

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

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07100 WATERPROOFING

General

This section applies to sheet waterproofing of building components that receive or are in and around areas to receive such treatment. Proper architectural design and detailing of areas exposed to moisture should not rely solely on such treatments as the only barrier to moisture, but rather as a "guarantee" or "second line of defense", in other words, the design and specification of appropriate materials should in itself greatly mitigate a majority of moisture infiltration problems.

Inspection of waterproofing is required prior to covering over the membrane. A/E to specify proper notification time.

Design Standard

The A/E should attempt to specify primary waterproofing materials of each type from a single manufacturer.

Cross reference with requirements of Division 2, exterior grades shall be specified to slope away from buildings.

The A/E should review foreseeable methods and procedures relating to waterproofing materials early on (design development) with a considered manufacture of the product(s) for insights and suggestions that could alter the approach in mind.

The A/E should select a manufacturer(s) capable of providing a 5 year warranty on the material(s) being specified.

The A/E should specify that before membranes on horizontal surfaces are covered by protection course(s) or other work, test for leaks with a 2" depth of water maintained for 48 hours be conducted by the contractor or subcontractor.

07150 DAMPPROOFING

07175 Water Repellent Coatings

07190 VAPOR AND AIR RETARDERS

07192 Vapor Retarders

Vapor barriers shall be specified for all construction.

07200 INSULATION

General

This section applies to all constructed building vertical and horizontal surfaces that are thermal barriers to the environment and also inclusive of demising partitioning acting as acoustical barriers. NAU's goal for all new and renovation projects is a substantial reduction in energy usage, both campus wide and building specific. All effort should be focused to mitigate thermal and acoustical factors through proper architectural design, detailing, orientation and adjacencies, and utilize applied

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insulating materials as a further enhancement to the composite performance of the design rather than the sole means of obtaining the desired performance.

Design Standard

Roofing systems in conjunction with proposed insulation or other exposed horizontal surfaces shall attain a minimum composite R value of 38.

Walls or other exposed vertical surfaces shall attain a minimum R value of 20.

A/E to specify by type and manufacturer, stating performance characteristics of density, aged average R value per inch, flame spread and fire rating.

Generally (unless noted otherwise), all corridor, restroom, classroom, laboratory, conference, meeting, lobby, and office walls and ceilings shall be fully sound attenuated.

Where blanket type insulation or sound attenuation material is being utilized in open plenum areas, it should be specified as being "kraft" or foil faced and backed (depending on installation).

07240

Exterior Insulation and Finish Systems

General

This section applies primarily to exterior insulating and finish systems that would be considered as the "secondary" skin treatment to a building, soffits, mechanical screen walls, infills, etc. The term "secondary" is used to refer to as NAU's desire for brick masonry to be used as the "primary" skin material. A common trade name term that describes the system(s) covered under this section is "Dryvit" or other synthetic plaster applications over exterior insulation.

Design Standard

Specify primary products as produced and supplied from a single manufacturer, which has produced that product successfully for not less than 5 years.

Specify that a single installer shall perform the work, and have not less than 5 years of successful experience in the installation of exterior insulating finish systems.

NAU will require a 5 year warranty on the system. Only those manufacturer's that can comply with this warranty shall be specified.

Concrete masonry units are preferred as the back-up construction, however if budget and/or design considerations deem this inappropriate, fiberglass reinforced gypsum/Portland cement ("Wonder board" panels, 3/4" thick, over structural steel studs is an acceptable substrate.

Composite panels of expanded polystyrene with a minimum composite R value of 20, mechanically attached to the back-up system.

The composite finish system shall consist of heavy duty glass fiber reinforcing (adjacent to any area of pedestrian traffic, to a height of 8' above finish floor), synthetic elastomeric primus layer, minimum 3/8" thick and a elastomeric synthetic finish layer, minimum 1/16" thick.

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07250 FIREPROOFING

07255 Cementitious Fireproofing

The use of spray applied fireproofing is prohibited unless all other methods of fire protection (above ceiling sprinkler systems, plaster enclosure, troweled application, etc.) are found to be unfeasible. A/E must receive approval prior to the Design Development Phase Submittal.

07270 Firestopping

07300 SHINGLES AND ROOFING TILES

General

Inspections Required per Section 01065.

Building renovation design shall remove / relocate conduit, piping and equipment off the roof to limit roof penetration and obstructions.

A/E to verify walkway locations with NAU trades and design protection for areas susceptible to icicle damage.

07310 Shingles

A minimum of 235# Architectural-type heavy duty fiberglass shingles are the preferred roofing material. The A/E shall specify a material with a minimum 25 year warranty.

07400 PREFORMED ROOFING AND CLADDING/SIDING

Preformed sheet metal roofing is desirable on certain facilities, and is often included as a bid alternate. The A/E shall ensure that metal roof design addresses potential for excessive snow slides, icicle accumulation and falling area, particularly in the areas of entrances, emergency exits, loading docks, lower roof areas, landscaping and walk-ways.

07500 MEMBRANE ROOFING

General

This section applies specifically to membrane roofs, but also pertains to other methods of roofing or those areas effectively acting as "roofs" (decks, overhangs, balconies, etc.). To aid in attaining both the written specification and warranties called for by NAU, the A/E should design and detail appropriate roof slopes, drainage system(s), cants, flashing, protection devices or materials and utilize good common sense. Roofing techniques, systems and materials should be utilized that are "time proven" (+5 years) and be designed as "composite" systems instead of appliques. Roofing shall be done only by a roofer who is approved by the manufacturer whose materials are used.

Design Standard

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Specify primary products, including roofing sheets, as produced and supplied from a single manufacturer, which has produced that product successfully for not less than 5 years.

Specify that a single installer shall perform the work, and have not less than 5 years of successful experience in the installation of built-up systems (or others if a different system is designed).

The A/E should review the proposed roofing system early on (design development) with a considered manufacturer or installer of the system(s) for insights and suggestions that could alter the approach in mind.

NAU requires a 20 year limited service warranty on all membrane roofing systems along with a 10 year full value warranty. Only those manufacturer's that can comply with this warranty should be specified.

Roofing systems should be designed and/or specified that will allow occasional foot traffic by maintenance personnel. In areas where there is a more frequent foot traffic, additional built-up walk or elevated pads should be designed and demarcated (TRAFBLOC material).

A/E shall provide protection of membrane roofing where falling icicle damage is possible.

Exterior insulation systems on top of membrane or built-up layers should be avoided due to the extreme difficulty in tracing and repairing roofing leaks.

07510

Built-Up Bituminous Roofing

In general, built-up roofing systems with asphalt bitumen, glass fiber plys should be laid-up as follows:

Base sheets on concrete should be heavyweight venting, consisting of asphalt coated fiberglass and spaced large mineral aggregate on bottom to allow vapor transmission. For base sheets on rigid insulation, a single ply of asphalt-impregnated glass-fiber mat, complying with ASTM D 2178, Type IV;

4 plies of asphalt-impregnated glass fiber mats, complying with ASTM D 2178, Type IV;

white elastomeric or approved by Facilities Management;

fibrated asphalt/clay emulsion coating, complying with ASTM D 1227, Type I, inorganic;

fibrated reflective coating with asphalt cut back base, inorganic reinforcement, and leafing type, complying with ASTM D 2824, Type II.

Plastic or fiberglass roof drains and/or guards are not acceptable. Non-ferrous metal(s) shall be specified.

07530

Elastomeric/Plastomeric Sheet Roofing

07560

Roof Maintenance and Repairs

07600

FLASHING AND SHEET METAL

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No building design shall include uncapped parapets. Caps shall be metal, not masonry.

07700 ROOF SPECIALTIES AND ACCESSORIES

07720 Roof Accessories

Roof Hatches

Ridge Vents

07800 SKYLIGHTS

07810 Plastic Skylights
All skylights shall be insulated glass.

07900 JOINT SEALERS

07920 Sealants and Caulking

* * * END OF SECTION * * *