



**E1552.05-113-11-R0**  
**ACOUSTICAL PERFORMANCE TEST REPORT**  
**ASTM E 90 AND ASTM E 492**

**Rendered to**

**REGUPOL AMERICA**

**Series/Model: 12 mm Regupol Sonus Rubber Underlayment**

**Specimen Type: Floor/Ceiling Assembly**

**Overall Size: 3023 mm by 3632 mm**

|            |           |
|------------|-----------|
| <b>STC</b> | <b>54</b> |
| <b>IIC</b> | <b>52</b> |

**Test Specimen Identification:**

Floor Topping: 7 mm Ceramic Tile

Floor Underlayment: 12 mm Regupol Sonus Rubber Underlayment

Floor Slab: 203 mm Concrete slab

Reference should be made to Architectural Testing, Inc. Report E1552.05-113-11 for complete test specimen description.



## Acoustical Performance Test Report

REGUPOL AMERICA  
33 Keystone Drive  
Lebanon, Pennsylvania 17042

|                                  |                 |
|----------------------------------|-----------------|
| <b>Report</b>                    | E1552.05-113-11 |
| <b>Test Date</b>                 | 10/30/14        |
| <b>Report Date</b>               | 01/28/15        |
| <b>Record Retention End Date</b> | 10/30/18        |

### Project Scope

Regupol America contracted Architectural Testing to conduct airborne sound transmission loss and impact sound transmission tests. A summary of the results is listed in the Test Results section, and the complete test data is included as attachments to this report. The client provided the test specimen.

### Test Methods

The acoustical tests were conducted in accordance with the following standards. The equipment listed in the attachments meets the requirements of the following standards.

ASTM E 90-09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

ASTM E 413-10, Classification for Rating Sound Insulation

ASTM E 492-09, Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine

ASTM E 989-06 (2012), Classification for Determination of Impact Insulation Class (IIC)

ASTM E 2235-04 (2012) Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods

### Test Procedure

All testing was conducted in the VT test chambers at Architectural Testing, Inc. located in York, Pennsylvania. The microphones were calibrated before conducting the tests.

The airborne transmission loss test was conducted in accordance with the ASTM E 90 test method using a single direction of measurement. Two background noise sound pressure level and twenty 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.

**Test Procedure (Continued)**

The impact sound transmission test was conducted in accordance with the ASTM E 492 test method. Two background noise sound pressure level, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E 492, and twenty sound absorption measurements were conducted at each of five microphone positions.

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

**Test Conditions**

| Source Room               |         | Receive Room              |         |
|---------------------------|---------|---------------------------|---------|
| Maximum Temperature       | 18.1 °C | Maximum Temperature       | 17.5 °C |
| Minimum Temperature       | 18.1 °C | Minimum Temperature       | 16.5 °C |
| Average Temperature       | 18.1 °C | Average Temperature       | 17.1 °C |
| Maximum Relative Humidity | 69%     | Maximum Relative Humidity | 60%     |
| Minimum Relative Humidity | 69%     | Minimum Relative Humidity | 57%     |
| Average Relative Humidity | 69%     | Average Relative Humidity | 58%     |

**Test Calculations**

The STC (Sound Transmission Class) and IIC (Impact Insulation Class) ratings were calculated in accordance with ASTM E 413 and ASTM E 989, respectively.

**Test Specimen Materials**

| Material            | Dimensions (mm)  | Thickness (mm) | Manufacturer and Series | Quantity             | Average Weight           |
|---------------------|--|----------------|-------------------------|----------------------|--------------------------|
| Ceramic Tile        | 304.8 by 304.8   | 7.0            | N/A                     | 10.98 m <sup>2</sup> | 14.09 kg/m <sup>2</sup>  |
|                     | <i>Note: Grout was placed into the 6.35 mm joints between the ceramic tile and wiped clean. The ceramic tile was placed with light pressure onto a bed of mortar on the underlayment. The mortar was set using a 6.35 mm by 6.35 mm trowel. Both the grout and mortar were allowed to cure to manufacturer's specifications.</i> |                |                         |                      |                          |
| Rubber Underlayment | 3048 by 1219.2   | 12.0           | Regupol Sonus           | 10.98 m <sup>2</sup> | 8.79 kg/m <sup>2</sup>   |
|                     | <i>Note: Loose laid.</i>   |                |                         |                      |                          |
| Concrete slab       | 3023 by 3632   | 203.0          | N/A                     | 10.98 m <sup>2</sup> | 488.24 kg/m <sup>2</sup> |
|                     | <i>Note: The concrete slab was installed in a test frame flush to the source room.</i>   |                |                         |                      |                          |

## Comments

The total weight of the floor/ceiling assembly was 5612.1 kg. Architectural Testing will store samples of the test specimen for four years. Photographs of the test specimen are included in the attachments. A drawing of the test specimen is included in the attachments.

Architectural Testing 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 Architectural Testing for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

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Leeland S. Hoover  
Technician II - Acoustical Testing

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Bradlay D. Hunt  
Project Manager - Acoustical Testing

Attachments (7)

*\* Stated by Client/Manufacturer*

*N/A - Non Applicable*



### Revision Log

| <u>Revision</u> | <u>Date</u> | <u>Page(s)</u> | <u>Description</u>    |
|-----------------|-------------|----------------|-----------------------|
| R0              | 01/28/15    | N/A            | Original Report Issue |

## Attachments

### Instrumentation

| Instrument                           | Manufacturer         | Model    | ATI Number | Date of Calibration |
|--------------------------------------|----------------------|----------|------------|---------------------|
| Data Acquisition Unit                | National Instruments | PXI-1033 | 63763      | 06/14 *             |
| Source Room Microphone               | PCB Piezotronics     | 378B20   | 63738      | 04/14               |
| Source Room Microphone               | PCB Piezotronics     | 378B20   | 63739      | 04/14               |
| Source Room Microphone               | PCB Piezotronics     | 378B20   | 63748      | 04/14               |
| Source Room Microphone               | PCB Piezotronics     | 378B20   | 63742      | 04/14               |
| Source Room Microphone               | PCB Piezotronics     | 378B20   | 63741      | 04/14               |
| Receive Room Microphone              | PCB Piezotronics     | 378B20   | 64340      | 04/14               |
| Receive Room Microphone              | PCB Piezotronics     | 378B20   | 63744      | 04/14               |
| Receive Room Microphone              | PCB Piezotronics     | 378B20   | 63745      | 04/14               |
| Receive Room Microphone              | PCB Piezotronics     | 378B20   | 63746      | 04/14               |
| Receive Room Microphone              | PCB Piezotronics     | 378B20   | 63747      | 04/14               |
| Receive Room Environmental Indicator | Comet                | T7510    | 63810      | 09/14               |
| Receive Room Environmental Indicator | Comet                | T7510    | 63811      | 09/14               |
| Source Room Environmental Indicator  | Comet                | T7510    | 63812      | 09/14               |
| Microphone Calibrator                | Norsonic             | 1251     | Y002919    | 06/14               |
| Tapping Machine                      | Norsonic             | N-211    | Y003242    | 03/14               |

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

### Test Chambers

|                        |                      |
|------------------------|----------------------|
| VT Receive Room Volume | 158.3 m <sup>3</sup> |
| VT Source Room Volume  | 190 m <sup>3</sup>   |



E1552.05-113-11-R0



**AIRBORNE SOUND TRANSMISSION LOSS**  
ASTM E 90

|                      |  |
|----------------------|--|
| <b>Test Date</b>     | 10/30/14   |
| <b>Data File No.</b> | E1552.05   |
| <b>Client</b>        | Regupol America  |
| <b>Description</b>   | 7 mm Ceramic Tile, 12 mm Regupol Sonus Rubber Underlayment, 203 mm Concrete slab |
| <b>Specimen Area</b> | 10.98 m <sup>2</sup>   |
| <b>Technician</b>    | Leeland S. Hoover  |

| Freq<br>(Hz) | Background<br>SPL<br>(dB) | Absorption<br>(m <sup>2</sup> ) | Source<br>SPL<br>(dB) | Receive<br>SPL<br>(dB) | Specimen<br>TL<br>(dB) | 95%<br>Confidence<br>Limit | Number<br>of<br>Deficiencies |
|--------------|---------------------------|---------------------------------|-----------------------|------------------------|------------------------|----------------------------|------------------------------|
| 80           | 61.4                      | 14.2                            | 108                   | 66                     | 42                     | 4.00                       | -                            |
| 100          | 40.7                      | 11.0                            | 107                   | 67                     | 42                     | 2.40                       | -                            |
| 125          | 37.5                      | 8.6                             | 106                   | 67                     | 41                     | 2.10                       | 0                            |
| 160          | 36.8                      | 8.3                             | 107                   | 74                     | 35                     | 2.40                       | 6                            |
| 200          | 31.6                      | 10.8                            | 105                   | 66                     | 39                     | 2.20                       | 5                            |
| 250          | 33.3                      | 9.5                             | 105                   | 65                     | 41                     | 1.20                       | 6                            |
| 315          | 32.6                      | 8.8                             | 105                   | 62                     | 44                     | 1.10                       | 6                            |
| 400          | 31.3                      | 7.6                             | 104                   | 57                     | 49                     | 0.90                       | 4                            |
| 500          | 31.7                      | 6.8                             | 104                   | 53                     | 54                     | 1.40                       | 0                            |
| 630          | 28.4                      | 6.6                             | 106                   | 49                     | 60                     | 0.50                       | 0                            |
| 800          | 28.8                      | 6.7                             | 105                   | 47                     | 62                     | 0.60                       | 0                            |
| 1000         | 27.1                      | 6.7                             | 105                   | 46                     | 62                     | 0.70                       | 0                            |
| 1250         | 28.0                      | 6.9                             | 105                   | 44                     | 64                     | 0.40                       | 0                            |
| 1600         | 24.0                      | 6.7                             | 105                   | 41                     | 67                     | 0.40                       | 0                            |
| 2000         | 16.4                      | 7.4                             | 105                   | 41                     | 67                     | 0.60                       | 0                            |
| 2500         | 12.7                      | 8.5                             | 104                   | 41                     | 66                     | 0.50                       | 0                            |
| 3150         | 10.8                      | 9.5                             | 104                   | 37                     | 68                     | 0.70                       | 0                            |
| 4000         | 8.4                       | 10.9                            | 104                   | 35                     | 70                     | 0.60                       | 0                            |
| 5000         | 7.4                       | 13.0                            | 104                   | 32                     | 71                     | 0.70                       | -                            |
| 6300         | 7.7                       | 17.3                            | 98                    | 22                     | 76                     | 0.60                       | -                            |
| 8000         | 7.2                       | 22.9                            | 97                    | 14                     | 81                     | 0.70                       | -                            |
| 10000        | 6.6                       | 29.8                            | 92                    | 7                      | 82                     | 0.70                       | -                            |

**STC Rating**      **54**      (*Sound Transmission Class*)  
**Deficiencies**      **27**      (*Sum of Deficiencies*)

**Notes:**      1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.  
                   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

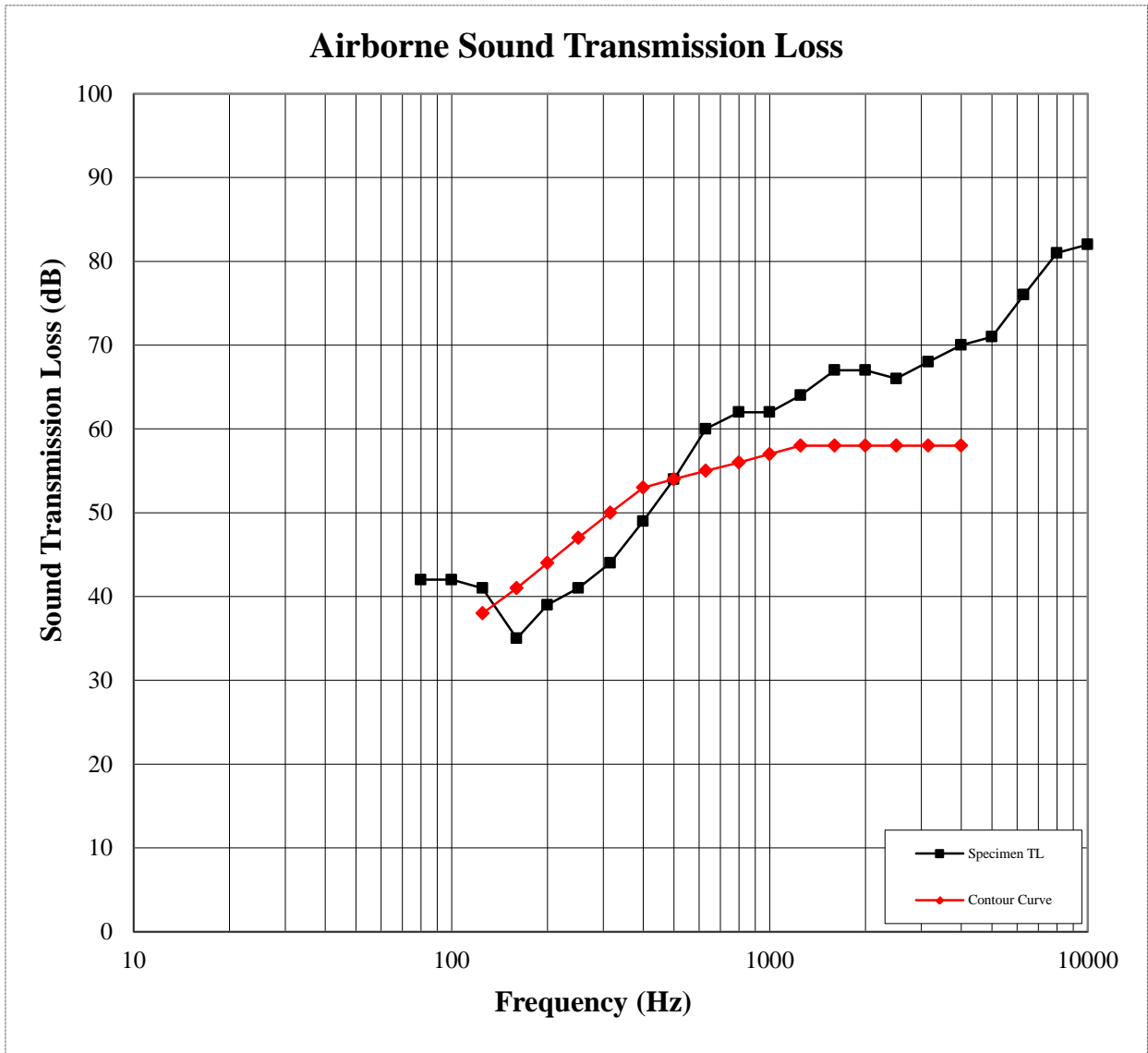


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### AIRBORNE SOUND TRANSMISSION LOSS ASTM E 90

|                      |  |
|----------------------|--|
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| <b>Specimen Area</b> | 10.98 m <sup>2</sup>   |
| <b>Technician</b>    | Leeland S. Hoover  |







E1552.05-113-11-R0



### IMPACT SOUND TRANSMISSION ASTM E 492

|                      |  |
|----------------------|--|
| <b>Test Date</b>     | 10/30/14   |
| <b>Data File No.</b> | E1552.05   |
| <b>Client</b>        | Regupol America  |
| <b>Description</b>   | 7 mm Ceramic Tile, 12 mm Regupol Sonus Rubber Underlayment, 203 mm Concrete slab |
| <b>Specimen Area</b> | 10.98 m <sup>2</sup>   |
| <b>Technician</b>    | Leeland S. Hoover  |

| Freq<br>(Hz) | Background SPL<br>(dB) | Absorption<br>(m <sup>2</sup> ) | Normalized Impact<br>SPL<br>(dB) | 95%<br>Confidence<br>Limit | Number<br>of<br>Deficiencies |
|--------------|------------------------|---------------------------------|----------------------------------|----------------------------|------------------------------|
| 80           | 62.4                   | 15.3                            | 62                               | 3.4                        | -                            |
| 100          | 47.1                   | 10.9                            | 50                               | 2.0                        | 0                            |
| 125          | 39.2                   | 10.2                            | 59                               | 4.5                        | 0                            |
| 160          | 38.0                   | 8.5                             | 60                               | 1.3                        | 0                            |
| 200          | 33.3                   | 11.3                            | 64                               | 3.9                        | 4                            |
| 250          | 32.6                   | 10.0                            | 67                               | 2.2                        | 7                            |
| 315          | 32.3                   | 9.3                             | 63                               | 3.2                        | 3                            |
| 400          | 29.1                   | 8.0                             | 64                               | 1.9                        | 5                            |
| 500          | 30.0                   | 7.3                             | 62                               | 2.1                        | 4                            |
| 630          | 32.3                   | 7.2                             | 59                               | 1.7                        | 2                            |
| 800          | 29.6                   | 7.3                             | 57                               | 0.9                        | 1                            |
| 1000         | 29.2                   | 7.1                             | 58                               | 2.2                        | 3                            |
| 1250         | 39.9                   | 7.2                             | 54                               | 1.3                        | 2                            |
| 1600         | 29.2                   | 7.1                             | 45                               | 2.2                        | 0                            |
| 2000         | 22.8                   | 7.9                             | 33                               | 4.8                        | 0                            |
| 2500         | 19.0                   | 9.1                             | 26                               | 1.6                        | 0                            |
| 3150         | 18.4                   | 10.0                            | 23                               | 3.3                        | 0                            |
| 4000         | 15.2                   | 11.7                            | 21                               | 3.0                        | -                            |
| 5000         | 10.9                   | 13.9                            | 16                               | 3.9                        | -                            |
| 6300         | 9.6                    | 18.2                            | 10                               | 3.1                        | -                            |
| 8000         | 8.8                    | 24.8                            | 9                                | 0.5                        | -                            |
| 10000        | 7.1                    | 31.7                            | 10                               | 0.5                        | -                            |

**IIC Rating**      **52**      *(Impact Insulation Class)*  
**Deficiencies**    **31**      *(Sum of Deficiencies)*

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

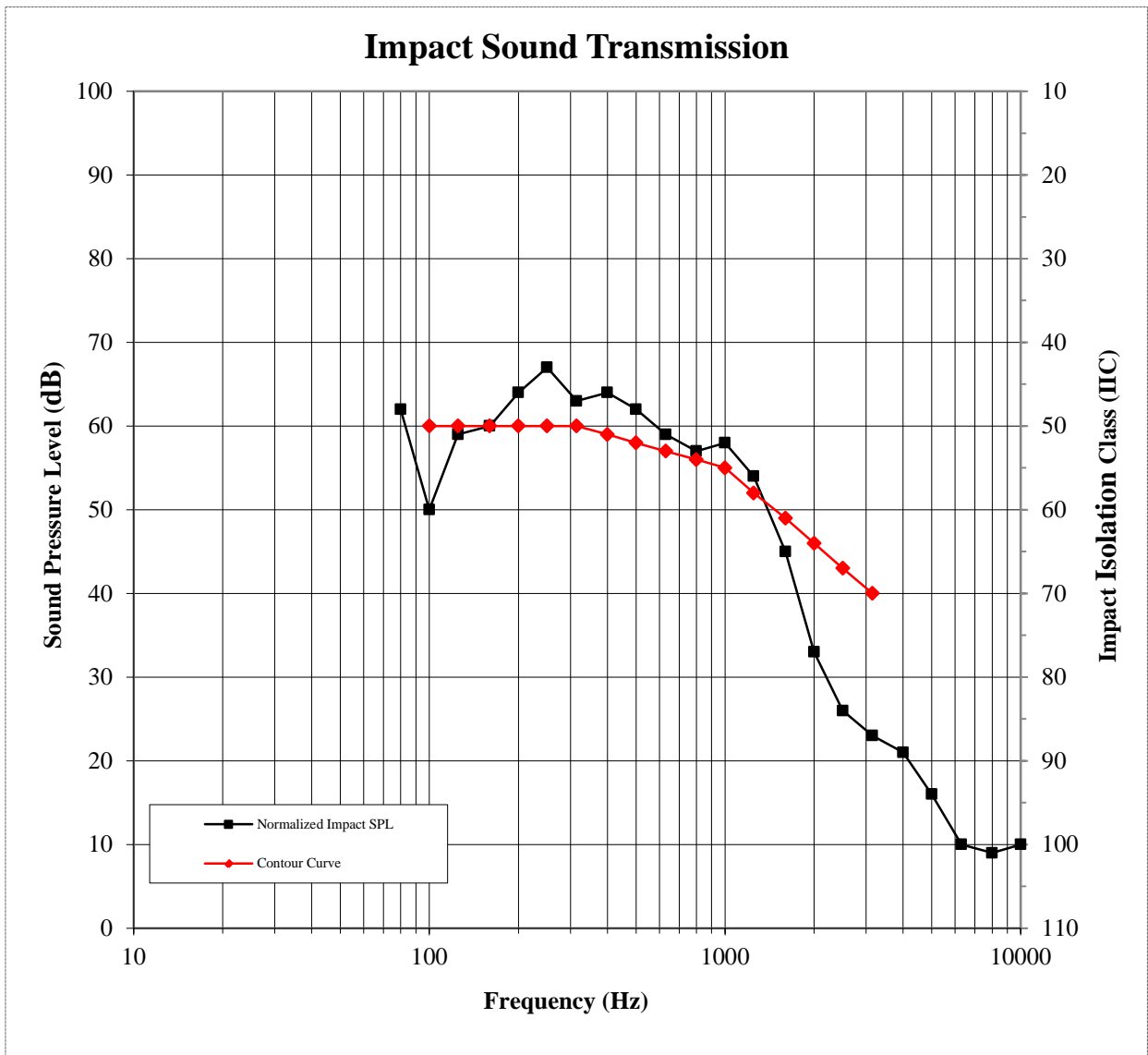


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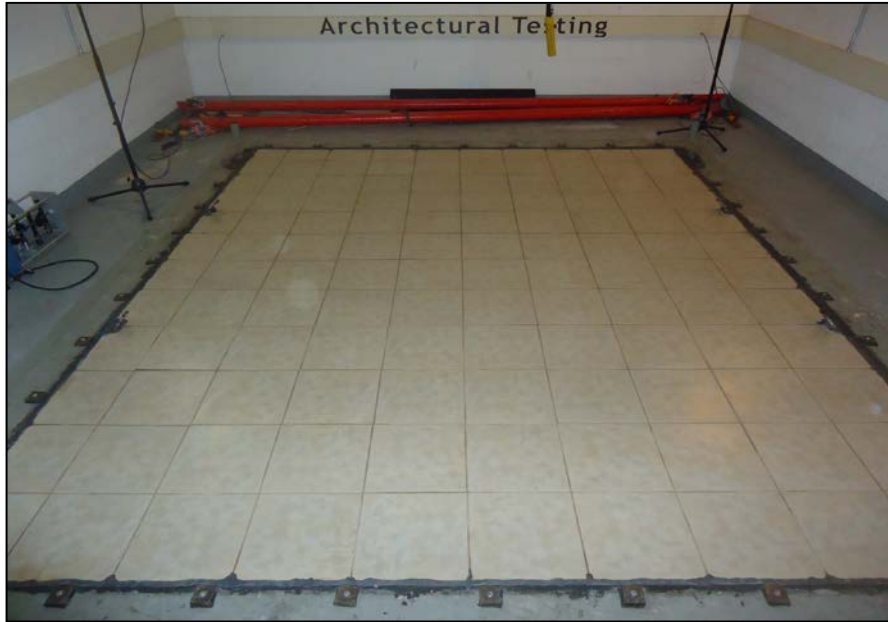


### IMPACT SOUND TRANSMISSION ASTM E 492

|                      |  |
|----------------------|--|
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**Photographs**

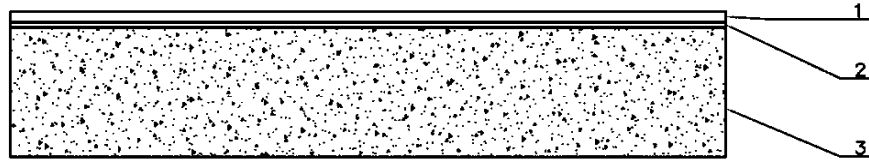


**Source Room View of Test Specimen Installation**



**Receive Room View of Test Specimen Installation**

**Drawing**



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