TILE COUNCIL OF NORTH AMERICA, INC.

PRODUCT TESTING SERVICE

100 Clemson Research Blvd. • Anderson, SC 29625 • Tel (864) 646-TILE • Fax (864) 646-2821

January 31, 2012

Moreland Company USA
Attn: Jason Neubauer
1617 South Tuttle Ave 3rd Floor
Sarasota, FL 34239

Dear Mr. Neubauer,

Tile Council of North America has tested the samples you submitted. Test report TCNA-502-11 is enclosed. If you have any questions or concerns, please contact us.

Best Regards,

TILE COUNCIL OF NORTH AMERICA, INC.

Katelyn Simpson
Laboratory Manager
Enclosures

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TCNA TEST REPORT NUMBER: TCNA-502-11

TEST REQUESTED BY: Moreland Company USA
Attn: Jason Neubauer
1617 South Tuttle Ave 3rd Floor
Sarasota, FL 34239

TEST SUBJECT MATERIAL: Identified by client as: ¼" Ultraply XL Premium Underlayment

TEST DATE: 1/17/12-1/18/12

TEST PROCEDURE: ASTM C627: "A Test Method for Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester"

Materials:

A thin-set installation over a 48" x 49 ½" plywood base was prepared using the following materials:

1) APA rated "Exposure 1" 23/32" Exterior grade plywood
2) ¼"Ultraply XL Premium Underlayment
3) TCNA Standard Performance ANSI A118.4/A118.11 thin-set mortar
4) 8" x 8" Interceramic ceramic tiles with 1/4" grout joints
5) Mapei Keracolor S sanded grout

Base and Underlayment:

The plywood subfloor was nailed to four 2" x 2" joists spaced 16" O.C. to simulate the support provided in an actual installation. Prior to nailing the subfloor, a ¼" bead of construction adhesive was applied to each joist. For maximum stiffness, the face grain was directed perpendicular to the joists. The seam was positioned 15" off the centerline of the system perpendicular to the joists. The 23/32" plywood was nailed to the joists with 2" ring shank nails set at six inch centers on the perimeter joists and ten inch centers at the intermediate joists. The ¼ " Ultraply XL Premium Underlayment was fastened to the subfloor using 1/4" crown with 3/4" length staples. The staples were set at four inch centers. Special care was taken to ensure the fasteners did not penetrate the framing.

Katelyn Simpson 1/31/12
Katelyn Simpson Date
Laboratory Manager

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Tile and Grout:

TCNA Standard Performance ANSI A118.4/A118.11 thin-set mortar, mixed with water per manufacturer's instructions, was troweled over the plywood subfloor with a 1/4" x 3/8" square-notched trowel. The thin-set mortar was first keyed in with the flat side of the trowel and then combed with the notched side to form parallel ridges. The 8" x 8" Interceramic ceramic tiles were set in the thin-set by pressing down and sliding the tiles in a direction perpendicular to the combed ridges. A beat-in block and rubber mallet were used to reduce lippage between tiles. After the tiles were installed, the thin-set was allowed to cure for 24 hours before grouting.

Mapei Keracolor S sanded grout, mixed with water per manufacturer's instructions, was forced into the 1/4" grout joints with a rubber float. Excess grout was removed with the edge of the float. The grout was allowed to set up for approximately 20 minutes before the installation was cleaned with a sponge and water. The grouted installation was subsequently allowed to cure for 28 days.

At the end of the cure period, the installation was subjected to load cycling as defined in ASTM C627. The deflection of the plywood subfloor was measured in the wheel path, midway between the 16" O.C. joists.

TEST RESULTS:

The installation completed fourteen cycles with no evidence of damage to the tile or grout joints. The maximum deflection of the plywood subfloor during cycling was approximately 0.021".

CONCLUSION:

In accordance with the Performance-Level Requirement Guide of the 2011 *TCNA Handbook for Ceramic, Glass, and Stone Tile Installation*, page 37, the installation is classified as "EXTRA HEAVY".

Katelyn Simpson 1/31/12
Katelyn Simpson Date
Laboratory Manager