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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

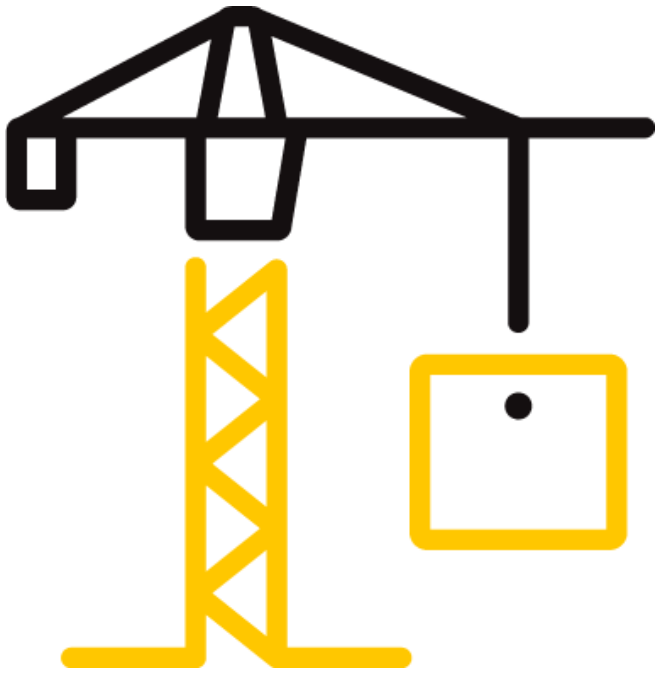
SPECIMEN TYPE
Dimensional Lumber - 2x10

REPORT NUMBER
S8156.01-113-11-R0

TEST DATE
07/26/25

ISSUE DATE
08/29/25

PAGES
15



DOCUMENT CONTROL
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TEST REPORT FOR LATICRETE INTERNATIONAL

Report No.: S8156.01-113-11-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.	S8156.01
SERIES/MODEL:	Ceramic Tile over Laticrete 170 5 mm Rubber Underlayment
STC	61
IIC	54
HIIC	55

COMPLETED BY:	Corey S. Kohler	**REVIEWED BY:**	Daniel B. Mohler
TITLE:	Technician - Acoustical Testing	**TITLE:**	Project Manager - Acoustical Testing
SIGNATURE:	Digitally Signed by: Corey Kohler	**SIGNATURE:**	Digitally Signed by: Daniel Mohler
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 (Dimensional Lumber - 2x10) 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 1125.8 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.

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	157.83 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 m²	15.77 kg/m²
	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 m²	3.76 kg/m²
	Note: Loose laid				
Floor Underlayment	3023 by 3632	25.4	USG Levelrock® 2500	10.98 m²	48.82 kg/m²
	Note: Poured directly on top of the subfloor, cured a minimum of 14 days. No noticeable shrinkage or cracking was visible on the specimen.				
OSB Sheathing	1219 by 2438	18.8	N/A	10.98 m²	10.25 kg/m²
	Note: Fastened to joists with 76 mm by 3 mm framing nails on 203 mm centers along perimeter and 305 mm centers in the field.				
R13 Fiberglass Insulation	2940 by 406	88.9	Knauf EcoBatt®	10.98 m²	1.03 kg/m²
	Note: Laid directly over resilient channels.				
2x10 Dimensional Lumber	2940 by 38.1	235.0	N/A	26.5 lin m	4.3 kg/m²
	Note: Fastened to perimeter frame on 406 mm centers using 18 gauge joist hangers and 9 gauge 31.75 mm nails.				
Resilient Channel	68.6 by 2902	0.7	ClarkDietrich RC Deluxe™	23.2 lin m	0.71 kg/m²
	Note: Fastened perpendicular to joists on 406 mm centers with 25.4 mm type S screws.				
Type C Gypsum Board	1219 by 29.3	16.3	CertainTeed	10.35 m²	11.67 kg/m²
	Note: Fastened to the channels on 305 mm centers with 25.4 mm Type S bugle head screws. The seams of the gypsum panels were sealed with Pecora AC-20 FTR caulk and covered with pressure sensitive tape.				

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Report No.: S8156.01-113-11-R0
Date: 08/29/25

SECTION 10

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS

NVLAP® TESTING LAB CODE 600258-0

TEST DATE	7/26/2025				
DATA FILE NO.	S8156.01				
CLIENT	Laticrete International				
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 25.4 mm USG Levelrock® 2500 Floor Underlayment, 18.8 mm OSB Sheathing, 88.9 mm Knauf EcoBatt® R13 Fiberglass Insulation, 235 mm 2x10 Dimensional Lumber, 0.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 16.3 mm CertainTeed Type C Gypsum Board				
SPECIMEN AREA	10.98 m²	**Receive Temp.**	23.8°C	**Source Temp.**	20.5°C
TECHNICIAN	MAU	**Receive Humidity**	53%	**Source Humidity**	53%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** m²	**SOURCE SPL** (dB)	**RECEIVE SPL** (dB)	**SPECIMEN TL** (dB)	**95% SAMPLING LIMIT (dB)**	**NUMBER OF DEFICIENCIES**
50	29.8	34.9	94	61	28	2.6	-
63	32.3	20.2	92	56	34	4.3	-
80	29.3	13.2	90	59	30	2.4	-
100	23.9	7.9	87	55	35	1.9	-
125	23.9	7.8	89	51	41	2.9	4
160	21.0	8.0	88	49	41	1.5	7
200	18.0	8.9	88	43	47	1.5	4
250	15.1	9.7	93	43	52	1.4	2
315	14.7	8.6	95	45	53	0.6	4
400	16.4	8.0	95	43	55	0.8	5
500	14.7	7.3	94	38	59	0.9	2
630	14.2	7.2	96	37	62	0.6	0
800	14.8	6.9	96	36	63	0.6	0
1000	16.0	7.0	96	34	64	0.3	0
1250	15.3	7.1	96	32	66	0.5	0
1600	13.4	7.1	96	31	68	0.4	0
2000	10.6	7.6	96	30	68	0.4	0
2500	8.9	8.9	94	27	69	0.4	0
3150	7.9	9.6	92	24	70	0.4	0
4000	7.9	10.1	94	22	72	0.4	0
5000	8.6	11.1	93	18	76	0.4	-
6300	9.2	12.8	87	12	75	0.9	-
8000	9.8	12.8	87	10	77	1.2	-
10000	10.6	12.8	81	9	71	1.3	-
STC Rating	**61**	*(Sound Transmission Class)*			**Sum of Deficiencies**		**28**

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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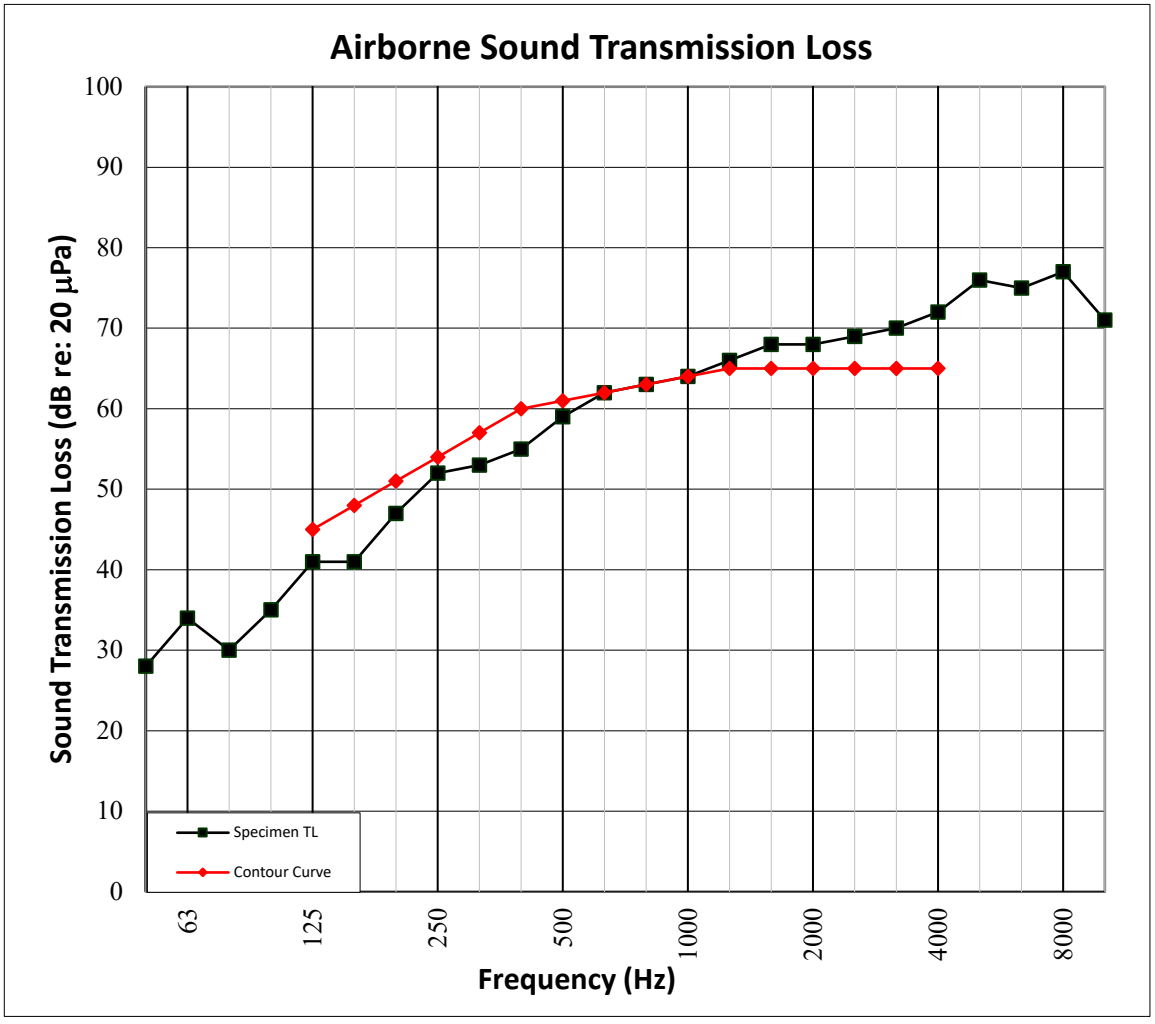
SECTION 11
TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH

TEST DATE	7/26/2025				
DATA FILE NO.	S8156.01				
CLIENT	Laticrete International				
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 25.4 mm USG Levelrock® 2500 Floor Underlayment, 18.8 mm OSB Sheathing, 88.9 mm Knauf EcoBatt® R13 Fiberglass Insulation, 235 mm 2x10 Dimensional Lumber, 0.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 16.3 mm CertainTeed Type C Gypsum Board				
SPECIMEN AREA	10.98 m²	**Receive Temp.**	23.8°C	**Source Temp.**	20.5°C
TECHNICIAN	MAU	**Receive Humidity**	53%	**Source Humidity**	53%



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SECTION 12

TEST RESULTS - IMPACT SOUND TRANSMISSION

NVLAP® TESTING LAB CODE 600258-0

TEST DATE	7/26/2025				
DATA FILE NO.	S8156.01				
CLIENT	Laticrete International				
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 25.4 mm USG Levelrock® 2500 Floor Underlayment, 18.8 mm OSB Sheathing, 88.9 mm Knauf EcoBatt® R13 Fiberglass Insulation, 235 mm 2x10 Dimensional Lumber, 0.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 16.3 mm CertainTeed Type C Gypsum Board				
SPECIMEN AREA	10.98 m²	**Maximum Temp.**	23.8°C	**Minimum Temp.**	23.8°C
TECHNICIAN	MAU	**Max. Humidity**	53%	**Min. Humidity**	53%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** m²	**NORMALIZED IMPACT SPL** (dB)	**95% SAMPLING LIMIT (dB)**	**NUMBER OF DEFICIENCIES**
50	32.8	34.6	70	1.3	-
63	36.0	19.1	64	3.9	-
80	35.2	14.3	61	2.1	-
100	27.8	7.9	61	1.5	3
125	31.3	7.8	60	1.4	2
160	27.3	8.0	60	0.8	2
200	24.2	8.5	60	0.6	2
250	19.3	10.0	60	0.8	2
315	17.7	8.5	58	0.4	0
400	18.6	7.9	57	0.5	0
500	16.6	7.3	56	0.3	0
630	15.8	7.1	56	0.2	1
800	16.8	7.0	54	0.3	0
1000	17.4	6.9	50	0.2	0
1250	16.6	7.1	46	0.2	0
1600	14.8	7.2	44	0.2	0
2000	11.9	7.8	45	0.2	1
2500	9.5	8.9	46	0.1	5
3150	8.1	9.5	43	0.2	5
4000	8.0	10.0	36	0.2	-
5000	8.6	11.1	30	0.3	-
6300	9.2	12.8	23	0.5	-
8000	9.8	14.3	15	0.4	-
10000	10.6	14.3	11	0.3	-
IIC Rating	**54**	*(Impact Insulation Class)*		**Sum of Deficiencies**	**23**

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

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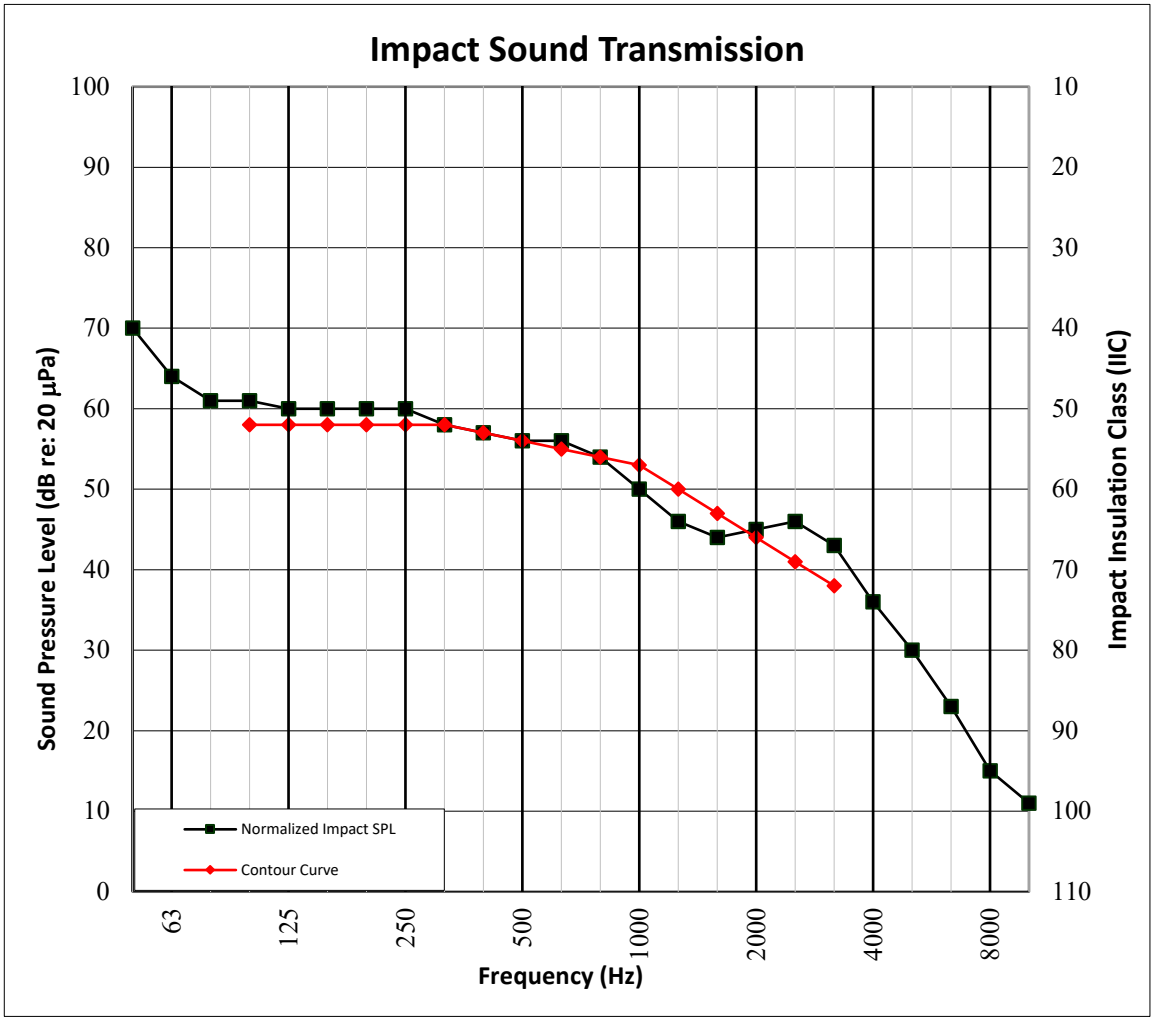
SECTION 13

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH

TEST DATE	7/26/2025				
DATA FILE NO.	S8156.01				
CLIENT	Laticrete International				
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 25.4 mm USG Levelrock® 2500 Floor Underlayment, 18.8 mm OSB Sheathing, 88.9 mm Knauf EcoBatt® R13 Fiberglass Insulation, 235 mm 2x10 Dimensional Lumber, 0.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 16.3 mm CertainTeed Type C Gypsum Board				
SPECIMEN AREA	10.98 m²	**Maximum Temp.**	23.8°C	**Minimum Temp.**	23.8°C
TECHNICIAN	MAU	**Max. Humidity**	53%	**Min. Humidity**	53%



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Date: 08/29/25

SECTION 14

TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION

TEST DATE	7/26/2025				
DATA FILE NO.	S8156.01				
CLIENT	Laticrete International				
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 25.4 mm USG Levelrock® 2500 Floor Underlayment, 18.8 mm OSB Sheathing, 88.9 mm Knauf EcoBatt® R13 Fiberglass Insulation, 235 mm 2x10 Dimensional Lumber, 0.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 16.3 mm CertainTeed Type C Gypsum Board				
SPECIMEN AREA	10.98 m²	**Maximum Temp.**	23.8°C	**Minimum Temp.**	23.8°C
TECHNICIAN	MAU	**Max. Humidity**	53%	**Min. Humidity**	53%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** m²	**NORMALIZED IMPACT SPL** (dB)	**95% SAMPLE CONFIDENCE LIMIT (dB)**	**NUMBER OF DEFICIENCIES**
400	18.6	7.9	57	0.5	0.9
500	16.6	7.3	56	0.3	0.9
630	15.8	7.1	56	0.2	2.3
800	16.8	7.0	54	0.3	0.6
1000	17.4	6.9	50	0.2	0.0
1250	16.6	7.1	46	0.2	0.0
1600	14.8	7.2	44	0.2	0.0
2000	11.9	7.8	45	0.2	2.3
2500	9.5	8.9	46	0.1	5.9
3150	8.1	9.5	43	0.2	6.0
HIIC Rating	**55**	*(High-Frequency Impact Insulation Class)*		**Sum of Deficiencies**	**19.0**

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

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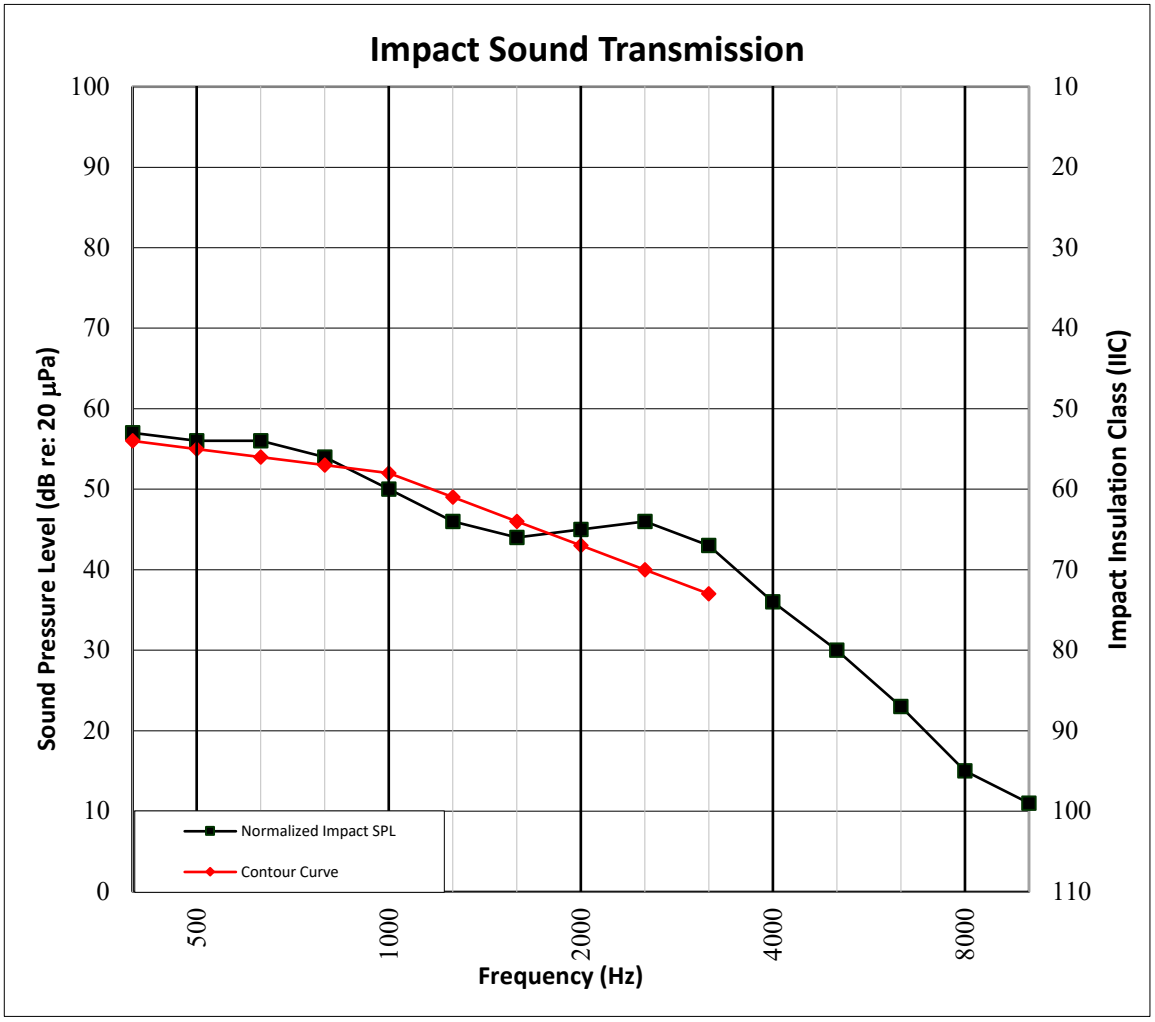
SECTION 15

TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION GRAPH

TEST DATE	7/26/2025				
DATA FILE NO.	S8156.01				
CLIENT	Laticrete International				
DESCRIPTION	7.5 mm Daltile Ceramic Tile, 5 mm Laticrete 170 Rubber Underlayment, 25.4 mm USG Levelrock® 2500 Floor Underlayment, 18.8 mm OSB Sheathing, 88.9 mm Knauf EcoBatt® R13 Fiberglass Insulation, 235 mm 2x10 Dimensional Lumber, 0.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 16.3 mm CertainTeed Type C Gypsum Board				
SPECIMEN AREA	10.98 m²	**Maximum Temp.**	23.8°C	**Minimum Temp.**	23.8°C
TECHNICIAN	MAU	**Max. Humidity**	53%	**Min. Humidity**	53%



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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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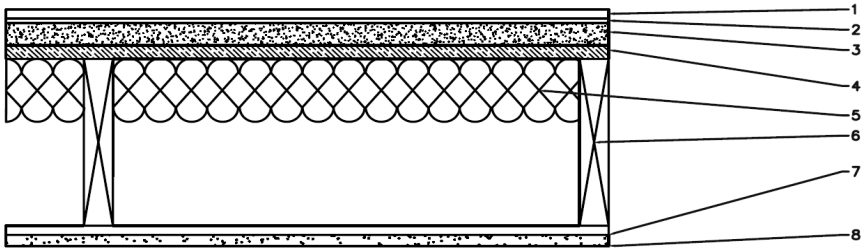
SECTION 17
DRAWING



1-Floor Topping
2-Underlayment
3-Subfloor Topping
4-Subfloor
5-Insulation
6-Joist
7-Ceiling Isolation
8-Ceiling

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SECTION 18
REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	08/29/25	N/A	Original Report Issue