

LATICRETE INTERNATIONAL ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 AND ASTM E492 TESTING ON
CERAMIC TILE OVER LATICRETE 170 5 MM RUBBER UNDERLayment

SPECIMEN TYPE

203 mm Concrete Slab with Suspended Ceiling

REPORT NUMBER

S8154.02-113-11-R0

TEST DATE

07/25/25

ISSUE DATE

08/29/25

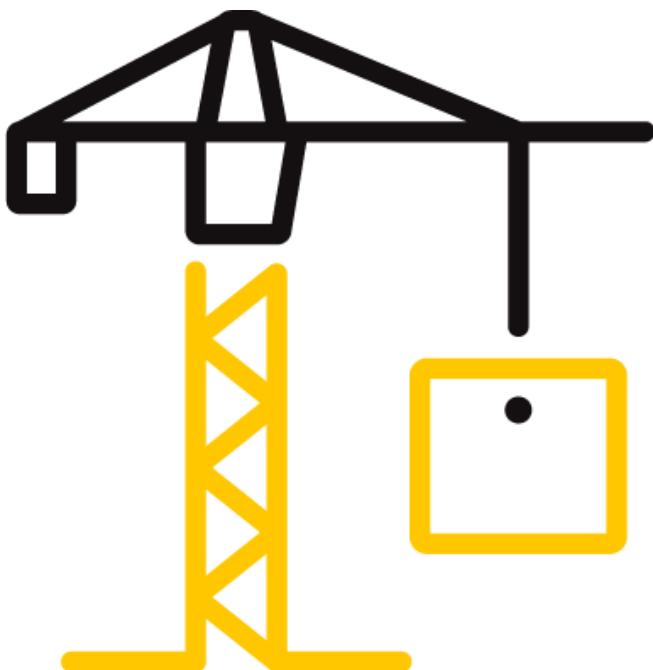
PAGES

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DOCUMENT CONTROL

RTTDS-R-AMER-Test-2844 (03/23/22)

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TEST REPORT FOR LATICRETE INTERNATIONAL

Report No.: S8154.02-113-11-R0

Date: 08/29/25

REPORT ISSUED TO**LATICRETE INTERNATIONAL**One Laticrete Park North - 91 Amity Road
Bethany, Connecticut 06524-3423**SECTION 1****SCOPE**

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Laticrete International to perform testing in accordance with ASTM E90 AND ASTM E492 on Ceramic Tile over Laticrete 170 5 mm Rubber Underlayment. Results obtained are tested values and were secured by using the designated test methods. 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.	S8154.02
SERIES/MODEL:	Ceramic Tile over Laticrete 170 5 mm Rubber Underlayment
STC	64
IIC	64
HIIC	64

COMPLETED BY:	Corey S. Kohler Technician - Acoustical	REVIEWED BY:	Daniel B. Mohler Project Manager - Acoustical
TITLE:	Testing	TITLE:	Testing
SIGNATURE:		SIGNATURE:	
DATE:	08/29/25	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 client were installed on an existing B&C assembly (203 mm Concrete Slab with Suspended Ceiling) 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 6126.1 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.

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	INT02672	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02673	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02674	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02675	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02676	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02677	10/24	*
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	64908	01/25	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT037389	10/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT03720	10/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64903	07/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	09/24	
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	07/24	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64340	09/24	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT037389	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	INT00936	07/24	

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

VT RECEIVE ROOM VOLUME	155.77 m ³
VT SOURCE ROOM VOLUME	190 m ³

**SECTION 6
LIST OF OFFICIAL OBSERVERS**

NAME	COMPANY
Michael A. Unnone	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	295.3 by 295.3	7.5	Daltile	10.98 m ²	15.77 kg/m ²
Note: Laticrete Permacolor grout was placed into the 6.35 mm joints between the ceramic tile and wiped clean. The tile was back-buttered and placed with light pressure onto a bed of Laticrete 254 Platinum mortar on the underlayment. The mortar was set using a 6.35 mm by 6.35 mm trowel. Both the grout and mortar were allowed to cure to manufacturer's specifications.					
Rubber Underlayment	3023 by 1219	5.0	Laticrete 170	10.98 m ²	3.76 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.					
Drywall Main Beam	38.1 by 2870	43.0	Armstrong HD8906	10.9 lin m	0.45 kg/m
Note: Twelve gauge hanger wires were attached to the bottom side of the concrete at twelve locations and then to the main beams. The hanger wire was twisted around itself a minimum of three times within 76 mm creating a 305 mm plenum. The measured steel thickness was 0.5 mm.					
Cross Tee	38.3 by 1219	37.3	Armstrong XL8945P	27.2 lin m	0.45 kg/m
Note: Inserted into the main beams on 610 mm centers. The measured steel thickness was 0.5 mm.					
Fiberglass Insulation	609.6 by 2438	88.9	Johns Manville Unfaced R-13	10.98 m ²	1.32 kg/m ²
Note: Loose laid onto the ceiling grid system					
Gypsum Panel	3023 by 1219	15.9	National Gypsum Gold Bond® Fire-Shield® Type X	10.56 m ²	11.23 kg/m ²
Note: Fastened with 25.4 mm fine thread drywall screws on 305 mm centers. Seams and perimeter sealed with Pecora AC-20® Acoustical Sealant and covered with pressure-sensitive tape.					

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SECTION 10
TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS

TEST DATE	7/25/2025				
DATA FILE NO.	S8154.02				
CLIENT	Laticrete International				
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel				
SPECIMEN AREA	10.98 m ²	Receive Temp.	26.1°C	Source Temp.	20.7°C
TECHNICIAN	MAU	Receive Humidity	83%	Source Humidity	83%



FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% SAMPLING LIMIT (dB)	NUMBER OF DEFICIENCIES
50	40	33.9	94	53	37	2.4	-
63	35.6	23.1	93	49	42	3.6	-
80	35.2	13.2	90	55	36	2.7	-
100	28.9	9.1	87	53	36	1.7	-
125	29.6	9.6	89	49	42	2.5	6
160	29.2	8.5	89	47	44	1.7	7
200	23.2	9.5	89	41	49	1.0	5
250	19.2	11.0	93	41	53	1.1	4
315	18.3	9.6	96	43	54	0.7	6
400	19.2	8.8	95	38	59	0.9	4
500	17.3	8.0	94	32	64	0.5	0
630	16.3	7.8	96	32	67	0.8	0
800	14.8	7.9	96	30	69	0.5	0
1000	17.0	8.2	96	29	69	0.4	0
1250	15.6	8.6	96	29	69	0.6	0
1600	13.7	8.3	95	27	70	0.5	0
2000	11.0	9.0	96	27	70	0.5	0
2500	9.0	10.1	94	25	70	0.4	0
3150	8.0	10.4	92	21	72	0.5	0
4000	8.0	10.7	93	21	73	0.6	0
5000	8.5	11.5	94	17	78	0.9	-
6300	9.1	12.9	87	11	76	0.9	-
8000	9.8	13.9	87	9	77	1.1	-
10000	10.7	13.9	81	9	71	1.2	-
STC Rating	64	(Sound Transmission Class)			Sum of Deficiencies	32	

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

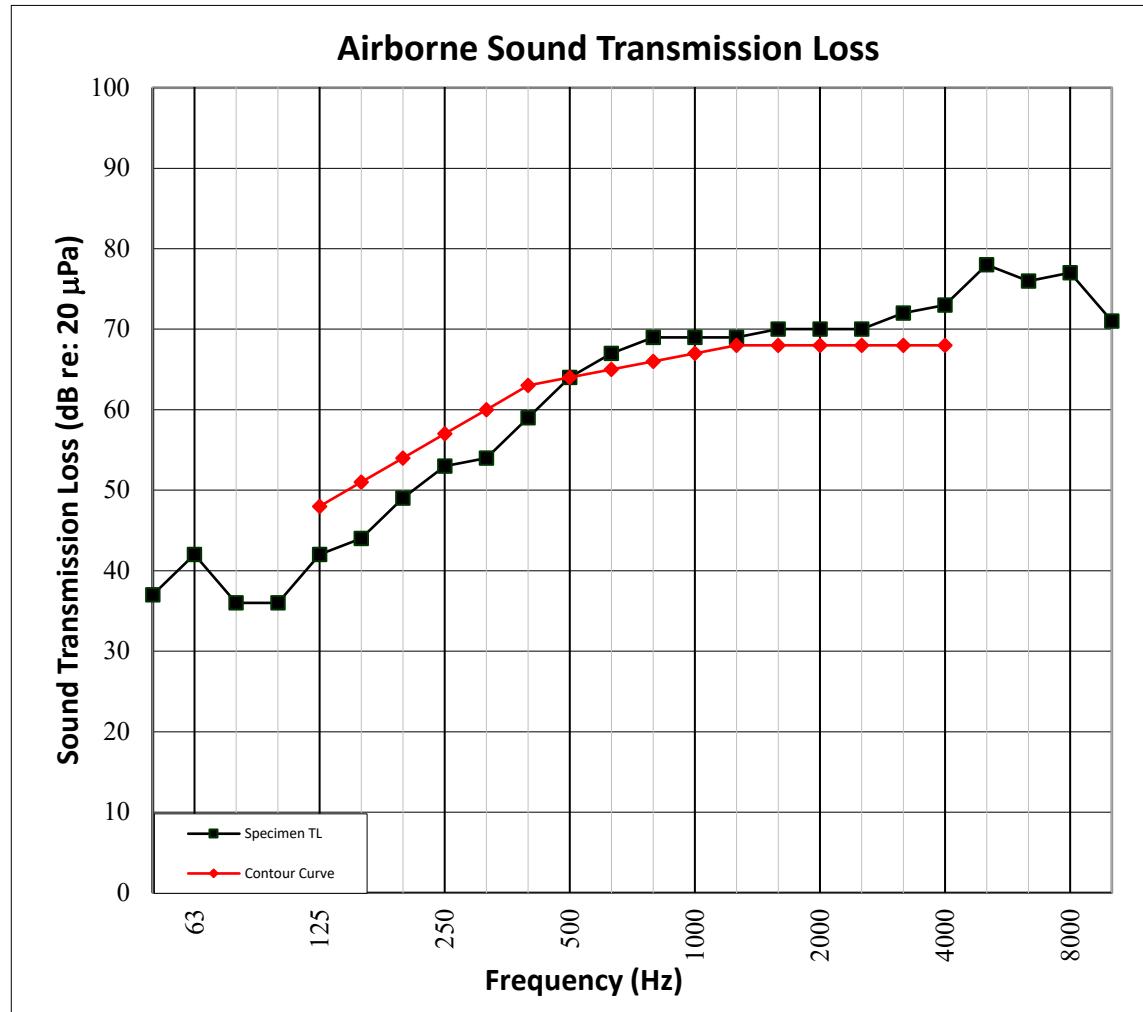
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SECTION 11
TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH

TEST DATE	7/25/2025				
DATA FILE NO.	S8154.02				
CLIENT	Laticrete International				
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel				
SPECIMEN AREA	10.98 m ²	Receive Temp.	26.1°C	Source Temp.	20.7°C
TECHNICIAN	MAU	Receive Humidity	83%	Source Humidity	83%



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SECTION 12
TEST RESULTS - IMPACT SOUND TRANSMISSION

TEST DATE	7/25/2025			
DATA FILE NO.	S8154.02			
CLIENT	Laticrete International			
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel			
SPECIMEN AREA	10.98 m ²	Maximum Temp.	26.3°C	Minimum Temp.
TECHNICIAN	MAU	Max. Humidity	83%	Min. Humidity
				82%



FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% SAMPLING LIMIT (dB)	NUMBER OF DEFICIENCIES
50	40.1	31.8	58	2.1	-
63	35.8	20.5	53	3.0	-
80	32.9	13.1	47	1.6	-
100	29.3	8.6	48	0.9	0
125	28.9	9.4	48	1.4	0
160	26.9	8.1	48	0.6	0
200	23.9	9.0	48	0.8	0
250	20.0	10.4	54	1.1	6
315	18.2	9.1	55	0.8	7
400	19.6	8.8	52	0.7	5
500	17.6	7.8	49	0.4	3
630	16.6	7.7	49	0.5	4
800	16.5	8.0	47	0.2	3
1000	18.0	8.2	45	0.5	2
1250	16.3	8.4	40	0.4	0
1600	14.3	8.4	32	0.3	0
2000	12.0	9.2	25	0.2	0
2500	10.1	10.1	21	0.4	0
3150	9.0	10.5	18	0.2	0
4000	8.9	10.7	16	0.3	-
5000	9.1	11.1	15	0.4	-
6300	9.7	12.3	18	0.5	-
8000	10.5	17.9	20	0.6	-
10000	13.7	17.9	25	0.6	-
IIC Rating	64	<i>(Impact Insulation Class)</i>		Sum of Deficiencies	30

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

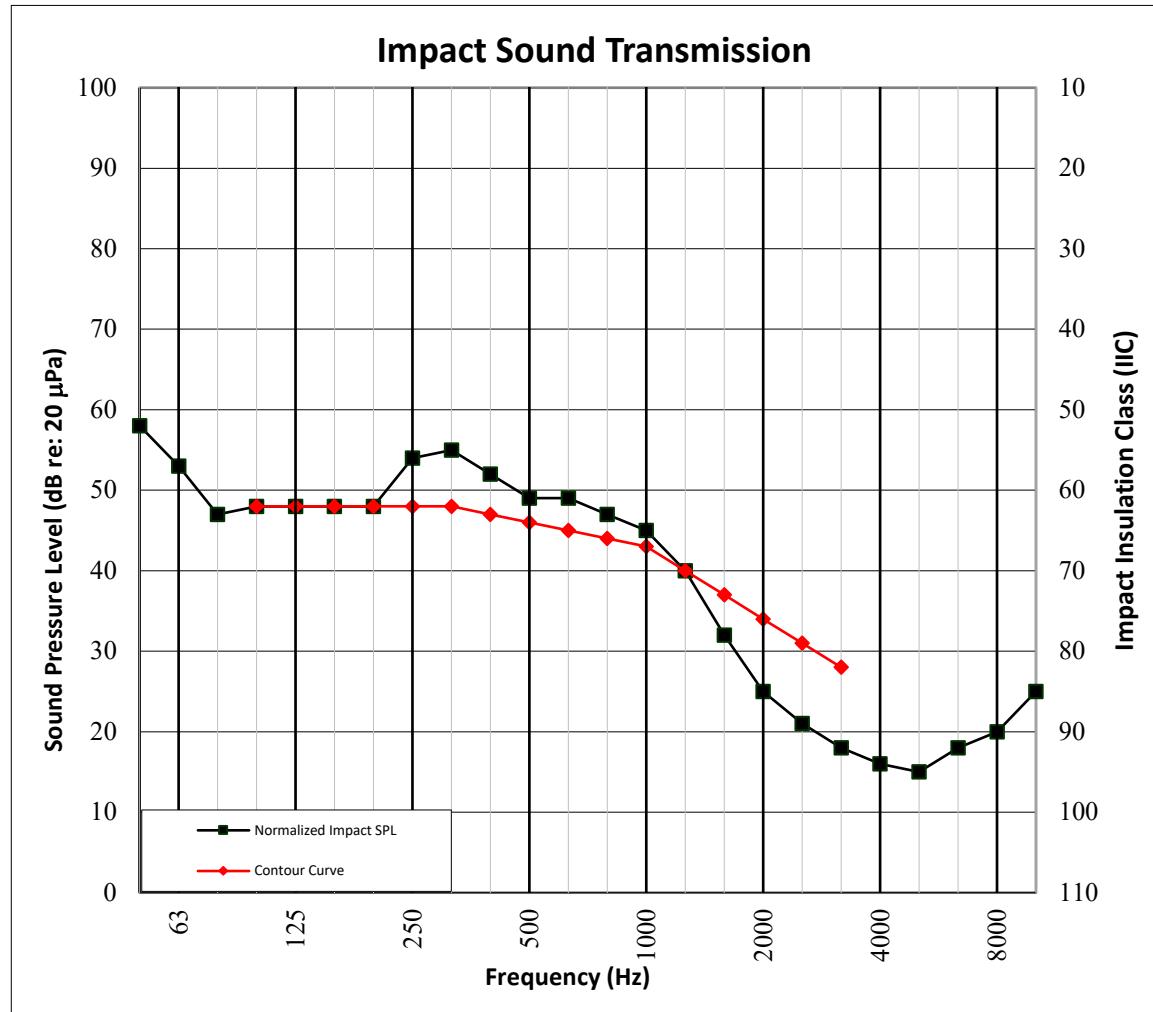
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SECTION 13
TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH

TEST DATE	7/25/2025		
DATA FILE NO.	S8154.02		
CLIENT	Laticrete International		
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel		
SPECIMEN AREA	10.98 m ²	Maximum Temp.	26.3°C
TECHNICIAN	MAU	Max. Humidity	83%
		Minimum Temp.	26°C
		Min. Humidity	82%



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SECTION 14
TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION

TEST DATE	7/25/2025			
DATA FILE NO.	S8154.02			
CLIENT	Laticrete International			
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel			
SPECIMEN AREA	10.98 m ²	Maximum Temp.	26.3°C	Minimum Temp.
TECHNICIAN	MAU	Max. Humidity	83%	Min. Humidity
				82%



FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% SAMPLE CONFIDENCE LIMIT (dB)	NUMBER OF DEFICIENCIES
400	19.6	8.8	52	0.7	5.3
500	17.6	7.8	49	0.4	2.9
630	16.6	7.7	49	0.5	3.8
800	16.5	8.0	47	0.2	3.2
1000	18.0	8.2	45	0.5	1.8
1250	16.3	8.4	40	0.4	0.0
1600	14.3	8.4	32	0.3	0.0
2000	12.0	9.2	25	0.2	0.0
2500	10.1	10.1	21	0.4	0.0
3150	9.0	10.5	18	0.2	0.0
HIIC Rating	64	<i>(High-Frequency Impact Insulation Class)</i>		Sum of Deficiencies	16.8

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

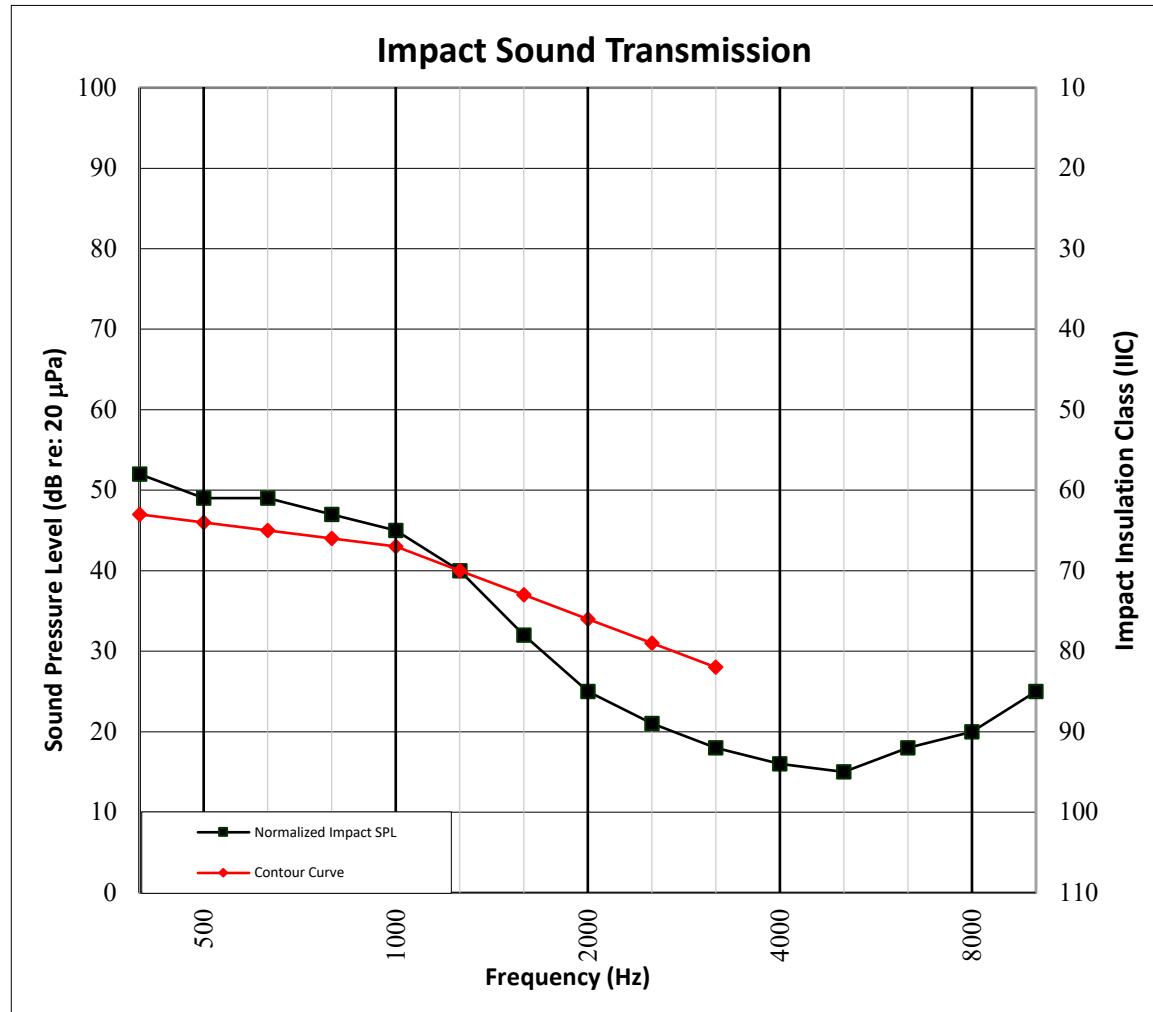
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SECTION 15
TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION GRAPH

TEST DATE	7/25/2025		
DATA FILE NO.	S8154.02		
CLIENT	Laticrete International		
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel		
SPECIMEN AREA	10.98 m ²	Maximum Temp.	26.3°C
TECHNICIAN	MAU	Max. Humidity	83%
		Minimum Temp.	26°C
		Min. Humidity	82%



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**SECTION 16
PHOTOGRAPHS**

**Photo No. 1
Source Room View of Test Specimen Installation**

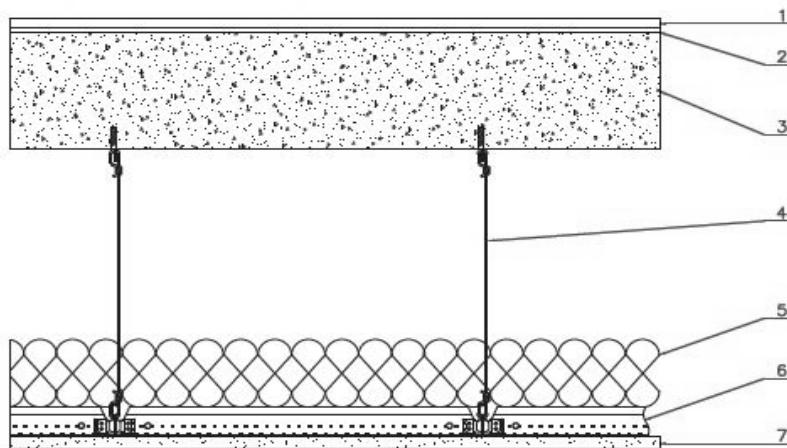


**Photo No. 2
Receive Room View of Test Specimen Installation**

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SECTION 17**DRAWING**

- 1-Floor Topping
- 2-Underlayment
- 3-Concrete Slab
- 4-Hanger Wire
- 5-Insulation
- 6-Ceiling Grid
- 7-Ceiling



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SECTION 18 REVISION LOG

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