manufacturer Warranty: The A/E shall specify a 20-year system warranty.
5. Existing Roof Systems:
 - 5.1. A/E shall consult with CPM/FM to review the existing system and potential impacts to the system.
 - 5.2. Work associated with the roofing system made necessary by the project (curbs, penetrations, placement of items on the roof system, etc.) shall be compatible with and not void any manufacturer's warranties or standard details.
 - 5.3. To the extent possible for roof alterations and partial re-roofing, the A/E shall require, as a part of the shop drawing submittal process, a RoofNav Assembly Number that the Contractor intends to install on the Project.

SECTION 07600 - FLASHING AND SHEET METAL

1. Use of pre-finished metals and/or galvanized steel or aluminum flashing where it extends either below ground or below wearing surface on waterproofing projects is prohibited.
2. Warranty:
 - 2.1. Flashing and sheet metal work shall be warranted by the installer for two years.
 - 2.2. A/E shall specify that the contractor provide a 20-year written manufacturer's warranty for pre-finished sheet metal to cover color fade, chalk and film integrity.

SECTION 079200 - JOINT SEALANTS

1. General: Refer to Division 8 - Openings for sealant work related to window systems and curtain wall systems. To ensure that a single source is responsible for performance, sealant work for all other critical systems shall be specified as part of the installation of those systems.
2. Summary:
 - 2.1. Select the highest quality and longest lasting sealant material that will create and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
 - 2.2. A/E of Record shall direct the contractor to provide documentation as to recommended owner maintenance and replacement cycles necessary to maintain seal integrity. This shall at a minimum include sealant make, model number, color, etc. The AE shall also provide appropriate drawings showing all faces of the building. These shall be used by the contractor to indicate graphically the extent of each type of joint. This exterior maintenance and operations record shall be included in the project M & O manuals.
3. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
4. Sealant selected should be of low toxicity and low VOC content that produce little or no odor.
5. Provide sealant bond breakers and backings of material that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing to provide effective installation and to limit the amount of sealant used to fill a gap.
6. Provide specifications for cleaning-off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
7. Provide specifications for protection of joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, specify that damaged or deteriorated joint sealant materials be cut out and removed immediately so installations with repaired areas are indistinguishable from the original work.

END OF Division 7 – Thermal and Moisture Protection