**E9877.02-113-11-R0**
**ACOUSTICAL PERFORMANCE TEST REPORT**
**ASTM E 90 AND ASTM E 492**

**Rendered to**

**REGUPOL AMERICA**

**Series/Model: Regupol® 7210C Screed Isolation**

**Specimen Type: 203 mm Concrete Slab with Drop Ceiling**

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

| | |
|---|---|
| **STC** | **63** |
| **IIC** | **61** |

**Test Specimen Identification:**
Floor Topping: 12.7 mm Mannington Lexington Hickory Engineered Wood
Subfloor Topping: 50.8 mm ARDEX A 38™ Rapid Set Screed
Subfloor Underlayment: 5 mm Regupol® 7210C Screed Isolation
Floor Slab: 203 mm Concrete Slab
Main Beams: 43 mm Armstrong HD8906 Drywall Main Beam
Cross Tees: 37.3 mm Armstrong XL8945P Cross Tee
Insulation: 88.9 mm Johns Manville Kraft Faced R-13 Fiberglass Insulation
Ceiling: 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel

Reference should be made to Intertek-ATI Report E9877.02-113-11 for complete test specimen description. This page alone is not a complete report.

# Acoustical Performance Test Report

REGUPOL AMERICA
33 Keystone Drive
Lebanon, Pennsylvania 17042

| | |
|---|---|
| **Report** | E9877.02-113-11 |
| **Test Date** | 07/31/15 |
| **Report Date** | 09/04/15 |

## Project Scope

Architectural Testing, Inc., a subsidiary of Intertek (Intertek-ATI), was contracted to conduct airborne sound transmission loss and impact sound transmission tests. The complete test data is included as attachments to this report. The client provided the test specimen. The specimen was constructed on the date of testing.

## 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 Intertek-ATI 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 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.

**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 five 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 | |
|---|---|---|---|
| Average Temperature | 24.5°C | Average Temperature | 21.6°C |
| Average Relative Humidity | 60% | Average Relative Humidity | 56% |

## 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 and Installation Details

| Material | Dimensions (mm) | Thickness (mm) | Manufacturer and Series | Quantity | Average Weight |
|---|---|---|---|---|---|
| Engineered Wood | 914.4 by 127 | 12.7 | Mannington Lexington Hickory | 10.98 m² | 6.59 kg/m² |
| | *Note: Loose laid* | | | | |
| Rapid Set Screed | 3023 by 3632 | 50.8 | ARDEX A 38™ | 10.98 m² | 109.85 kg/m² |
| | *Note: Poured directly onto the isolation per manufacturer's specifications, allowed to cure overnight.* | | | | |
| Screed Isolation | 3023 by 1219.2 | 5.0 | Regupol® 7210C | 10.98 m² | 3.49 kg/m² |
| | *Note: Loose laid with seams taped* | | | | |
| Concrete Slab | 3023 by 3632 | 203.0 | N/A | 10.98 m² | 488.24 kg/m² |
| | *Note: The concrete slab was installed in a test frame flush to the source room.* | | | | |
| Drywall Main Beam | 38.1 by 2870 | 43.0 | Armstrong HD8906 | 10.9 lin m | 0.45 kg/m |
| | *Note: Twelve gauge hanger wires were attached to the bottom side of the concrete at twelve locations and then to the main beams. The hanger wire was twisted around itself a minimum of three times within 76 mm creating a 150 mm plenum. The measured steel thickness is 0.5 mm.* | | | | |
| Cross Tee | 38.3 by 1219 | 37.3 | Armstrong XL8945P | 27.2 lin m | 0.45 kg/m |
| | *Note: Inserted into the main beams on 607 mm centers. The measured steel thickness is 0.5 mm.* | | | | |

**Test Specimen Materials and Installation Details** (Continued)

| Material | Dimensions (mm) | Thickness (mm) | Manufacturer and Series | Quantity | Average Weight |
|---|---|---|---|---|---|
| Fiberglass Insulation | 2962 by 584 | 88.9 | Johns Manville Kraft Faced R-13 | 10.98 m² | 1.33 kg/m² |
| | *Note: Loose laid onto the ceiling grid system* | | | | |
| Gypsum Panel | 3023 by 1219 | 15.9 | National Gypsum Gold Bond® Fire-Shield® Type X | 10.56 m² | 11.23 kg/m² |
| | *Note: Fastened with fine thread drywall screws on 305 mm centers* | | | | |

**Comments**

The total weight of the floor/ceiling assembly was 6828.1 kg. Intertek-ATI will store samples of the test specimen for four years. A drawing of the test specimen is included in the attachments.

Intertek-ATI 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 Intertek-ATI for the entire test record retention period. The test record retention period ends four years after the test date.

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 is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.



FOR INTERTEK-ATI:

Digitally Signed by: Daniel Mohler

Digitally Signed by: Jordan Strybos

Daniel B. Mohler
Technician II - Acoustical Testing

Jordan Strybos
Project Manager - Acoustical Testing

Attachments (6 Pages): This report is complete only when all attachments are included.

** Stated by Client/Manufacturer*
*N/A - Non Applicable*

## Revision Log

| Revision | Date | Page(s) | Description |
|---|---|---|---|
| R0 | 09/04/15 | 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 * |
| Microphone Calibrator | Norsonic | 1251 | Y002919 | 07/15 |
| Receive Room Microphone | PCB Piezotronics | 378B20 | 63748 | 05/15 |
| Receive Room Microphone | PCB Piezotronics | 378B20 | 63744 | 05/15 |
| Receive Room Microphone | PCB Piezotronics | 378B20 | 63745 | 05/15 |
| Receive Room Microphone | PCB Piezotronics | 378B20 | 63746 | 05/15 |
| Receive Room Microphone | PCB Piezotronics | 378B20 | 63747 | 05/15 |
| Receive Room Environmental Indicator | Comet | T7510 | 63810<br>63811 | 09/14 |
| Source Room Microphone | PCB Piezotronics | 378B20 | 63738 | 04/15 |
| Source Room Microphone | PCB Piezotronics | 378B20 | 63739 | 04/15 |
| Source Room Microphone | PCB Piezotronics | 378B20 | 63740 | 04/15 |
| Source Room Microphone | PCB Piezotronics | 378B20 | 63742 | 04/15 |
| Source Room Microphone | PCB Piezotronics | 378B20 | 63741 | 04/15 |
| Source Room Environmental Indicator | Comet | T7510 | 63812 | 09/14 |
| Tapping Machine | Look Line s.r.l. | EM50 (TM50) | 65351 | 11/14 |

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

## Test Chambers

| | |
|---|---|
| VT Receive Room Volume | 155.77 m³ |
| VT Source Room Volume | 190 m³ |

# AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

| | |
|---|---|
| **Test Date** | 07/31/15 |
| **Data File No.** | E9877.02 |
| **Client** | Regupol America |
| **Description** | 12.7 mm Mannington Lexington Hickory Engineered Wood, 50.8 mm ARDEX A 38™ Rapid Set Screed, 5 mm Regupol® 7210C Screed Isolation, 203 mm Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Kraft Faced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel |
| **Specimen Area** | 10.98 m² |
| **Technician** | Daniel B. Mohler |

| **Freq** (Hz) | **Background SPL** (dB) | **Absorption** (m²) | **Source SPL** (dB) | **Receive SPL** (dB) | **Specimen TL** (dB) | **95% Confidence Limit** | **Number of Deficiencies** |
|---|---|---|---|---|---|---|---|
| 80 | 61.0 | 15.3 | 108 | 65 | 43 | 4.00 | - |
| 100 | 44.1 | 13.8 | 106 | 66 | 40 | 1.50 | - |
| 125 | 39.9 | 10.9 | 105 | 64 | 42 | 1.30 | 5 |
| 160 | 37.4 | 9.6 | 106 | 66 | 42 | 1.80 | 8 |
| 200 | 31.1 | 10.9 | 103 | 57 | 48 | 1.70 | 5 |
| 250 | 29.0 | 10.5 | 103 | 52 | 53 | 0.80 | 3 |
| 315 | 30.0 | 9.3 | 105 | 52 | 55 | 0.70 | 4 |
| 400 | 27.9 | 7.6 | 103 | 48 | 58 | 0.50 | 4 |
| 500 | 25.7 | 7.1 | 103 | 45 | 62 | 0.60 | 1 |
| 630 | 25.5 | 7.0 | 105 | 43 | 65 | 0.60 | 0 |
| 800 | 24.9 | 7.0 | 104 | 41 | 66 | 0.20 | 0 |
| 1000 | 24.6 | 7.1 | 104 | 41 | 66 | 0.20 | 0 |
| 1250 | 25.6 | 6.9 | 104 | 40 | 68 | 0.30 | 0 |
| 1600 | 21.1 | 6.9 | 104 | 39 | 69 | 0.20 | 0 |
| 2000 | 14.6 | 7.8 | 104 | 37 | 70 | 0.30 | 0 |
| 2500 | 10.5 | 8.8 | 102 | 35 | 69 | 0.30 | 0 |
| 3150 | 7.9 | 9.3 | 103 | 33 | 72 | 0.50 | 0 |
| 4000 | 6.3 | 10.6 | 104 | 31 | 74 | 0.50 | 0 |
| 5000 | 6.6 | 12.2 | 104 | 28 | 76 | 0.80 | - |
| 6300 | 6.2 | 15.3 | 98 | 18 | 79 | 0.70 | - |
| 8000 | 6.8 | 20.4 | 97 | 13 | 82 | 0.80 | - |
| 10000 | 6.4 | 25.1 | 92 | 7 | 82 | 0.60 | - |

**STC Rating** **63** *(Sound Transmission Class)*

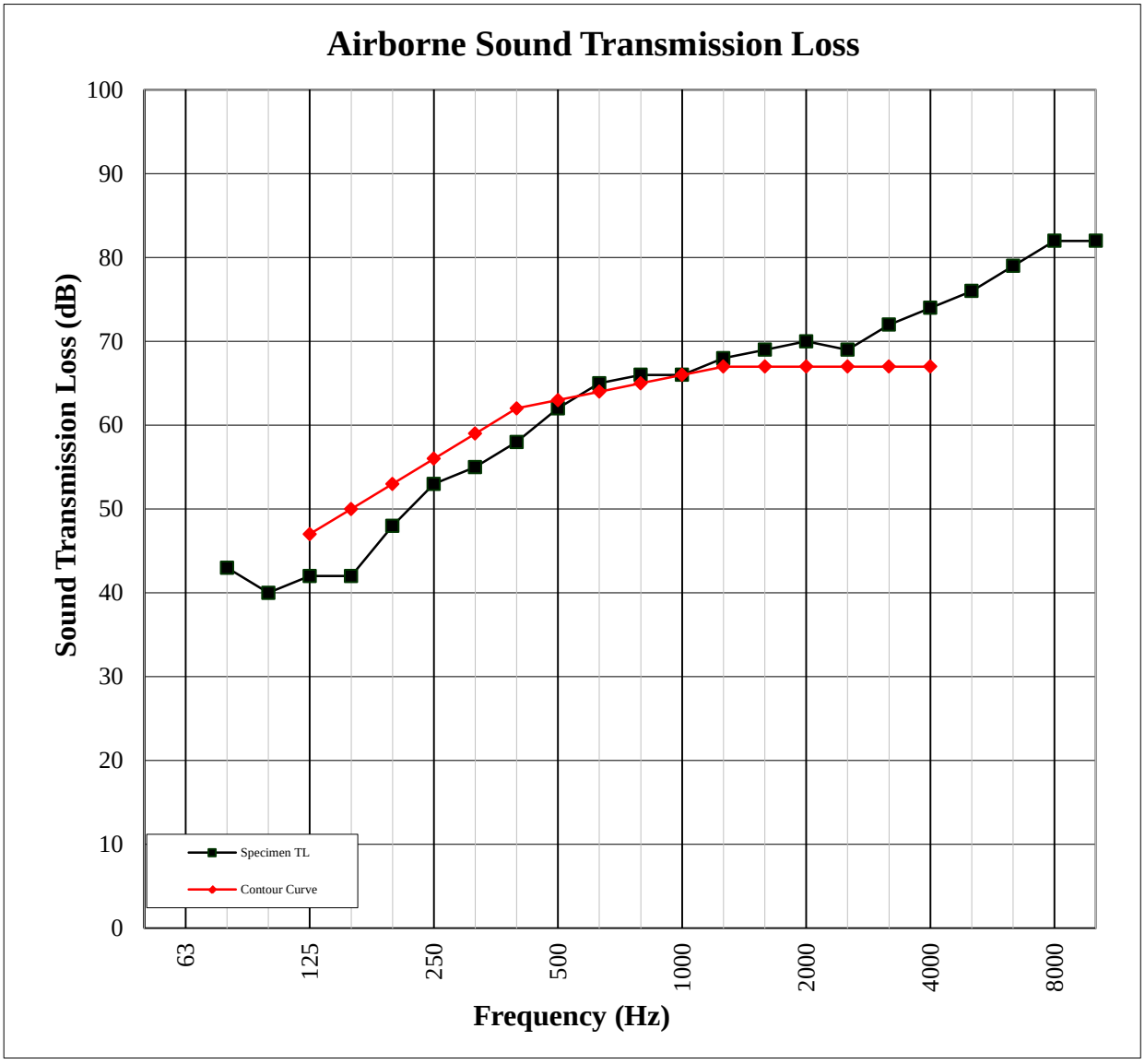
Deficiencies 30 *(Sum of Deficiencies)*

***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*

# AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

| | |
|---|---|
| **Test Date** | 07/31/15 |
| **Data File No.** | E9877.02 |
| **Client** | Regupol America |
| **Description** | 12.7 mm Mannington Lexington Hickory Engineered Wood, 50.8 mm ARDEX A 38™ Rapid Set Screed, 5 mm Regupol® 7210C Screed Isolation, 203 mm Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Kraft Faced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel |
| **Specimen Area** | 10.98 m² |
| **Technician** | Daniel B. Mohler |



# IMPACT SOUND TRANSMISSION

ASTM E 492

| | |
|---|---|
| **Test Date** | 07/31/15 |
| **Data File No.** | E9877.02 |
| **Client** | Regupol America |
| **Description** | 12.7 mm Mannington Lexington Hickory Engineered Wood, 50.8 mm ARDEX A 38™ Rapid Set Screed, 5 mm Regupol® 7210C Screed Isolation, 203 mm Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Kraft Faced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel |
| **Specimen Area** | 10.98 m² |
| **Technician** | Daniel B. Mohler |

| **Freq** (Hz) | **Background SPL** (dB) | **Absorption** (m²) | **Normalized Impact SPL** (dB) | **95% Confidence Limit** | **Number of Deficiencies** |
|---|---|---|---|---|---|
| 80 | 61.6 | 14.5 | 62 | 3.6 | - |
| 100 | 49.3 | 14.1 | 59 | 6.0 | 8 |
| 125 | 42.5 | 10.1 | 54 | 3.0 | 3 |
| 160 | 37.6 | 9.1 | 55 | 3.7 | 4 |
| 200 | 32.5 | 10.4 | 54 | 2.5 | 3 |
| 250 | 30.0 | 10.4 | 52 | 1.1 | 1 |
| 315 | 30.9 | 9.3 | 49 | 0.8 | 0 |
| 400 | 28.7 | 7.5 | 46 | 1.6 | 0 |
| 500 | 27.3 | 7.3 | 41 | 0.4 | 0 |
| 630 | 26.7 | 6.9 | 37 | 0.5 | 0 |
| 800 | 24.9 | 7.0 | 35 | 0.4 | 0 |
| 1000 | 24.6 | 7.1 | 31 | 0.5 | 0 |
| 1250 | 25.2 | 6.9 | 29 | 0.5 | 0 |
| 1600 | 20.5 | 6.9 | 26 | 0.4 | 0 |
| 2000 | 14.8 | 7.8 | 21 | 0.2 | 0 |
| 2500 | 10.0 | 8.8 | 18 | 0.3 | 0 |
| 3150 | 7.9 | 9.4 | 12 | 0.3 | 0 |
| 4000 | 6.3 | 10.5 | 8 | 0.3 | - |
| 5000 | 6.3 | 12.2 | 6 | 0.4 | - |
| 6300 | 6.1 | 15.4 | 6 | 0.5 | - |
| 8000 | 6.7 | 20.2 | 8 | 0.5 | - |
| 10000 | 6.4 | 25.4 | 8 | 0.7 | - |

**IIC Rating** **61** *(Impact Insulation Class)*

Deficiencies 19 *(Sum of Deficiencies)*

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

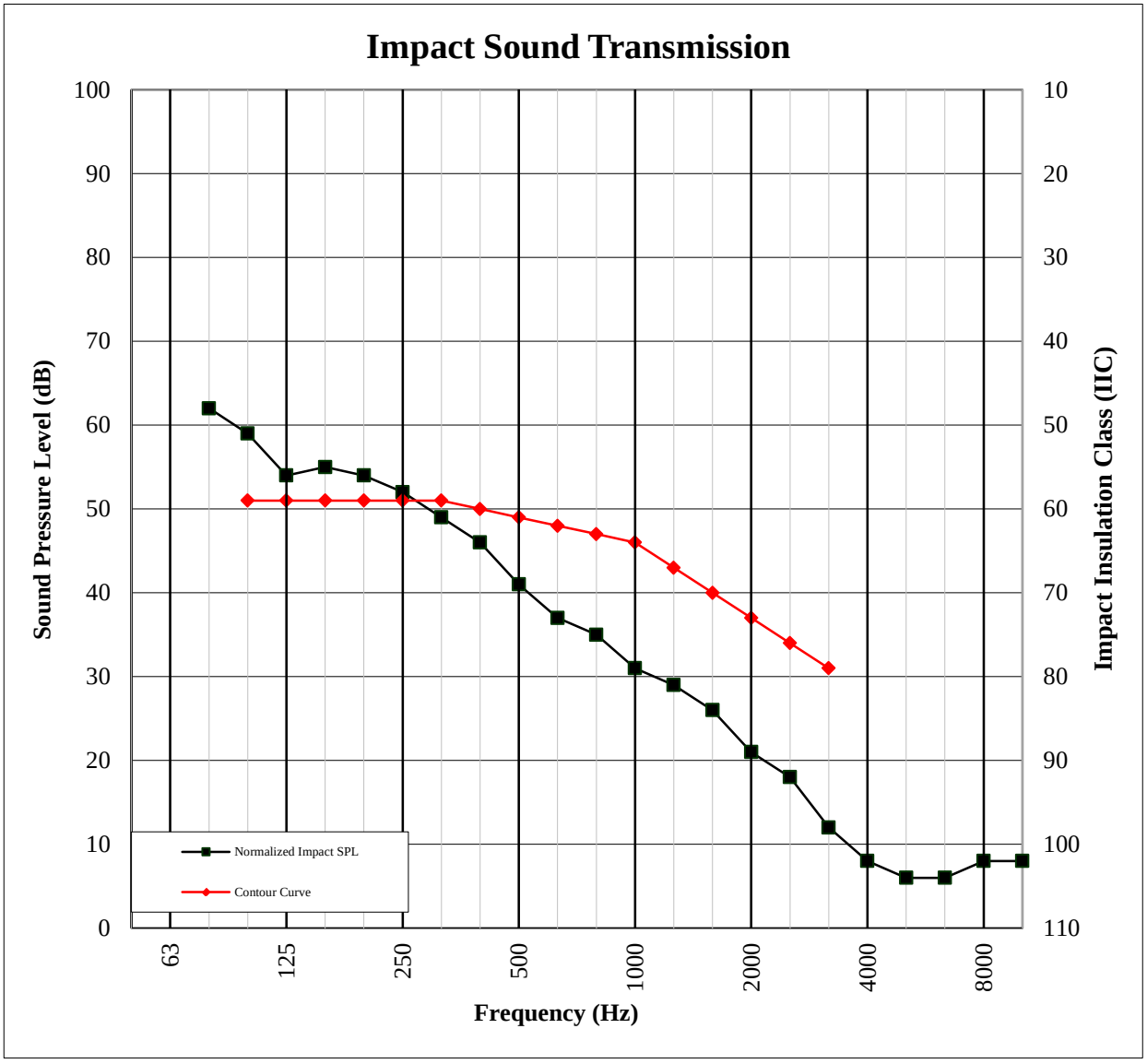
Architectural Testing

ACCREDITED TL-144

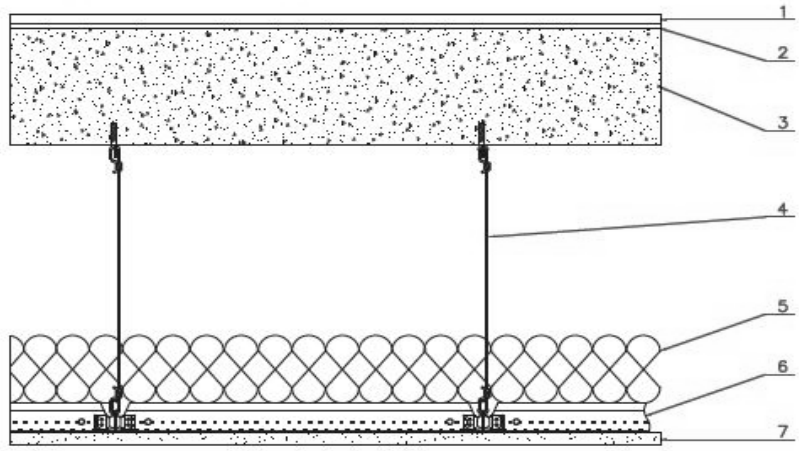
# IMPACT SOUND TRANSMISSION

ASTM E 492

| | |
|---|---|
| **Test Date** | 07/31/15 |
| **Data File No.** | E9877.02 |
| **Client** | Regupol America |
| **Description** | 12.7 mm Mannington Lexington Hickory Engineered Wood, 50.8 mm ARDEX A 38™ Rapid Set Screed, 5 mm Regupol® 7210C Screed Isolation, 203 mm Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Kraft Faced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel |
| **Specimen Area** | 10.98 m² |
| **Technician** | Daniel B. Mohler |



## Drawing




1-Floor Topping
2-Subfloor Topping & Underlayment
3-Concrete Slab
4-Hanger Wire
5-Insulation
6-Ceiling Grid
7-Ceiling