

REGUPOL AMERICA

ACOUSTICAL

PERFORMANCE

TEST REPORT

SCOPE OF WORK

ASTM E90 AND ASTM E492 TESTING ON ENGINEERED HARDWOOD NAILED AND GLUED TO ADVANTECH® SUBFLOOR OVER REGUPOL® SONUS™

SPECIMEN TYPE

Concrete Slab - 203 mm

REPORT NUMBER

I6230.01-113-11-R1

TEST DATE

07/05/18

ISSUE DATE

07/10/18

REVISED DATE

07/25/18

RECORD RETENTION END

07/05/22

PAGES

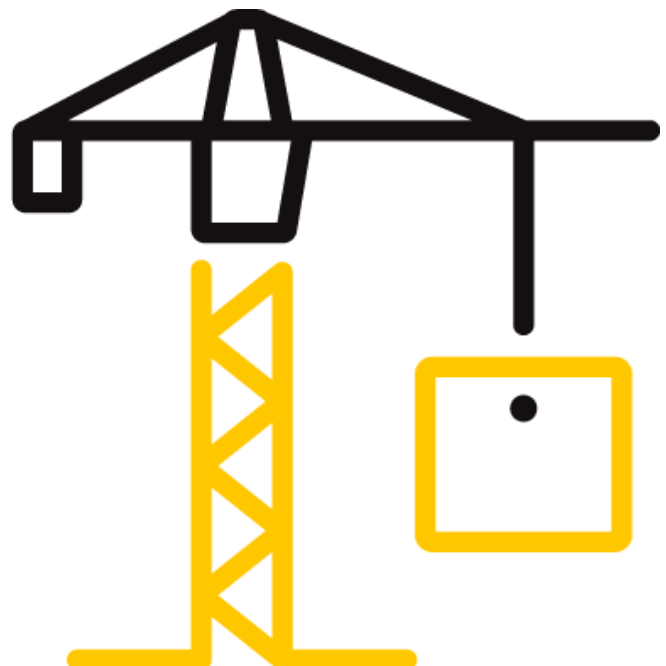
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Date: 07/25/18

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 AND ASTM E492 on Engineered Hardwood Nailed and Glued to AdvanTech® Subfloor over 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

DATA FILE NO.	I6230.01
SERIES/MODEL:	Engineered Hardwood Nailed and Glued to AdvanTech® Subfloor over Regupol® Sonus™
STC	57
IIC	54

COMPLETED BY:	Cody R. Snyder
TITLE:	Technician I - Acoustical Testing
SIGNATURE:	
DATE:	07/25/18

COMPLETED BY:	Jordan Strybos
TITLE:	Project Manager - Acoustical Testing
SIGNATURE:	
DATE:	07/25/18

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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 E989-06 (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 - 203 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 6117.6 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	PXI-4462	Data Acquisition Card	63763-5	06/18 *
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	65124	05/18 *
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	63763-1	06/18 *
Microphone Calibrator	Norsonic	Nor1251	Acoustical Calibrator	65105	06/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT01089	12/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65586	02/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65969	04/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63746	09/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65968	01/18
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63810	10/17
				63811	10/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT01009	02/18
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63739	04/18
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63740	04/18
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63742	03/18
Source Room Microphone	PCB Electronics	378C20	Microphone and Preamplifier	63741	04/18
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	INT00603	03/18
Tapping Machine	Norsonic	Nor277	Tapping Machine	INT00936	12/17

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

VT RECEIVE ROOM VOLUME	158.34 m ³
VT SOURCE ROOM VOLUME	190 m ³

**SECTION 6
LIST OF OFFICIAL OBSERVERS**

NAME	COMPANY
Cody R. Snyder	Intertek B&C
Jordan Strybos	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/inch)	THICKNESS (mm/inch)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Engineered Hardwood	Varied by 127 Varied by 5	19.5	Preverco	10.98 m ²	13.72 kg/m ²
	Note: Adhered to the underlayment panels with DriTac 7300 adhesive using a (TR-6) 4.76 mm by 4.76 mm by 3.97 mm V-notch trowel and nailed approximately 152 mm on center with 38.1 mm 16 gauge L-Cleat flooring nails. Adhesive was allowed to cure per manufacturer's specifications.				
Oriented Strand Board	609.6 by 610	18.7	Huber Engineered Woods LLC AdvanTech®	10.98 m ²	11.18 kg/m ²
	Note: Adhered to the underlayment in a staggered brick pattern with DriTac Moisture Block 4-in-1 adhesive using a (TR-11) 6.35 mm by 6.35 mm V-notch trowel. Adhesive was allowed to cure per manufacturer's specifications.				
Rubber Underlayment	1231.9 by 685.8	10.0	Regupol® Sonus™	10.98 m ²	7.52 kg/m ²
	Note: A sheet of 2 mil polyethylene plastic was placed onto the floor slab. The underlayment was adhered to the sheeting with DriTac Moisture Block 4-in-1 adhesive, which was spread using a (TR-10) 6.35 mm by 4.76 mm V-notch trowel and rolled with a 100 pound flooring roller. Adhesive was allowed to cure per manufacturer's specifications.				
Concrete Slab	3023 by 3632	203.2	5000 PSI	10.98 m ²	524.71 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. No noticeable shrinkage or cracking was visible on the specimen.				

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SECTION 10

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS



TEST DATE	7/5/2018				
DATA FILE NO.	I6230.01				
CLIENT	Regupol America				
DESCRIPTION	19.5 mm Preverco Engineered Hardwood, 18.75 mm Huber Engineered Woods LLC AdvanTech® Oriented Strand Board, 10 mm Regupol® Sonus™ Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Receive Temp.	20.7°C	Source Temp.	21.8°C
TECHNICIAN	DBM	Receive Humidity	72%	Source Humidity	72%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	44.3	16.5	109	66	41	3.0	-
100	34.5	16.1	104	65	38	1.9	-
125	35.4	10.6	107	64	42	2.3	0
160	33.1	9.3	103	63	41	1.3	3
200	26.8	10.7	103	60	43	0.9	4
250	31.4	10.6	101	57	45	1.0	5
315	23.6	9.7	105	60	46	1.0	7
400	20.3	8.4	101	52	50	0.8	6
500	23.5	7.7	99	46	55	0.8	2
630	19.1	7.5	101	44	59	0.8	0
800	16.4	7.2	101	41	62	0.5	0
1000	15.1	7.3	102	39	64	0.4	0
1250	11.8	7.2	101	37	66	0.5	0
1600	8.2	7.4	100	35	67	0.3	0
2000	7.0	8.3	102	35	67	0.4	0
2500	6.2	9.1	99	34	66	0.3	0
3150	5.2	10.0	99	29	70	0.4	0
4000	5.3	11.0	99	26	72	0.4	0
5000	5.6	12.5	99	23	75	0.4	-
6300	6.2	15.8	98	19	78	0.6	-
8000	6.7	20.1	97	14	81	0.5	-
10000	6.9	25.3	98	11	83	0.7	-
STC Rating	57	<i>(Sound Transmission Class)</i>			Sum of Deficiencies	27	

- 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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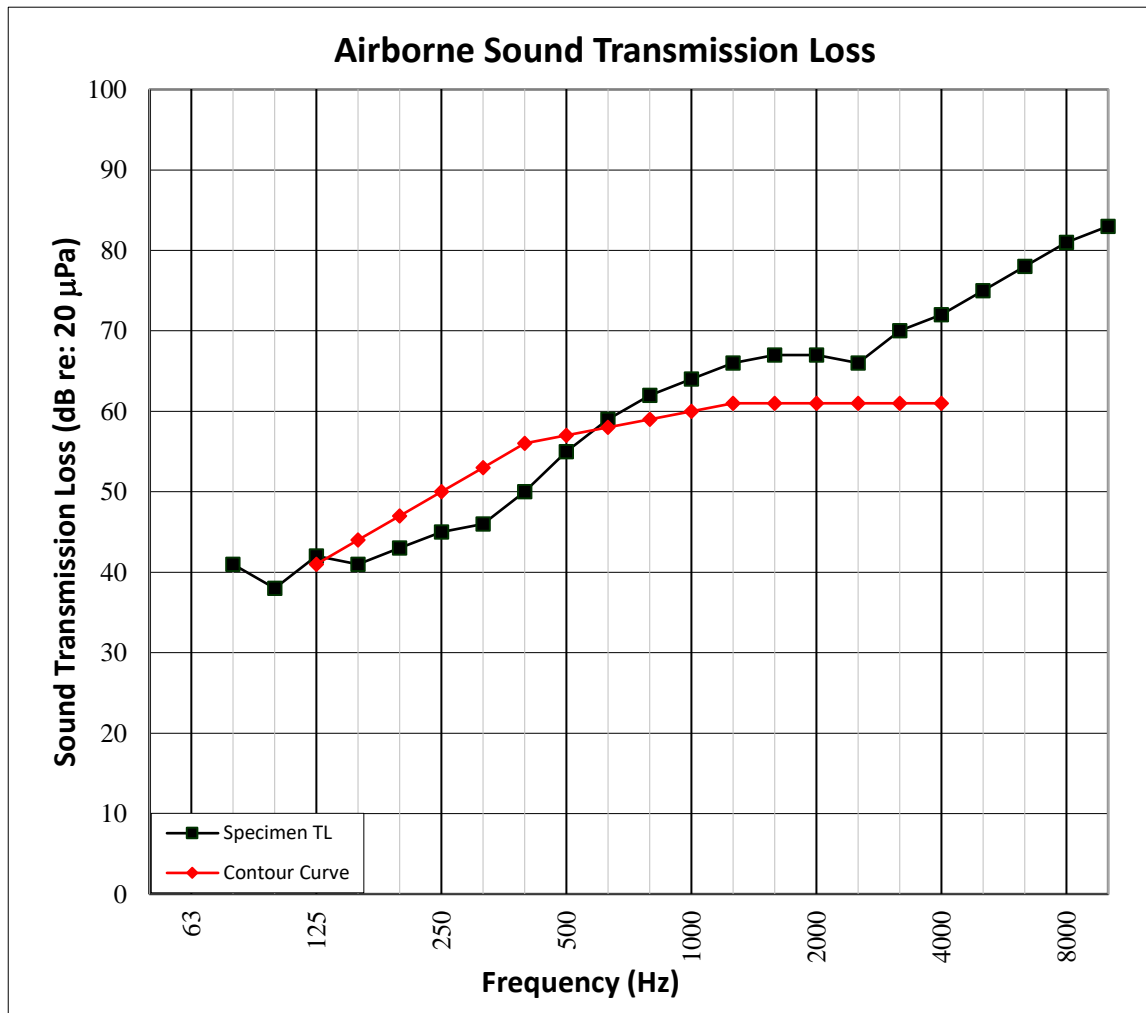
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SECTION 11

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH



TEST DATE	7/5/2018				
DATA FILE NO.	I6230.01				
CLIENT	Regupol America				
DESCRIPTION	19.5 mm Preverco Engineered Hardwood, 18.75 mm Huber Engineered Woods LLC AdvanTech® Oriented Strand Board, 10 mm Regupol® Sonus™ Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Receive Temp.	20.7°C	Source Temp.	21.8°C
TECHNICIAN	DBM	Receive Humidity	72%	Source Humidity	72%



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SECTION 12

TEST RESULTS - IMPACT SOUND TRANSMISSION



TEST DATE	7/5/2018				
DATA FILE NO.	I6230.01				
CLIENT	Regupol America				
DESCRIPTION	19.5 mm Preverco Engineered Hardwood, 18.75 mm Huber Engineered Woods LLC AdvanTech® Oriented Strand Board, 10 mm Regupol® Sonus™ Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	21°C	Minimum Temp.	20.4°C
TECHNICIAN	DBM	Max. Humidity	74%	Min. Humidity	70%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	43.7	15.2	50	1.9	-
100	33.3	15.0	56	0.6	0
125	32.5	10.0	58	1.7	0
160	25.8	9.0	60	1.4	2
200	23.5	10.5	65	0.8	7
250	31.0	10.7	65	1.1	7
315	23.4	9.9	65	0.4	7
400	20.0	8.1	61	0.5	4
500	22.7	7.7	59	0.6	3
630	19.9	7.5	53	0.5	0
800	17.2	7.4	50	0.5	0
1000	14.4	7.1	46	0.6	0
1250	11.3	7.3	41	0.6	0
1600	7.9	7.4	36	0.5	0
2000	7.1	8.2	31	0.6	0
2500	6.4	8.9	25	0.6	0
3150	5.4	10.0	17	0.8	0
4000	5.4	11.1	8	0.5	-
5000	5.6	12.5	5	0.2	-
6300	6.2	15.9	6	0.2	-
8000	6.7	20.1	8	0.2	-
10000	6.9	25.2	9	0.3	-
IIC Rating	54	<i>(Impact Insulation Class)</i>		Sum of Deficiencies	30

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

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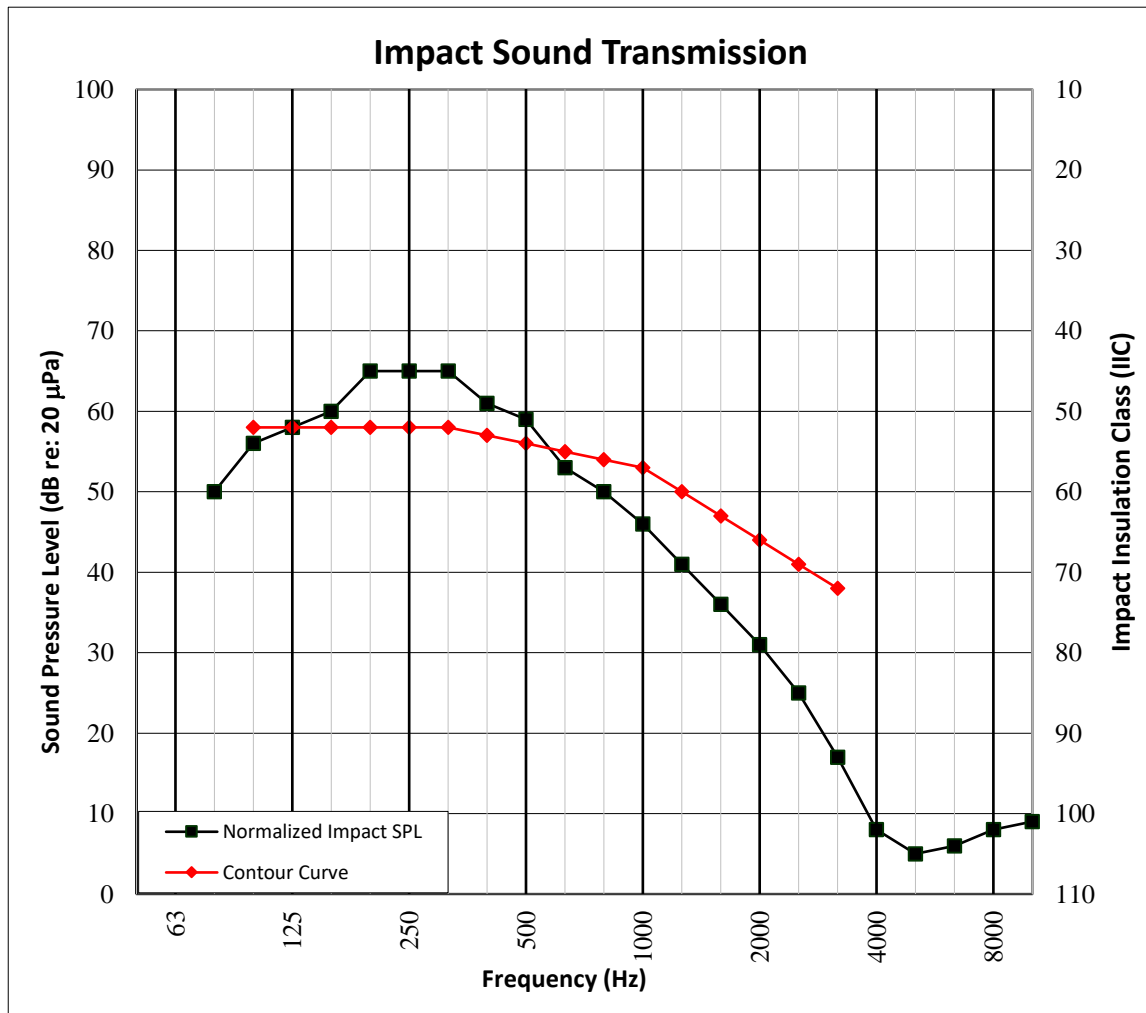
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SECTION 13

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH



TEST DATE	7/5/2018				
DATA FILE NO.	I6230.01				
CLIENT	Regupol America				
DESCRIPTION	19.5 mm Preverco Engineered Hardwood, 18.75 mm Huber Engineered Woods LLC AdvanTech® Oriented Strand Board, 10 mm Regupol® Sonus™ Rubber Underlayment, 203.2 mm 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	21°C	Minimum Temp.	20.4°C
TECHNICIAN	DBM	Max. Humidity	74%	Min. Humidity	70%



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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

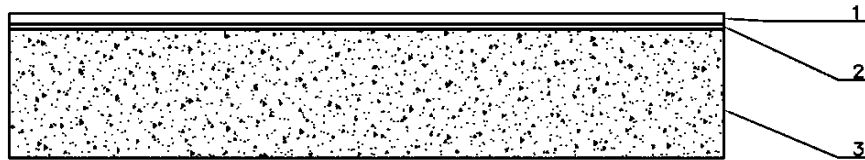
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SECTION 15

DRAWING



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

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SECTION 16

REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	07/10/18	N/A	Original Report Issue
R1	07/25/18	Pages 1, 2	Floor topping information corrected