

Test ReportFOR: **LATICRETE International, Inc.**
Bethany, CT.**Impact Sound Transmission**
RAL™-IN15-019

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 E492-09: "Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine." The single number rating of the specimen was calculated according to ASTM E989-06 (2012): "Standard Classification for Determination of Impact Insulation Class (IIC)." 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 labs. 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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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) wide by 6.10 m (240.00) 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 (4,923.6 ft³)
Temperature: 23±0°C (74±1°F)
Humidity: 53±1%

Receive Room

Volume: 87.0 m³ (3,072.7 ft³)
Temperature: 23±0°C (74±1°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

The impact sound pressure levels, normalized to 10 m², are tabulated at the sixteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the test data is within the limits set by the ASTM Standard E989-06 (2012).

<u>FREQ.</u>	<u>Ln</u>	<u>C.L.</u>	<u>DEV</u>	<u>FREQ.</u>	<u>Ln</u>	<u>C.L.</u>	<u>DEV</u>
100	68	0.54	1	800	64	0.30	1
125	64	0.76		1000	62	0.27	
160	66	0.58		1250	61	0.25	2
200	68	0.73	1	1600	57	0.26	1
250	69	0.82	2	2000	53	0.22	
315	71	0.74	4	2500	50	0.25	
400	70	0.45	4	3150	46	0.24	
500	73	0.46	8				
630	71	0.29	7				

IIC=45

ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)
Ln = NORMALIZED IMPACT SOUND PRESSURE LEVEL, dB
C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
DEV. = DEVIATION, dB > IIC CONTOUR (SUM OF DEV = 31)
IIC = IMPACT INSULATION CLASS
* = INDICATES A CORRECTION HAS BEEN APPLIED TO DATA
DUE TO BACKGROUND NOISE LEVELS

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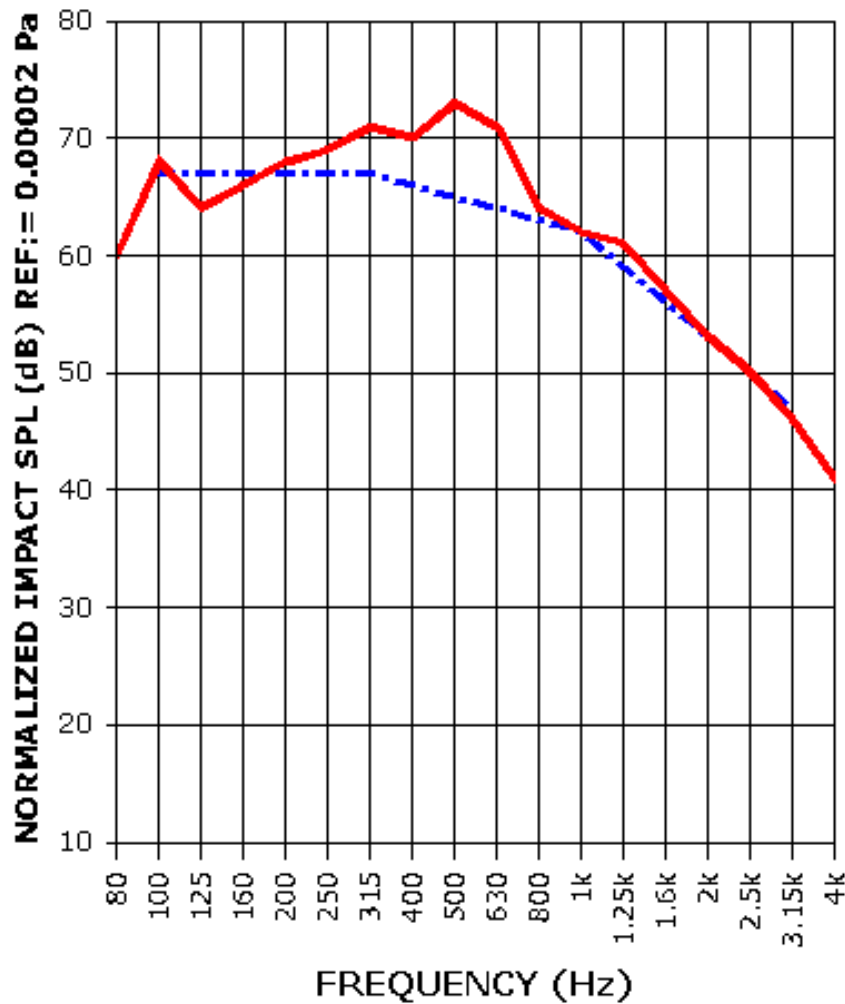
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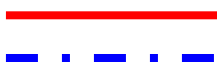
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IMPACT SOUND TRANSMISSION REPORT

5/16 inch Porcelain Tile - Fracture Ban™ 90 Peel & Stick Membrane - 6 inch Concrete
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IMPACT SOUND PRESSURE LEVEL
IMPACT INSULATION CLASS 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 E989-06 (2012), but extend beyond the defined frequency range of 100Hz to 3,150Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

1/3 Octave Band Center Frequency (Hz)	Normalized Impact Sound Pressure Level (dB)	Repeatability (95% ±)
31.5	66	1.94
40	54	2.15
50	56	1.12
63	62	1.09
80	60	1.43
100	68	0.54
125	64	0.76
160	66	0.58
200	68	0.73
250	69	0.82
315	71	0.74
400	70	0.45
500	73	0.46
630	71	0.29
800	64	0.30
1000	62	0.27
1250	61	0.25
1600	57	0.26
2000	53	0.22
2500	50	0.25
3150	46	0.24
4000	41	0.40
5000	37	0.52
6300	33	0.45
8000	29	0.68
10000	28	0.78
12500	24	0.70



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(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
Bruel & Kjaer Tapping Machine	Type 3207	2724862	2014-12-02	2015-12-02
G.R.A.S Pistonphone	Type 42AF-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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