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REGUPOL AMERICA
ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK
ISO 10140-2, ISO 10140-3 TESTING ON
5.5 MM CLICK LVT OVER REGUPOL SONUS™ CORE 10MM

SPECIMEN TYPE
Concrete Slab - 152 mm (6")

REPORT NUMBER
L3056.05-113-11-R0

TEST DATE
09/02/20

ISSUE DATE
09/15/20

RECORD RETENTION END
09/02/24

PAGES
11

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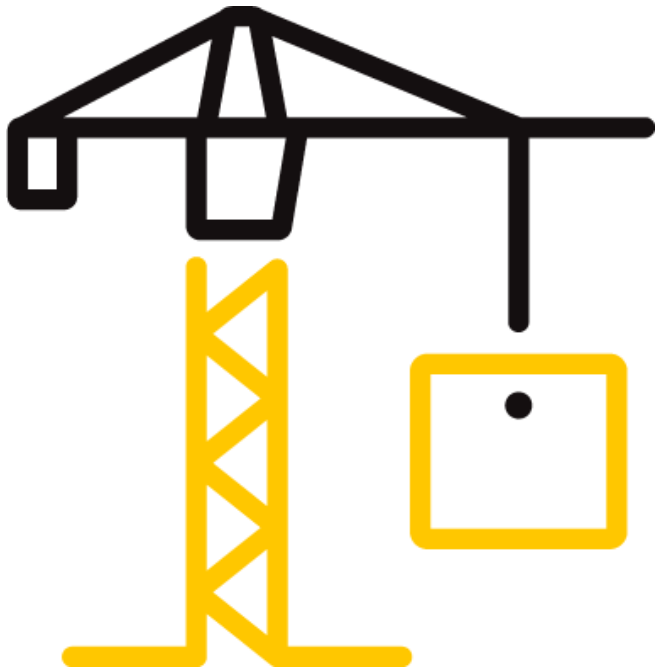

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TEST REPORT FOR REGUPOL AMERICA

Report No.: L3056.05-113-11-R0
Date: 09/15/20

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 ISO 10140-2, ISO 10140-3 on 5.5 mm Click LVT over Regupol Sonus™ Core 10mm. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted in the VT test chambers at Intertek B&C located in York, Pennsylvania. These test chambers satisfy the lab requirements specified in ISO 10140-5.

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.	L3056.05			
SERIES/MODEL:	5.5 mm Click LVT over Regupol Sonus™ Core 10mm			
Rw	**52** dB	$C_{50\text{-}3,150}$ = -2 dB	$C_{50\text{-}5,000}$ = -1 dB	$C_{100\text{-}5,000}$ = -1 dB
		$C_{tr,50\text{-}3,150}$ = -7 dB	$C_{tr,50\text{-}5,000}$ = -7 dB	$C_{tr,100\text{-}5,000}$ = -6 dB
$L_{n,w}$	**52** dB	$C_{I,100\text{-}2,500}$ = 0 dB	$C_{I,50\text{-}2,500}$ = 1 dB	
$\Delta L_{n,w}$	**23** dB			

COMPLETED BY:	Seth J. Allen	**REVIEWED BY:**	Daniel B. Mohler
TITLE:	Technician - Acoustical Testing	**TITLE:**	Project Lead - Acoustical Testing
SIGNATURE:	Seth Allen Digitally Signed by: Seth Allen	**SIGNATURE:**	Dan Mohler Digitally Signed by: Daniel Mohler
DATE:	09/15/20	**DATE:**	09/15/20

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SECTION 3
TEST METHODS

The specimen was evaluated in accordance with the following:

ISO 10140-2:2010(E), *Laboratory measurement of sound insulation of building elements - Measurement of airborne Sound insulation*

ISO 717-1:1996(E), *Rating of sound insulation in buildings and of building elements - Airborne sound insulation*

ISO 10140-3:2010(E), *Laboratory measurement of sound insulation of building elements - Measurement of impact sound insulation*

ISO 717-2:2013(E), *Rating of sound insulation in buildings and of building elements - Impact sound insulation*

ISO 10140-5:2010, *Laboratory measurement of sound insulation of building elements - Requirements for test facilities and equipment*

SECTION 4
MATERIAL SOURCE/INSTALLATION

The full test specimen was assembled into the testing frame 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 (6")) 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 4173.9 kg / 9202.1 lbs. 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. The test record retention period ends four years after the test date.

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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.

VT RECEIVE ROOM VOLUME	158.86 m^3 (5610.1 ft^3)
VT SOURCE ROOM VOLUME	190 m^3 (6709.79 ft^3)

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Seth J. Allen	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 through 15.

The airborne sound insulation test was conducted in accordance with the ISO 10140-2 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 insulation test was conducted in accordance with the ISO 10140-3 test method. Two background noise sound pressure level, two sound pressure level measurements with the tapping machine operating at each position specified by ISO 10140-3, and five sound absorption measurements were conducted at each of five microphone positions.

The delta impact insulation test was conducted in accordance with ISO 10140-3 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 ISO 10140-3 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 Rw (Sound Reduction Index), IIC (Impact Sound Insulation), and ΔLw (Improvement of Impact Sound Insulation) ratings were calculated in accordance with ISO 717-1, ISO 717-2, respectively.

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SECTION 9

TEST SPECIMEN DESCRIPTION

MATERIAL	Dimensions (mm/inch)	Thickness (mm/inch)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Luxury Vinyl Plank	1219.2 by 150 48 by 5.9	5.5 / 0.22	Shaw® Como	10.98 m² 118.19 ft²	6.55 kg/m² 1.34 lb/ft²
	Note: Loose laid				
Rubber Underlayment	3632 by 3023 143 by 119	10 / 0.39	Regupol® Sonus™ Core	10.98 m² 118.19 ft²	7.4 kg/m² 1.52 lb/ft²
	Note: Loose laid				
Concrete Slab	3023 by 3632 119 by 143	152.4 / 6	5000 PSI	10.98 m² 118.19 ft²	366.18 kg/m² 75 lb/ft²
	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.				

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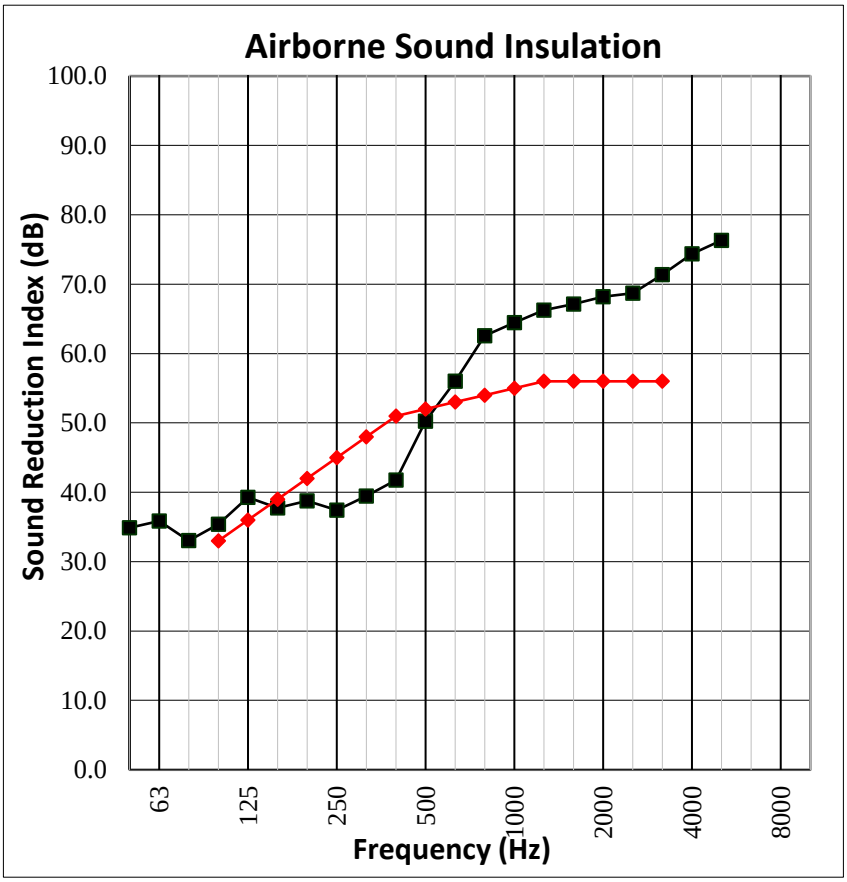
SECTION 10
TEST RESULTS - SOUND REDUCTION INDEX (IN ACCORDANCE WITH ISO 10140-2)

TEST DATE	9/2/2020				
DATA FILE NO.	L3056.05				
CLIENT	Regupol America				
DESCRIPTION	5.5 mm (0.22") Shaw® Como Luxury Vinyl Plank, 10 mm (0.39") Regupol® Sonus™ Core Rubber Underlayment, 152.4 mm (6") 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m²	**Receive Temp.**	21.8°C (71.2°F)	**Source Temp.**	23.7°C (74.7°F)
TECHNICIAN	CRS	**Receive Humidity**	56%	**Source Humidity**	56%

FREQUENCY *f* Hz	*R* one-third octave dB
50	34.9
63	35.9
80	33.0
100	35.4
125	39.3
160	37.8
200	38.8
250	37.4
315	39.5
400	41.8
500	50.3
630	56.0
800	62.6
1000	64.5
1250	66.2
1600	67.2
2000	68.2
2500	68.7
3150	71.4
4000	74.4
5000	76.3



Rating in accordance with ISO 717-1:

$R_w(C;C_{tr})$ = **52** dB $C_{50\text{-}3,150}$ = -2 dB $C_{50\text{-}5,000}$ = -1 dB $C_{100\text{-}5,000}$ = -1 dB

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{tr,50\text{-}3,150}$ = -7 dB $C_{tr,50\text{-}5,000}$ = -7 dB $C_{tr,100\text{-}5,000}$ = -6 dB

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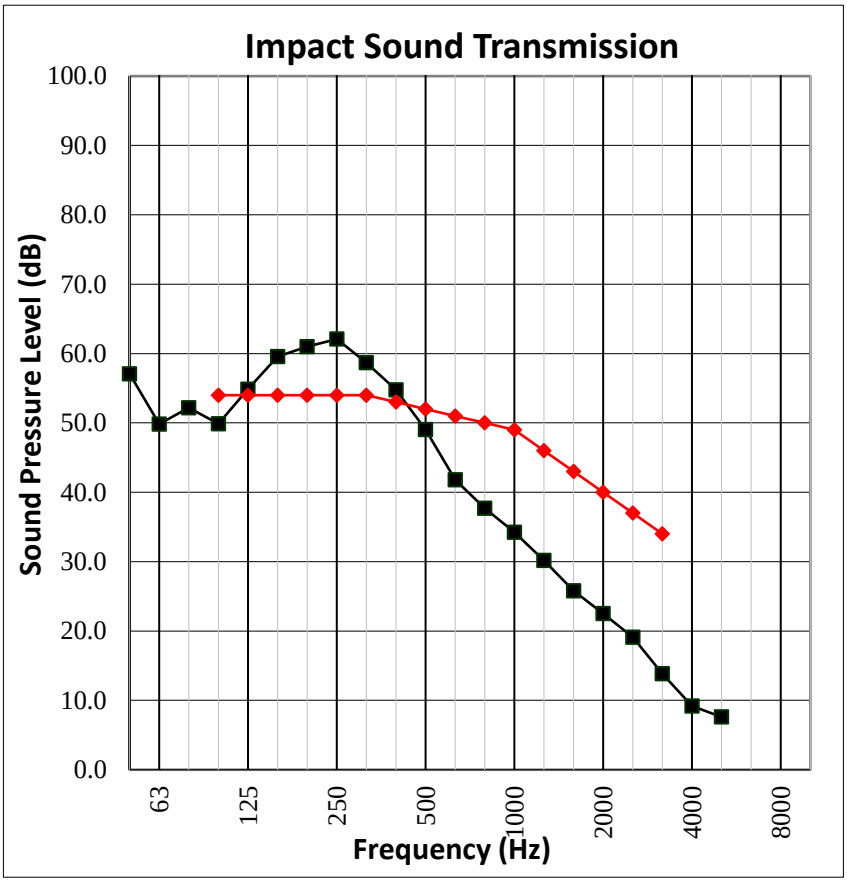
SECTION 11

TEST RESULTS - NORMALIZED IMPACT SPL (IN ACCORDANCE WITH ISO 10140-3)

TEST DATE	9/2/2020				
DATA FILE NO.	L3056.05				
CLIENT	Regupol America				
DESCRIPTION	5.5 mm (0.22") Shaw® Como Luxury Vinyl Plank, 10 mm (0.39") Regupol® Sonus™ Core Rubber Underlayment, 152.4 mm (6") 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m²	**Receive Temp.**	21.8°C (71.2°F)	**Source Temp.**	23.7°C (74.7°F)
TECHNICIAN	CRS	**Receive Humidity**	56%	**Source Humidity**	56%

FREQUENCY *f* Hz	L_n one-third octave dB
50	57.1
63	49.9
80	52.2
100	49.9
125	54.8
160	59.6
200	61.0
250	62.1
315	58.7
400	54.8
500	49.0
630	41.8
800	37.7
1000	34.2
1250	30.2
1600	25.8
2000	22.5
2500	19.1
3150	13.9
4000	9.2
5000	7.6



Rating in accordance with ISO 717-1

$L_{n,w}(C_I)$ = **52** (0) dB $C_{I,50\text{-}2,500}$ = 1 dB

ΔL_w = **23** dB

Evaluation based on laboratory measurement results obtained by an engineering method.

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SECTION 13
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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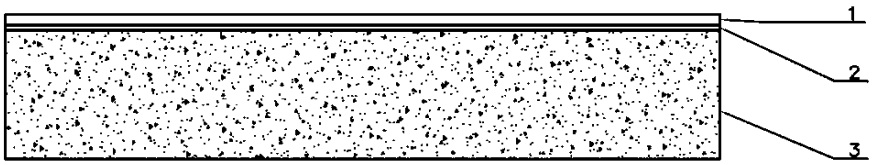
SECTION 14
DRAWING



1-Floor Topping
2-Underlayment
3-Concrete Slab

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SECTION 15
REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	09/15/20	N/A	Original Report Issue