

Test Report

FOR: **LATICRETE International, Inc.**
Bethany, CT.

Sound Transmission Loss
RAL™-TL15-276

CONDUCTED: 2015-07-30

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ON: 5/16 inch Porcelain Tile - Fracture Ban™ 90 Peel & Stick Membrane - 6 inch Concrete Slabs

TEST METHOD

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2005 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM E90-09: "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements." The single number rating of the specimen was calculated according to ASTM E413-10: "Classification for Rating Sound Insulation." A description of the measuring procedure and room qualifications is available upon request.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as 5/16 inch Porcelain Tile - Fracture Ban™ 90 Peel & Stick Membrane - 6 inch Concrete Slabs. The building contractor and RAL staff compiled a detailed construction specification as follows:

Flooring

Layer 1: Crossville unglazed porcelain tile and Laticrete Permacolor® Grout

Weight: 497.02 kg (1095.75 lbs.)

Mass per Unit Area: 19.11 kg/m² (3.91 lbs./ft²)

The dimensions of each tile were measured as 298.45 mm (11.75 in.) wide by 298.45 mm (11.75 in.) long and 8.38 mm (0.33 in.) thick. The tile series was Cross Colors. The color was A825 Mercury. The individual weights of the tile and grout were 480.01 kg (1058.25 lbs.) and 17.01 kg (37.50 lbs.), respectively.

Layer 2: Laticrete 253 Gold Mortar

Weight: 109.77 kg (242.0 lbs.)

Mass per Unit Area: 4.22 kg/m² (0.86 lbs./ft²)

Layer 3: Laticrete Fracture Ban™ 90 peel and stick membrane

Thickness: 2.90 mm (0.11 in.)

Weight: 45.13 kg (99.50 lbs.)

Mass per Unit Area: 1.74 kg/m² (0.36 lbs./ft²)

Note: Note: The membrane was laid over the 152.40 mm (6.0 in.) concrete slabs. The mortar was then applied over the membrane using a trowel. Tile was set in the mortar bed with a 6.35 mm (0.25 in.) grout joint. The mortar was allowed to cure for at least 24 hours before grouting. The flooring was then allowed to cure for at least 21 day prior to testing.



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Concrete Slab

Overall Size: Ten at 609.60 mm (24.0 in.) wide by 4.23 m (166.50 in.) long
Overall Thickness: 152.40 mm (6.0 in.)
Material: Wire-reinforced concrete
Weight: 8640.93 kg (19,050.0 lbs.)
Mass per Unit Area: 332.22 kg/m² (68.04 lbs./ft²)
Joints: Sealed with acoustical caulk (underside)
Filled with general purpose sand, sealed with ready mix compound.

Physical Measures

Size: 4.27 m (168.00 in.) wide by 6.10 m (240.00 in.) long
Thickness: 163.68 mm (6.44 in.)
Weight: 9292.84 kg (20487.25 lbs.)
Mass per Unit Area: 357.25 kg/m² (73.17 lbs./ft²)
Transmission Area: 26.01 m² (280.00 ft²)

Test Aperture

Size: 4.27 m (14.0 ft.) by 6.10 m (20.0 ft.)
Filler Wall: None
Sealed: Entire periphery (both sides) with dense mastic

Test Environment

Source Room

Volume: 139.4 m³ (4923.6 ft³)
Temperature: 23±0°C (74±0°F)
Humidity: 52±0%

Receive Room

Volume: 87.0 m³ (3072.7 ft³)
Temperature: 23±0°C (74±0°F)
Humidity: 54±0



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Figure 1 – Specimen mounted in the test opening.



Figure 2 – Fracture Ban™ 90 membrane placed over concrete slabs.



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Figure 3 – Detail of Fracture Ban™ 90 membrane



Figure 4 – Detail of tile set in mortar.



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TEST RESULTS

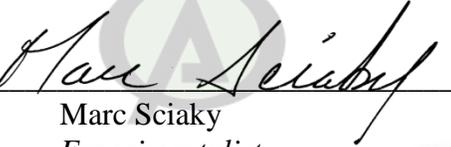
Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the transmission loss test data is within the limits set by the ASTM Standard E90-09.

<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>	<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>
100	34	0.67		800	53	0.26	2
125	38	0.85		1000	58	0.21	
160	38	0.62	2	1250	63	0.21	
200	40	0.61	3	1600	65	0.15	
250	40	0.55	6	2000	71	0.15	
315	44	0.54	5	2500	76	0.13	
400	47	0.48	5	3150	79	0.08	
500	49	0.39	4	4000	82	0.09	
630	50	0.21	4	5000	85	0.08	

STC=53

ABBREVIATION INDEX

- FREQ. = FREQUENCY, HERTZ, (cps)
- T.L. = TRANSMISSION LOSS, dB
- C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
- DEF. = DEFICIENCIES, dB<STC CONTOUR (SUM OF DEF = 31)
- STC = SOUND TRANSMISSION CLASS

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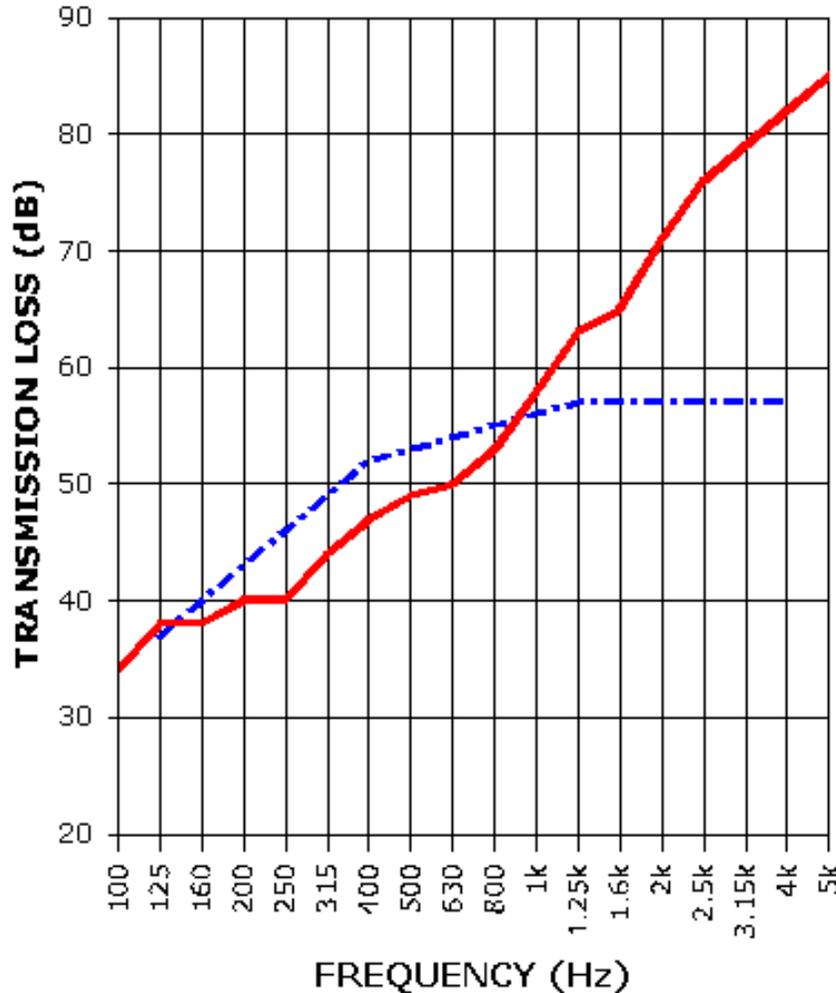
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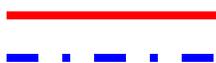
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SOUND TRANSMISSION REPORT

5/16 inch Porcelain Tile - Fracture Ban™ 90 Peel & Stick Membrane - 6 inch Concrete Slabs



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TRANSMISSION LOSS
SOUND TRANSMISSION LOSS CONTOUR



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APPENDIX A: Extended Frequency Range Data

Specimen: 5/16 inch Porcelain Tile - Fracture Ban™ 90 Peel & Stick Membrane - 6 inch Concrete Slabs
 (See Full Report)

The following non-accredited data were obtained in accordance with ASTM E90-09, but extend beyond the defined frequency range of 100Hz to 5,000Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

1/3 Octave Band Center Frequency (Hz)	Sound Transmission Loss (dB)	Uncertainty (95% ±)
31.5	34	1.92
40	41	1.49
50	41	0.60
63	38	0.75
80	38	1.21
<hr/>		
100	34	0.67
125	38	0.85
160	38	0.62
200	40	0.61
250	40	0.55
315	44	0.54
400	47	0.48
500	49	0.39
630	50	0.21
800	53	0.26
1000	58	0.21
1250	63	0.21
1600	65	0.15
2000	71	0.15
2500	76	0.13
3150	79	0.08
4000	82	0.09
5000	85	0.08
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6300	85	0.06
8000	79	0.05
10000	71	0.05
12500	65	0.04



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APPENDIX B: Instruments of Traceability

Specimen: 5/16 inch Porcelain Tile - Fracture Ban™ 90 Peel & Stick Membrane - 6 inch Concrete Slabs
(See Full Report)

<u>Description</u>	<u>Model</u>	<u>Serial Number</u>	<u>Date of Certificati on</u>	<u>Calibration Due</u>
Bruel & Kjaer Pulse Analyzer	Type 3560-C	2647140	2015-04-08	2016-04-08
Bruel & Kjaer Mic And Preamp	Type 4943-B-001	2311439	2015-03-18	2016-03-18
G.R.A.S Pistonphone	Type42AF-1	80001	2014-08-06	2015-08-06
Omega Digital Thermo- Hygrometer	Model # RH411	H0102487	2014-07-31	2015-07-31
Omega Digital Thermo- Hygrometer	Model # RH411	H0101841	2014-11-28	2015-11-28

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