

# REGUPOL AMERICA

# ACOUSTICAL

# PERFORMANCE

# TEST REPORT

**SCOPE OF WORK**

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A  
STEEL STUD WALL ASSEMBLY WITH SONUSCLIP™

**REPORT NUMBER**

H7677.03-113-11-R0

**TEST DATE**

11/20/17

**ISSUE DATE**

12/21/17

**RECORD RETENTION END DATE**

11/20/21

**PAGES**

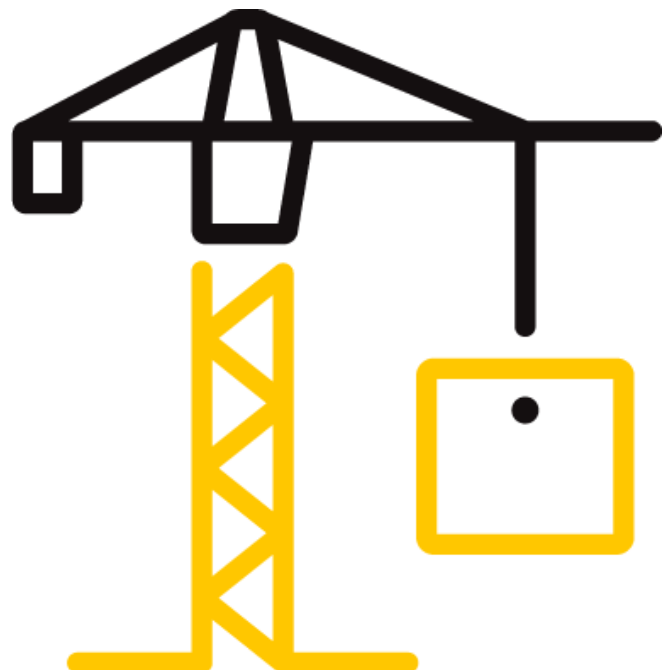
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**DOCUMENT CONTROL NUMBER**

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## TEST REPORT FOR REGUPOL AMERICA

Report No.: H7677.03-113-11-R0

Date: 12/21/17

### 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 conduct a sound transmission loss test. Results obtained are tested values and were secured by using the designated test method(s). The complete test data is included herein. The client provided the test specimen. All measurements were conducted in the HT 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>DESCRIPTION</b>	3-5/8" Steel studs (25 gauge) 16" on center with one layer 5/8" USG Type X gypsum board direct mount receive side R-13 fiberglass insulation, two layers 5/8" National Type X gypsum board mounted to SONUSCLIP™ and hat channel source side
<b>TYPE</b>	Steel stud wall assembly
<b>DATA FILE NO.</b>	H7677.01C
<b>STC</b>	60
<b>OITC</b>	42

For INTERTEK B&C:

**COMPLETED BY:** Zachary P. Golden  
Technician I  
**TITLE:** Acoustical Testing  
**SIGNATURE:**  
**DATE:** 12/21/17

**REVIEWED BY:** Kurt A. Golden  
Project Lead  
**TITLE:** Acoustical Testing  
**SIGNATURE:**  
**DATE:** 12/21/17

ZPG:jmcs

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### SECTION 3

#### TEST METHODS

The specimens were evaluated in accordance with the:

**ASTM E90-09 (2016)**, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*

**ASTM E413-16**, *Classification for Rating Sound Insulation*

**ASTM E1332-16**, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation*

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

### SECTION 4

#### SPECIMEN INSTALLATION

A sound transmission loss test was initially performed on a filler wall. The 96" wide by 96" high specimen plug was removed from the filler wall assembly. The specimen was constructed in the laboratory. The specimen was constructed on an isolation pad in the test opening. Duct seal was used to seal the perimeter of the specimen to the test opening on both sides. The interior side of the specimen, when installed, was approximately 1/4" from being flush with the receive room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing.

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### SECTION 5 EQUIPMENT

The equipment listed below meets the requirements of the test methods stated in Section 3 of this report.

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	1643A62	04/16 *
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65126	05/16 *
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65125	05/16 *
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00652	12/16
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64903	02/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65103	02/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64905	02/17
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	64906	02/17
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	01/17
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	03/17
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	03/17
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	Y002919	04/17

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

### TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	234 m <sup>3</sup>	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	207 m <sup>3</sup>	Stationary diffusers only Temperature and humidity controlled

	MAXIMUM SIZE	DESCRIPTION
TL TEST OPENING	4.27 m wide by 3.05 m high	Vibration break between source and receive rooms

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### SECTION 6

#### LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Bill Devin	Regupol America
Zachary P. Golden	Intertek B&C
Daniel Poet	Intertek B&C
Jear Mutunda	Intertek B&C

### SECTION 7

#### TEST PROCEDURE

The sensitivity of the microphones was checked before measurements were conducted.

The transmission loss values were obtained for a single direction of measurement.

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 receive and source rooms at each of five microphone positions.

The air temperature and relative humidity conditions were monitored and recorded during all measurements.

Data for flanking limit tests, repeatability measurements, and reference specimen tests are available upon request.

Intertek B&C will store samples of test specimens for four years.

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### SECTION 8

#### ACOUSTICAL TEST CALCULATIONS

Transmission loss (TL) at each 1/3 octave frequency is the average source room sound pressure level minus the average receive room sound pressure level, plus, 10 times the log of the specimen area divided by the sound absorption of the receive room with the sample in place.

#### STC Rating

To obtain the Sound Transmission Class (STC), read the TL of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve must not exceed 32. The maximum deficiency at any one frequency must not exceed 8.

#### OITC Rating

The Outdoor-Indoor Transmission Class (OITC) is calculated by subtracting the logarithmic summation of the TL values from the logarithmic summation of the A-weighted transportation noise spectrum stated in ASTM E1332.

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### SECTION 9

#### SPECIMEN DESCRIPTION

<b>GYPSUM BOARD</b>	One layer 5/8" Type X
<b>STUDS</b>	3-5/8" Steel (25 gauge), 16" on center
<b>INSULATION</b>	R-13 Unfaced fiberglass insulation
<b>PLATES</b>	3-1/2" Steel (25 gauge)
<b>SONUSCLIP™</b>	Regupol SONUSCLIP™
<b>HAT CHANNEL</b>	2-9/16" Steel (25 gauge)
<b>GYPSUM BOARD</b>	Two layers 5/8" Type X

MATERIAL	ACTUAL DIMENSIONS (inches)	ACTUAL THICKNESS (inches)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
<b>GYPSUM BOARD</b>	48 by 96	0.625	USG Fire Core Type X	2 sheets	2.25 lbs/ft <sup>2</sup>
	<i>Note: Screws spaced on 12" centers. Perimeter was sealed with duct seal. Screw heads were sealed with foil tape, joint sealed with acoustical sealant and foil tape.</i>				
<b>STUD</b>	3-5/8 by 95-1/2	3.63	Steel, 25 Gauge equivalent	7 pieces	0.36 lbs/linear ft
	<i>Note: 16" centers. Screwed to top and bottom plates.</i>				
<b>INSULATION</b>	16 by 95-1/2	3.58	R-13 Unfaced fiberglass Insulation	6 batts	0.31 lbs/ft <sup>2</sup>
	<i>Note: Cavity between gypsum boards.</i>				
<b>PLATE</b>	3-5/8 by 96	3.63	Steel, 25 Gauge equivalent	2 pieces	0.36 lbs/linear ft
	<i>Note: Screwed to top and bottom frame.</i>				
<b>SONUSCLIP™</b>	1-3/8 by 3	1-1/16	Regupol SONUSCLIP™	22 clips	0.130 lbs per clip
	<i>Note: Screwed to studs 24" by 48" grid pattern per manufacturer's specifications.</i>				
<b>HAT CHANNEL</b>	95-1/2 by 2-9/16	7/8	Steel, 25 Gauge equivalent	5 pieces	0.24 lbs/linear ft
	<i>Note: Clipped on to SONUSCLIPs and spaced every 24"</i>				
<b>GYPSUM BOARD</b>	48 by 96	0.625	National Gypsum Type X	2 sheets	2.25 lbs/ft <sup>2</sup>
	<i>Note: Screws spaced on 12" centers. Joint sealed with acoustical sealant.</i>				
<b>GYPSUM BOARD</b>	48 by 96	0.625	National Gypsum Type X	2 sheets	2.25 lbs/ft <sup>2</sup>
	<i>Note: Screws spaced on 12" centers. Perimeter was sealed with duct seal. Screw heads were sealed with foil tape, joint sealed with acoustical sealant and foil tape.</i>				

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft <sup>2</sup> )
490	7.66

The client did not supply a report drawing of the test specimen.

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### SECTION 10

#### TEST RESULTS

<b>SPECIMEN AREA</b>	5.95 m <sup>2</sup>	<b>RECEIVE TEMP.</b>	21.6 °C	<b>SOURCE TEMP</b>	20.7 °C
<b>TECHNICIAN</b>	Zachary Gol	<b>RECEIVE HUMIDITY</b>	46%	<b>SOURCE HUMIDITY</b>	44%

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	35.8	6.4	108	83	24	1.61	-
100	31.9	5.5	106	75	31	1.88	-
125	33.7	5.0	106	70	37	1.57	7
160	39.7	4.6	106	66	41	0.80	6
200	38.3	4.6	107	63	46	0.77	4
250	30.8	5.3	107	58	51	0.84	2
315	24.7	5.5	100	50	51	0.71	5
400	21.5	5.7	98	43	55	0.48	4
500	17.8	5.8	98	42	58	0.41	2
630	17.2	5.7	102	42	60	0.49	1
800	15.6	5.9	101	38	63	0.48	0
1000	9.6	6.1	98	32	66	0.33	0
1250	8.0	6.6	99	29	70	0.26	0
1600	5.7	7.1	102	34	68	0.32	0
2000	4.6	7.8	96	31	64	0.25	0
2500	4.2	8.9	95	28	65	0.28	0
3150	4.5	10.5	97	26	69	0.37	0
4000	5.2	13.0	96	23	70	0.44	0
5000	6.1	16.9	95	18	73	0.41	-
<b>STC RATING</b>	60 (Sound Transmission Class)						
<b>DEFICIENCIES</b>	31 (Sum of Deficiencies)						
<b>OITC RATING</b>	42 (Outdoor-Indoor Transmission Class)						

**Notes:**

- 1) Receive Room levels less than 5 dB above the Background levels are red.
- 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
- 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied



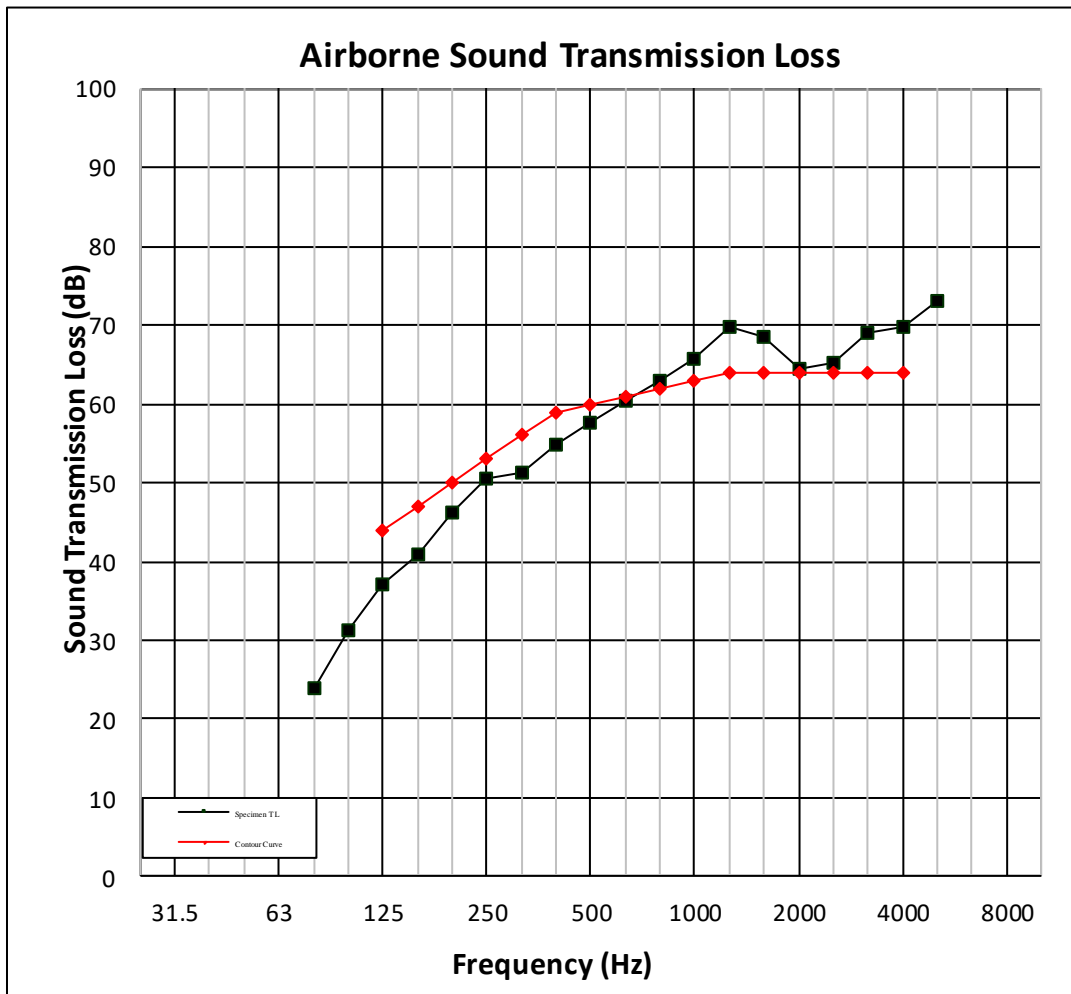
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### SECTION 11

### RESULTS GRAPH



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### SECTION 12

#### PHOTOGRAPHS



**Photo No. 1**  
**Receive Room View of Installed Test Specimen**



**Photo No. 2**  
**Source Room View of Installed Test Specimen**



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### SECTION 13

#### REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	12/21/17	N/A	Original Report Issue