

## **Division 7 – Thermal & Moisture Protection**

### **07000 – Thermal & Moisture Protection**

#### Guidelines for Handling Unwanted Moisture Intrusion

1. Has the A/E specified that the contractor shall do the following to prevent issues due to mold growth in renovation and new construction projects?  
(Specific drawing sheet #/specification page # \_\_\_\_\_) □ □ □
2. Prevent water intrusion into the building (including dew point/condensation conditions) during construction, whether it is new construction and/or renovation. If water intrusion does occur, the contractor shall take steps to immediately remove water, including dehumidification of the atmosphere as required to dry out the building, prevent entrapment of moisture with construction materials, and all other components of construction. Dry out may require ventilation-only, however, it is imperative that the contractor shall take the special measures in the event of water intrusion, including dehumidification.
3. If dehumidification is to be accomplished through the use of building HVAC systems, adequate filters are required to be installed to prevent distribution of construction dust, etc., in air handling and duct systems which can lead to operational problems as well as provide an environment for future mold growth.
4. If porous materials are damaged due to water/moisture, removal prior to growth of mold will avoid potential risks and costly mitigation techniques if the material remains and mold develops. Otherwise, treatment of non-porous areas exposed to moisture should be considered to prevent mold growth.
5. If water intrusion occurs, the material remains, and building dry out occurs, inspections shall be made on a continual basis to ensure no mold growth or conditions for mold growth exists, including wall cavities or concealed areas affected by moisture. If mold is observed, the contractor shall be responsible to utilize consultant services to address the process and procedure for removing mold by treatment and/or material removal. Treatment of mold can include application of an agent, encapsulation and/or removal of material, suspect or damaged. It is important the contractor utilize appropriate procedures for remediation since some microbial agents may be infectious and/or toxic and could pose a health risk.
6. It is important for the contractor to respond immediately to issues that would provide a suitable environment for the growth of mold in order to prevent potential impacts on project budget and timetable as well as risk to personnel during construction and/or occupancy. The issue of mold, and its potential impact on construction and occupancy, must be addressed by the A/E and CM/GC in a proactive manner in the design and construction process.

**07050 – Roofing System Guidelines for Florida Atlantic University**

1. Has the A/E followed all of the FAU Roofing System Guidelines as listed in this Section 07050 following?  
(Specific drawing sheet #/specification page # \_\_\_\_\_) □ □ □
2. Roof system components. The roof system includes the following basic components: roof deck or substrate, insulation, waterproofing membrane, protective surfacing, flashing, counter flashing, roof cants where applicable, caps and copings, perimeter fascia/gravel stops, and sealants, roof expansion and control joints, roof walkway systems, roof hatches, skylights, roof drains, roof drain flashing, scuppers, gutters, downspouts, and ballast material where applicable. These components and all types of roofing material, including metal and tile, are subject to the requirements of this Roofing System Guideline. Patios and decks constructed on roofs require special design consideration and must not violate these roofing requirements.
3. Approved roofing materials. The selection of roofing materials shall be limited to those manufacturers with a 15-year history of satisfactory manufacture and installation of at least 250,000 squares of their roofing system, and providing not less than a 20-year unlimited warranty/guarantee for labor and materials.
4. Roof Membrane. FAU prefers a modified bitumen roofing system with a mineral surface cap sheet. A coating that will achieve a Solar Reflectance Index (SRI) equal to or greater than 78 is required.
5. Registered architect required. All new, repair, and replacement roofing projects shall have plans and specifications developed by a registered architect.
6. Roofing work carried out by University personnel. Roofing projects carried out by University personnel shall be performed in a manner approved by the roofing system manufacturer or one of its licensed roofing contractors.
7. Roof membrane penetrations. All penetrations of the roof membrane shall be detailed by the architect and installed according to the recommended procedure provided in the latest National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual. It should be noted that the details in the manual show standard conditions, and therefore, they should be adapted to suit each individual project.
8. Utility supply lines. Utility supply lines (electrical, water, gas, etc.) to roof-mounted equipment shall be installed within the supporting curb of that equipment.
9. Roof-mounted equipment. Roof-mounted equipment will not be acceptable if other locations for placement can be found. All roof-mounted equipment shall be provided with roof surface walkway access to allow ease of maintenance and minimize roof surface damage.
10. Roof-mounted antenna, lab equipment, or scientific devices shall be located in areas specifically designed for that purpose. Roof loads, walking surfaces, anchoring devices, mounting pads, curbs, or utility needs shall be designed and provided using appropriate details, adapted as required, from the NRCA Roofing and Waterproofing Manual.
11. Pitch pockets prohibited. Pitch pockets will not be permitted, including those filled with a urethane, butyl rubber, or similar pourable caulking, and bituminous materials.

12. Roof coatings. Spray-applied polyurethane foam roofing systems shall not be used on FAU projects. Specialized roof coatings applied for high reflectance and/or high emissivity for energy conservation are allowed.
12. Roof Replacement. Where replacement of a roof is required, criteria for the replacement roof shall be in full compliance with this Roofing Guideline.
13. Minimum slope. A minimum slope of 1/4" per foot shall be required on all areas of a new roof system before final acceptance of that roof system by FAU. On existing roofs where it is impractical to attain the required 1/4" slope, a minimum slope of 1/8" may be permitted if other provisions are made to ensure that the integrity of the roofing and drainage systems are maintained.
14. Base flashing. All base flashings shall extend a minimum of 10" up the vertical surface of curbs, walls, or roof penetrations. It should be noted that the dimension is from the top of the membrane (or ballast) to the top of the base flashing.
15. Cants. Nominal four-inch pressure treated wood or fiber cants shall be required around all vertical interruptions of the roof system, such as curbs or walls.
16. Access door thresholds. Access door thresholds to the roof or roof hatches shall be 12" above the adjacent roof surface. An acceptable walking surface shall be installed immediately outside the access door threshold on the roof system.
17. Roofing contractors. All roofing contractors working on University facilities shall have a current license issued by the State of Florida and be a roofing contractor approved by the manufacturer for the system being installed or repaired.
18. Roofing over existing roofs. The application of new roof materials over an existing roof will not be permitted until a nuclear or infrared scan, (or other acceptable reliable method) of that roof has been completed and all wet areas detected by that scan have been removed. After the new roof is installed, roof scans shall be made to record the condition of the new roof and compliance with specifications.
19. Insulating light-weight concrete. Insulating light-weight concrete over structural concrete slabs as part of the roof system is not acceptable unless approved in writing by the roof system manufacturer in early design phase. Insulating light-weight concrete over vented (perforated) metal roof decking will be permitted. Roof vents through the membrane will not be acceptable in any condition.
20. Resaturants. Resaturants are not acceptable to rejuvenate an existing built-up roof system.
21. Galvanized metal flashing. The use of galvanized metal flashing is not acceptable.
22. Asbestos. The use of roofing materials containing asbestos is prohibited in the installation of new, or the repair of existing, roof systems.
23. The removal of roofing containing asbestos must be carried out by State certified roofing contractors. Asbestos roofing removal must be conducted in accordance with all Environmental Protection Agency, Occupational Health and Safety Administration requirements, Florida Statutes, and all applicable rules enacted by the Department of Business and Professional Regulation, Department of Environmental Protection, Department of Labor and Employment Security, or other state agencies having jurisdictional authority.

24. Codes and standards. All architects, roof designers, specifiers, consultants, inspectors, installers and University maintenance personnel shall utilize the following resources: the latest edition of all applicable Florida Building Codes; the Factory Mutual Systems Approval Guide; the Underwriters Laboratory (UL) Building Materials Directory; the UL Fire Resistance Directory; The American Society For Testing and Materials Board of Standards Volume for Roofing, Waterproofing and Bituminous Materials; The Architectural Sheet Metal Manual by The Sheet Metal and Air Conditioning Contractors' National Association; recommended standards and technical details of the Metal Roofing System Association; and, the NRCA Roofing and Waterproofing Manual.
25. Extreme wind forces. The architect shall design roofing systems to resist extreme wind forces as required by the latest edition of applicable building codes. Structural analysis will be required to verify the integrity of all roof components. The architect shall also be required to design roofing systems with long-term serviceability in mind.
26. Plans review. The University shall review plans and specifications for compliance with the Roofing Guidelines and applicable codes. A building permit shall be issued before work commences.
27. Alternate roofing systems. Where the architect proposes a specific alternate roofing system, a request to install an alternate roofing system shall be submitted to FAU in writing and include justification data. FAU shall review and take action on the request for use of an alternate roofing system. Approval must be in writing by the FAU Director of Facilities Planning.
28. Pre-construction conferences. A roofing preconstruction conference shall be scheduled and conducted by FAU for all new and re-roofing projects at which FAU, architect, general contractor, roofing contractor, roofing manufacturer's representative, and other related trades representatives are present.
29. Protection plans. A specific protection plan is required from the CM/GC for all new and re-roofing projects to describe the means of maintaining the building in a safe and watertight condition throughout the construction period.
30. Inspection of installation. FAU shall provide full-time inspection whenever the roofing system is being installed (roofing, flashing, gravel, etc.). The inspector must be readily conversant in the roofing specifications and appropriate installation or repair procedures. Roof system installation inspection may be acquired as professional services from project funds. The architect shall include in the project specifications a requirement that the roof membrane manufacturer make a minimum of three visits during application and give the architect and FAU a written report of each visit.
31. Warranties/guarantees. FAU shall maintain copies of all roof warranties/guarantees and records of all roof maintenance work.
32. Comprehensive roof management program. FAU's Physical Plant Department shall establish a Comprehensive Roof Management Program to include the development of historic records for each facility, listing the architect, general contractor, roofing contractor, manufacturer and supplier, type of roofing system, warranty/guarantee dates and data, history of repairs, regular surveys and inspections data, preventive and planned maintenance procedures, projected replacement and budget needs.

**07115 - Elastomeric Sheet Waterproofing**

Is water-proofing product (sheet butyl, PVC, EPDM, CPE, CSPE, neoprene, hypalon, or composite laminated membrane) functioning as principal moisture stop in arresting water predominantly in a horizontal application; adhesive bonded, self-adhered, loose laid, or mechanically secured installation?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

Slabs on Grade

1. Is there a requirement for design of slabs on grade to prevent damage to membranes during construction. Are there any special areas where damp-proofing is considered necessary for any slab on grade? If so, a double slab system is preferred in order to reduce chances of a punctured membrane. A product equal to "Bituthane" by W. R. Grace should be considered under the wear slab. For a basement water-proofing condition, a water bar is essential at walls and columns.  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

2. Is a Radon barrier required? If so, special consideration shall be given to design.  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

Vertical Surfaces

3. Is there a through-wall damp-proofing membrane to prevent moisture in the soil from extending up the wall by capillary action? Material can be as light as 2 oz. copper-backed sisal paper if properly lapped and sealed at joints.  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

4. Have basement walls been damp-proofed or waterproofed on the soil side? The type of material to be used depends upon the condition; a brushed-on coat of bituminous paint might be adequate for dampness but sheet membrane waterproofing or "Bentonite" or equal should be considered where hydro static pressure is suspected.  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

Shower Room Floors

5. Has special consideration been given to preventing leakage in shower and drying room areas?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

6. Has a depressed floor been used for toilet areas where ceramic tile is used since they allow space for the waterproofing pan and they avoid a step at the entry door? Does detail comply with ADA?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

7. If floor is not depressed, have the details of stopping the water at the entry door where the membrane stops been shown?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

8. Is a 24-hour water test required prior to placement of the finish flooring? If leaks occur, another test is required after repairs are made.  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

**07180 - Water Repellent Materials**

Are clear elastomeric water repellent coatings specified for various surfaces? Clear elastomeric coatings are preferred to water or solvent based materials.  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

**07190 - Vapor Barriers and Retarders**

Is a method used to continue a seal formed by a vapor and air barrier for each building enclosure construction, and to seal gaps between adjacent materials forming wall and roof opening?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

**07270 - Fire Stopping**

Are fire stop openings created when site conditions require forming or cutting walls, partitions, or floors? Is fire stop material used to close openings and continue a fire resistance rating uninterrupted?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

**07540 – Roofing Membrane**

Has modified bitumen with mineral surfaced cap sheet been specified? A coating that will achieve a Solar Reflectance Index (SRI) equal to or greater than 78 is required.  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

**07620 - Sheet Metal Flashing and Trim**

1. Has it been indicated that all sheet metal flashing and trim shall be in accordance with the Architectural Sheet Metal Manual by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA)?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)
2. Has it been detailed that all parapet walls shall have metal copings?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)
3. Has it been specified that all exposed metal copings, gravel stops, etc., shall be aluminum (clear anodized or mill finish) or stainless steel?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

**07631 - Gutters and Downspouts**

Are gutters and downspouts, hangers, straps and shoes completely detailed and/or described? Gutters and downspouts should be held 1" from the building wall to allow air to circulate between gutter/downspout and wall surface.  
(Specific drawing sheet #/specification page # \_\_\_\_\_)

**07820 - Skylight Structures**

1. FAU does not recommend the use of skylights; has the A/E designed and specified clerestory structures in lieu of skylights?  
(Specific drawing sheet #/specification page # \_\_\_\_\_)
2. If skylights are used in the building design, the Owner cannot stress enough the quality of the skylight and the care of its installation and related moisture protection.

During preparation of the specifications, have the performance requirements been made as stringent as possible?  
 (Specific drawing sheet #/specification page # \_\_\_\_\_)

**07900 - Sealants, Caulking and Seals**

1. Has this work been specified to be done by experienced mechanics using the highest quality of sealants for each individual application? There is no substitute for life cycle costs in a sealant product.  
 (Specific drawing sheet #/specification page # \_\_\_\_\_)

2. In addition to caulking for water tightness, has caulking been specified for finished appearance, i.e., at cracks between the juncture of different materials or of horizontal with vertical surfaces?  
 (Specific drawing sheet #/specification page # \_\_\_\_\_)

3. Caulking is not to be used as permanent construction. Has caulking been specified for uses other than as a supplement to properly designed and detailed joints?  
 (Specific drawing sheet #/specification page # \_\_\_\_\_)

**07910 - Scuppers**

Have overflow scuppers been provided in parapet walls to prevent water building up even though drains are required or specified?  
 (Specific drawing sheet #/specification page # \_\_\_\_\_)

**07920 - Gravel Stops**

Where no gutter occurs but gravel stops are used over exterior entrances or decorative panels, have high gravel stops, to prevent water from spilling over with resulting stain effect from the metal, been specified?  
 (Specific drawing sheet #/specification page # \_\_\_\_\_)

End of Division 7 – Thermal & Moisture Protection.