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

PART 1 - GENERAL

This specification includes the sheet membrane used for crack isolation/ joint bridging and as waterproofing in conjunction with tile and dimension stone installations suitable for commercial and residential interior applications. The content of this section should be combined with the specification for the tile and stone finishes including the setting materials required to complete the sheet membrane installation.

1.1 SUMMARY

NobleSeal® CIS can be installed over the entire floor (Full Coverage) or over movement joints or cracks on floor substrates on-grade, below grade and above grade for tile and dimension stone installations.

Partial Coverage: When NobleSeal CIS sheet membrane is used over cracks or control joints in concrete, use a width of membrane equal to three times the size of the tile.

Full Coverage Floors: NobleSeal CIS sheet membrane may be installed for crack isolation and waterproofing on floor substrates under all tiles.

Acceptable Floor Substrates: Concrete, primed gypsum underlayment, suitable plywood, tile backer board, radiantly heated floors, terrazzo, and mortar beds.

Acceptable Backer Boards: Cementitious backer board, glass mat water-resistant gypsum board, fiber-cement backer board, fiber-reinforced water-resistant gypsum backer board, cementitious coated extruded foam backer board in accordance with TCNA Handbook.

A. Section Includes:

1. Sheet membrane crack isolation / joint bridging [**and waterproofing**] for [**tile**] [**and**] [**dimension stone**] installations.

The next two paragraphs describes NobleSeal CIS used as crack isolation / joint bridging and waterproofing for floors. Select the required installation method.

a. Sheet membrane bonded to tile substrate with thin-set mortar for floors.

b. Sheet membrane bonded to tile substrate with adhesive 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 A108.17 - Installation of Crack Isolation Membranes.

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

D. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation.

E. ASTM C627 - Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems using the Robinson-Type Floor Tester.

F. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.

G. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

H. ASTM F 2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

I. 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.

C. Shop Drawings:

1. Include details for sheet membrane crack isolation installation.

2. Include details for sheet membrane crack isolation and waterproofing installation, with flashings and terminations.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

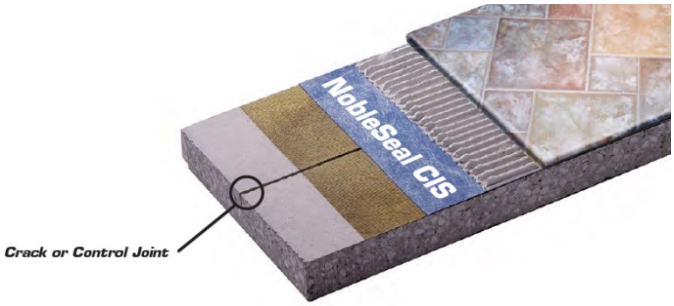
PART 2 - PRODUCTS

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

Ceramic tile flooring systems with NobleSeal CIS are rated for "Extra Heavy" 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.

1. Basis of Design Manufacturer: Noble C

2. Basis of Design Product: NobleSeal CIS



B. Performance:

Include the performance measurement from the Crack Isolation Standard, ANSI A118.12, for flooring applications.

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

Include waterproofing for full coverage flooring applications.

2. 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 one or both of the following paragraphs for interior locations. NobleBond EXT is suitable for horizontal, vertical and wet area applications. NobleBond 21 is suitable for horizontal applications in non-wet areas.

1. Basis of Design Product: NobleBond EXT.

2. Basis of Design Product: NobleBond 21.

C. Seam Sealant: Waterproof type recommended by sheet membrane manufacturer [**with VOC less than LEED allowable limits – 250 grams/liter**].

1. Basis of Design Product: NobleSealant 150.

D. Perimeter Sealant: ASTM C 920, construction sealant, type recommended by sheet membrane manufacturer [**with VOC less than LEED allowable limits**].

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine [**tile**] [**and**] [**stone**] flooring substrates for unacceptable conditions affecting tile and sheet membrane installation.

B. Examine rough-in for plumbing piping to verify actual locations of piping connections before sheet membrane installation.

C. 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 F 710. Perform one [**moisture emission test in accordance with ASTM F 1869**] [**relative humidity test in accordance with ASTM F 2170**] and one alkalinity test for every 2,000 sf *(185 sq m)*. Obtain instructions for corrective measures from flooring and adhesive manufacturers when test results are not within specified limits.

More restrictive substrate tolerances are required for large format tile. Verify acceptable limits with tile manufacturer. Consider deflection limit required especially on wood construction.

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 lbs 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 CRACK ISOLATION / JOINT BRIDGING - FULL COVERAGE

Include this article when the sheet membrane is applied to the entire floor substrate.

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, TCNA Handbook Method F125-Full, and the manufacturer's instructions for installation of sheet membrane waterproofing.

B. Apply bonding agent [**mortar**] [**adhesive**] for full coverage of substrate.

C. Install sheet membrane and fully embed into bonding material

3.4 INSTALLATION - SHEET MEMBRANE CRACK ISOLATION / JOINT BRIDGING - PARTIAL COVERAGE

Include this article when the sheet membrane is applied only over the floor substrate cracks.

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, TCNA Handbook Method F125-Partial, and the manufacturer's instructions for installation of sheet membrane waterproofing.

B. Use sheet membrane width equal to three tiles. Center sheet membrane over the substrate crack or control joint.

C. When tile is installed on diagonal line, minimum sheet width shall be 2/5 times the diagonal dimension of the tile (e.g. diagonal width of a 12" tiles shall be 17" x 2.5 = 42.5".)

D. Install sheet membrane and fully embed into bonding material centered on substrate crack or control joint.

E. Roll sheet membrane for full contact with adhesive.

F. Protect perimeter edges of partial coverage sheet membrane from lifting, curling, and premature drying.

3.5 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. For waterproofing applications, overlap sheets minimum 2 inches *(50 mm)* shingle fashion in direction of water drainage. Seal joints watertight.

1. Turn sheet membrane installed on floors up vertical surfaces minimum 2 inches *(50 mm)* higher than flood plane and bond to substrate.

2. Shower Walls: When sheet membrane is turned up and terminated behind backer board, extend minimum 3 inches *(75 mm)* above flood plane and fasten to substrate win no penetrations less than 2 inches *(50 mm)* above flood plane.

E. Extend sheet membrane into floor drains. Cut drain opening in sheet membrane and seal to drain body. Secure membrane to the drain with clamping ring.

F. Seal sheet membrane watertight to items penetrating sheet membrane.

3.6 FIELD QUALITY CONTROL

Include this article for flood testing floor waterproofing installations.

A. Upon completion of sheet membrane waterproofing installation, plug drains, dam perimeter of waterproofing, fill with water, and test per code.

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.

3.7 PROTECTION

A. Protect sheet membrane from pedestrian and vehicular traffic and prolonged exposure to sunlight.

B. Keep sheet membrane clean until [**tile**] [**and**] [**stone**] finishes are installed.

END OF SECTION 093000