

REGUPOL AMERICA

ACOUSTICAL

PERFORMANCE

TEST REPORT

SCOPE OF WORK

ASTM E90, ASTM E492, AND ASTM E2179 TESTING ON SOUND PANEL X4 AND
AKUSTIPRO ML 70 RUBBER FLOORING

SPECIMEN TYPE

Concrete Slab - 152 mm

REPORT NUMBER

I4707.05-303-11-R0

TEST DATE(S)

06/14/18

ISSUE DATE

06/20/18

RECORD RETENTION END

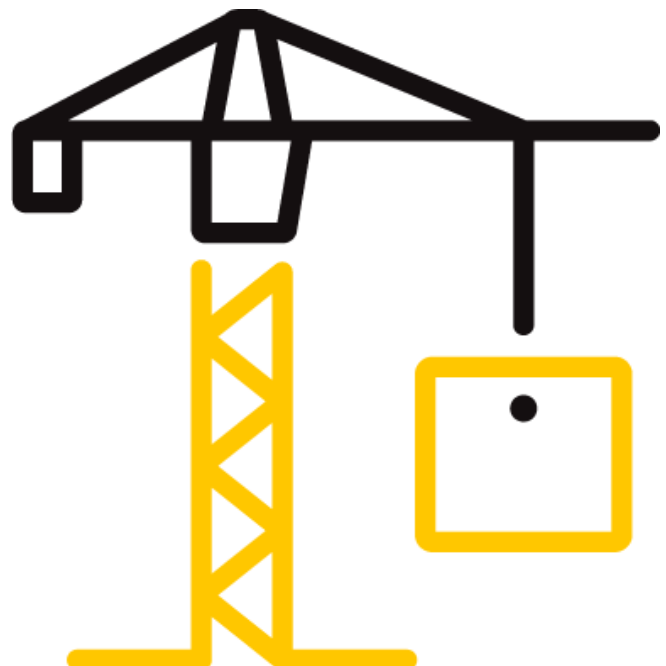
06/14/22

PAGES

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TEST REPORT FOR REGUPOL AMERICA

Report No.: I4707.05-303-11-R0

Date: 06/20/18

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, ASTM E492, AND ASTM E2179 on Sound Panel x4 and AkustiPro ML 70 Rubber Flooring. 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 Lake Forest, California.

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.	I4707.05
SERIES/MODEL:	Sound Panel x4 and AkustiPro ML 70 Rubber Flooring
STC	62
IIC	76
ΔIIC	41

COMPLETED BY: Leeland S. Hoover
TITLE: Technician I - Acoustical Testing
SIGNATURE:
DATE: 06/20/18

COMPLETED BY: Bradley D. Hunt
TITLE: Laboratory Manager - Acoustical Testing
SIGNATURE:
DATE: 06/20/18

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SECTION 3**TEST METHOD(S)**

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 E2179-03(2016), *Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors*

ASTM E989-06 (2012), *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 (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 4778.4 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	PXIe-1073	Data Acquisition Card	INT00626	07/17
Microphone Calibrator	Norsonic	1251	Pistonphone calibrator	INT00127	06/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00229	03/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00230	03/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00231	03/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00232	03/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00233	03/18
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	INT00301	04/18
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00248	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00249	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00250	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00251	04/17
Source Room Microphone	PCB Electronics	378C20	Microphone and Preamplifier	63741	04/17
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	INT00302	04/18
Tapping Machine	Look Line	EM50	Tapping Machine	INT00936	12/17

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

VT RECEIVE ROOM VOLUME	183.69 m ³
VT SOURCE ROOM VOLUME	129.4 m ³

**SECTION 6
LIST OF OFFICIAL OBSERVERS**

NAME	COMPANY
Leeland S. Hoover	Intertek B&C
Bradlay D. Hunt	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 through 15.

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 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 STC (Sound Transmission Class), IIC (Impact Insulation Class), and Δ IIC (Delta Impact Insulation Class) ratings were calculated in accordance with ASTM E413, ASTM E989, and ASTM E2179, respectively.

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SECTION 9

TEST SPECIMEN DESCRIPTION

MATERIAL	DIMENSIONS (mm/inch)	THICKNESS (mm/inch)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Rubber Tile	609.6 by 609.6	27.1	Regupol 1" AktivPro	11.15 m ²	20.9 kg/m ²
	N/A				
Rubber Flooring	3048 by 1219	29.5	Regupol 4830	11.15 m ²	13.87 kg/m ²
	N/A				
Rubber Flooring	3048 by 1219.2	16.8	Regupol 3017	11.15 m ²	7.23 kg/m ²
	N/A				
Plywood	3048 by 1219.2	18.0	N/A	11.15 m ²	9.18 kg/m ²
	Note: The plywood was fastened with 1-5/8" drywall screws at 12" on center				
4x Soundpanel	1219.2 by 1219.2	67.5	Regupol	11.15 m ²	11.18 kg/m ²
	Note: The panel was made up of 15.71mm thick OSB, 25mm thick insulation and 51.8mm thick rubber blocks				
Concrete Slab	3023 by 3632	152.4	5000 PSI	11.15 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.				

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SECTION 10

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS



TEST DATE	6/14/2018				
DATA FILE NO.	I4707.05				
CLIENT	Regupol America				
DESCRIPTION	27.06 mm Regupol 1" AktivPro Rubber Tile, 29.5 mm Regupol 4830 Rubber Flooring, 16.8 mm Regupol 3017 Rubber Flooring, 17.98 mm Plywood, 67.51 mm Regupol 4x Soundpanel, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	11.15 m ²	Receive Temp.	69°C	Source Temp.	66.7°C
TECHNICIAN	LSH	Receive Humidity	58%	Source Humidity	58%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	26.0	5.5	98	64	37	2.4	-
100	25.9	5.7	102	63	43	1.4	-
125	25.2	4.3	100	66	38	1.2	8
160	15.7	5.0	98	58	43	1.0	6
200	12.0	5.9	97	55	45	0.9	7
250	12.9	6.2	96	48	51	0.8	4
315	12.5	6.8	99	45	56	0.6	2
400	11.5	6.6	100	44	58	0.6	3
500	17.9	5.7	98	42	60	0.6	2
630	11.1	5.7	95	31	67	0.5	0
800	10.0	5.8	94	28	69	0.5	0
1000	7.7	5.5	94	24	73	0.2	0
1250	7.8	5.9	97	24	75	0.3	0
1600	9.1	6.2	96	21	77	0.3	0
2000	5.1	6.8	97	21	78	0.2	0
2500	4.9	7.7	97	20	79	0.5	0
3150	5.1	8.5	97	18	80	0.4	0
4000	5.2	10.0	96	15	82	0.4	0
5000	5.7	12.2	94	10	83	0.4	-
6300	6.2	15.7	92	10	81	0.6	-
8000	6.6	21.1	93	8	82	0.6	-
10000	6.6	26.9	93	7	82	0.7	-
STC Rating	62	<i>(Sound Transmission Class)</i>			Sum of Deficiencies	32	

- 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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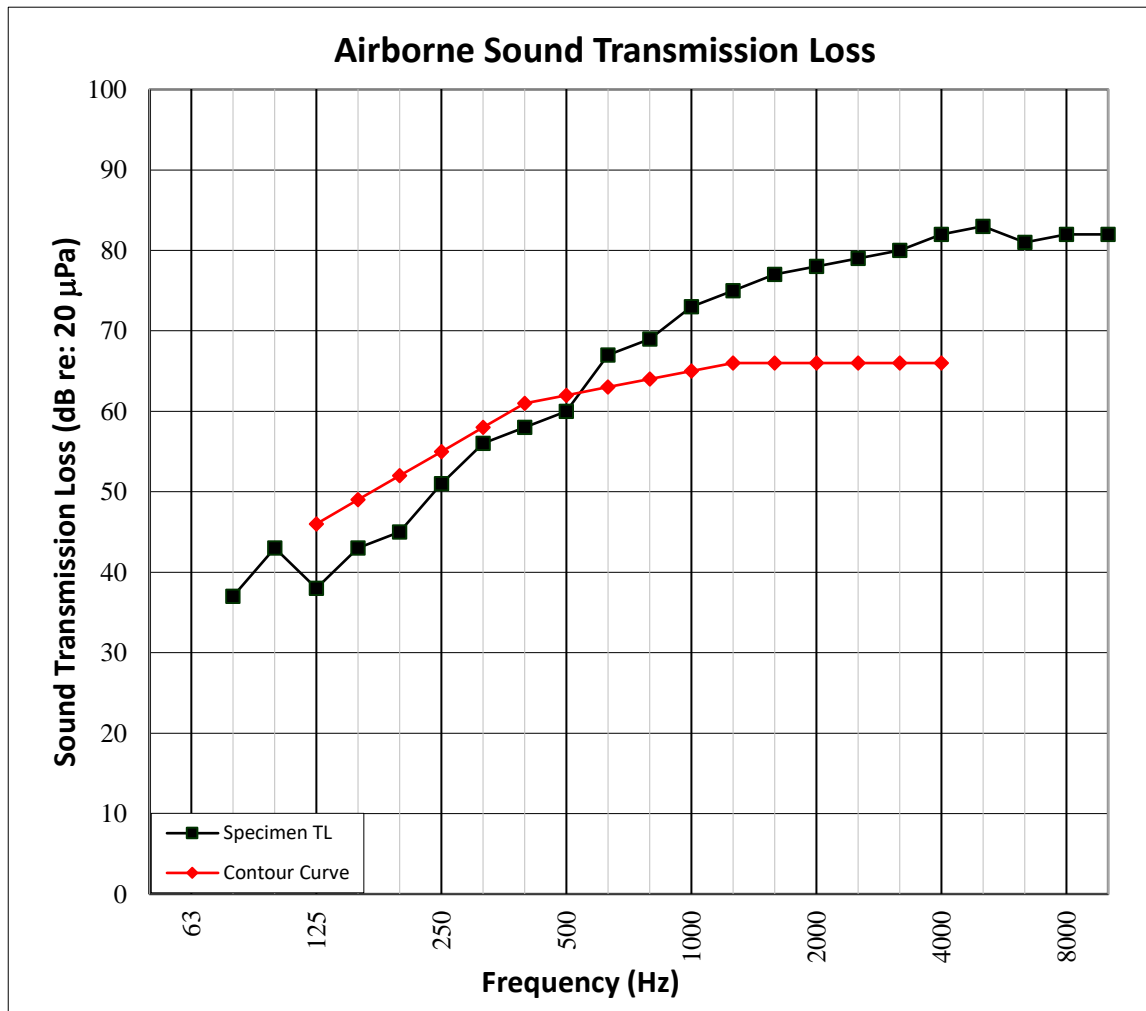
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SECTION 11

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH



TEST DATE	6/14/2018				
DATA FILE NO.	I4707.05				
CLIENT	Regupol America				
DESCRIPTION	27.06 mm Regupol 1" AktivPro Rubber Tile, 29.5 mm Regupol 4830 Rubber Flooring, 16.8 mm Regupol 3017 Rubber Flooring, 17.98 mm Plywood, 67.51 mm Regupol 4x Soundpanel, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	11.15 m ²	Receive Temp.	69°C	Source Temp.	66.7°C
TECHNICIAN	LSH	Receive Humidity	58%	Source Humidity	58%



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SECTION 12

TEST RESULTS - IMPACT SOUND TRANSMISSION



TEST DATE	6/14/2018				
DATA FILE NO.	I4707.05				
CLIENT	Regupol America				
DESCRIPTION	27.06 mm Regupol 1" AktivPro Rubber Tile, 29.5 mm Regupol 4830 Rubber Flooring, 16.8 mm Regupol 3017 Rubber Flooring, 17.98 mm Plywood, 67.51 mm Regupol 4x Soundpanel, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	11.15 m ²	Maximum Temp.	69°C	Minimum Temp.	66.7°C
TECHNICIAN	LSH	Max. Humidity	58%	Min. Humidity	58%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	26.7	5.5	46	1.8	-
100	27.2	5.6	44	2.3	8
125	26.5	3.9	41	1.3	5
160	16.6	5.1	36	0.7	0
200	12.8	6.1	33	1.2	0
250	13.1	6.5	21	0.6	0
315	13.0	7.0	14	0.8	0
400	11.4	6.5	11	0.5	0
500	18.3	5.7	8	0.9	0
630	10.9	5.7	4	0.5	0
800	9.9	5.8	4	1.2	0
1000	7.6	5.6	2	1.4	0
1250	7.7	5.9	2	1.1	0
1600	8.8	6.2	2	0.7	0
2000	5.2	6.8	0	0.7	0
2500	4.9	7.7	1	0.4	0
3150	5.0	8.5	2	0.3	0
4000	5.1	9.9	3	0.3	-
5000	5.6	12.3	4	0.2	-
6300	6.2	15.8	6	0.2	-
8000	6.6	21.3	8	0.3	-
10000	6.6	27.2	9	0.4	-
IIC Rating	76	<i>(Impact Insulation Class)</i>		Sum of Deficiencies	13

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

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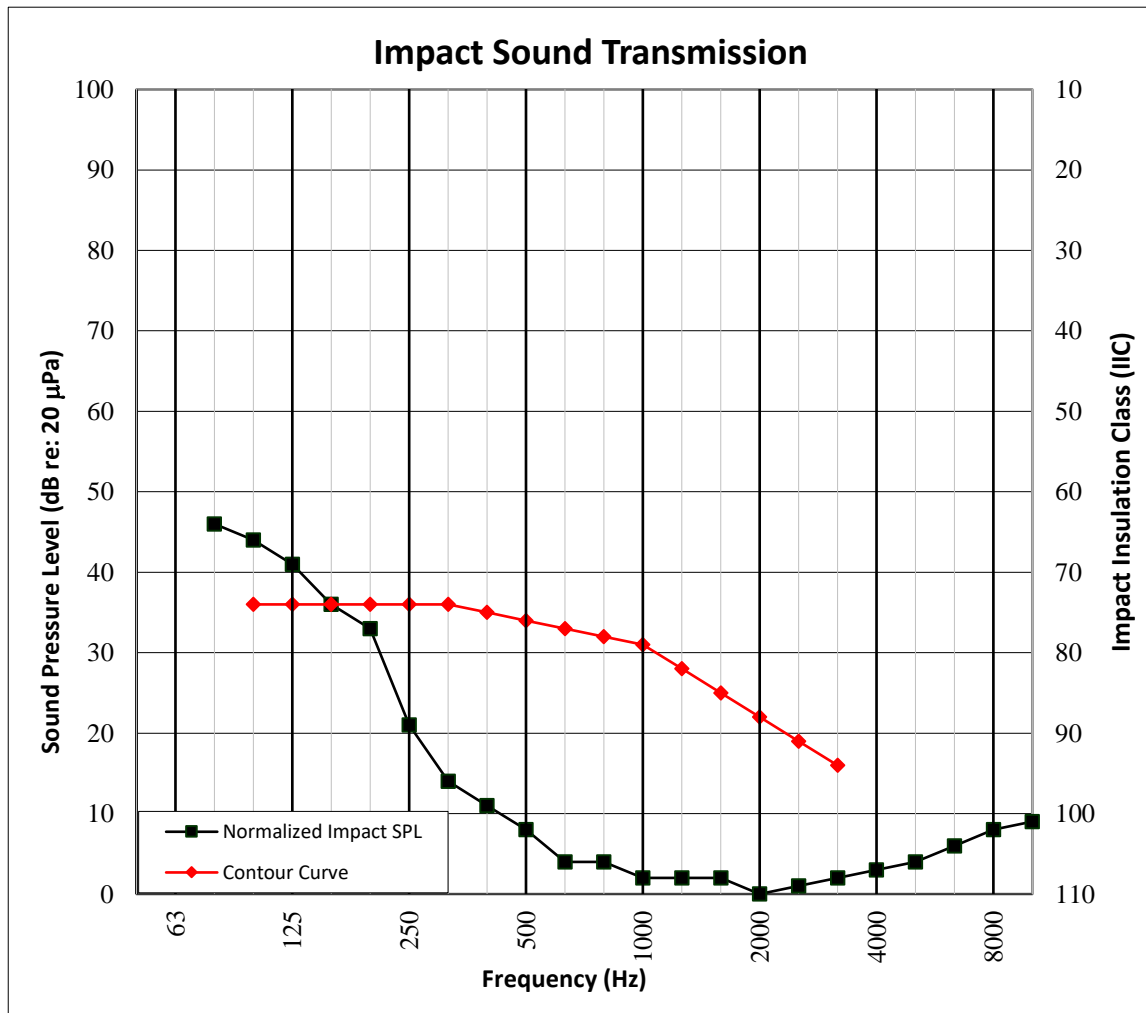
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SECTION 13

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH



TEST DATE	6/14/2018				
DATA FILE NO.	I4707.05				
CLIENT	Regupol America				
DESCRIPTION	27.06 mm Regupol 1" AktivPro Rubber Tile, 29.5 mm Regupol 4830 Rubber Flooring, 16.8 mm Regupol 3017 Rubber Flooring, 17.98 mm Plywood, 67.51 mm Regupol 4x Soundpanel, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	11.15 m ²	Maximum Temp.	69°C	Minimum Temp.	66.7°C
TECHNICIAN	LSH	Max. Humidity	58%	Min. Humidity	58%



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SECTION 14

TEST RESULTS - DELTA IMPACT INSULATION



TEST DATE	6/14/2018				
DATA FILE NO.	I4707.05				
CLIENT	Regupol America				
DESCRIPTION	27.06 mm Regupol 1" AktivPro Rubber Tile, 29.5 mm Regupol 4830 Rubber Flooring, 16.8 mm Regupol 3017 Rubber Flooring, 17.98 mm Plywood, 67.51 mm Regupol 4x Soundpanel, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	11.15 m ²	Maximum Temp.	69°C	Minimum Temp.	66.7°C
TECHNICIAN	LSH	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% CONF LIMIT	RESULT ARRAY L _{ref,c}	NUMBER OF DEFICIENCIES
100	27.2	5.6	60.7	1.5	44.5	2.8	51.0	8
125	26.5	3.9	62.6	1.9	40.5	1.6	45.0	2
160	16.6	5.1	66.5	1.0	36.1	0.8	38.0	0
200	12.8	6.1	69.4	1.1	33.4	1.5	33.0	0
250	13.1	6.5	69.9	1.0	21.4	0.8	20.0	0
315	13.0	7.0	69.6	0.9	14.2	1.0	14.0	0
400	11.4	6.5	70.5	0.4	11.0	0.7	11.0	0
500	18.3	5.7	68.1	0.3	7.5	1.1	10.0	0
630	10.9	5.7	69.8	0.3	3.8	0.7	5.0	0
800	9.9	5.8	71.0	0.4	4.2	1.5	5.0	0
1000	7.6	5.6	71.8	0.3	2.4	1.7	3.0	0
1250	7.7	5.9	72.6	0.5	2.4	1.4	2.0	0
1600	8.8	6.2	73.3	0.3	2.5	0.9	1.0	0
2000	5.2	6.8	73.8	0.3	0.3	0.8	0.0	0
2500	4.9	7.7	73.8	0.5	1.2	0.5	0.0	0
3150	5.0	8.5	74.3	0.4	2.2	0.3	0.0	0
ΔIIC Rating	41	<i>(Delta Impact Insulation Class)</i>			Sum of Deficiencies		10	

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

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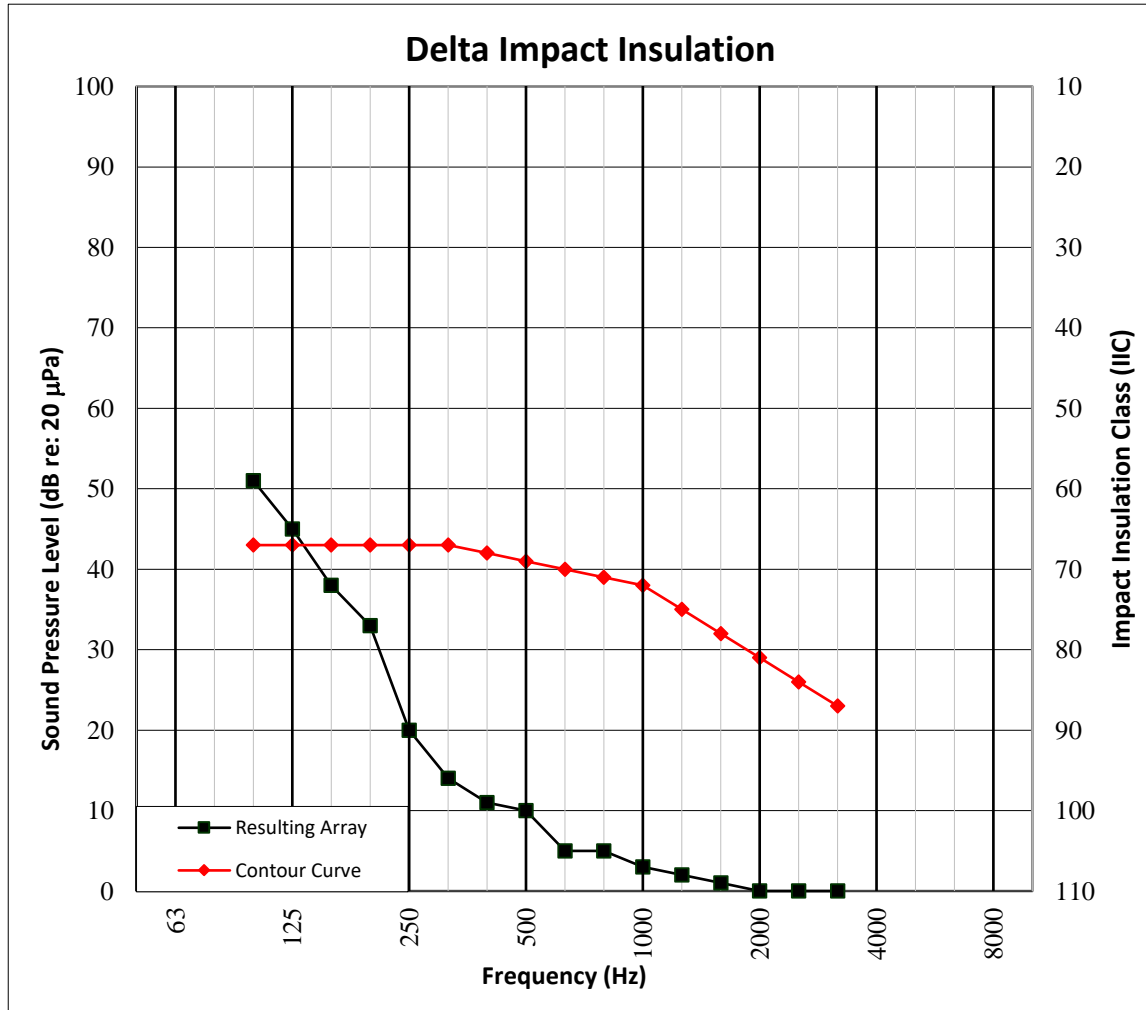
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SECTION 15

TEST RESULTS - DELTA IMPACT INSULATION GRAPH



TEST DATE	6/14/2018				
DATA FILE NO.	I4707.05				
CLIENT	Regupol America				
DESCRIPTION	27.06 mm Regupol 1" AktivPro Rubber Tile, 29.5 mm Regupol 4830 Rubber Flooring, 16.8 mm Regupol 3017 Rubber Flooring, 17.98 mm Plywood, 67.51 mm Regupol 4x Soundpanel, 152.4 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	11.15 m ²	Maximum Temp.	69°C	Minimum Temp.	66.7°C
TECHNICIAN	LSH	Max. Humidity	58%	Min. Humidity	58%



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SECTION 16

PHOTOGRAPHS

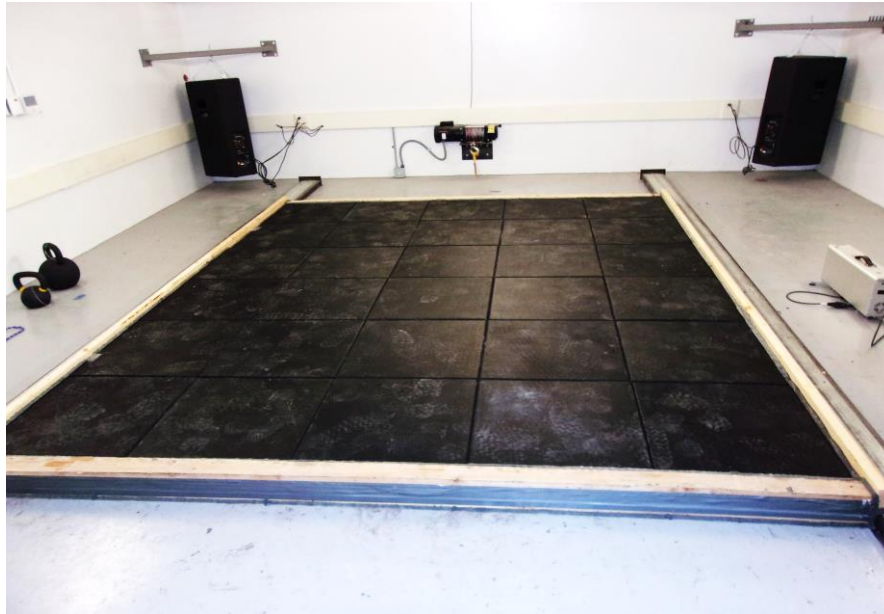


Photo No. 1

Source Room View of Test Specimen Installation



Photo No. 2

Receive Room View of Test Specimen Installation

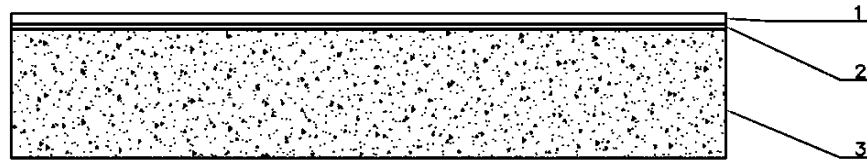
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SECTION 17

DRAWING



- 1-Floor Topping
- 2-Underlayment
- 3-Concrete Slab



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SECTION 18

REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
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