

PALZIV NORTH AMERICA ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 AND ASTM E492 TESTING ON 7MM LIFEPROOF ENGINEERED HARDWOOD FLOORING OVER 3.2MM (1/8") ECO CORK FOAM UNDERLAYMENT

SPECIMEN TYPE

203 mm Concrete Slab with Suspended Ceiling and Isolated Subfloor

REPORT NUMBER

M6993.12-113-11-R0

TEST DATE

08/11/21

ISSUE DATE

09/07/21

RECORD RETENTION END

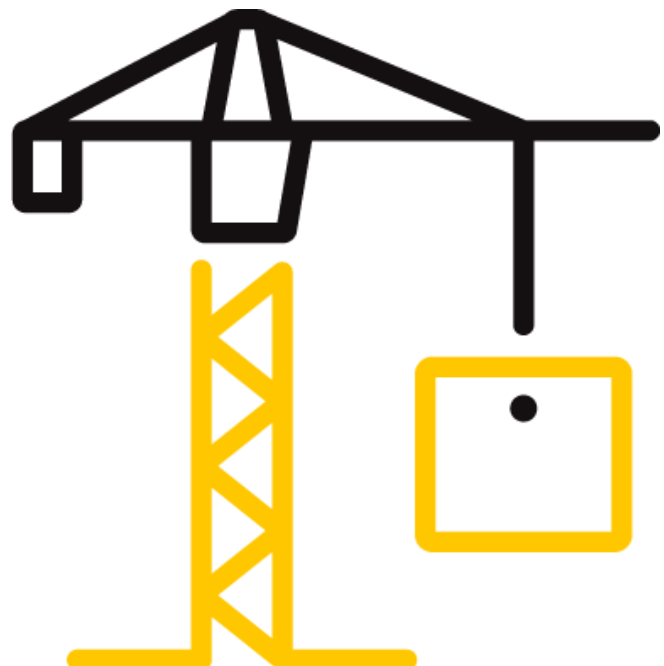
08/11/25

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TEST REPORT FOR PALZIV NORTH AMERICA

Report No.: M6993.12-113-11-R0

Date: 09/07/21

REPORT ISSUED TO

PALZIV NORTH AMERICA

7966 NC 56 Hwy

Louisburg, North Carolina 27549

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Palziv North America to perform testing in accordance with ASTM E90 AND ASTM E492 on 7mm Lifeproof Engineered Hardwood Flooring over 3.2mm (1/8") Eco Cork Foam 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.	M6993.12
SERIES/MODEL:	7mm Lifeproof Engineered Hardwood Flooring over 3.2mm (1/8") Eco Cork Foam Underlayment
STC	63
IIC	76
HIIC	87

COMPLETED BY: Corey S. Kohler
Technician - Acoustical
TITLE: Testing
SIGNATURE:
DATE: 09/07/21

COMPLETED BY: Daniel B. Mohler
Project Lead - Acoustical
TITLE: Testing
SIGNATURE:
DATE: 09/07/21

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SECTION 3**TEST METHODS**

The specimen was evaluated in accordance with the following:

ASTM E90-09 (2016), *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*

ASTM E413-16, *Classification for Rating Sound Insulation*

ASTM E492-09(2016)e1, *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 and Isolated Subfloor) 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 6326.1 kg. B&C will store samples of the test specimen for four years. Photographs of the test specimen are included in the report. The client did not supply drawings of the test specimen.

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
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	63763-1	10/20 *
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	63763-4	10/20 *
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	65124	02/21 *
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	65105	09/20
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64340	11/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65617	09/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65968	01/21
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT01089	02/21
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00652	02/21
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63810	10/20
				63811	10/20
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65969	04/21
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63742	03/21
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63747	09/20
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63745	09/20
Source Room Microphone	PCB Electronics	378C20	Microphone and Preamplifier	63744	09/20
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63812	10/20
Tapping Machine	Norsonic	Nor277	Tapping Machine	INT00936	01/21

* 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
Corey S. Kohler	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
Engineered Hardwood Flooring	1219.2 by 165.1	7.0	Lifeproof	10.98 m ²	11.03 kg/m ²
	Note: Loose laid				
Foam Underlayment	3023 by 914.4	3.2	(1/8") Eco Cork	10.98 m ²	0.39 kg/m ²
	Note: Loose laid				
OSB Subfloor	2438 by 1219	18.3	Huber Engineered Woods LLC AdvanTech®	10.98 m ²	12.4 kg/m ²
	Note: Installed with seams staggered, adhered with Liquid Nails Heavy Duty with ribbons no more than 254 mm apart, and fastened to first layer with 31.75 mm coarse thread wood screws on 305 mm centers along the perimeter and in the field.				
OSB Subfloor	2438 by 1219	18.3	Huber Engineered Woods LLC AdvanTech®	10.98 m ²	12.4 kg/m ²
	Note: Loose laid on the noise control underlayment				
Noise Control Underlayment	1219 by 2438	25.2	Kinetics Noise Control Ultra Quiet SR	10.98 m ²	1.56 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	8/11/2021				
DATA FILE NO.	M6993.12				
CLIENT	Palziv North America				
DESCRIPTION	7 mm Lifeproof Engineered Hardwood Flooring, 3.2 mm (1/8") Eco Cork Foam Underlayment, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 25.21 mm Kinetics Noise Control Ultra Quiet SR Noise Control 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.	22.9°C	Source Temp.	23.6°C
TECHNICIAN	CSK	Receive Humidity	74%	Source Humidity	74%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
50	36.4	28.1	100	66	31	3.8	-
63	33.3	21.1	97	63	33	5.2	-
80	32.7	16.7	96	61	35	2.4	-
100	26.3	10.6	94	61	35	2.4	-
125	25.5	11.3	96	55	41	1.7	6
160	22.4	10.7	94	54	42	0.9	8
200	18.8	10.7	96	47	50	1.1	3
250	16.3	10.9	100	46	54	1.1	2
315	17.7	10.6	102	47	56	1.0	3
400	15.2	9.9	102	44	61	0.6	1
500	16.5	9.1	101	39	64	0.8	0
630	18.4	9.0	103	39	66	0.7	0
800	17.7	8.7	102	37	67	0.6	0
1000	18.3	8.6	102	37	67	0.7	0
1250	16.5	8.9	102	36	69	0.6	0
1600	13.6	9.0	102	36	68	0.3	0
2000	12.7	10.0	102	34	70	0.6	0
2500	10.2	11.1	101	32	69	0.4	0
3150	9.7	11.8	102	30	73	0.4	0
4000	10.6	13.0	103	29	74	0.6	0
5000	10.4	14.3	103	26	76	0.4	-
6300	10.1	16.9	97	16	81	0.7	-
8000	10.7	20.7	98	12	84	0.8	-
10000	10.5	20.7	92	8	83	0.5	-
STC Rating	63	<i>(Sound Transmission Class)</i>			Sum of Deficiencies	23	

- Notes:**
- 1) Receive Room levels less than 5 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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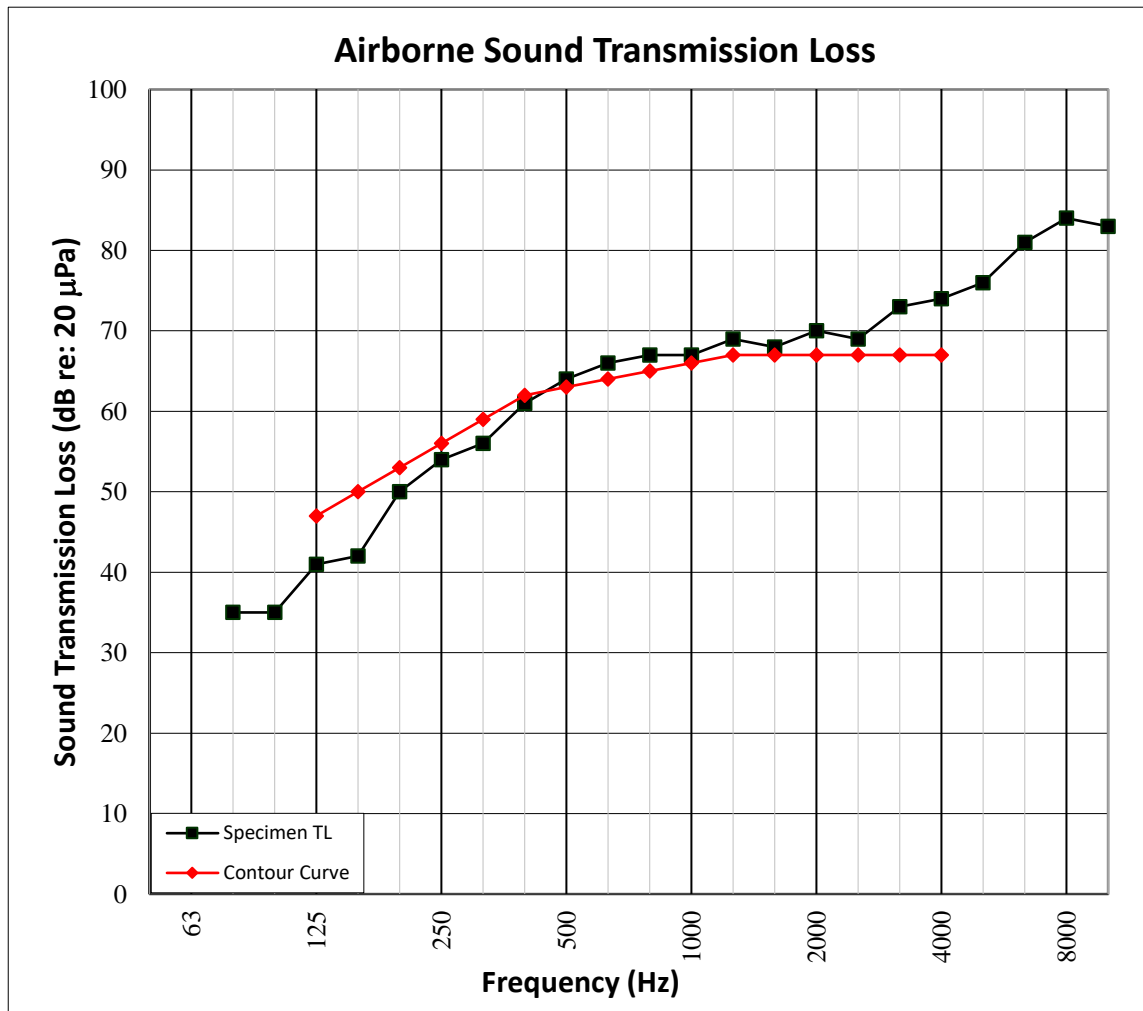
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SECTION 11

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH



TEST DATE	8/11/2021				
DATA FILE NO.	M6993.12				
CLIENT	Palziv North America				
DESCRIPTION	7 mm Lifeproof Engineered Hardwood Flooring, 3.2 mm (1/8") Eco Cork Foam Underlayment, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 25.21 mm Kinetics Noise Control Ultra Quiet SR Noise Control 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.	22.9°C	Source Temp.	23.6°C
TECHNICIAN	CSK	Receive Humidity	74%	Source Humidity	74%



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SECTION 12

TEST RESULTS - IMPACT SOUND TRANSMISSION



TEST DATE	8/11/2021				
DATA FILE NO.	M6993.12				
CLIENT	Palziv North America				
DESCRIPTION	7 mm Lifeproof Engineered Hardwood Flooring, 3.2 mm (1/8") Eco Cork Foam Underlayment, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 25.21 mm Kinetics Noise Control Ultra Quiet SR Noise Control 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.	23°C	Minimum Temp.	22.7°C
TECHNICIAN	CSK	Max. Humidity	75%	Min. Humidity	72%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	35.9	16.1	51	1.8	-
100	30.7	11.4	44	1.4	8
125	27.1	11.6	39	1.4	3
160	26.2	10.0	37	0.7	1
200	19.7	11.0	32	0.5	0
250	17.4	10.7	29	0.5	0
315	19.1	10.4	29	0.8	0
400	15.6	10.0	23	0.6	0
500	16.8	9.4	20	0.6	0
630	19.3	9.3	21	0.6	0
800	17.2	9.0	18	0.5	0
1000	17.7	8.6	17	0.8	0
1250	17.2	8.8	16	0.7	0
1600	14.1	8.9	16	1.0	0
2000	13.0	10.0	13	0.9	0
2500	10.6	11.0	11	0.7	0
3150	10.2	11.8	13	0.8	0
4000	10.9	13.0	11	0.8	-
5000	10.4	14.2	10	0.4	-
6300	10.2	16.7	10	0.4	-
8000	10.8	20.6	10	0.2	-
10000	10.5	20.6	10	0.2	-
IIC Rating	76	<i>(Impact Insulation Class)</i>		Sum of Deficiencies	12

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

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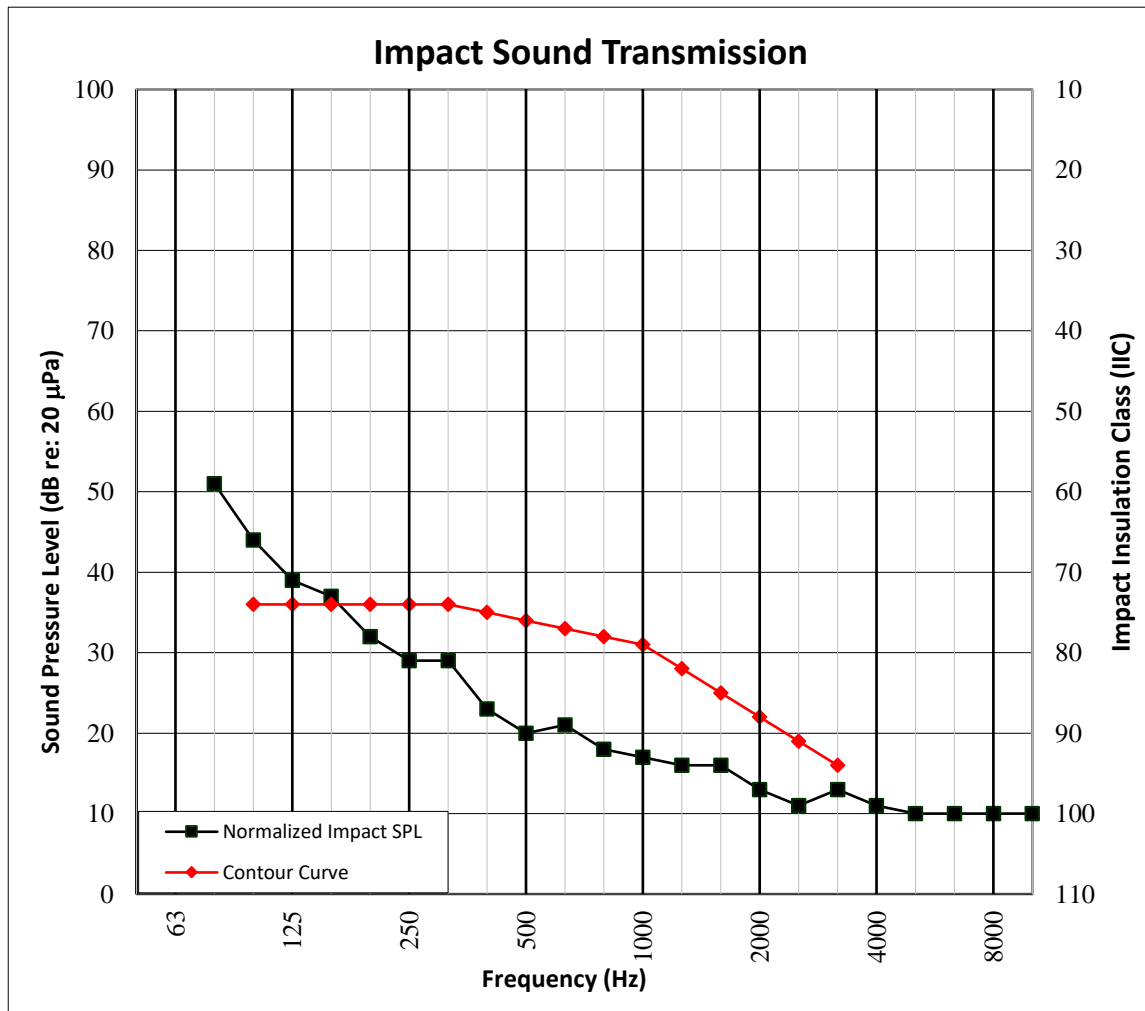
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SECTION 13

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH



TEST DATE	8/11/2021				
DATA FILE NO.	M6993.12				
CLIENT	Palziv North America				
DESCRIPTION	7 mm Lifeproof Engineered Hardwood Flooring, 3.2 mm (1/8") Eco Cork Foam Underlayment, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 25.21 mm Kinetics Noise Control Ultra Quiet SR Noise Control 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.	23°C	Minimum Temp.	22.7°C
TECHNICIAN	CSK	Max. Humidity	75%	Min. Humidity	72%



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SECTION 14

TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION



TEST DATE	8/11/2021				
DATA FILE NO.	M6993.12				
CLIENT	Palziv North America				
DESCRIPTION	7 mm Lifeproof Engineered Hardwood Flooring, 3.2 mm (1/8") Eco Cork Foam Underlayment, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 25.21 mm Kinetics Noise Control Ultra Quiet SR Noise Control 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.	23°C	Minimum Temp.	22.7°C
TECHNICIAN	CSK	Max. Humidity	75%	Min. Humidity	72%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
400	15.6	10.0	23	0.6	0.0
500	16.8	9.4	20	0.6	0.0
630	19.3	9.3	21	0.6	0.0
800	17.2	9.0	18	0.5	0.0
1000	17.7	8.6	17	0.8	0.0
1250	17.2	8.8	16	0.7	0.0
1600	14.1	8.9	16	1.0	2.3
2000	13.0	10.0	13	0.9	2.1
2500	10.6	11.0	11	0.7	3.4
3150	10.2	11.8	13	0.8	7.6
HIIC Rating	87	<i>(High-Frequency Impact Insulation Class)</i>		Sum of Deficiencies	15.4

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

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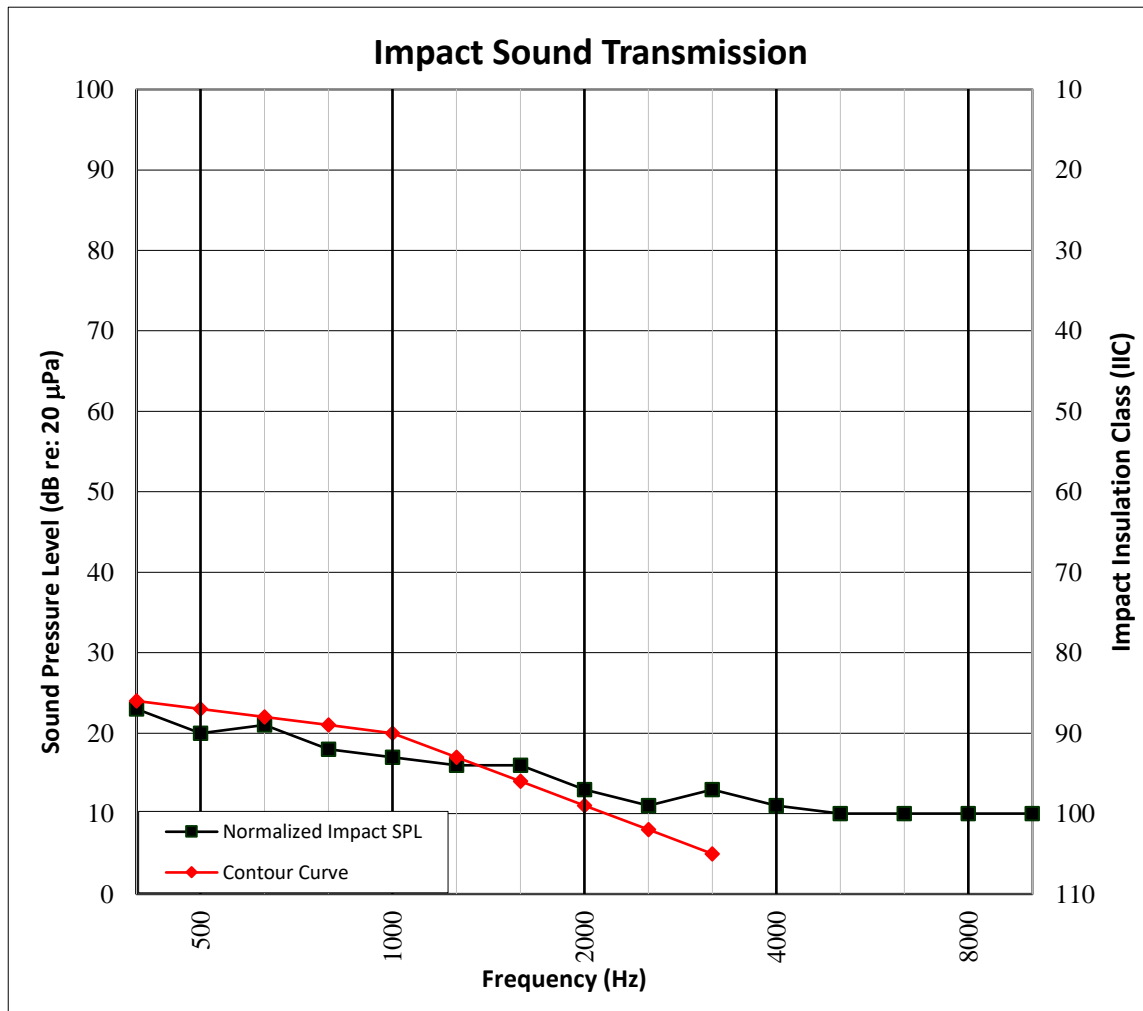
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SECTION 15

TEST RESULTS -HIGH-FREQUENCY IMPACT SOUND TRANSMISSION GRAPH



TEST DATE	8/11/2021				
DATA FILE NO.	M6993.12				
CLIENT	Palziv North America				
DESCRIPTION	7 mm Lifeproof Engineered Hardwood Flooring, 3.2 mm (1/8") Eco Cork Foam Underlayment, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 18.3 mm Huber Engineered Woods LLC AdvanTech® OSB Subfloor, 25.21 mm Kinetics Noise Control Ultra Quiet SR Noise Control 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.	23°C	Minimum Temp.	22.7°C
TECHNICIAN	CSK	Max. Humidity	75%	Min. Humidity	72%



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SECTION 16

PHOTOGRAPHS

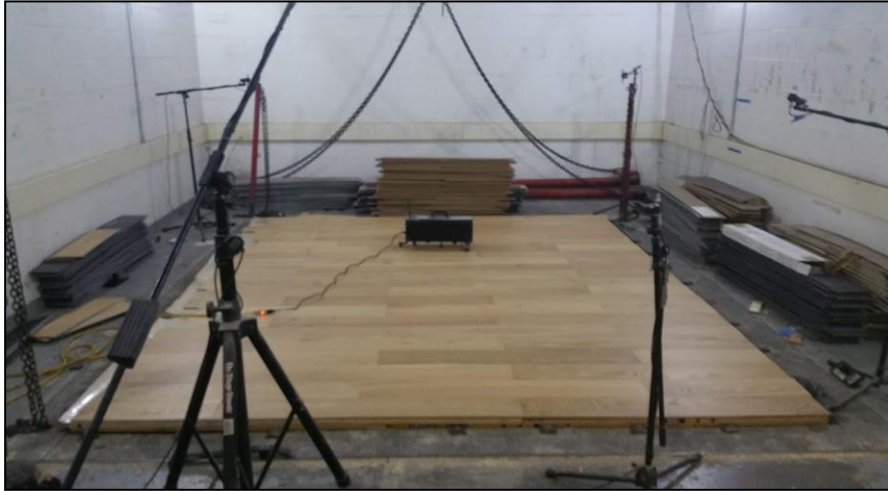


Photo No. 1

Source Room View of Test Specimen Installation



Photo No. 2

Receive Room View of Test Specimen Installation

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SECTION 17

REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	09/07/21	N/A	Original Report Issue