

# REGUPOL AMERICA

# ACOUSTICAL

# PERFORMANCE

# TEST REPORT

## SCOPE OF WORK

ASTM E90 AND ASTM E492 TESTING ON HYBRID SOLID ENGINEERED HARDWOOD FLOORING OVER 12 MM REGUPOL® SONUS™ OVER 6 MM REGUPOL® SONUS™

## SPECIMEN TYPE

Vulcraft EcoSpan - 3.5" Concrete Fill / Wire Tied Furring Channel Ceiling

## REPORT NUMBER

L0146.01-113-11-R0

## TEST DATE

05/19/20

## ISSUE DATE

06/01/20

## RECORD RETENTION END

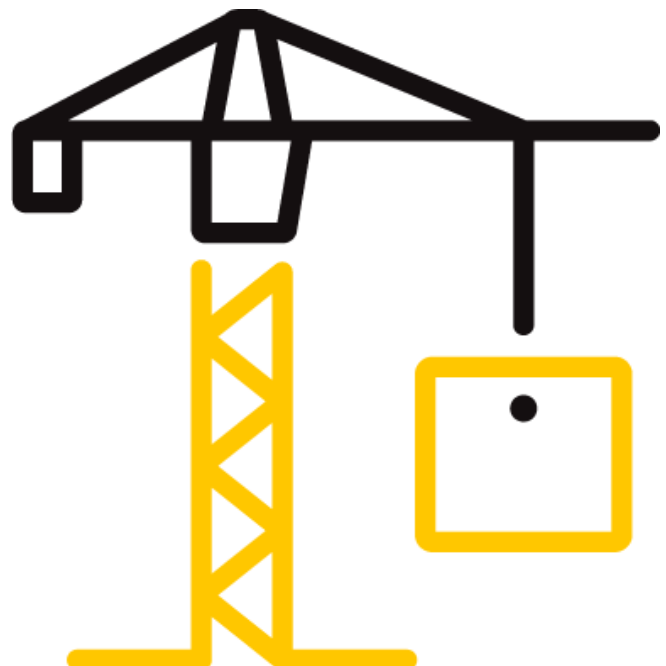
05/19/24

## PAGES

12

## DOCUMENT CONTROL

ATI 00629 (03/21/18)  
RTTDS-R-AMER-Test-2844  
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## TEST REPORT FOR REGUPOL AMERICA

Report No.: L0146.01-113-11-R0

Date: 06/01/20

### REPORT ISSUED TO

#### REGUPOL AMERICA

11 Ritter Way

Lebanon, Pennsylvania 17042

### SECTION 1

#### SCOPE

Intertek Building & Construction (B&C) was contracted by Regupol America to perform testing in accordance with ASTM E90 AND ASTM E492 on Hybrid Solid Engineered Hardwood Flooring over 12 mm Regupol® Sonus™ over 6 mm Regupol® Sonus™. 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

<b>DATA FILE NO.</b>	L0146.01
<b>SERIES/MODEL:</b>	Hybrid Solid Engineered Hardwood Flooring over 12 mm Regupol® Sonus™ over 6 mm Regupol® Sonus™
<b>STC</b>	59
<b>IIC</b>	59

<b>COMPLETED BY:</b>	Cody R. Snyder
<b>TITLE:</b>	Technician Team Leader - Acoustical Testing
<b>SIGNATURE:</b>	
<b>DATE:</b>	06/01/20

<b>COMPLETED BY:</b>	Daniel B. Mohler
<b>TITLE:</b>	Project Lead - Acoustical Testing
<b>SIGNATURE:</b>	
<b>DATE:</b>	06/01/20

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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 E989-18**, *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 (Vulcraft EcoSpan - 3.5" Concrete Fill / Wire Tied Furring Channel 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 2621.9 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.

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**SECTION 5  
EQUIPMENT**

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	65124	12/18 *
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	63763-4	09/18 *
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	INT01525	04/19 *
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	65105	06/19
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65029	03/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63742	03/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63747	08/19
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	64903	06/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63744	06/19
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	INT00652	01/20
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63812	10/19
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.

<b>VT RECEIVE ROOM VOLUME</b>	157.31 m <sup>3</sup>
<b>VT SOURCE ROOM VOLUME</b>	190 m <sup>3</sup>

**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 received 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) and IIC (Impact Insulation Class) ratings were calculated in accordance with ASTM E413 and ASTM E989, respectively.

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**SECTION 9**

**TEST SPECIMEN DESCRIPTION**

MATERIAL	DIMENSIONS (mm)	THICKNESS (mm)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Hybrid Solid Engineered Hardwood Flooring	Varied by 178	15.1	Alston Inc Casablanca	10.98 m <sup>2</sup>	8.89 kg/m <sup>2</sup>
	Note: Adhered to the underlayment with SikaBond T-25 adhesive using a 6.4 mm by 6.4 mm by 3.2 mm square notch trowel. Adhesive was allowed to cure per manufacturer's specifications.				
Rubber Underlayment	1231.9 by 685.8	12.0	Regupol® Sonus™	10.98 m <sup>2</sup>	9.37 kg/m <sup>2</sup>
	Note: Loose laid perpendicular to the 6 mm Sonus				
Rubber Underlayment	1231.9 by 685.8	6.0	Regupol® Sonus™	10.98 m <sup>2</sup>	4.83 kg/m <sup>2</sup>
	Note: Loose laid				
Normal Weight Concrete	3556 by 2952.8	88.9	N/A	10.98 m <sup>2</sup>	176.99 kg/m <sup>2</sup>
	Note: Poured directly on the steel deck, cured for 21 days.				
24ga. G60 Steel Deck	3556 by 2952.8	38.1	Vulcraft 1.0C	10.98 m <sup>2</sup>	9.28 kg/m <sup>2</sup>
	Note: Fastened to joists with 76.2 mm (3") by 9.53 mm (3/8") ShearFlex® HD Screws per each deck rib. 24ga.				
Steel Joists	2743.2 by 184.1	406.4	Vulcraft E-Series	3 trusses	57.15 kg/truss
	Note: Installed on 1219.20 mm (48") centers. The joists were model number 16E448\220\60.				
Furring Channel	67.8 by 3048	22.2	ClarkDietrich	21.79 lin m	0.3 kg/m
	Note: Installed on 406 mm (16") centers and secured utilizing double strand saddle ties with 18 gauge hanger wire.				
Fiberglass Insulation	520.7 by 3023	88.9	R-13	10.98 m <sup>2</sup>	1.32 kg/m <sup>2</sup>
	Note: Installed in the cavity between trusses on top the furring channel				
Gypsum Panel	1219 by 3023	15.9	USG SHEETROCK® Brand FIRECODE® C Core	10.98 m <sup>2</sup>	11.91 kg/m <sup>2</sup>
	Note: Fastened to the furring channels on 305 mm (12") centers with 25.4 mm (1") 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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### SECTION 10

### TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS



<b>TEST DATE</b>	5/19/2020				
<b>DATA FILE NO.</b>	L0146.01				
<b>CLIENT</b>	Regupol America				
<b>DESCRIPTION</b>	15.1 mm Alston Inc Casablanca Hybrid Solid Engineered Hardwood Flooring, 12 mm Regupol® Sonus™ Rubber Underlayment, 6 mm Regupol® Sonus™ Rubber Underlayment, 88.9 mm Normal Weight Concrete, 38.1 mm Vulcraft 1.0C 24ga. G60 Steel Deck, 406.4 mm Vulcraft E-Series Steel Joists, 22.2 mm ClarkDietrich Furring Channel, 88.9 mm R-13 Fiberglass Insulation, 15.9 mm USG SHEETROCK® Brand FIRECODE® C Core Gypsum Panel				
<b>SPECIMEN AREA</b>	10.98 m <sup>2</sup>	<b>Receive Temp.</b>	20.4°C	<b>Source Temp.</b>	21.4°C
<b>TECHNICIAN</b>	MSJK	<b>Receive Humidity</b>	50%	<b>Source Humidity</b>	50%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m <sup>2</sup>	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	31.7	15.4	100	61	39	3.6	-
100	25.3	11.6	101	62	39	1.8	-
125	24.6	10.5	97	57	42	1.3	1
160	23.0	10.6	96	57	40	1.0	6
200	18.8	11.1	100	57	44	1.7	5
250	16.8	11.1	100	53	48	0.7	4
315	20.9	10.5	98	48	52	1.1	3
400	17.1	10.0	101	46	57	0.9	1
500	18.8	9.2	100	43	59	0.4	0
630	21.0	8.7	100	42	59	0.5	1
800	21.2	8.8	100	41	60	0.5	1
1000	22.4	8.7	99	40	60	0.4	2
1250	20.0	8.7	99	39	61	0.4	2
1600	15.4	9.0	99	39	61	0.4	2
2000	13.2	10.1	98	37	62	0.4	1
2500	8.9	11.1	97	32	65	0.6	0
3150	6.4	12.2	98	29	70	0.6	0
4000	5.9	13.8	100	28	71	0.6	0
5000	6.0	16.0	99	24	74	0.7	-
6300	6.5	19.8	93	13	78	1.1	-
8000	6.9	26.0	92	8	82	0.9	-
10000	7.0	26.0	87	6	79	0.8	-
<b>STC Rating</b>	<b>59</b>	<i>(Sound Transmission Class)</i>			<b>Sum of Deficiencies</b>	<b>29</b>	

- 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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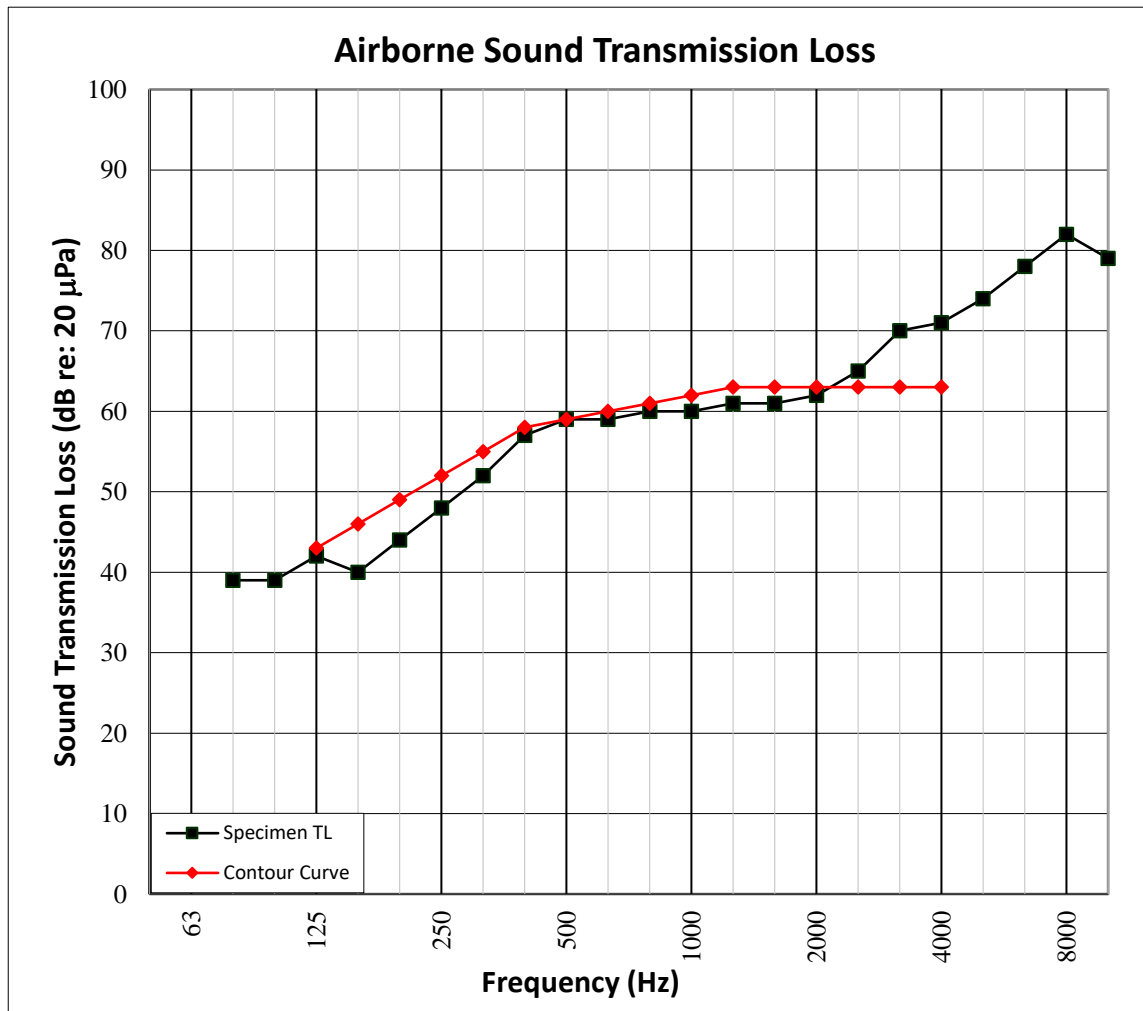
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### SECTION 11

#### TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH



<b>TEST DATE</b>	5/19/2020				
<b>DATA FILE NO.</b>	L0146.01				
<b>CLIENT</b>	Regupol America				
<b>DESCRIPTION</b>	15.1 mm Alston Inc Casablanca Hybrid Solid Engineered Hardwood Flooring, 12 mm Regupol® Sonus™ Rubber Underlayment, 6 mm Regupol® Sonus™ Rubber Underlayment, 88.9 mm Normal Weight Concrete, 38.1 mm Vulcraft 1.0C 24ga. G60 Steel Deck, 406.4 mm Vulcraft E-Series Steel Joists, 22.2 mm ClarkDietrich Furring Channel, 88.9 mm R-13 Fiberglass Insulation, 15.9 mm USG SHEETROCK® Brand FIRECODE® C Core Gypsum Panel				
<b>SPECIMEN AREA</b>	10.98 m <sup>2</sup>	<b>Receive Temp.</b>	20.4°C	<b>Source Temp.</b>	21.4°C
<b>TECHNICIAN</b>	MSJK	<b>Receive Humidity</b>	50%	<b>Source Humidity</b>	50%





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### SECTION 12

#### TEST RESULTS - IMPACT SOUND TRANSMISSION



<b>TEST DATE</b>	5/19/2020				
<b>DATA FILE NO.</b>	L0146.01				
<b>CLIENT</b>	Regupol America				
<b>DESCRIPTION</b>	15.1 mm Alston Inc Casablanca Hybrid Solid Engineered Hardwood Flooring, 12 mm Regupol® Sonus™ Rubber Underlayment, 6 mm Regupol® Sonus™ Rubber Underlayment, 88.9 mm Normal Weight Concrete, 38.1 mm Vulcraft 1.0C 24ga. G60 Steel Deck, 406.4 mm Vulcraft E-Series Steel Joists, 22.2 mm ClarkDietrich Furring Channel, 88.9 mm R-13 Fiberglass Insulation, 15.9 mm USG SHEETROCK® Brand FIRECODE® C Core Gypsum Panel				
<b>SPECIMEN AREA</b>	10.98 m <sup>2</sup>	<b>Maximum Temp.</b>	20.6°C	<b>Minimum Temp.</b>	20.3°C
<b>TECHNICIAN</b>	MSJK	<b>Max. Humidity</b>	52%	<b>Min. Humidity</b>	49%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m <sup>2</sup>	NORMALIZED IMPACT SPL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	32.5	15.9	55	1.9	-
100	27.8	10.8	55	1.3	2
125	25.4	10.0	57	1.1	4
160	24.8	9.9	60	1.2	7
200	21.0	11.1	59	0.5	6
250	17.3	10.6	59	0.5	6
315	21.3	10.4	54	0.5	1
400	16.4	9.6	52	0.7	0
500	19.8	9.3	48	0.3	0
630	21.3	8.8	44	0.3	0
800	20.9	8.8	39	0.4	0
1000	23.3	8.7	37	0.3	0
1250	20.9	8.8	33	0.4	0
1600	16.3	9.0	31	0.4	0
2000	14.0	10.1	28	0.3	0
2500	9.4	11.1	19	0.5	0
3150	6.1	12.1	11	0.5	0
4000	5.1	13.9	10	0.5	-
5000	5.6	16.0	10	0.4	-
6300	6.2	20.0	10	0.3	-
8000	6.7	26.0	12	0.4	-
10000	6.9	26.0	12	0.4	-
<b>IIC Rating</b>	<b>59</b>	<i>(Impact Insulation Class)</i>		<b>Sum of Deficiencies</b>	<b>26</b>

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

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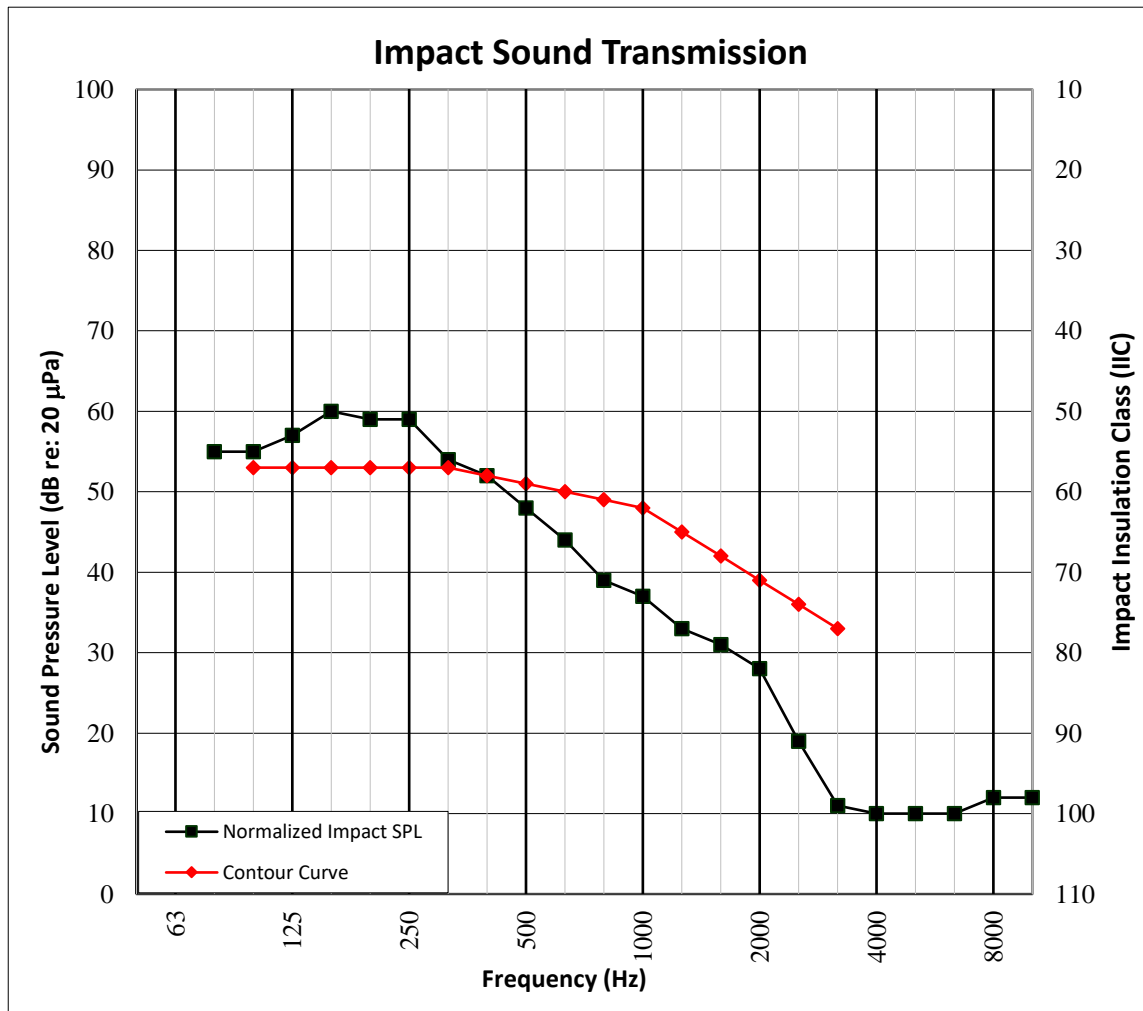
Date: 06/01/20

### SECTION 13

#### TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH



<b>TEST DATE</b>	5/19/2020				
<b>DATA FILE NO.</b>	L0146.01				
<b>CLIENT</b>	Regupol America				
<b>DESCRIPTION</b>	15.1 mm Alston Inc Casablanca Hybrid Solid Engineered Hardwood Flooring, 12 mm Regupol® Sonus™ Rubber Underlayment, 6 mm Regupol® Sonus™ Rubber Underlayment, 88.9 mm Normal Weight Concrete, 38.1 mm Vulcraft 1.0C 24ga. G60 Steel Deck, 406.4 mm Vulcraft E-Series Steel Joists, 22.2 mm ClarkDietrich Furring Channel, 88.9 mm R-13 Fiberglass Insulation, 15.9 mm USG SHEETROCK® Brand FIRECODE® C Core Gypsum Panel				
<b>SPECIMEN AREA</b>	10.98 m <sup>2</sup>	<b>Maximum Temp.</b>	20.6°C	<b>Minimum Temp.</b>	20.3°C
<b>TECHNICIAN</b>	MSJK	<b>Max. Humidity</b>	52%	<b>Min. Humidity</b>	49%



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### SECTION 14

#### 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 15**

**REVISION LOG**

REVISION #	DATE	PAGES	DESCRIPTION
R0	06/01/20	N/A	Original Report Issue