

KÄHRS INTERNATIONAL ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E492 AND ASTM E2179 TESTING ON
AWARE COLLECTION LUXURY VINYL-FREE PLANK FLOORING

SPECIMEN TYPE

Concrete Slab - 152 mm

REPORT NUMBER

Q3849.01-113-11-R0

TEST DATE

08/07/23

ISSUE DATE

08/29/23

RECORD RETENTION END

08/07/27

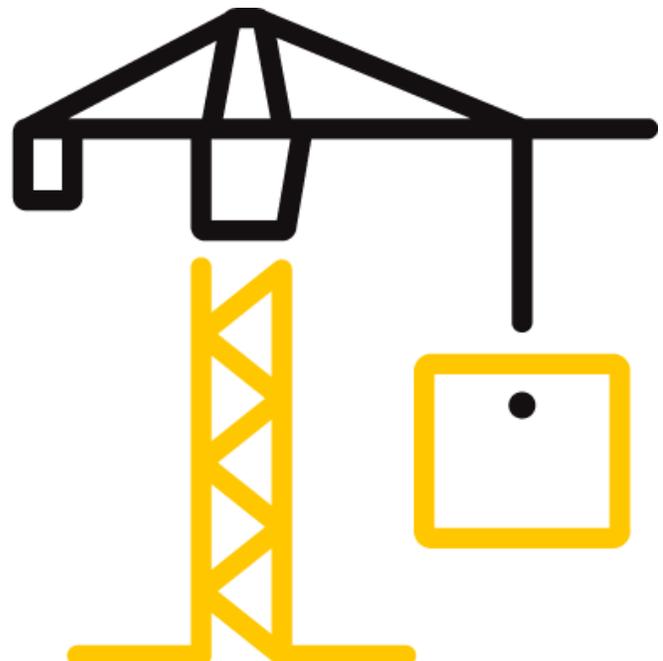
PAGES

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DOCUMENT CONTROL

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

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TEST REPORT FOR KÄHRS INTERNATIONAL

Report No.: Q3849.01-113-11-R0

Date: 08/29/23

REPORT ISSUED TO

KÄHRS INTERNATIONAL

317 Northlake Boulevard, Suite 1016

Altamonte Springs, Florida 32714

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Kährs International to perform testing in accordance with ASTM E492 AND ASTM E2179 on Aware Collection Luxury Vinyl-Free Plank Flooring. 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.	Q3849.01
SERIES/MODEL:	Aware Collection Luxury Vinyl-Free Plank Flooring
IIC	51
IIC	51
ΔIIC	21
HIIC	51
ΔHIIC	22

COMPLETED BY: Corey S. Kohler
Technician - Acoustical

TITLE: Testing

SIGNATURE:

DATE: 08/29/23

REVIEWED BY: Jordan Strybos
Project Engineer - Acoustical

TITLE: Testing

SIGNATURE:

DATE: 08/29/23

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SECTION 3**TEST METHODS**

The specimen was evaluated in accordance with the following:

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

ASTM E2179-21, Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors

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 (Concrete Slab - 152 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 4102.1 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	INT02586	03/23	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02587	03/23	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02608	03/23	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02609	03/23	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02610	03/23	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02612	03/23	*
2-Channel Analog Output	National Instruments	NI 9260	2-Channel Analog Output	INT02611	N/A	*
Microphone Calibrator	Norsonic	34093	Acoustical Calibrator	65105	10/22	
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63739	03/23	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT02910	02/23	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT02911	02/23	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63742	03/23	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63741	05/23	
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63810	10/22	
				63811	10/22	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63740	03/23	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64905	03/23	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65103	02/23	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64910	02/23	
Source Room Microphone	PCB Electronics	378C20	Microphone and Preamplifier	INT01089	02/23	
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63812	10/22	
Tapping Machine	Norsonic	Nor277	Tapping Machine	INT03333	02/23	

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

VT RECEIVE ROOM VOLUME	158.86 m ³
VT SOURCE ROOM VOLUME	190 m ³

SECTION 6 LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Michael A. Unnone	Intertek B&C
Jordan Strybos	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 maximum and minimum temperatures and humidities of the receive room from the duration of the test are listed in Sections 10 through 13.

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 delta impact insulation test was conducted in accordance with ASTM E2179 test method. In addition to the impact sound transmission test, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E492 with only the concrete slab installed 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 IIC (Impact Insulation Class), HIIC (High-Frequency Impact Insulation Class) and Δ IIC (Delta Impact Insulation Class) ratings were calculated in accordance with ASTM E989, ASTM E3222 and ASTM E2179, respectively.

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SECTION 9

TEST SPECIMEN DESCRIPTION

MATERIAL	DIMENSIONS (mm)	THICKNESS (mm)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Luxury Vinyl-Free Flooring	1815 by 200	9.0	Kährs Aware Collection	10.98 m ²	7.42 kg/m ²
	Note: Loose laid. The flooring had an attached cork pad backing.				
Concrete Slab	3023 by 3632	152.4	5000 PSI	10.98 m ²	366.18 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 - IMPACT SOUND TRANSMISSION



TEST DATE	8/7/2023				
DATA FILE NO.	Q3849.01				
CLIENT	Kährs International				
DESCRIPTION	9 mm Kährs Aware Collection Luxury Vinyl-Free Flooring, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	23.8°C	Minimum Temp.	23.8°C
TECHNICIAN	MAU	Max. Humidity	58%	Min. Humidity	58%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% SAMPLING LIMIT	NUMBER OF DEFICIENCIES
80	34.3	13.3	56	1.9	-
100	26.4	11.4	56	1.1	0
125	26.8	9.8	57	1.4	0
160	21.8	9.4	62	1.0	1
200	18.8	11.2	64	0.6	3
250	16.7	10.1	64	0.7	3
315	16.5	10.6	66	0.4	5
400	15.9	9.2	65	0.5	5
500	16.7	8.7	64	0.5	5
630	19.2	8.8	63	0.3	5
800	17.1	8.9	60	0.5	3
1000	19.8	8.9	57	0.5	1
1250	25.8	8.8	52	0.6	0
1600	15.5	8.9	45	0.6	0
2000	15.1	9.5	37	0.7	0
2500	13.0	10.5	33	0.9	0
3150	15.0	10.8	27	1.1	0
4000	11.0	11.6	22	1.4	-
5000	9.2	13.1	16	1.3	-
6300	9.0	14.8	10	1.0	-
8000	9.4	14.8	9	0.8	-
10000	10.0	14.8	10	0.7	-
IIC Rating	51	<i>(Impact Insulation Class)</i>		Sum of Deficiencies	31

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

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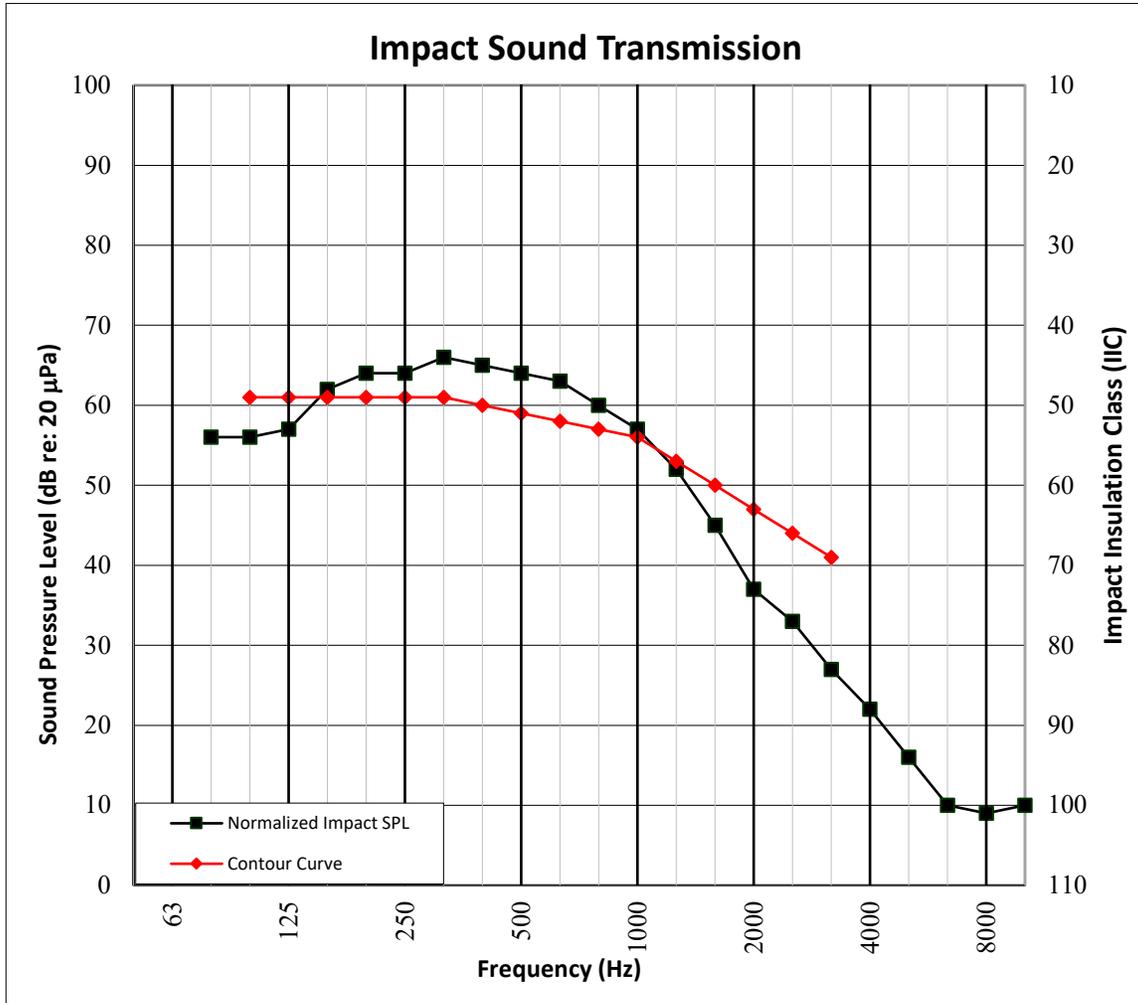
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SECTION 11

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH



TEST DATE	8/7/2023				
DATA FILE NO.	Q3849.01				
CLIENT	Kährs International				
DESCRIPTION	9 mm Kährs Aware Collection Luxury Vinyl-Free Flooring, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	23.8°C	Minimum Temp.	23.8°C
TECHNICIAN	MAU	Max. Humidity	58%	Min. Humidity	58%



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SECTION 12

TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION



TEST DATE	8/7/2023				
DATA FILE NO.	Q3849.01				
CLIENT	Kährs International				
DESCRIPTION	9 mm Kährs Aware Collection Luxury Vinyl-Free Flooring, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	23.8°C	Minimum Temp.	23.8°C
TECHNICIAN	MAU	Max. Humidity	58%	Min. Humidity	58%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% SAMPLE CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
400	15.9	9.2	65	0.5	4.9
500	16.7	8.7	64	0.5	5.4
630	19.2	8.8	63	0.3	5.0
800	17.1	8.9	60	0.5	3.0
1000	19.8	8.9	57	0.5	1.3
1250	25.8	8.8	52	0.6	0.0
1600	15.5	8.9	45	0.6	0.0
2000	15.1	9.5	37	0.7	0.0
2500	13.0	10.5	33	0.9	0.0
3150	15.0	10.8	27	1.1	0.0
HIIC Rating	51	<i>(High-Frequency Impact Insulation Class)</i>		Sum of Deficiencies	19.7

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

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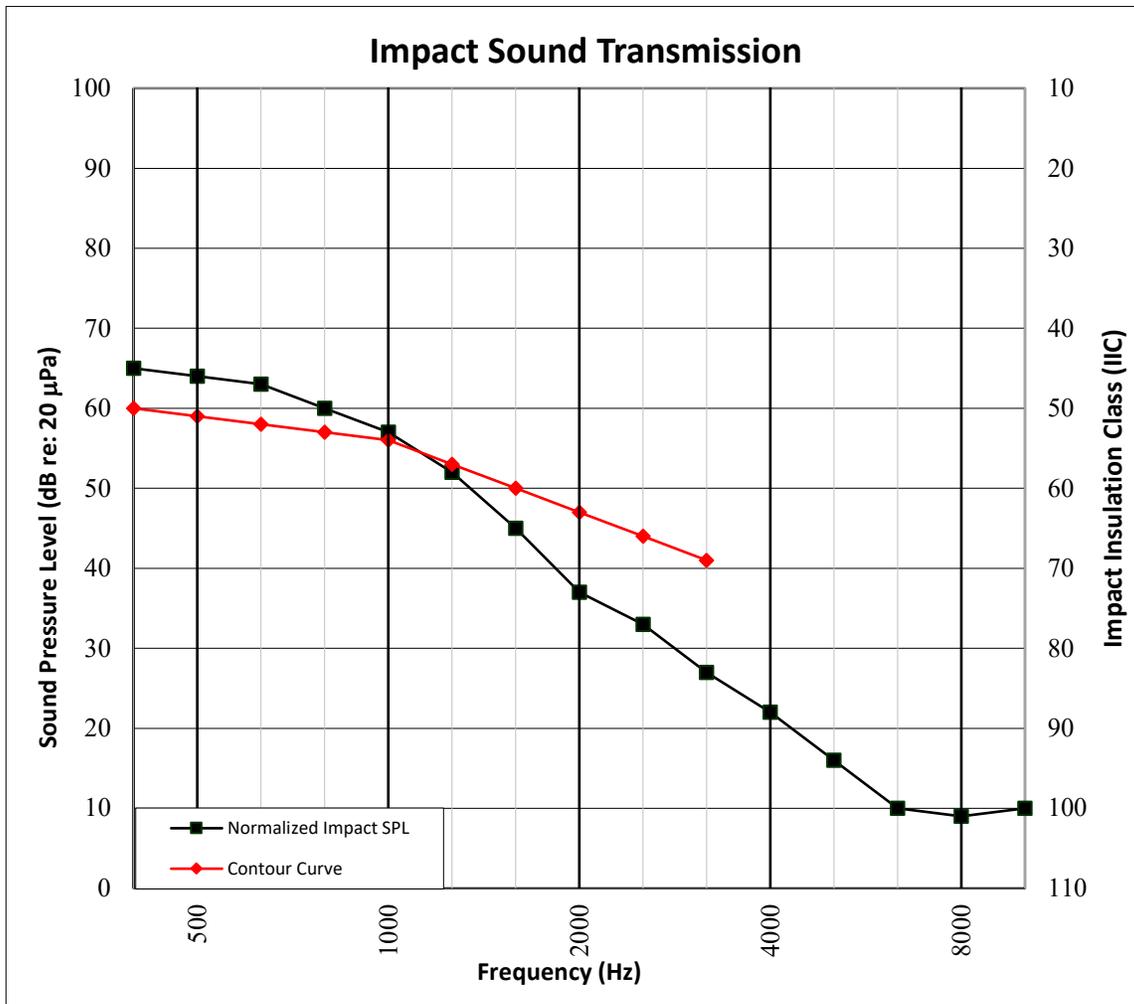
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SECTION 13

TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION GRAPH



TEST DATE	8/7/2023				
DATA FILE NO.	Q3849.01				
CLIENT	Kährs International				
DESCRIPTION	9 mm Kährs Aware Collection Luxury Vinyl-Free Flooring, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	23.8°C	Minimum Temp.	23.8°C
TECHNICIAN	MAU	Max. Humidity	58%	Min. Humidity	58%



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SECTION 14

TEST RESULTS - DELTA IMPACT INSULATION



TEST DATE	8/7/2023				
DATA FILE NO.	Q3849.01				
CLIENT	Kährs International				
DESCRIPTION	9 mm Kährs Aware Collection Luxury Vinyl-Free Flooring, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	23.8°C	Minimum Temp.	23.8°C
TECHNICIAN	MAU	Max. Humidity	58%	Min. Humidity	58%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL BARE (dB)	95% CONF LIMIT	NORMALIZED IMPACT SPL SPEC (dB)	95% SAMPL LIMIT	RESULT ARRAY L _{ref,c}	NUMBER OF DEFICIENCIES
100	26.4	11.4	56.7	1.1	55.9	1.3	66.0	3
125	26.8	9.8	57.6	1.4	56.7	1.7	67.0	4
160	21.8	9.4	64.0	1.2	61.9	1.3	66.0	3
200	18.8	11.2	66.4	0.9	64.3	0.7	66.0	3
250	16.7	10.1	67.3	0.8	64.5	0.8	66.0	3
315	16.5	10.6	69.2	0.6	66.3	0.5	67.0	4
400	15.9	9.2	68.9	0.6	64.9	0.6	66.0	4
500	16.7	8.7	70.0	0.7	64.4	0.6	65.0	4
630	19.2	8.8	72.3	0.5	63.0	0.4	62.0	2
800	17.1	8.9	71.0	0.5	60.0	0.6	61.0	2
1000	19.8	8.9	72.6	0.6	57.3	0.6	57.0	0
1250	25.8	8.8	72.0	0.5	51.9	0.7	52.0	0
1600	15.5	8.9	72.6	0.6	44.7	0.7	44.0	0
2000	15.1	9.5	71.9	0.8	37.2	0.8	37.0	0
2500	13.0	10.5	72.1	1.1	33.4	1.1	33.0	0
3150	15.0	10.8	70.7	1.3	27.3	1.4	29.0	0
ΔIIC Rating	21	<i>(Delta Impact Insulation Class)</i>				Sum of Deficiencies	32	
ΔHIIC Rating	22	<i>(Delta High-Frequency Impact Insulation Class)</i>				Sum of Deficiencies	16	

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

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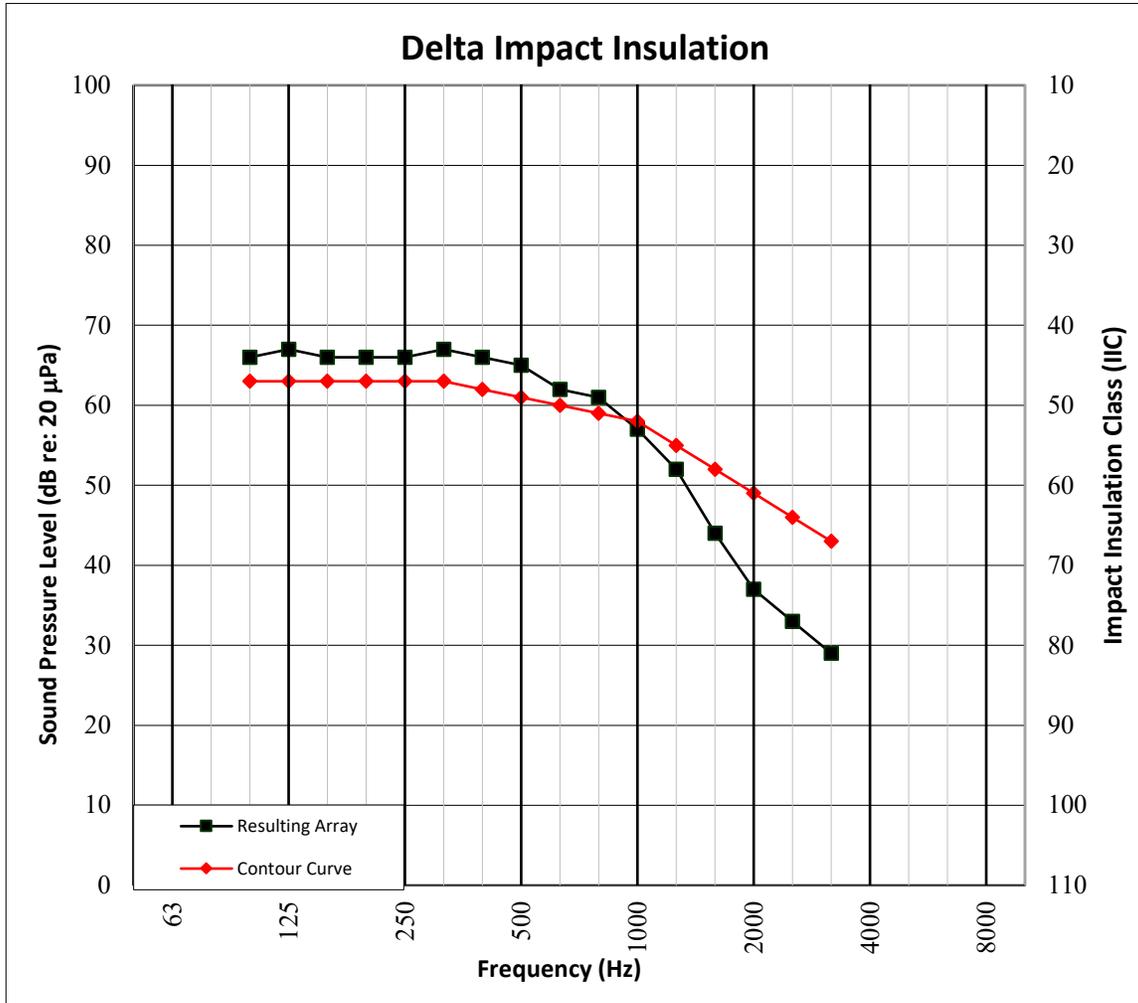
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SECTION 15

TEST RESULTS - DELTA IMPACT INSULATION GRAPH



TEST DATE	8/7/2023				
DATA FILE NO.	Q3849.01				
CLIENT	Kährs International				
DESCRIPTION	9 mm Kährs Aware Collection Luxury Vinyl-Free Flooring, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	23.8°C	Minimum Temp.	23.8°C
TECHNICIAN	MAU	Max. Humidity	58%	Min. Humidity	58%



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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

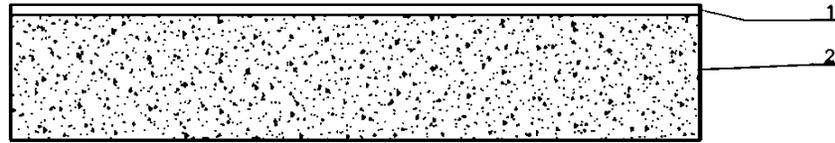
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SECTION 17

DRAWING



1-Floor Topping

2-Concrete Slab

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SECTION 18

REVISION LOG

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