REGUPOL AMERICA
ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK
ASTM E90 AND ASTM E492 TESTING ON 18" OWT WITH 5MM SONUS RUBBER UNDERLAYMENT AND PORCELAIN TILE

SPECIMEN TYPE
Open Web Truss - 457 mm

REPORT NUMBER
H6848.07-303-11-R0

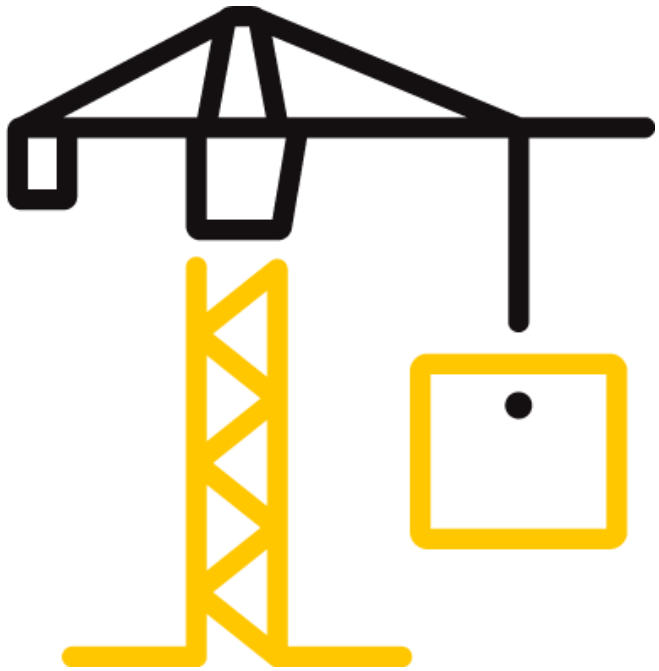
TEST DATE(S)
11/18/17

ISSUE DATE
01/03/18

RECORD RETENTION END
11/18/21

PAGES
12

DOCUMENT CONTROL
ATI 00629 (09/19/17)
RTTDS-R-AMER-Test-2844



25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR REGUPOL AMERICA

Report No.: H6848.07-303-11-R0
Date: 01/03/18

REPORT ISSUED TO

REGUPOL AMERICA
11 Ritter Way
Lebanon, Pennsylvania 17042

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by to perform testing in accordance with ASTM E90 AND ASTM E492 on 18" OWT with 5mm Sonus Rubber Underlayment and Porcelain Tile. 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.	H6848.07
SERIES/MODEL:	18" OWT with 5mm Sonus Rubber Underlayment and Porcelain Tile
STC	60
IIC	56

COMPLETED BY:	Leeland S. Hoover	**COMPLETED BY:**	Bradlay D. Hunt
TITLE:	Technician I	**TITLE:**	Laboratory Manager
SIGNATURE:	Digitally Signed by: Leeland Hoover	**SIGNATURE:**	Digitally Signed by: Bradlay Hunt
DATE:	01/03/18	**DATE:**	01/03/18

25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

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 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 (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 884.8 kg. B&C will store samples of the test specimen for four years. Photographs of the test specimen are included in the attachments.

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.

25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR REGUPOL AMERICA
Report No.: H6848.07-303-11-R0
Date: 01/03/18

SECTION 5
EQUIPMENT

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Unit	National Instruments	PXI-1033	Data Acquisition Card	INT00392	10/17 *
Microphone Calibrator	Norsonic	1251	Pistonphone calibrator	INT00289	07/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00229	03/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00230	03/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00231	03/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00232	03/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00233	03/17
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	INT00299	10/17
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00234	03/17
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00235	03/17
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00236	03/17
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00237	03/17
Source Room Microphone	PCB Electronics	378B20	Microphone and Preamplifier	INT00238	03/17
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	INT00300	10/17
Tapping Machine	Look Line s.r.l.	EM50 (TM50)	Tapping Machine	INT00225	07/17

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

VT RECEIVE ROOM VOLUME	180.6 m^3
VT SOURCE ROOM VOLUME	129.4 m^3

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Bill Devin	Regupol America
Leeland S. Hoover	Intertek B&C
Bradlay D. Hunt	Intertek B&C

25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

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 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. Four 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.

25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR REGUPOL AMERICA

Report No.: H6848.07-303-11-R0
Date: 01/03/18

SECTION 9

TEST SPECIMEN DESCRIPTION

MATERIAL	DIMENSIONS (mm/inch)	THICKNESS (mm/inch)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Porcelain Tile	304.8 by 304.8	8.0	Daltile	11.15 m²	16.21 kg/m²
	Note: The tile was placed with light pressure onto a bed of mortar. The mortar was set using a 6.35 mm by 6.35 mm trowel. The grout was placed into the 6.35 mm joints between the tile. Both the grout and mortar were allowed to cure to the manufacturer's specifications.				
Rubber Underlayment	2794 by 1219	5.1	Regupol 5mm Sonus	11.15 m²	3.81 kg/m²
	Note: A sheet of 2 mil polyethylene plastic was adhered to the subfloor topping with 3M Super 77 spray adhesive. The underlayment was adhered to the sheeting				
1/2" olywood	3048 by 1219.2	11.7	N/A	11.15 m²	6.74 kg/m²
	Note: fastened at 12" OC				
Oriented Strand Board Sheathing	1219 by 2438	18.8	N/A	11.15 m²	13.82 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	Johns Manville Unfaced R-13	11.15 m²	1.32 kg/m²
	Note: Installed in the cavity between trusses flush with the OSB. Hanger wire was used to keep insulation secure on 305 mm				
Open Web Truss	88.9 by 2933.7	457.2	Stone Truss L/360	7 trusses	19.05 kg/truss
	Note: Installed on 610 mm centers using JUS414 hanger brackets.				
SonusClip	76.2 by 35.1	25.6	Regupol	23 clips	0.06 kg/m²
	Note: Each clip was installed with a single 50.8 mm long 8 gauge drywall screw				
25 gauge Hat Channel	3454.4 by 63.5	22.1	N/A	27.6 lin m	0.63 kg/m
	Note: Installed on 609 mm centers perpendicular to the trusses.				
Gypsum Panel	1219 by 3023	15.9	USG SHEETROCK® Brand FIRECODE® C core	11.15 m²	11.91 kg/m²
	Note: Fastened to the hat 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.				
Gypsum Panel	1219 by 3023	15.9	USG SHEETROCK® Brand FIRECODE® C core	11.15 m²	11.91 kg/m²
	Note: Fastened to the hat channels on 305 mm centers with 47.6 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.				

intertek
Total Quality. Assured.

25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR REGUPOL AMERICA

Report No.: H6848.07-303-11-R0
Date: 01/03/18

SECTION 10

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS

ACCREDITED Testing Laboratory

TEST DATE	11/18/2017				
DATA FILE NO.	H6848.07				
CLIENT	Regupol America				
DESCRIPTION	7.95 mm Daltile Porcelain Tile, 5.1 mm Regupol 5mm Sonus Rubber Underlayment, 11.7 mm 1/2" olywood, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 457.2 mm Stone Truss L/360 Open Web Truss, 25.6 mm Regupol SonusClip, 22.11 mm 25 gauge Hat Channel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C core Gypsum Panel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C core Gypsum Panel				
SPECIMEN AREA	11.15 m²	**Receive Temp.**	21.1	**Source Temp.**	21.1
TECHNICIAN	LSH	**Receive Humidity**	45%	**Source Humidity**	45%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** m²	**SOURCE SPL** (dB)	**RECEIVE SPL** (dB)	**SPECIMEN TL** (dB)	**95% CONFIDENCE LIMIT**	**NUMBER OF DEFICIENCIES**
80	18.9	6.8	102	64	40	2.7	-
100	20.1	6.0	102	67	38	2.7	-
125	19.6	5.3	102	67	38	1.2	6
160	13.2	5.3	102	60	45	1.1	2
200	10.2	6.2	101	57	47	0.7	3
250	11.9	6.3	98	50	50	0.9	3
315	8.6	7.4	102	49	55	0.7	1
400	10.3	7.4	102	49	54	0.5	5
500	13.7	6.3	101	46	57	0.4	3
630	5.9	6.3	97	39	60	0.5	1
800	5.5	6.3	96	37	62	0.3	0
1000	3.1	6.4	97	36	63	0.5	0
1250	2.4	6.6	99	36	65	0.3	0
1600	2.4	6.9	99	33	68	0.3	0
2000	2.3	7.7	99	33	68	0.3	0
2500	3.2	8.4	100	32	69	0.3	0
3150	4.3	9.2	100	30	71	0.3	0
4000	4.5	10.6	99	28	72	0.4	0
5000	5.1	12.7	97	23	73	0.3	-
6300	5.7	16.7	95	19	75	0.5	-
8000	6.2	21.8	95	15	77	0.7	-
10000	6.4	27.5	94	11	79	0.7	-
STC Rating	**60**	*(Sound Transmission Class)*			**Sum of Deficiencies**		**24**

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

25800 Commercentre Dr.
Lake Forest, CA 92630

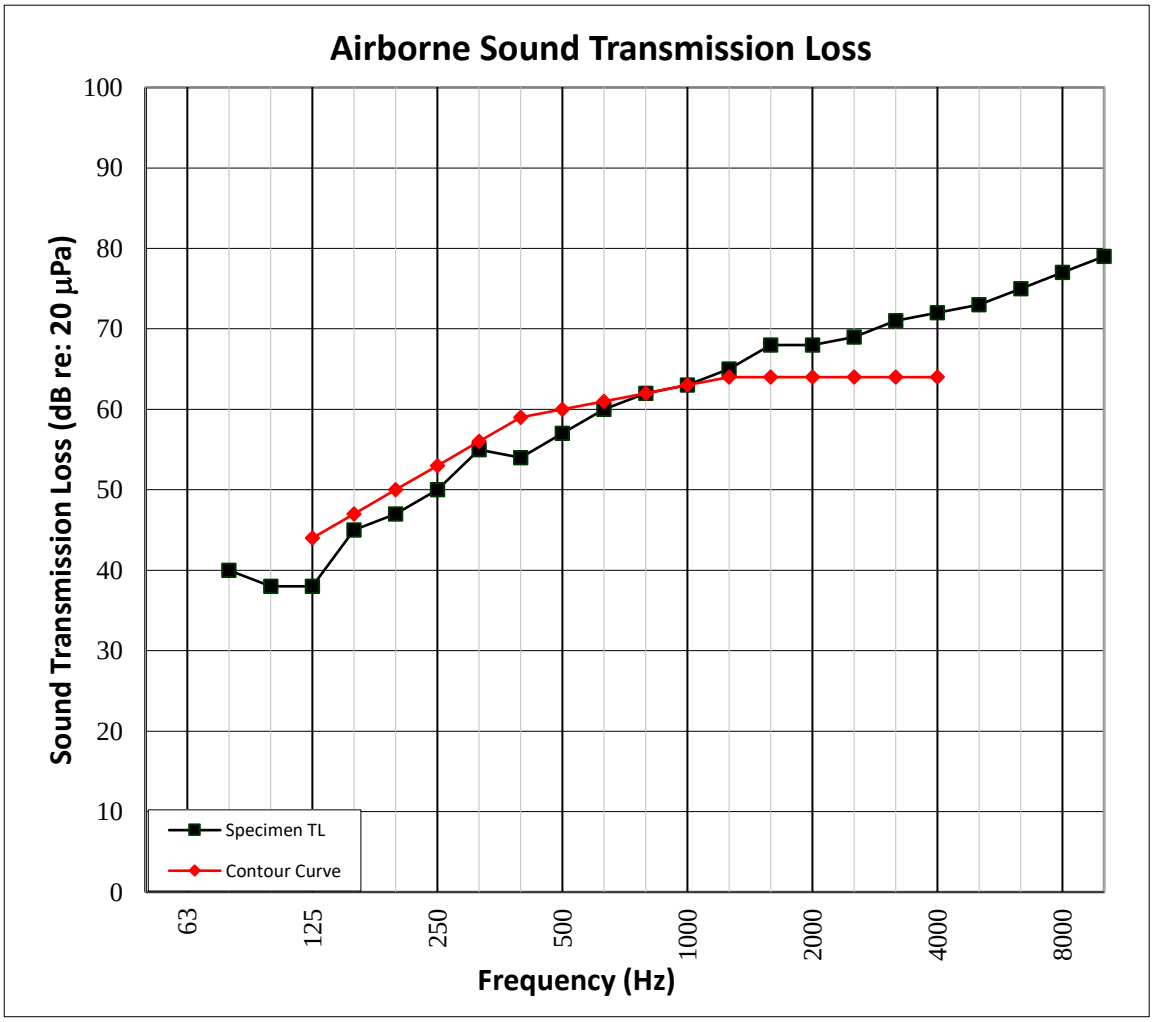
Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR REGUPOL AMERICA
Report No.: H6848.07-303-11-R0
Date: 01/03/18

SECTION 11
TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH

ACCREDITED Testing Laboratory

TEST DATE	11/18/2017				
DATA FILE NO.	H6848.07				
CLIENT	Regupol America				
DESCRIPTION	7.95 mm Daltile Porcelain Tile, 5.1 mm Regupol 5mm Sonus Rubber Underlayment, 11.7 mm 1/2" olywood, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 457.2 mm Stone Truss L/360 Open Web Truss, 25.6 mm Regupol SonusClip, 22.11 mm 25 gauge Hat Channel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C core Gypsum Panel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C core Gypsum Panel				
SPECIMEN AREA	11.15 m²	**Receive Temp.**	21.1	**Source Temp.**	21.1
TECHNICIAN	LSH	**Receive Humidity**	45%	**Source Humidity**	45%



intertek
Total Quality. Assured.

25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR REGUPOL AMERICA

Report No.: H6848.07-303-11-R0
Date: 01/03/18

SECTION 12

TEST RESULTS - IMPACT SOUND TRANSMISSION

ACCREDITED Testing Laboratory

TEST DATE	11/18/2017				
DATA FILE NO.	H6848.07				
CLIENT	Regupol America				
DESCRIPTION	7.95 mm Daltile Porcelain Tile, 5.1 mm Regupol 5mm Sonus Rubber Underlayment, 11.7 mm 1/2" olywood, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 457.2 mm Stone Truss L/360 Open Web Truss, 25.6 mm Regupol SonusClip, 22.11 mm 25 gauge Hat Channel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C core Gypsum Panel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C core Gypsum Panel				
SPECIMEN AREA	11.15 m²	**Maximum Temp.**	21.1	**Minimum Temp.**	21.1
TECHNICIAN	LSH	**Max. Humidity**	45%	**Min. Humidity**	45%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** m²	**NORMALIZED IMPACT SPL** (dB)	**95% CONFIDENCE LIMIT**	**NUMBER OF DEFICIENCIES**
80	19.3	7.0	62	1.7	-
100	20.7	6.2	63	1.1	7
125	21.2	5.2	60	1.0	4
160	13.9	5.1	60	0.7	4
200	10.8	6.1	60	0.6	4
250	12.1	6.1	60	0.4	4
315	9.6	7.5	56	0.4	0
400	9.5	7.2	57	0.3	2
500	13.8	6.3	54	0.2	0
630	7.6	6.3	53	0.3	0
800	6.0	6.5	52	0.3	0
1000	3.6	6.4	49	0.3	0
1250	3.2	6.5	46	0.3	0
1600	2.8	6.9	44	0.3	0
2000	2.6	7.7	44	0.2	2
2500	3.3	8.5	40	0.2	1
3150	4.3	9.1	33	0.2	0
4000	4.5	10.6	28	0.2	-
5000	5.1	12.8	21	0.2	-
6300	5.7	16.4	14	0.4	-
8000	6.1	21.6	11	0.3	-
10000	6.4	28.1	10	0.2	-
IIC Rating	**56**	*(Impact Insulation Class)*		**Sum of Deficiencies**	**28**

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

intertek
Total Quality. Assured.

25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR REGUPOL AMERICA

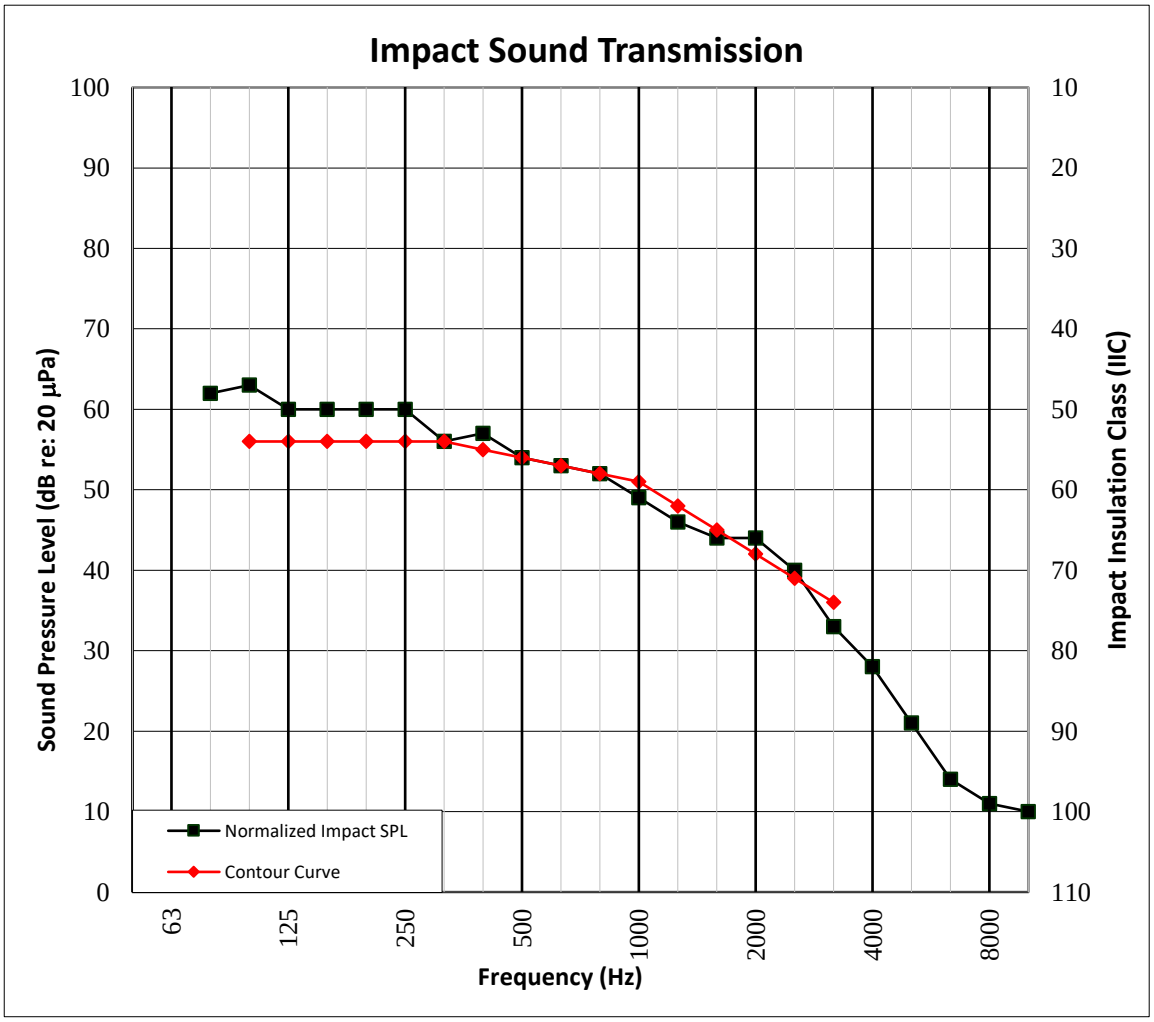
Report No.: H6848.07-303-11-R0
Date: 01/03/18

SECTION 13

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH

ACCREDITED Testing Laboratory

TEST DATE	11/18/2017				
DATA FILE NO.	H6848.07				
CLIENT	Regupol America				
DESCRIPTION	7.95 mm Daltile Porcelain Tile, 5.1 mm Regupol 5mm Sonus Rubber Underlayment, 11.7 mm 1/2" olywood, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 457.2 mm Stone Truss L/360 Open Web Truss, 25.6 mm Regupol SonusClip, 22.11 mm 25 gauge Hat Channel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C core Gypsum Panel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C core Gypsum Panel				
SPECIMEN AREA	11.15 m²	**Maximum Temp.**	21.1	**Minimum Temp.**	21.1
TECHNICIAN	LSH	**Max. Humidity**	45%	**Min. Humidity**	45%



25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

SECTION 14
PHOTOGRAPHS

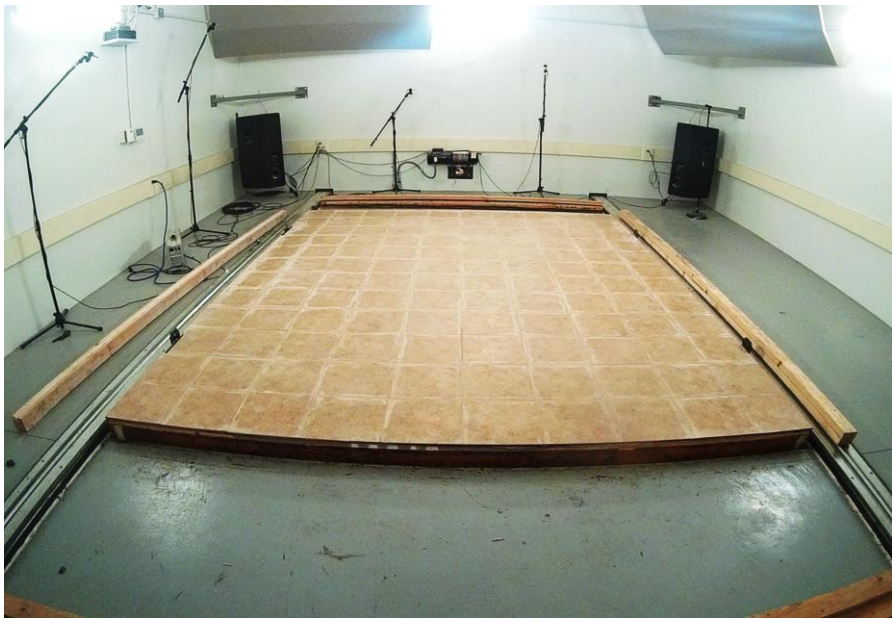


Photo No. 1
Source Room View of Test Specimen Installation

25800 Commercentre Dr.
Lake Forest, CA 92630

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

SECTION 16
REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	01/03/18	N/A	Original Report Issue