

SECTION 093000 - SHEET MEMBRANE SOUND REDUCTION, CRACK ISOLATION / JOINT BRIDGING, AND WATERPROOFING

PART 1 - GENERAL

This specification includes the sheet membrane used for sound reduction, crack isolation / joint bridging, and as waterproofing, in conjunction with tile and dimension stone installations. The content of this section should be combined with the specification for the tile, hardwood, and stone finishes including the setting materials required to complete the sheet membrane installation. Contact Noble Company for applications with vinyl or VCT.

1.1 SUMMARY

Typical Ceiling and Floors: **NobleSeal® SIS** sheet membrane may be installed for sound reduction, crack isolation / joint bridging, and waterproofing on floor substrates for tile, hardwood and dimension stone installation.

Acceptable Substrates: Concrete, cured mortar beds, tile backer boards, primed gypsum underlayment, plywood subfloors and radiantly heated floors.

A. Section Includes:

1. Sheet membrane waterproofing for **[tile] [and] [dimension stone]** installations.
2. Sheet membrane waterproofing for hardwood flooring installations.

The next paragraph describes NobleSeal SIS used as sound reduction for floors.

- a. Sheet membrane bonded to tile substrate with latex portland cement mortar or NobleBond adhesive.
3. Sheet membrane crack isolation / joint bridging for **[tile] [and] [dimension stone]** installations.

The next two paragraphs describe NobleSeal SIS used as crack isolation for floors. Select the required installation method.

- a. Sheet membrane bonded to substrate with thin-set mortar for floors.
- b. Sheet membrane bonded to substrate with full mortar bed for floors.

1.2 REFERENCES

- A. ANSI A108.13 - Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone.
- B. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation.

- C. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation.
- D. ANSI A118.13 - American National Standard Specifications for Bonded Sound Reduction Membrane for Thin-Set Ceramic Tile Installation.
- E. ASTM C627 - Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester.
- F. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.
- G. ASTM E413 - Standard Classification for Determining Sound Transmission Class (STC).
- H. ASTM E492 - Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine.
- I. ASTM E989 - Standard Classification for Determining Impact Insulation Class (IIC).
- J. ASTM E2179 - Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission through Concrete Floor.
- K. TCNA Handbook - TCNA Handbook for Ceramic, Glass, and Stone Tile Installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each specified product.
- B. LEED Submittals:
 - 1. Data for Credit MR 4: For recycled content materials, indicating percentages by weight of postconsumer and preconsumer recycled content and cost for each product.

Include the next paragraph for LEED NC, LEED CS, and LEED for Schools.

- 2. Certificates for Credit MR 5: For regional materials, indicating location of manufacturer and point of extraction, harvest, or recovery. Include distance to Project, cost, and fraction by weight for regional components.

Include the next paragraph for LEED CI, only.

- 3. Certificates for Credit MR 5: For regionally manufactured [**and regionally extracted and manufactured**] materials indicating location of manufacturer [**and point of extraction, harvest, or recovery**]. Include distance to Project, cost, [**and fraction by weight**] for regional components.

Include the next paragraph for LEED NC, LEED CI, and LEED CS.

- 4. Data for Credit IEQ 4.1: For [**adhesives**] [**and**] [**sealants**], statement of VOC content.

Include the next paragraph for LEED for Schools.

5. Laboratory Test Reports for Credit IEQ 4.1: For [**adhesives**] [**and**] [**sealants**], indicating compliance with California Department of Health Services "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources using Small-Scale Environmental Chambers."

C. Shop Drawings:

1. Include details of sheet membrane waterproofing installation, with flashings and terminations.

1.4 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 SHEET MEMBRANE [**SOUND REDUCTION,**] [**CRACK ISOLATION / JOINT BRIDGING,**] [**AND**] [**WATERPROOFING**]

Ceramic tile flooring systems when installed with NobleSeal SIS are rated for "Extra Heavy Duty" performance defined by the TCNA Handbook by passing all 14 cycles when tested by ASTM C627 - Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems using the Robinson-Type Floor Tester. NobleSeal SIS will not reduce the tile service life.

- A. Sheet Membrane: ANSI A118.10; ANSI A118.12; ANSI A118.13; composite sheet membrane made from an alloy of non-plasticized chlorinated polyethylene (CPE) with non-woven fiber laminated to both sides.

1. Basis of Design Manufacturer: Noble Company.
2. Basis of Design Product: NobleSeal SIS.

- B. Performance:



Include sound reduction and impact insulation values for assemblies with 8" hollow core substrate and sound rated ceilings.

1. Sound Transmission Class (STC): ASTM E90 and ASTM E413. STC 59.
2. Impact Insulation Class (IIC): ASTM E492 and ASTM E989. IIC 62.
3. Delta of at least 12 per ASTM E2179.

Include crack isolation for flooring applications. Available ratings are standard performance and high performance based on crack bridging capability.

4. Crack Isolation / Joint Bridging: "High Performance" rating in the "System Crack Resistance" portion of ANSI A118.12.

Include waterproofing for full coverage flooring applications.

5. Waterproofing: ANSI A118.10.

2.2 ACCESSORIES

A. Bonding Mortar:

1. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.

B. Bonding Adhesive: Type recommended by sheet membrane manufacturer to suit application **[with VOC less than LEED allowable limits]**.

Include NobleBond EXT for interior applications. Can also be used in wet areas.

1. Basis of Design Product: NobleBond EXT.

Include NobleBond 21 for horizontal, interior applications, only.

2. Basis of Design Product: NobleBond 21.

C. Mortar Bed:

1. Portland Cement Mortar (Thickset): ANSI A108.02.

D. Acoustical Sealant: Type recommended by sheet membrane manufacturer **[with VOC less than LEED allowable limits]**.

E. Seam Sealant: When waterproofing is required, type recommended by sheet membrane manufacturer **[with VOC less than LEED allowable limits]**.

1. Basis of Design Product: NobleSealant 150.

F. Perimeter Sealant: Type recommended by manufacturer **[with VOC less than LEED allowable limits]**.

1. Basis of Design Product: OSC: SC175, sound rated acoustical sealant.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine **[tile,] [hardwood,] [and] [stone]** substrates, including **[walls,] [floors,] [ceilings,] [and] [framing]** for unacceptable conditions affecting sheet membrane installation.

B. Correct unacceptable conditions before installing sheet membrane.

3.2 PREPARATION

Floor slab moisture content may be measured by moisture emission test or by relative humidity test, or both.

- A. Examine, prepare, and test concrete floors for finish flooring installation in accordance with ASTM F710. Perform one **[moisture emission test in accordance with ASTM F1869]** **[relative humidity test in accordance with ASTM F2170]** and one alkalinity test for every 2,000 sf (185 sq m). Obtain instructions corrective measures from flooring and adhesive manufacturers when test results are not within specified limits.

Consider requiring more restrictive substrate tolerances when installing large format tile. Verify acceptable limits with tile manufacturer.

1. Surface Tolerance: Maximum variation from plane of 3/16 inch (4.5 mm) in 10 feet (3000 mm).

Include moisture emission rate or relative humidity requirements, or both. Coordinate with tests specified above.

2. Moisture Emission Rate: Maximum 4 lb per 1000 sq ft (1.4 kg 100 sq m) per 24 hours when tested using calcium chloride moisture test kit for 72 hours.
 3. Relative Humidity: Maximum 85 percent.
 4. Alkalinity Range: pH of 7.0 to 9.0.
- B. When tested moisture emission rate exceeds specified maximum, consult membrane manufacturer and tile manufacturer for acceptable mitigation methods and materials.

3.3 INSTALLATION - SHEET MEMBRANE SOUND REDUCTION

- A. Comply with ANSI A108.13, TCNA Handbook, and the manufacturer's instructions for installation of sheet membrane sound isolation.

Include the next paragraph for thin-set applications.

- B. Bonded Installation for Thin-Set Applications:
1. Apply bonding **[mortar]** **[adhesive]** for full coverage of substrate.
 2. Install sheet membrane and fully embed into bonding material.

Include the next paragraph for mortar bed floor applications, only.

- C. Loose Laid Installation for Applications for Mortar Beds, Floated Wood Floors, etc:
1. Loosely lay sheet membrane on floor substrate.

- D. Install acoustical joints, isolating at perimeters and column penetrations in accordance with manufacturer's instructions.

3.4 INSTALLATION - SHEET MEMBRANE CRACK ISOLATION / JOINT BRIDGING AND WATERPROOFING

Include this article when sheet membrane is installed for crack isolation and waterproofing.

Show locations of sealant (soft) joints on Drawings to place the joints in the vicinity of the slab-on-grade control joints.

- A. Comply with ANSI A108.17, ANSI A108.13, TCNA Handbook, and the manufacturer's instructions for installation of sheet membrane crack isolation and waterproofing.
- B. Apply bonding [**mortar**] [**adhesive**] for full coverage of substrate.
- C. Install sheet membrane and fully embed into bonding material.
 - 1. Roll sheet membrane for full contact with adhesive.
- D. Butt joints together. If application includes waterproofing, overlap waterproofing sheet membrane minimum 2 inches (50 mm) shingle fashion in direction of water drainage.

Include the following three articles for waterproofing applications.

- E. Turn sheet membrane installed on floors up vertical surfaces minimum 1 inch (25 mm) higher than flood plane and bond to substrate.
- F. Extend sheet membrane over floor drains. Cut drain opening in sheet membrane and seal to drain body. Secure membrane with floor drain clamping ring.
- G. Seal sheet membrane watertight to items penetrating sheet membrane.

3.5 FIELD QUALITY CONTROL

Include this article for flood testing floor waterproofing installations, only.

- A. Upon completion of sheet membrane waterproofing installation, plug drains, dam perimeter of waterproofing, and fill with water minimum 2 inches (50 mm) deep and maintain for 24 hours.
 - 1. Inspect waterproofing for leaks.
 - 2. Repair leaks and re-test until watertight.
- B. Prepare test and inspection reports. Indicate corrective measures required to make installation watertight.

3.6 PROTECTION

- A. Protect sheet membrane from pedestrian and vehicular traffic and prolonged exposure to sunlight.
- B. Keep sheet membrane clean until **[tile,] [hardwood,] [and] [stone]** finishes are installed.

END OF SECTION 093000



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