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KARNDEAN DESIGNFLOORING ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK
ASTM E492 TESTING ON 5.5 mm VAN GOGH RIGID CORE LUXURY VINYL PLANK

SPECIMEN TYPE
152 mm Concrete Slab with Drop Ceiling

REPORT NUMBER
K8324.02-113-11-R0

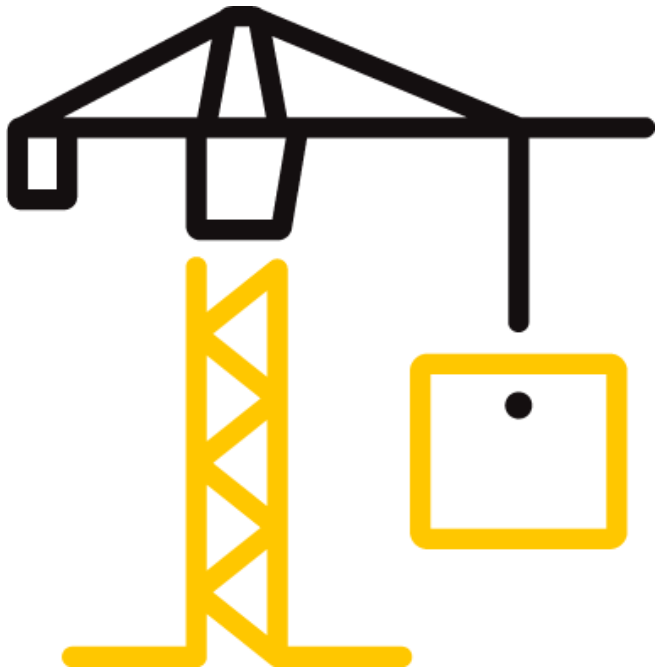
TEST DATE
03/17/20

ISSUE DATE
04/17/20

RECORD RETENTION END
03/17/24

PAGES
11

DOCUMENT CONTROL
ATI 00629 (03/21/18)
RTTDS-R-AMER-Test-2844



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TEST REPORT FOR KARNDEAN DESIGNFLOORING
Report No.: K8324.02-113-11-R0
Date: 04/17/20

REPORT ISSUED TO

KARNDEAN DESIGNFLOORING
835 Stud Road
Knoxfield, Victoria 3180 AUSTRALIA

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Karndean DesignFlooring to perform testing in accordance with ASTM E492 on 5.5 mm Van Gogh Rigid Core Luxury Vinyl Plank. Results obtained are tested values and were secured by using the designated test method(s). 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.	K8324.02
SERIES/MODEL:	5.5 mm Van Gogh Rigid Core Luxury Vinyl Plank
IIC	66

COMPLETED BY:	Michael A. Unnone	**COMPLETED BY:**	Jordan Strybos
TITLE:	Technician - Acoustical Testing	**TITLE:**	Engineer, Team Lead - Acoustical Testing
SIGNATURE:	Digitally Signed by: Michael Unnone	**SIGNATURE:**	Digitally Signed by: Jordan Strybos
DATE:	04/17/20	**DATE:**	04/17/20

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SECTION 3
TEST METHODS

The specimen was evaluated in accordance with the following:

ASTM E492-09(2016)e1, *Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine*

ASTM E989-18, *Classification for Determination of Impact Insulation Class (IIC)*

ASTM E2235-04 (2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

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 (152 mm Concrete Slab with Drop 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 4271.6 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.

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SECTION 5
EQUIPMENT

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE	
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	INT00977	08/18	*
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	65124	05/18	*
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	63763-1	06/18	*
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	65105	06/19	
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63741	04/19	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63739	04/19	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	67340	04/19	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63745	06/19	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65617	06/19	
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63810	10/19	
				63811	10/19	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65029	03/19	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63747	08/19	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64340	10/19	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63746	10/19	
Source Room Microphone	PCB Electronics	378C20	Microphone and Preamplifier	63742	03/19	
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	INT00603	03/19	
Tapping Machine	Look Line s.r.l.	EM50	Tapping Machine	65351	11/19	

* 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
Seth J. Allen	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 and 11.

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 IIC (Impact Insulation Class) rating was calculated in accordance with ASTM E989.

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SECTION 9
TEST SPECIMEN DESCRIPTION

MATERIAL	DIMENSIONS (mm)	THICKNESS (mm)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Luxury Vinyl Plank	1220 by 180	5.5	Van Gogh Rigid Core	10.98 m²	9.18 kg/m²
	Note: Loose laid				
Concrete Slab	3023 by 3632	152.4	5000 PSI	10.98 m²	366.18 kg/m²
	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 m²	1.32 kg/m²
	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 m²	11.23 kg/m²
	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 - IMPACT SOUND TRANSMISSION

TEST DATE	3/17/2020				
DATA FILE NO.	K8324.02				
CLIENT	Karndean DesignFlooring				
DESCRIPTION	5.5 mm Van Gogh Rigid Core Luxury Vinyl Plank, 152.4 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 m²	**Maximum Temp.**	16.9°C	**Minimum Temp.**	16.6°C
TECHNICIAN	SJA	**Max. Humidity**	51%	**Min. Humidity**	47%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** m²	**NORMALIZED IMPACT SPL** (dB)	**95% CONFIDENCE LIMIT**	**NUMBER OF DEFICIENCIES**
80	37.5	15.7	49	1.4	-
100	27.5	10.4	50	1.1	4
125	32.4	10.7	52	1.0	6
160	24.0	10.3	51	1.1	5
200	19.5	11.1	50	0.8	4
250	16.0	10.3	51	0.6	5
315	17.3	10.1	48	0.6	2
400	13.4	9.6	47	0.8	2
500	12.7	8.6	42	0.6	0
630	18.0	8.6	40	0.3	0
800	18.6	8.4	40	0.4	0
1000	16.8	8.4	36	0.2	0
1250	21.7	8.5	30	0.6	0
1600	12.1	8.6	24	0.4	0
2000	11.8	9.8	17	0.6	0
2500	9.7	10.8	10	0.5	0
3150	7.6	11.7	7	0.7	0
4000	7.0	13.3	6	0.9	-
5000	6.1	15.2	6	1.1	-
6300	6.5	19.0	7	1.1	-
8000	7.2	24.8	10	1.4	-
10000	7.6	24.8	10	1.3	-
IIC Rating	**66**	*(Impact Insulation Class)*		**Sum of Deficiencies**	**28**

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

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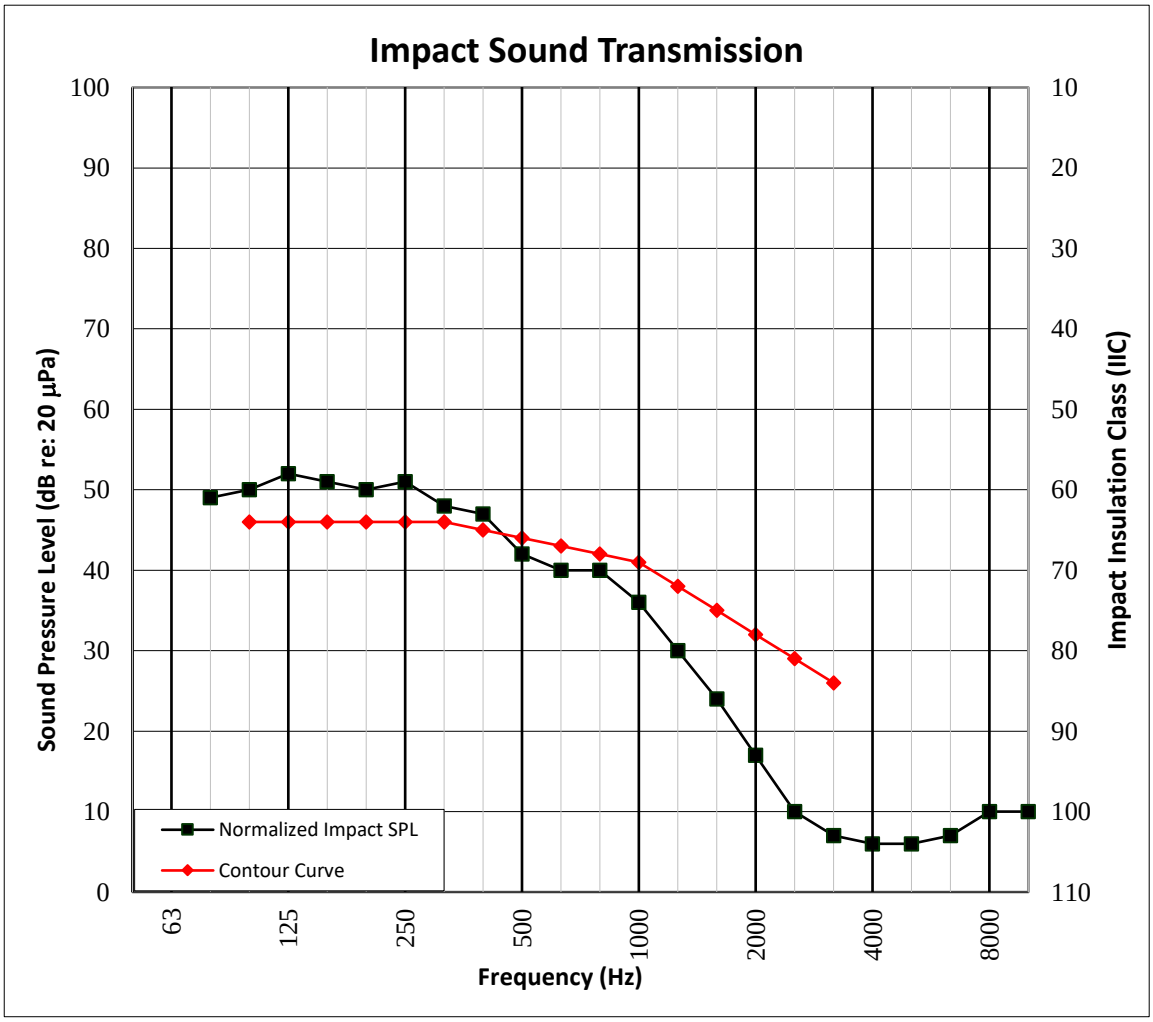
SECTION 11

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH

TEST DATE	3/17/2020				
DATA FILE NO.	K8324.02				
CLIENT	Karndean DesignFlooring				
DESCRIPTION	5.5 mm Van Gogh Rigid Core Luxury Vinyl Plank, 152.4 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 m²	**Maximum Temp.**	16.9°C	**Minimum Temp.**	16.6°C
TECHNICIAN	SJA	**Max. Humidity**	51%	**Min. Humidity**	47%



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SECTION 12
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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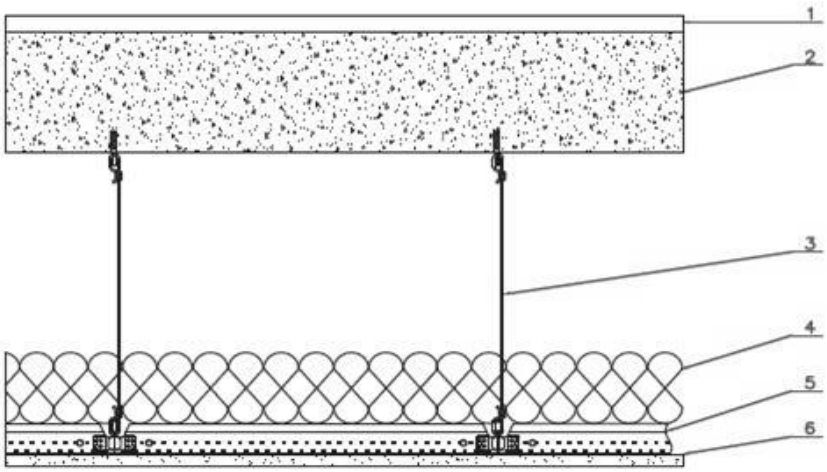
SECTION 13
DRAWING



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

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SECTION 14
REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	04/17/20	N/A	Original Report Issue