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VICONIC HEALTH ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK
ASTM E90 AND ASTM E492 TESTING ON 2.2 MM COMMERCIAL SHEET FLOORING OVER 11 MM VICONIC SAFETY FLOORING™ UNDERLAYMENT

SPECIMEN TYPE
Open Web Truss - 457 mm

REPORT NUMBER
N6747.07-113-11-R0

TEST DATE
05/03/22

ISSUE DATE
05/06/22

RECORD RETENTION END
05/03/26

PAGES
15

DOCUMENT CONTROL
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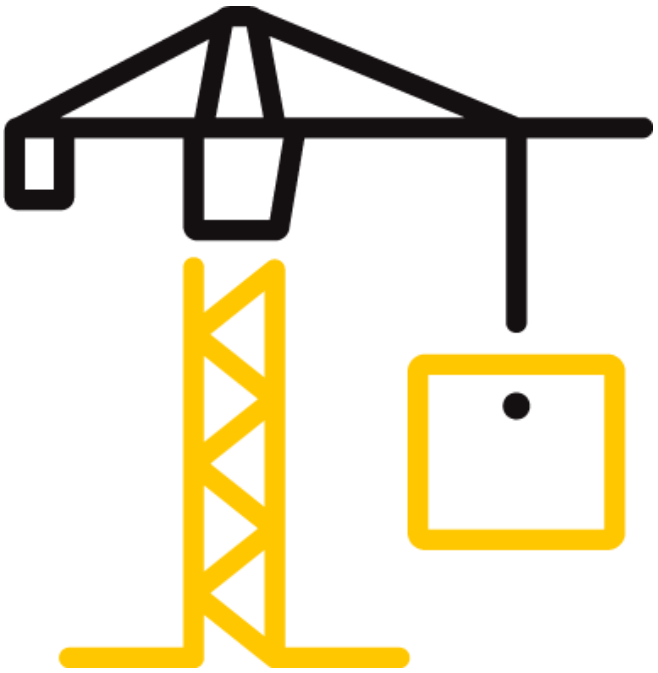

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TEST REPORT FOR VICONIC HEALTH
Report No.: N6747.07-113-11-R0
Date: 05/06/22

REPORT ISSUED TO
VICONIC HEALTH
1100 Oakwood Boulevard
Dearborn, Michigan 48124

SECTION 1
SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Viconic Health to perform testing in accordance with ASTM E90 AND ASTM E492 on 2.2 mm Commercial Sheet Flooring over 11 mm VICONIC SAFETY FLOORING™ 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.	N6747.03
SERIES/MODEL:	2.2 mm Commercial Sheet Flooring over 11 mm VICONIC SAFETY FLOORING™ Underlayment
STC	57
IIC	52
HIIC	64

COMPLETED BY:	Morgan S. J. Kennedy	**COMPLETED BY:**	Daniel B. Mohler
TITLE:	Technician - Acoustical Testing	**TITLE:**	Project Lead - Acoustical Testing
SIGNATURE:	Digitally Signed by: Morgan Kennedy	**SIGNATURE:**	Digitally Signed by: Daniel Mohler
DATE:	05/06/22	**DATE:**	05/06/22

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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 (Open Web Truss - 457 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 879.2 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	INT02572	05/21	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02574	05/21	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02575	05/21	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02576	05/21	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02577	05/21	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02578	05/21	*
2-Channel Analog Output	National Instruments	NI 9260	2-Channel Analog Input	INT02573	05/21	*
Microphone Calibrator	Norsonic	34093	Acoustical Calibrator	65105	10/21	
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63745	09/21	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63747	07/21	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64340	10/21	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63744	09/21	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65968	01/22	
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63810	10/21	
				63811	10/21	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65103	02/22	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64902	12/21	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63741	07/21	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63742	04/22	
Source Room Microphone	PCB Electronics	378C20	Microphone and Preamplifier	64906	04/22	
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63812	10/21	
Tapping Machine	Norsonic	Nor277	Tapping Machine	INT00936	02/22	

* 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
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.

The details of this construction are noted as proprietary per the customer's request. Reference should be made to Intertek-ATI Report N6747.03-113-11 for detailed information on the specific construction.

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
Commercial Sheet Flooring	1828.8 by 3632	2.2	N/A	10.98 m²	3.42 kg/m²
	Note: Adhered to the underlayment with the manufacturer's adhesive using a 0.79 mm by 1.59 mm by 0.79 mm trowel. Adhesive was allowed to cure per manufacturer's specifications.				
Underlayment	774.7 by 1524	11.0	VICONIC SAFETY FLOORING™	10.98 m²	2.1 kg/m²
	Note: Loose laid				
Gypsum Concrete	3022.6 by 3632.2	19.1	N/A	10.98 m²	36.62 kg/m²
	Note: Poured directly onto the subfloor underlayment, cured a minimum of 14 days. The gypsum panel had a closed cell foam perimeter isolation. No noticeable shrinkage or cracking was visible on the specimen.				
Oriented Strand Board Sheathing	1219 by 2438	18.8	N/A	10.98 m²	11.67 kg/m²
	Note: Adhered to the floor trusses with Loctite PL 400 Subfloor adhesive. Fastened with 9D nails on 203 mm centers along perimeter and 305 mm centers along trusses.				
Fiberglass Insulation	520.7 by 3023	88.9	N/A	10.98 m²	1.32 kg/m²
	Note: Installed in the cavity between trusses, stapled flush with the subfloor				
Open Web Truss	88.9 by 2933.7	457.2	N/A	7 trusses	19.05 kg/truss
	Note: Installed on 610 mm centers using JUS414 hanger brackets.				
Resilient Channel	68.6 by 3454.4	12.7	ClarkDietrich RC Deluxe™	31.05 lin m	0.33 kg/m
	Note: Installed on 305 mm centers perpendicular to the trusses. The measured thickness of the metal was 0.7 mm.				
Gypsum Panel	1219 by 3023	15.9	Type C	10.98 m²	11.91 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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TEST REPORT FOR VICONIC HEALTH

Report No.: N6747.07-113-11-R0
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SECTION 10

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS

IAS ACCREDITED Testing Laboratory

TEST DATE	5/3/2022				
DATA FILE NO.	N6747.03				
CLIENT	Viconic Health				
DESCRIPTION	2.2 mm Commercial Sheet Flooring, 11 mm VICONIC SAFETY FLOORING™ Underlayment, 19.1 mm Gypsum Concrete, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Fiberglass Insulation, 457.2 mm Open Web Truss, 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 15.9 mm Type C Gypsum Panel				
SPECIMEN AREA	10.98 m²	**Receive Temp.**	16.2°C	**Source Temp.**	17.6°C
TECHNICIAN	MSJK	**Receive Humidity**	70%	**Source Humidity**	70%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** m²	**SOURCE SPL** (dB)	**RECEIVE SPL** (dB)	**SPECIMEN TL** (dB)	**95% SAMPLING LIMIT**	**NUMBER OF DEFICIENCIES**
50	36.6	26.4	105	75	28	4.9	-
63	32.1	18.3	104	72	31	5.0	-
80	36.1	14.7	99	69	29	2.5	-
100	30.8	8.5	98	64	37	2.4	-
125	32.7	10.0	100	61	41	2.5	0
160	25.3	9.2	98	57	43	1.4	1
200	20.6	10.1	94	51	45	1.0	2
250	16.0	9.4	96	50	48	1.4	2
315	18.1	9.2	99	52	48	0.9	5
400	18.6	7.9	98	49	51	0.7	5
500	18.0	7.1	96	44	54	0.5	3
630	21.1	7.2	97	44	55	0.7	3
800	20.2	7.5	96	41	57	0.7	2
1000	20.5	7.4	96	38	60	0.5	0
1250	20.1	7.4	96	33	65	0.5	0
1600	15.2	7.5	96	32	67	0.5	0
2000	12.6	8.6	96	31	67	0.3	0
2500	10.5	9.4	91	25	68	0.5	0
3150	8.5	10.1	91	21	72	0.6	0
4000	7.6	11.2	90	18	73	0.5	0
5000	8.1	12.8	88	11	78	0.6	-
6300	8.4	15.8	86	8	77	1.0	-
8000	9.0	20.3	86	8	76	1.1	-
10000	9.3	20.3	84	8	75	1.4	-
STC Rating	**57**	*(Sound Transmission Class)*			**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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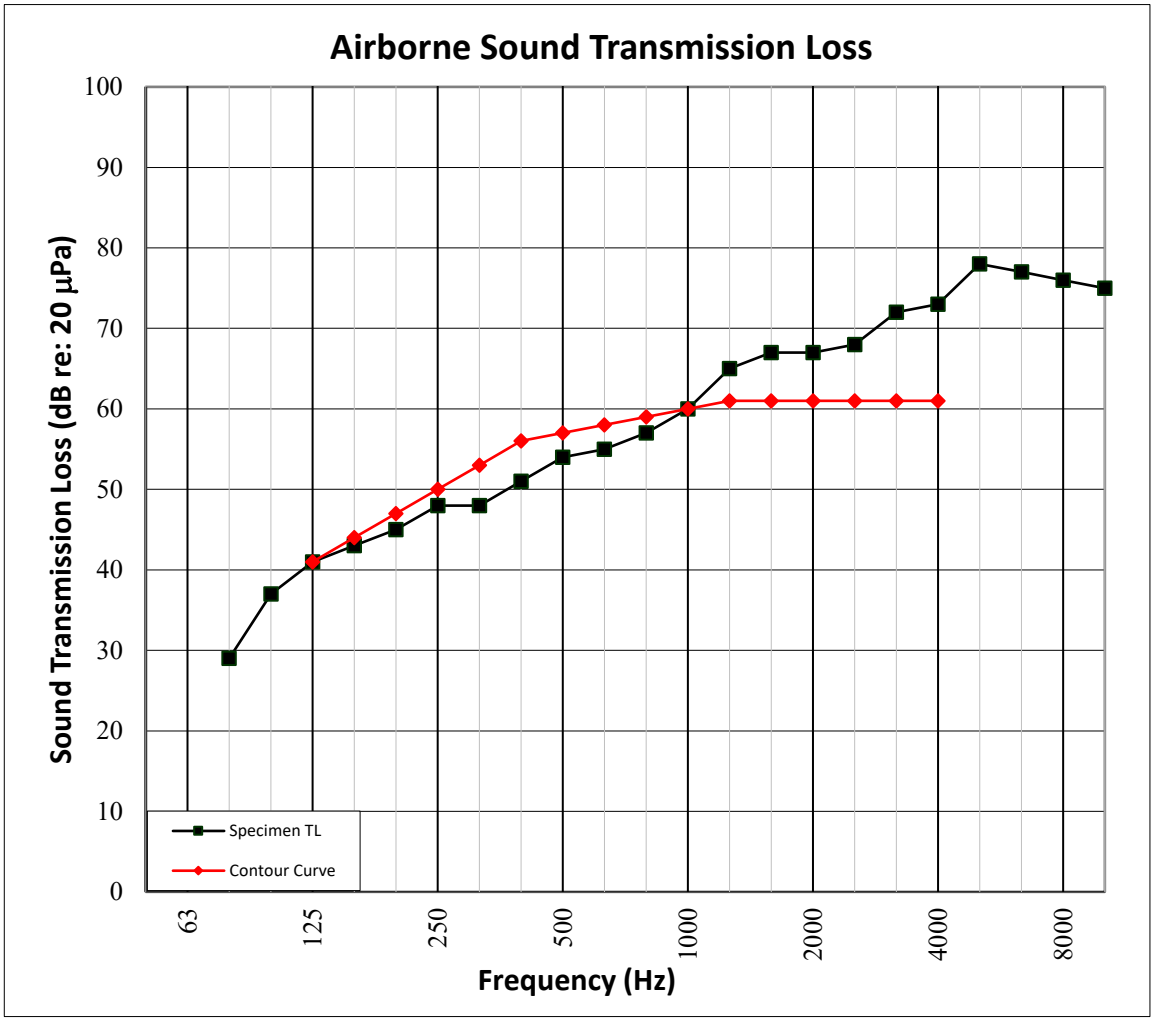
SECTION 11
TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH

TEST DATE	5/3/2022				
DATA FILE NO.	N6747.03				
CLIENT	Viconic Health				
DESCRIPTION	2.2 mm Commercial Sheet Flooring, 11 mm VICONIC SAFETY FLOORING™ Underlayment, 19.1 mm Gypsum Concrete, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Fiberglass Insulation, 457.2 mm Open Web Truss, 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 15.9 mm Type C Gypsum Panel				
SPECIMEN AREA	10.98 m²	**Receive Temp.**	16.2°C	**Source Temp.**	17.6°C
TECHNICIAN	MSJK	**Receive Humidity**	70%	**Source Humidity**	70%



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TEST REPORT FOR VICONIC HEALTH

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SECTION 12

TEST RESULTS - IMPACT SOUND TRANSMISSION

IAS ACCREDITED Testing Laboratory

TEST DATE	5/3/2022				
DATA FILE NO.	N6747.03				
CLIENT	Viconic Health				
DESCRIPTION	2.2 mm Commercial Sheet Flooring, 11 mm VICONIC SAFETY FLOORING™ Underlayment, 19.1 mm Gypsum Concrete, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Fiberglass Insulation, 457.2 mm Open Web Truss, 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 15.9 mm Type C Gypsum Panel				
SPECIMEN AREA	10.98 m²	**Maximum Temp.**	16.2°C	**Minimum Temp.**	16.2°C
TECHNICIAN	MSJK	**Max. Humidity**	70%	**Min. Humidity**	70%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** m²	**NORMALIZED IMPACT SPL** (dB)	**95% SAMPLING LIMIT**	**NUMBER OF DEFICIENCIES**
80	32.4	14.1	71	1.7	-
100	28.9	8.2	65	1.4	5
125	32.8	10.8	66	0.6	6
160	22.1	9.6	67	0.9	7
200	20.2	9.9	67	0.6	7
250	15.3	9.4	64	0.6	4
315	19.1	9.2	62	0.4	2
400	16.6	7.9	59	0.7	0
500	19.0	7.3	53	0.5	0
630	19.9	7.1	45	0.3	0
800	19.0	7.4	38	0.4	0
1000	19.9	7.3	31	0.3	0
1250	21.1	7.4	26	0.3	0
1600	13.8	7.5	24	0.3	0
2000	11.4	8.5	25	0.2	0
2500	9.7	9.3	22	0.3	0
3150	8.1	10.0	15	0.6	0
4000	7.7	11.2	9	0.9	-
5000	8.1	12.8	8	1.0	-
6300	8.4	15.7	9	1.1	-
8000	9.1	20.3	10	1.1	-
10000	9.3	20.3	10	1.1	-
IIC Rating	**52**	*(Impact Insulation Class)*		**Sum of Deficiencies**	**31**

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

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TEST REPORT FOR VICONIC HEALTH

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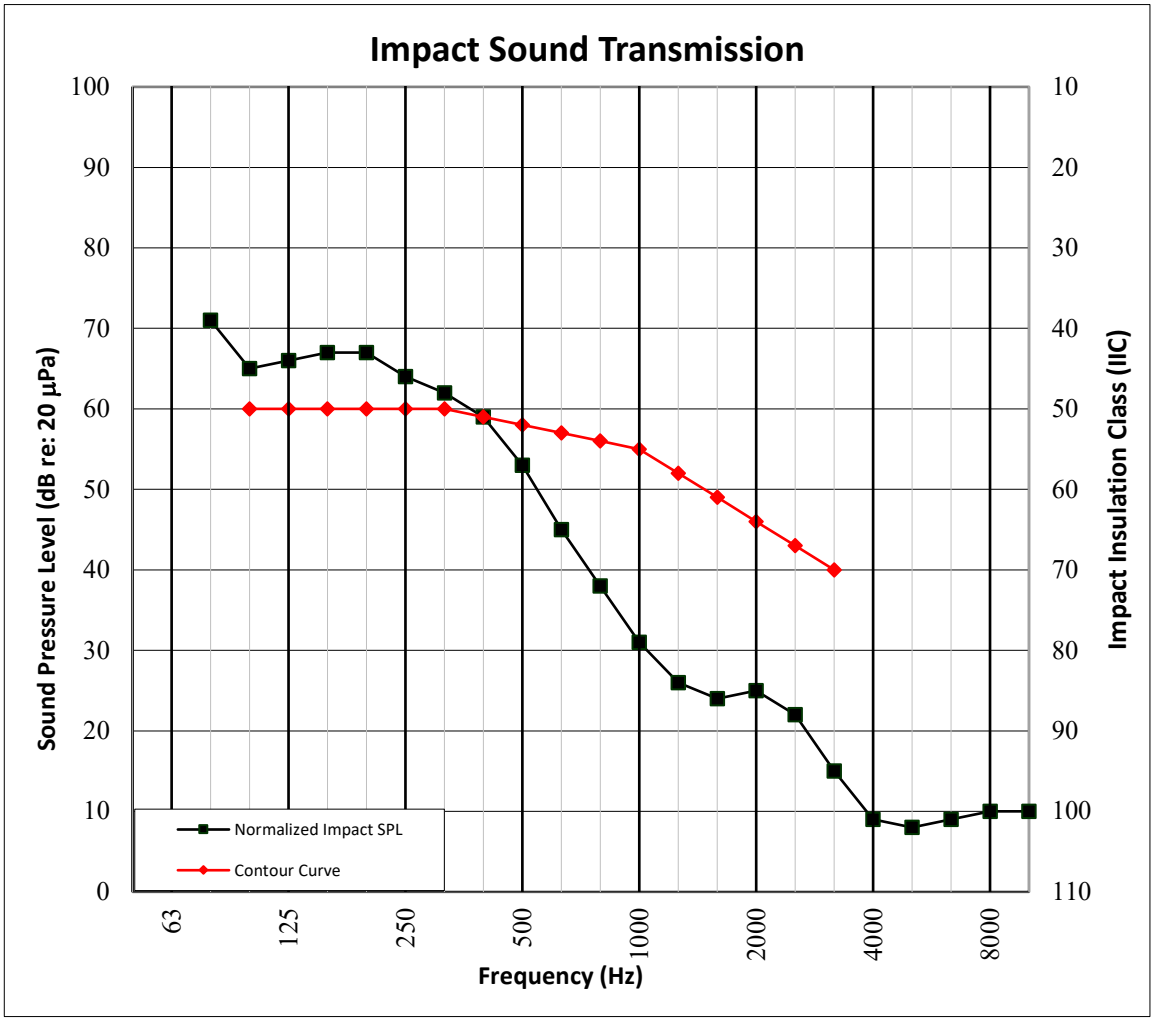
SECTION 13

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH

TEST DATE	5/3/2022				
DATA FILE NO.	N6747.03				
CLIENT	Viconic Health				
DESCRIPTION	2.2 mm Commercial Sheet Flooring, 11 mm VICONIC SAFETY FLOORING™ Underlayment, 19.1 mm Gypsum Concrete, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Fiberglass Insulation, 457.2 mm Open Web Truss, 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 15.9 mm Type C Gypsum Panel				
SPECIMEN AREA	10.98 m²	**Maximum Temp.**	16.2°C	**Minimum Temp.**	16.2°C
TECHNICIAN	MSJK	**Max. Humidity**	70%	**Min. Humidity**	70%



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TEST REPORT FOR VICONIC HEALTH

Report No.: N6747.07-113-11-R0
Date: 05/06/22

SECTION 14

TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION

TEST DATE	5/3/2022				
DATA FILE NO.	N6747.03				
CLIENT	Viconic Health				
DESCRIPTION	2.2 mm Commercial Sheet Flooring, 11 mm VICONIC SAFETY FLOORING™ Underlayment, 19.1 mm Gypsum Concrete, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Fiberglass Insulation, 457.2 mm Open Web Truss, 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 15.9 mm Type C Gypsum Panel				
SPECIMEN AREA	10.98 m²	**Maximum Temp.**	16.2°C	**Minimum Temp.**	16.2°C
TECHNICIAN	MSJK	**Max. Humidity**	70%	**Min. Humidity**	70%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** m²	**NORMALIZED IMPACT SPL** (dB)	**95% SAMPLE CONFIDENCE LIMIT**	**NUMBER OF DEFICIENCIES**
400	16.6	7.9	59	0.7	11.5
500	19.0	7.3	53	0.5	6.7
630	19.9	7.1	45	0.3	0.5
800	19.0	7.4	38	0.4	0.0
1000	19.9	7.3	31	0.3	0.0
1250	21.1	7.4	26	0.3	0.0
1600	13.8	7.5	24	0.3	0.0
2000	11.4	8.5	25	0.2	0.0
2500	9.7	9.3	22	0.3	0.0
3150	8.1	10.0	15	0.6	0.0
HIIC Rating	**64**	*(High-Frequency Impact Insulation Class)*		**Sum of Deficiencies**	**18.7**

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

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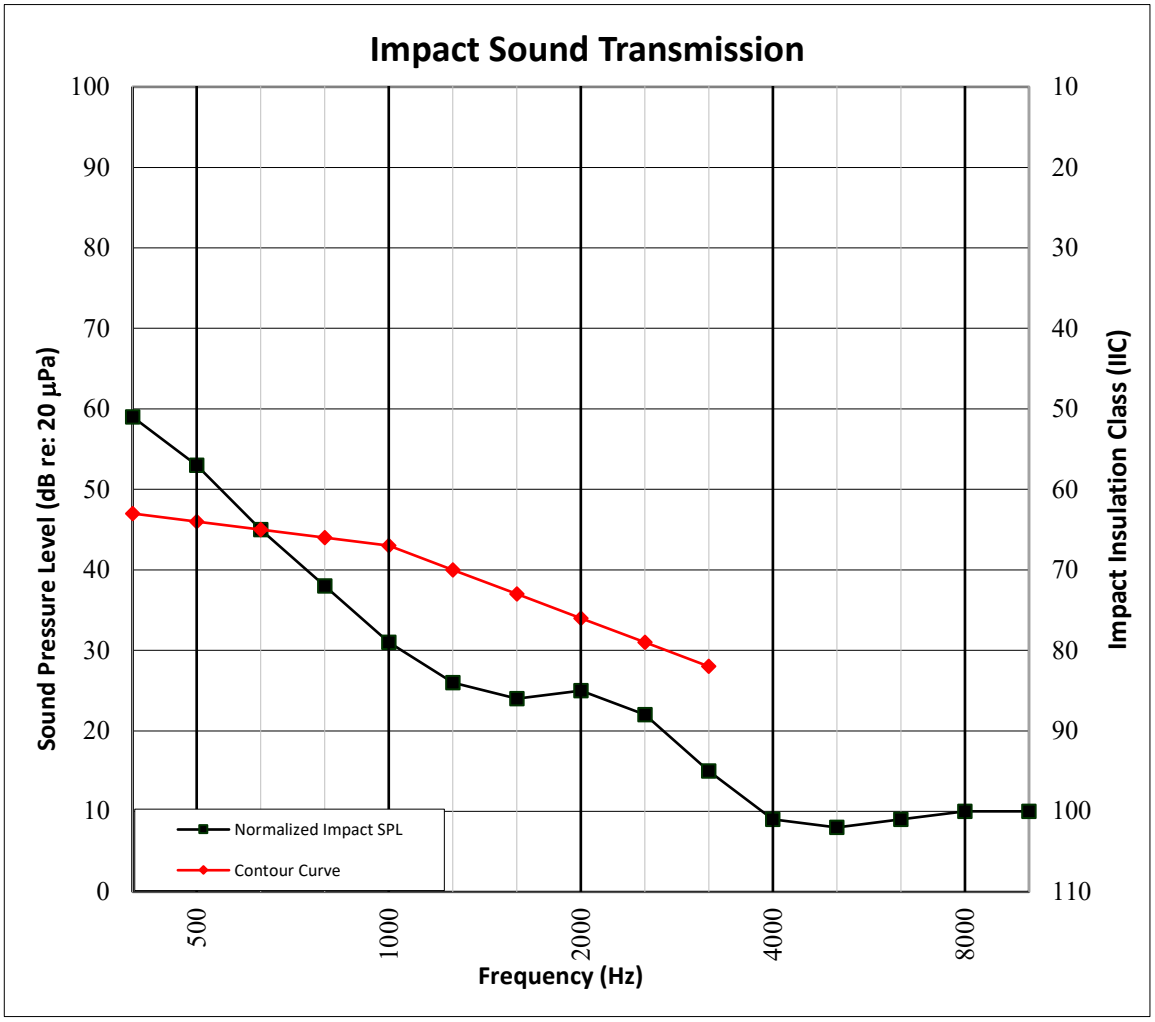
SECTION 15

TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION GRAPH

TEST DATE	5/3/2022				
DATA FILE NO.	N6747.03				
CLIENT	Viconic Health				
DESCRIPTION	2.2 mm Commercial Sheet Flooring, 11 mm VICONIC SAFETY FLOORING™ Underlayment, 19.1 mm Gypsum Concrete, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Fiberglass Insulation, 457.2 mm Open Web Truss, 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 15.9 mm Type C Gypsum Panel				
SPECIMEN AREA	10.98 m²	**Maximum Temp.**	16.2°C	**Minimum Temp.**	16.2°C
TECHNICIAN	MSJK	**Max. Humidity**	70%	**Min. Humidity**	70%



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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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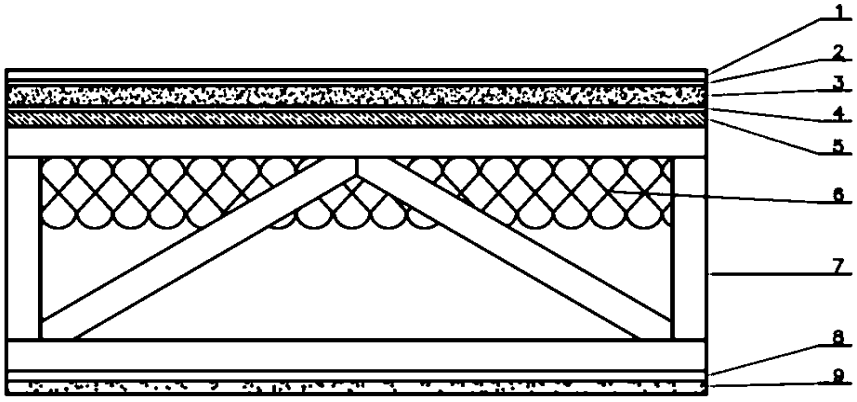
SECTION 17
DRAWING



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

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SECTION 18
REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	05/06/22	N/A	Original Report Issue