



# PRODUCT TESTING SERVICE

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

April 21, 2016

Nue Tile LLC  
Attn: Joe D'Agostino  
1148 Meadow Lane  
Grand Island, NY 14072

Dear Mr. D'Agostino,

Tile Council of North America has tested the samples you submitted. Test report TCNA-035-16 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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TEST REQUESTED BY: NUE Tile LLC

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

Informal Test Method Description: This test method covers the evaluation of ceramic floor tile installation systems, using the Robinson-type floor tester. This test method consists of preparing an installation assembly to simulate the type of installation under consideration, subjecting it to various cycles on a Robinson-type floor tester, and evaluating the results in a prescribed manner.

This summary is provided for the reader's convenience and is not a complete description of the method. See ASTM C627 for all method details and information.

TEST SUBJECT MATERIAL: Identified by client as: "Tile Release System Test #1"

TEST DATE: 3/30/2016

TEST ASSEMBLY SET-UP:

All the materials used were specified by the client and the tested assembly was built per the client's instructions.

### Materials:

As per client's request, the following materials were used for the preparation of the test assembly.

Item #	Product name and size	Product Code	Provided By:
1	T&G OSB subfloor; 23/32" thick Advantech by Huber	N/A	TCNA
2	Schluter Ditra Heat Mat and Cable	Not Provided	NUE Tile LLC
3	NUE Tile Release Spray	090314P3-1	NUE Tile LLC
4	NUE Tile Release System	Not Provided	NUE Tile LLC
5	Ardex X5 Thin-set Mortar	12531 442 X5 Gray	NUE Tile LLC
6	Mapei Ultraflex 3 Thin-set Mortar	J28H543 01067	NUE Tile LLC
7	12" x 12" Crossville Porcelain Tiles	A825	TCNA
8	Mapei Flexcolor CQ Grout	J07J527 281 15	NUE Tile LLC

**Substrate:** The substrate was prepared by a TCNA representative.

Subfloor type: Wood

Joist Spacing: 19.2" OC

Plywood thickness and type: 23/32" T&G OSB Advantech by Huber

Installation notes: The 23/32" T&G OSB Advantech by Huber subfloor was nailed to four 2" x 2" joists spaced 19.2" O.C. to simulate the support provided in an actual installation. The tongue and groove seam was positioned 15" off the centerline of the system and perpendicular to the joist. The subfloor was nailed to the joists with 2" ring shank nails set at six-inch centers on the perimeter joists and twelve-inch centers on the intermediate joists. A 1/4" bead of construction adhesive was applied to each joist prior to nailing.

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**Underlayment:** The underlayment was installed by a TCNA representative.

Product Name: Schluter Ditra Heat

Installation notes: Ardex X5 thin-set mortar, mixed with water per manufacturer's specification (mix ratio 36.5:100 by weight) was troweled over the plywood subfloor with a 1/4" x 1/4" square-notched trowel. The thin-set was first keyed-in with the flat side of the trowel and then combed with the notched side to form parallel ridges. Three pieces of Ditra-Heat-E (48" x 38.5", 48" x 4.5", and 48" x 4.5") were immediately installed over the thin-set and smoothed with a wooden float. The Schluter heating cables were then placed in the system per manufacturer's instructions. The resistance in the heating cable was measured per the manufacturer's instructions. The resistance at the time was 69 Ohms. Ardex X5 thin-set mortar, mixed with water per manufacturer's specification (mix ratio 36.5:100 by weight), was keyed-in with the flat side of the trowel to form a scratch coat and allowed to dry for 24 hours. Special care was taken not to disturb the heating cables.

Product Name: NUE Tile Release System

Installation notes: NUE Tile Release Spray was applied to the top of the Ardex X5 scratch coat and allowed to become tacky before applying the NUE Tile Release System membrane. The four corners of the system were covered with full pieces and the intermediate pieces were cut to fit. Once in place, the membrane was rolled with a hand roller.

**Tile:** The tiles were installed by a TCNA representative.

Tile Type: 12" x 12" Crossville porcelain tiles (tiles were cut to cover the full substrate surface)

Setting Material: Mapei UltraFlex 3 thin-set

Mix Ratio: 20.9:100 by weight

Trowel Size: 1/4" x 3/8"

Installation notes: The thin-set was first keyed in with the flat side of the trowel then combed with the notched side to form parallel ridges. The tiles were back buttered with a skim coat to ensure proper coverage. The assembly was cured 24 hours before grouting.

**Grout:** The grout was installed by a TCNA representative.

Grout Type: Mapei Flexcolor CQ grout

Mix Ratio: Premixed grout

Grout Joint Size: 3/16"

Installation notes: A grout float was used to force the grout into the joints. 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.

Cure Time: The grouted installation was allowed to cure for 29 days.

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## TEST RESULTS:

Cycle	Wheels	Weight (lb)	Observations
1	Soft Rubber	100	No visible damage, maximum deflection between the joists: 0.021"
2		200	No visible damage, maximum deflection between the joists: 0.035"
3		300	No visible damage, maximum deflection between the joists: 0.052"
4		300	No visible damage, maximum deflection between the joists: 0.058"
5	Hard Rubber	100	No visible damage, maximum deflection between the joists: 0.025"
6		200	No visible damage, maximum deflection between the joists: 0.059"
7		300	Four broken tiles, maximum deflection between the joists: 0.064", The resistance of the heating cable after testing was 69 Ohms.
8		300	
9	Steel	50	
10		100	
11		150	
12		200	
13		250	
14		300	

*Note: Per ASTM C627, section 10, criteria for failure is based on the number of tiles or grout joints damaged during cycling. Cycling of a test assembly is stopped when one or more of the following criteria is met:*

*Chipped Tile*—5 % of the tile in the wheel path or one tile, whichever is greater.

*Broken Tile*—3 % of the tile in the wheel path or one tile, whichever is greater.

*Loose Tile*—3 % of the tile in the wheel path or one tile, whichever is greater.

*Popped-Up Grout Joint*—5 % of the joints in the wheel path or one joint, whichever is greater.

*Cracked Grout Joint*—5 % of the joints in the wheel path or one joint, whichever is greater.

*Powdered Grout Joints*—5 % of the joints in the wheel path or one joint, whichever is greater.

## HANDBOOK CLASSIFICATIONS\*:

Classification	Cycles
Residential	Passes cycles 1-3
Light	Passes cycles 1-6
Moderate	Passes cycles 1-10
Heavy	Passes cycles 1-12
Extra Heavy	Passes cycles 1-14

\*For more detailed information, refer to the TCNA Handbook for Ceramic, Glass, and Stone Tile Installation.



**PHOTOS:**

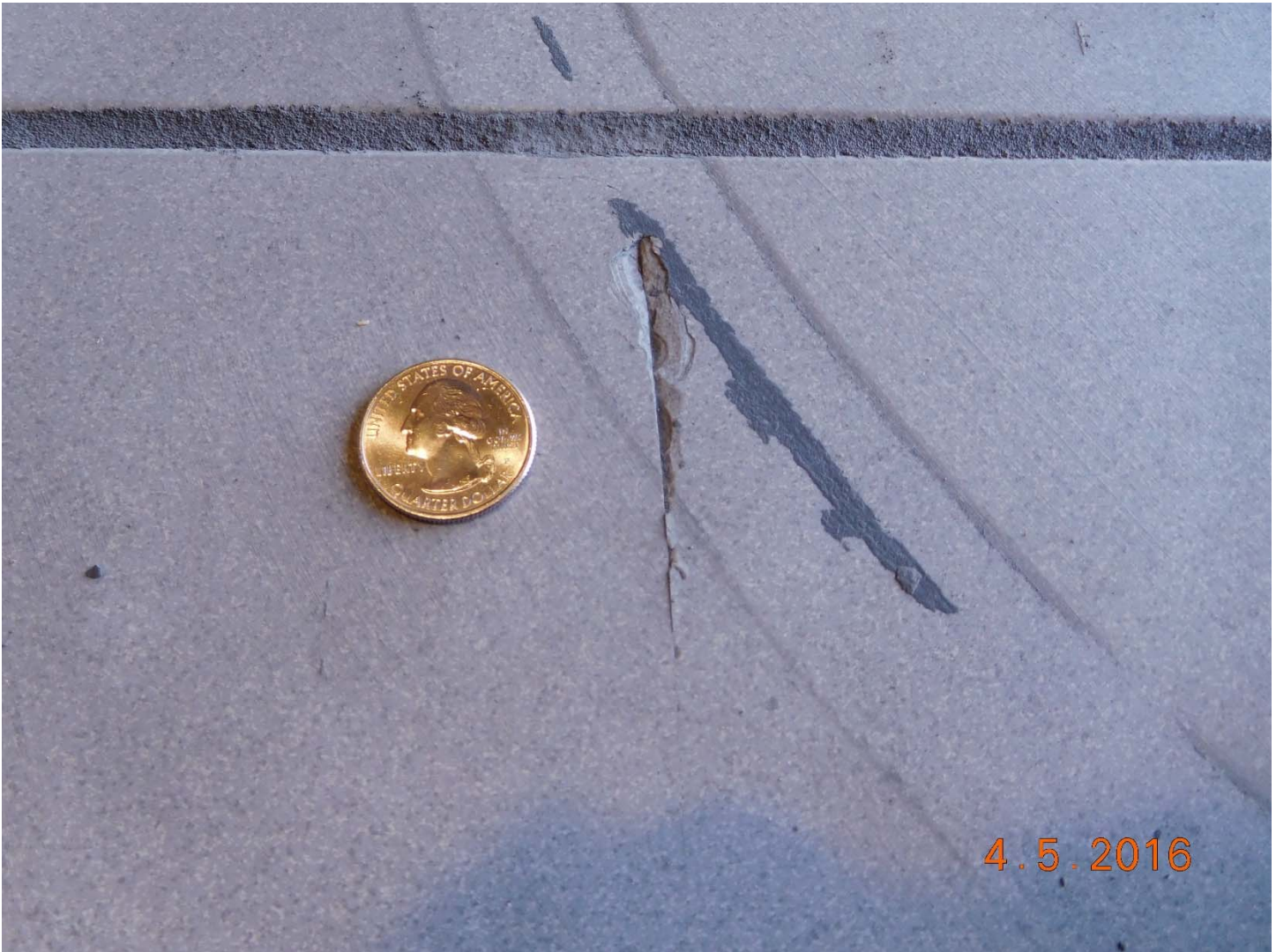


**Image 1:** Full assembly after testing



**Image 2:** Broken tile





**Image 3:** Broken tile



Image 4: Broken tile





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## TILE REMOVAL: (Not Part of ASTM C627 standardized testing)

The client requested that a pry-bar and hammer be used to lift the tiles off the test pad and to record the time it took for removal and how many full pieces of tile were removed from the system. The tile removal took approximately 5 minutes and all pieces of tile were removed without breakage. Image below shows the tiles after removal from the test pad. The resistance of the heating cable after removing the tile was 69 Ohms.



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