

LATICRETE INTERNATIONAL ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 AND ASTM E492 TESTING ON
CERAMIC TILE OVER LATICRETE 170 12 MM RUBBER UNDERLAYMENT

SPECIMEN TYPE

Concrete Slab - 203 mm

REPORT NUMBER

S2783.02-113-11-R0

TEST DATE

02/21/25

ISSUE DATE

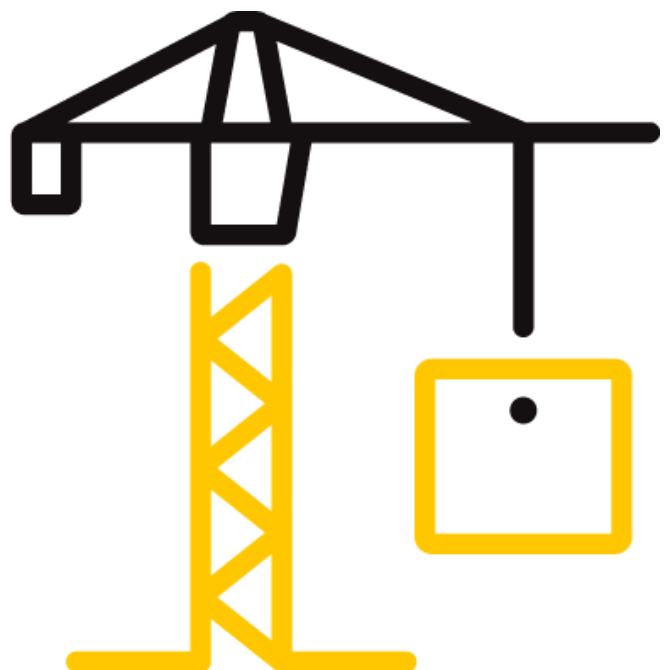
08/29/25

PAGES

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DOCUMENT CONTROL

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TEST REPORT FOR LATICRETE INTERNATIONAL

Report No.: S2783.02-113-11-R0

Date: 08/29/25

REPORT ISSUED TO

LATICRETE INTERNATIONAL

One Laticrete Park North - 91 Amity Road
Bethany, Connecticut 06524-3423

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted to perform testing in accordance with ASTM E90 AND ASTM E492 on Ceramic Tile over Laticrete 170 12 mm Rubber Underlayment. This report is a reissue in the name of Laticrete International through written authorization from the original report holder. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted in the VT test chambers at Intertek B&C located in York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

DATA FILE NO.	S2783.01
SERIES/MODEL:	Ceramic Tile over Laticrete 170 12 mm Rubber Underlayment
STC	57
IIC	56
HIIC	60

COMPLETED BY: Morgan S. J. Kennedy
Technician - Acoustical
TITLE: Testing
SIGNATURE:
DATE: 08/29/25

REVIEWED BY: Daniel B. Mohler
Project Manager - Acoustical
TITLE: Testing
SIGNATURE:
DATE: 08/29/25

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SECTION 3**TEST METHODS**

The specimen was evaluated in accordance with the following:

ASTM E90-23, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*

ASTM E413-22, *Classification for Rating Sound Insulation*

ASTM E492-22, *Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine*

ASTM E989-21, *Classification for Determination of Impact Insulation Class (IIC)*

ASTM E2235-04 (2020), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

ASTM E3222-20, *Standard Classification for Determination of High-Frequency Impact Sound Ratings*

SECTION 4**MATERIAL SOURCE/INSTALLATION**

The full test specimen was assembled on the day of testing by B&C. All materials provided by the original client were installed on an existing B&C assembly (Concrete Slab - 203 mm) utilizing B&C-supplied materials. The assembly was installed in a steel test frame which was installed into the opening between the source and receive rooms in the test chamber. The test frame was isolated from the structure with dense neoprene gasket.

The total weight of the floor/ceiling assembly was 6039.8 kg. B&C will store samples of the test specimen for four years. Photographs of the test specimen are included in the report. A drawing of the test specimen is included in the report.

This report is reissued in the name of Laticrete International through written authorization from the original report holder. The original Report No. is S2783.01-113-11.

B&C will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by B&C for the entire test record retention period.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

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SECTION 5 EQUIPMENT

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE	
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02586	03/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02587	03/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02608	03/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02609	03/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02610	03/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02612	03/24	*
2-Channel Analog Output	National Instruments	NI 9260	2-Channel Analog Output	INT02611	N/A	*
Microphone Calibrator	Norsonic	34093	Acoustical Calibrator	65105	08/24	
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT03739	10/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT02912	03/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	09/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64903	07/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT03720	10/24	
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63810	09/24	
				63811	09/24	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63745	10/24	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64340	09/24	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT03738	10/24	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64909	07/24	
Source Room Microphone	PCB Electronics	378C20	Microphone and Preamplifier	64911	09/24	
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63812	11/24	
Tapping Machine	Norsonic	Nor277	Tapping Machine	INT03333	02/25	

* The calibration frequency for this equipment is every two years per the manufacturer's recommendation.

VT RECEIVE ROOM VOLUME	158.34 m ³
VT SOURCE ROOM VOLUME	190 m ³

SECTION 6 LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Morgan S. J. Kennedy	Intertek B&C
Daniel B. Mohler	Intertek B&C

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SECTION 7

TEST PROCEDURE

The microphones were calibrated before conducting the tests. The air temperature and relative humidity conditions were monitored and recorded during all measurements. The average temperature and humidity of both the source and receive rooms are listed in Sections 10 and 11. The maximum and minimum temperatures and humidities of the receive room from the duration of the test are listed in Sections 12 and 13.

The airborne transmission loss test was conducted in accordance with the ASTM E90 test method using the single direction method. Two background noise sound pressure level and five sound absorption measurements were conducted at each of five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of five microphone positions.

The impact sound transmission test was conducted in accordance with the ASTM E492 test method. Two background noise sound pressure level, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E492, and five sound absorption measurements were conducted at each of five microphone positions.

Detailed test procedures, data for flanking limit tests, repeatability measurements, and reference specimen tests are available upon request.

SECTION 8

TEST CALCULATIONS

The STC (Sound Transmission Class), IIC (Impact Insulation Class), and HIIC (High-Frequency Impact Insulation Class) ratings were calculated in accordance with ASTM E413, ASTM E989, and ASTM E3222, respectively.

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SECTION 9

TEST SPECIMEN DESCRIPTION

MATERIAL	DIMENSIONS (mm)	THICKNESS (mm)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Ceramic Tile	304.8 by 304.8	8.0	Daltile	10.98 m ²	15.87 kg/m ²
	Note: Laticrete Permacolor grout was placed into the 6.35 mm (1/4") joints between the ceramic tile and wiped clean. The ceramic tile was placed with light pressure onto a bed of Laticrete 254 Platinum mortar on the underlayment. The mortar was set using a 4.76 mm (3/16") V-notch trowel. The mortar was allowed to cure per manufacturer's specifications. The grout was allowed to cure for 1 hour before testing.				
Rubber Underlayment	3023 by 1219.2	12.0	Laticrete 170	10.98 m ²	9.47 kg/m ²
	Note: Loose laid				
Concrete Slab	3023 by 3632	203.2	5000 PSI	10.98 m ²	524.71 kg/m ²
	Note: Installed in a test frame flush to the source room. Mats of #5 reinforcing bars were placed 25.4 mm from both the top and bottom of the slab, with bars spaced on 305 mm centers in both directions. No noticeable shrinkage or cracking was visible on the specimen.				

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SECTION 10

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS



TEST DATE	2/21/2025				
DATA FILE NO.	S2783.01				
CLIENT	Laticrete International				
DESCRIPTION	8 mm Daltile Ceramic Tile, 12 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Receive Temp.	11.5°C	Source Temp.	12.8°C
TECHNICIAN	MSJK	Receive Humidity	31%	Source Humidity	31%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% SAMPLING LIMIT	NUMBER OF DEFICIENCIES
50	41.4	27.6	93	54	36	2.9	-
63	35.6	22.5	90	52	35	4.2	-
80	35.3	18.3	89	56	31	3.2	-
100	31.3	10.7	87	54	34	1.6	-
125	27.4	9.7	89	52	39	1.2	2
160	25.9	9.3	89	52	39	1.3	5
200	22.4	10.4	89	45	46	1.2	1
250	20.2	11.4	93	46	49	1.0	1
315	28.3	11.8	97	45	52	0.8	1
400	23.7	10.4	96	43	54	0.7	2
500	19.9	9.5	94	41	54	0.7	3
630	22.1	9.0	96	40	57	0.6	1
800	22.5	9.0	96	40	58	0.5	1
1000	22.8	9.0	96	38	59	0.5	1
1250	19.9	9.1	96	36	61	0.5	0
1600	17.8	9.4	96	34	63	0.2	0
2000	12.6	10.7	95	35	61	0.6	0
2500	8.3	12.1	93	32	61	0.6	0
3150	7.3	13.5	92	31	60	0.6	1
4000	7.7	14.7	93	28	63	0.7	0
5000	8.1	16.0	93	22	69	0.9	-
6300	8.9	17.9	87	15	70	1.3	-
8000	9.5	18.9	85	13	70	1.0	-
10000	10.2	18.9	80	11	67	1.5	-
STC Rating	57	(Sound Transmission Class)			Sum of Deficiencies	19	

- Notes:**
- 1) Receive Room levels less than 6 dB above the Background levels are highlighted in yellow.
 - 2) Specimen TL levels listed in red are potentially limited by the laboratory flanking limit.
 - 3) Specimen TL levels listed in blue indicate the lower limit of the transmission loss.
 - 4) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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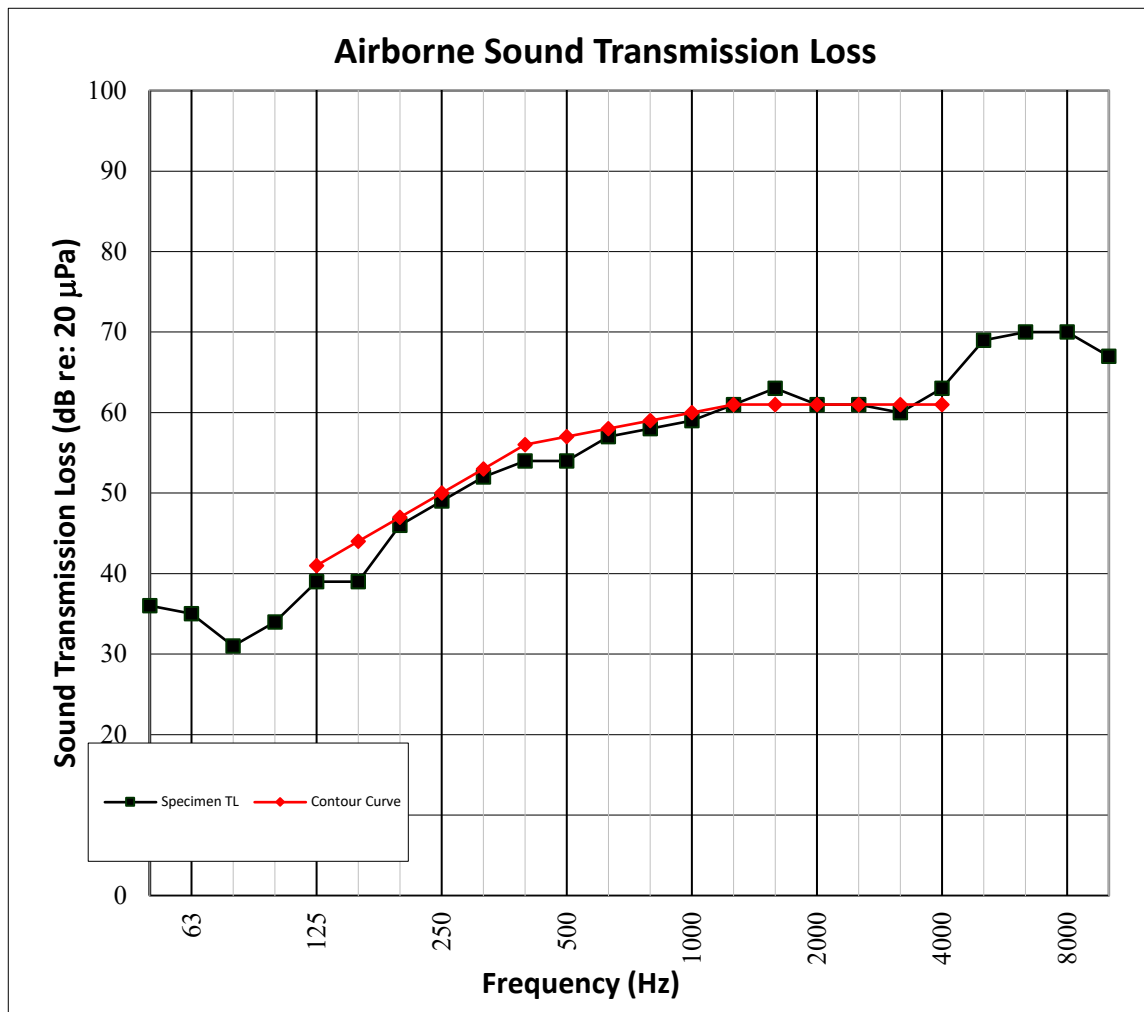
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SECTION 11

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH



TEST DATE	2/21/2025				
DATA FILE NO.	S2783.01				
CLIENT	Laticrete International				
DESCRIPTION	8 mm Daltile Ceramic Tile, 12 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Receive Temp.	11.5°C	Source Temp.	12.8°C
TECHNICIAN	MSJK	Receive Humidity	31%	Source Humidity	31%



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SECTION 12
TEST RESULTS - IMPACT SOUND TRANSMISSION


TEST DATE	2/21/2025				
DATA FILE NO.	S2783.01				
CLIENT	Laticrete International				
DESCRIPTION	8 mm Daltile Ceramic Tile, 12 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	11.5°C	Minimum Temp.	11.5°C
TECHNICIAN	MSJK	Max. Humidity	31%	Min. Humidity	31%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% SAMPLING LIMIT	NUMBER OF DEFICIENCIES
50	38.6	25.2	57	2.6	-
63	33.4	23.1	54	4.0	-
80	38.2	18.2	54	2.2	-
100	27.4	11.4	55	1.8	0
125	24.9	10.5	54	0.9	0
160	25.5	9.9	57	0.8	1
200	24.6	10.6	64	0.3	8
250	21.3	11.7	63	1.1	7
315	26.3	11.6	56	0.4	0
400	24.2	10.2	58	0.5	3
500	22.0	9.4	55	0.6	1
630	22.6	9.0	52	0.9	0
800	22.4	9.0	51	0.3	0
1000	23.2	8.9	46	0.5	0
1250	19.5	9.1	38	0.5	0
1600	16.9	9.4	34	0.5	0
2000	13.6	10.8	33	0.6	0
2500	8.3	12.1	30	0.9	0
3150	7.3	13.7	22	0.7	0
4000	7.3	14.9	17	0.6	-
5000	7.9	15.7	11	0.4	-
6300	8.6	16.8	10	0.2	-
8000	9.4	21.8	11	0.2	-
10000	10.1	21.8	12	0.2	-
IIC Rating	56	<i>(Impact Insulation Class)</i>		Sum of Deficiencies	20

Notes: Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.

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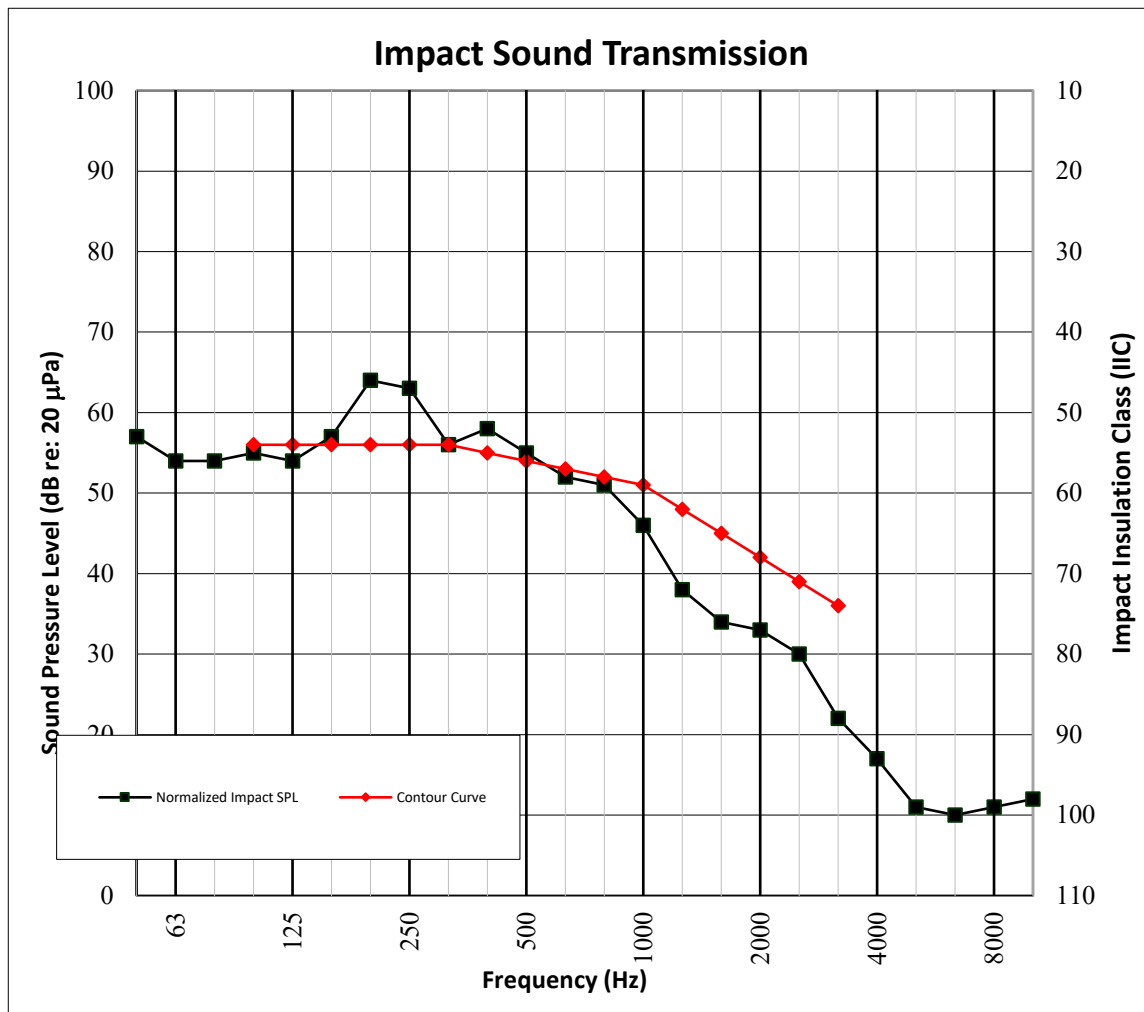
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SECTION 13

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH



TEST DATE	2/21/2025				
DATA FILE NO.	S2783.01				
CLIENT	Laticrete International				
DESCRIPTION	8 mm Daltile Ceramic Tile, 12 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	11.5°C	Minimum Temp.	11.5°C
TECHNICIAN	MSJK	Max. Humidity	31%	Min. Humidity	31%



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SECTION 14

TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION



TEST DATE	2/21/2025				
DATA FILE NO.	S2783.01				
CLIENT	Laticrete International				
DESCRIPTION	8 mm Daltile Ceramic Tile, 12 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	11.5°C	Minimum Temp.	11.5°C
TECHNICIAN	MSJK	Max. Humidity	31%	Min. Humidity	31%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% SAMPLE CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
400	24.2	10.2	58	0.5	6.6
500	22.0	9.4	55	0.6	5.2
630	22.6	9.0	52	0.9	3.2
800	22.4	9.0	51	0.3	3.0
1000	23.2	8.9	46	0.5	0.0
1250	19.5	9.1	38	0.5	0.0
1600	16.9	9.4	34	0.5	0.0
2000	13.6	10.8	33	0.6	0.0
2500	8.3	12.1	30	0.9	0.0
3150	7.3	13.7	22	0.7	0.0
HIIC Rating	60	(High-Frequency Impact Insulation Class)		Sum of Deficiencies	18.0

Notes: Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.

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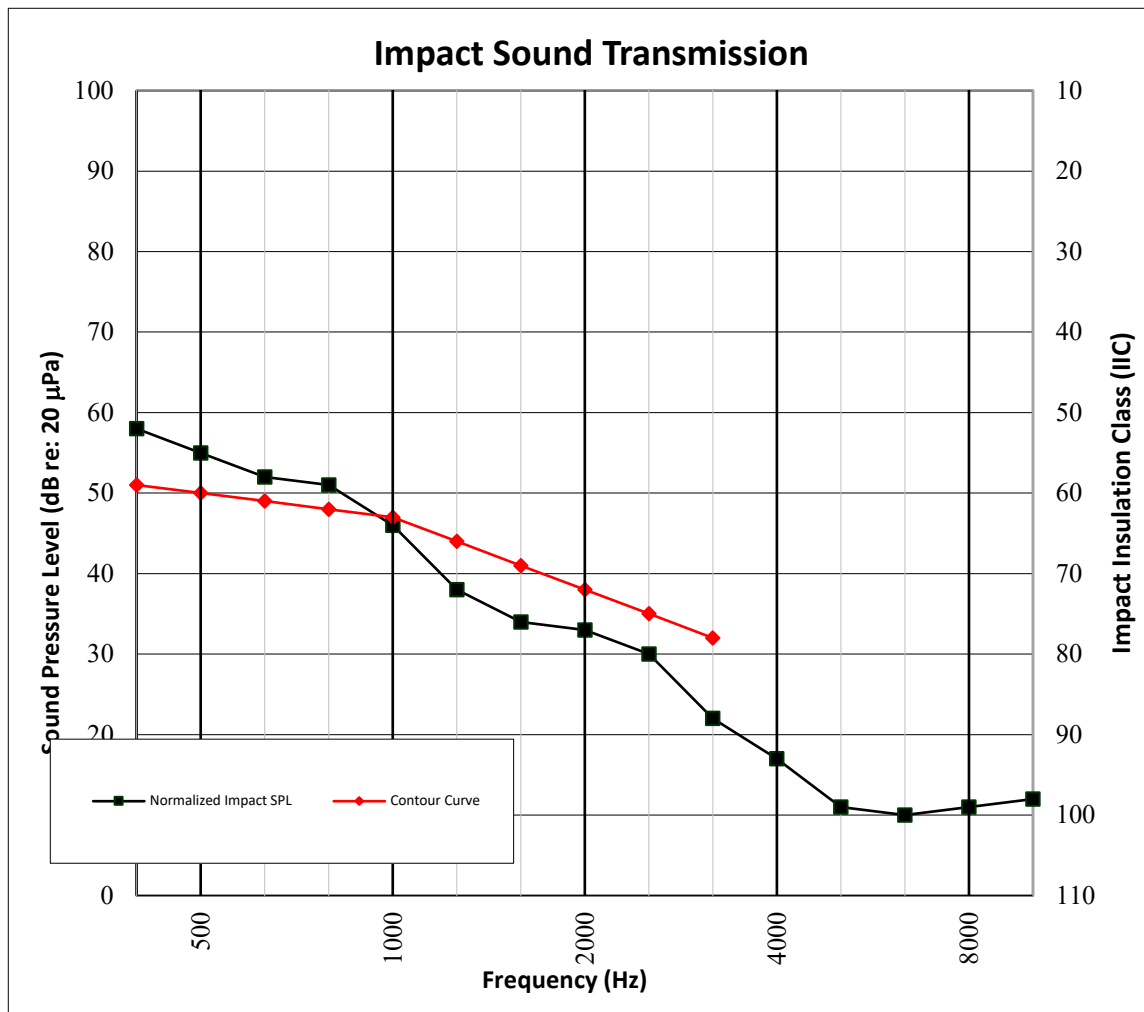
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SECTION 15

TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION GRAPH



TEST DATE	2/21/2025				
DATA FILE NO.	S2783.01				
CLIENT	Laticrete International				
DESCRIPTION	8 mm Daltile Ceramic Tile, 12 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	11.5°C	Minimum Temp.	11.5°C
TECHNICIAN	MSJK	Max. Humidity	31%	Min. Humidity	31%



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SECTION 16

PHOTOGRAPHS



Photo No. 1

Source Room View of Test Specimen Installation



Photo No. 2

Receive Room View of Test Specimen Installation



Total Quality. Assured.

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York, PA 17406

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SECTION 18

REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	08/29/25	N/A	Original Report Issue - Reissue of Report No. S2783.01-113-11 in the name of Laticrete International.