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

Rendered to

COMMERCIAL ACOUSTICS

Series/Model: 5 mm Commercial Acoustics AcoustiStep Rubber Underlayment

Specimen Type: Floor/Ceiling Assembly

Overall Size: 3023 mm by 3632 mm

STC	**63**
IIC	**64**

Test Specimen Identification:
Floor Topping: 7 mm Ceramic Tile
Floor Underlayment: 5 mm Commercial Acoustics AcoustiStep Rubber Underlayment
Floor Slab: 203 mm Concrete slab
Insulation: 88.9 mm Johns Manville Kraft-Faced R13 Fiberglass Insulation
Main Beams: 0.5 mm Armstrong HD8906 Drywall Main Beam
Cross Tees: 0.5 mm Armstrong XL8945P Cross Tee
Ceiling: 15.88 mm Gold Bond® Fire-Shield® Type X Gypsum Panel

Reference should be made to Intertek-ATI Report E1552.11-113-11 for complete test specimen description.

Acoustical Performance Test Report

MP GLOBAL PRODUCTS
2500 Old Hadar Road
Norfolk, Nebraska 68701

Report	E1552.11-113-11
Test Date	10/28/14
Report Date	06/09/16
Record Retention End Date	10/28/18

Project Scope

Intertek-ATI was contracted by the original client to conduct impact sound transmission and delta impact insulation tests. This report is a reissue of the original Report No. E1552.06-113-11 and is rendered to MP Global Products through written authorization. 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 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 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	17.9 °C	Maximum Temperature	17.8 °C
Minimum Temperature	17.9 °C	Minimum Temperature	17.4 °C
Average Temperature	17.9 °C	Average Temperature	17.7 °C
Maximum Relative Humidity	56%	Maximum Relative Humidity	57%
Minimum Relative Humidity	56%	Minimum Relative Humidity	54%
Average Relative Humidity	56%	Average Relative Humidity	55%

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 m²	14.09 kg/m²
	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.				
Rubber Underlayment	3048 by 1219.2	5.0	Commercial Acoustics AcoustiStep	10.98 m²	3.49 kg/m²
	Note: Loose laid.				
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.				
Fiberglass Insulation	2962 by 584	88.9	Johns Manville Kraft-Faced R13	10.98 m²	1.33 kg/m²
	Note: Loose laid onto the ceiling grid system				

Test Specimen Materials (Continued)

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Drywall Main Beam	38.1 by 43 by 2870	0.5	Armstrong HD8906	10.9 m²	0.45 kg/m²
	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 305 mm plenum.				
Cross Tee	38.3 by 37.3 by 1219	0.5	Armstrong XL8945P	27.2 m²	0.45 kg/m²
	Note: Inserted into the main beams on 607 mm centers				
Gypsum Panel	1219 by 3032	15.9	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 5704.2 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.

This report is reissued in the name of Commercial Acoustics through written authorization from the original report holder.

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.

For INTERTEK-ATI:

Digitally Signed by: Jordan Strybos

Jordan Strybos
Project Manager - Acoustical Testing

Digitally Signed by: Bradlay Hunt

Bradlay D. Hunt
Project Manager - Acoustical Testing

Attachments (7)

** Stated by Client/Manufacturer*

N/A - Non Applicable

Revision Log

Revision	Date	Page(s)	Description
R0	06/09/16	N/A	Original Report Issue - Reissue of Report No. E1552.06-113-11 in the name of Commercial Acoustics

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	155.8 m³
VT Source Room Volume	190 m³

E1552.11-113-11-R0

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	10/28/14
Data File No.	E1552.06
Client	Commercial Acoustics
Description	7 mm Ceramic Tile, 5 mm Commercial Acoustics AcoustiStep Rubber Underlayment, 203 mm Concrete slab , 88.9 mm Johns Manville Kraft-Faced R13 Fiberglass Insulation, 0.5 mm Armstrong HD8906 Drywall Main Beam, 0.5 mm Armstrong XL8945P Cross Tee, 15.88 mm Gold Bond® Fire-Shield® Type X Gypsum Panel
Specimen Area	10.98 m²
Technician	Jordan Strybos

Freq (Hz)	**Background SPL** (dB)	**Absorption** (m²)	**Source SPL** (dB)	**Receive SPL** (dB)	**Specimen TL** (dB)	**95% Confidence Limit**	**Number of Deficiencies**
80	64.4	14.8	109	66	42	4.80	-
100	49.2	11.5	107	65	43	3.20	-
125	44.3	9.2	107	66	43	2.30	4
160	38.1	8.1	108	68	43	1.70	7
200	31.2	9.7	106	59	49	1.70	4
250	31.8	9.4	106	57	51	1.40	5
315	30.8	8.6	105	53	54	0.90	5
400	27.9	7.0	105	50	59	0.70	3
500	27.5	6.6	106	46	64	1.10	0
630	30.1	6.5	107	43	67	0.50	0
800	30.5	6.7	106	43	67	0.50	0
1000	26.9	6.8	106	42	67	0.50	0
1250	24.7	6.8	106	42	68	0.50	0
1600	21.5	6.8	106	40	69	0.20	0
2000	14.9	7.8	106	41	68	0.40	0
2500	10.9	8.8	105	41	67	0.50	0
3150	9.6	9.5	104	36	69	0.40	0
4000	8.0	11.3	105	34	71	0.50	0
5000	6.2	13.2	104	30	74	0.70	-
6300	6.2	17.2	98	19	78	0.70	-
8000	6.4	23.5	97	13	82	0.80	-
10000	6.4	29.5	92	7	82	0.70	-

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

Deficiencies 28 *(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

Architectural Testing

ACCREDITED TL-144

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

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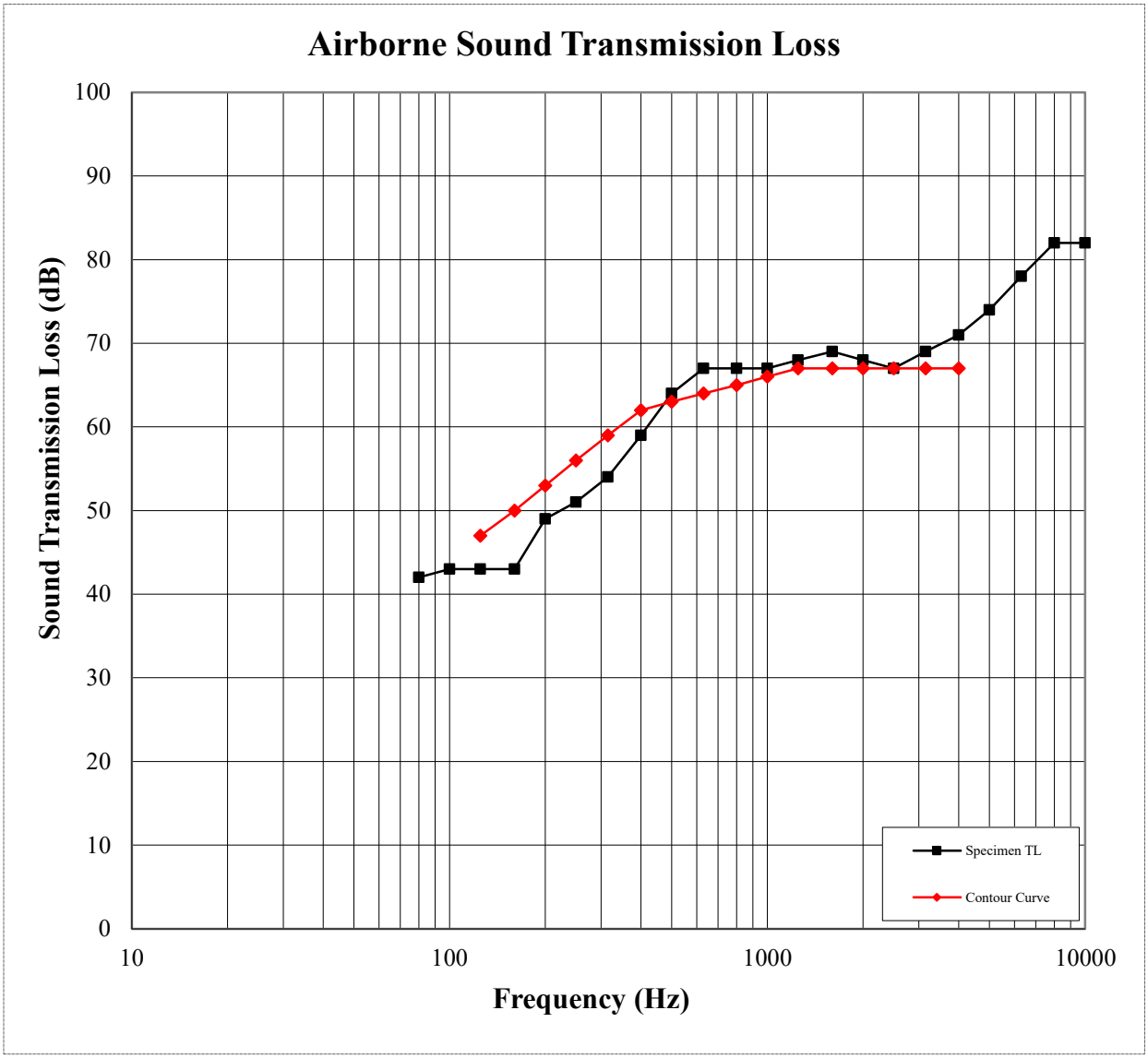
Client	Commercial Acoustics
Description	7 mm Ceramic Tile, 5 mm Commercial Acoustics AcoustiStep Rubber Underlayment, 203 mm Concrete slab , 88.9 mm Johns Manville Kraft-Faced R13 Fiberglass Insulation, 0.5 mm Armstrong HD8906 Drywall Main Beam, 0.5 mm Armstrong XL8945P Cross Tee, 15.88 mm Gold Bond® Fire-Shield® Type X Gypsum Panel
Specimen Area	10.98 m²
Technician	Jordan Strybos



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E1552.11-113-11-R0

ACCREDITED TL-144

IMPACT SOUND TRANSMISSION

ASTM E 492

Test Date	10/28/14
Data File No.	E1552.06
Client	Commercial Acoustics
Description	7 mm Ceramic Tile, 5 mm Commercial Acoustics AcoustiStep Rubber Underlayment, 203 mm Concrete slab , 88.9 mm Johns Manville Kraft-Faced R13 Fiberglass Insulation, 0.5 mm Armstrong HD8906 Drywall Main Beam, 0.5 mm Armstrong XL8945P Cross Tee, 15.88 mm Gold Bond® Fire-Shield® Type X Gypsum Panel
Specimen Area	10.98 m²
Technician	Jordan Strybos

Freq (Hz)	**Background SPL** (dB)	**Absorption** (m²)	**Normalized Impact SPL** (dB)	**95% Confidence Limit**	**Number of Deficiencies**
80	63.7	16.4	52	10.7	-
100	49.3	9.7	47	2.4	0
125	45.1	9.5	48	6.8	0
160	37.9	8.6	43	1.5	0
200	31.6	10.6	49	5.2	1
250	30.8	9.6	52	1.1	4
315	30.6	9.0	50	6.4	2
400	27.8	7.5	49	3.2	2
500	26.5	7.0	47	1.1	1
630	29.1	7.1	48	2.8	3
800	29.7	7.2	49	0.9	5
1000	24.4	7.1	46	0.6	3
1250	24.4	7.2	41	3.1	1
1600	20.5	7.4	38	1.3	1
2000	13.8	8.3	35	1.8	1
2500	9.8	9.4	34	1.3	3
3150	8.1	10.3	27	2.3	0
4000	7.4	12.1	20	1.7	-
5000	6.3	14.3	8	0.8	-
6300	6.5	18.5	7	0.3	-
8000	6.7	25.1	8	0.3	-
10000	6.8	32.5	10	0.4	-

IIC Rating **64** *(Impact Insulation Class)*

Deficiencies 27 *(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

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Specimen Area	10.98 m²
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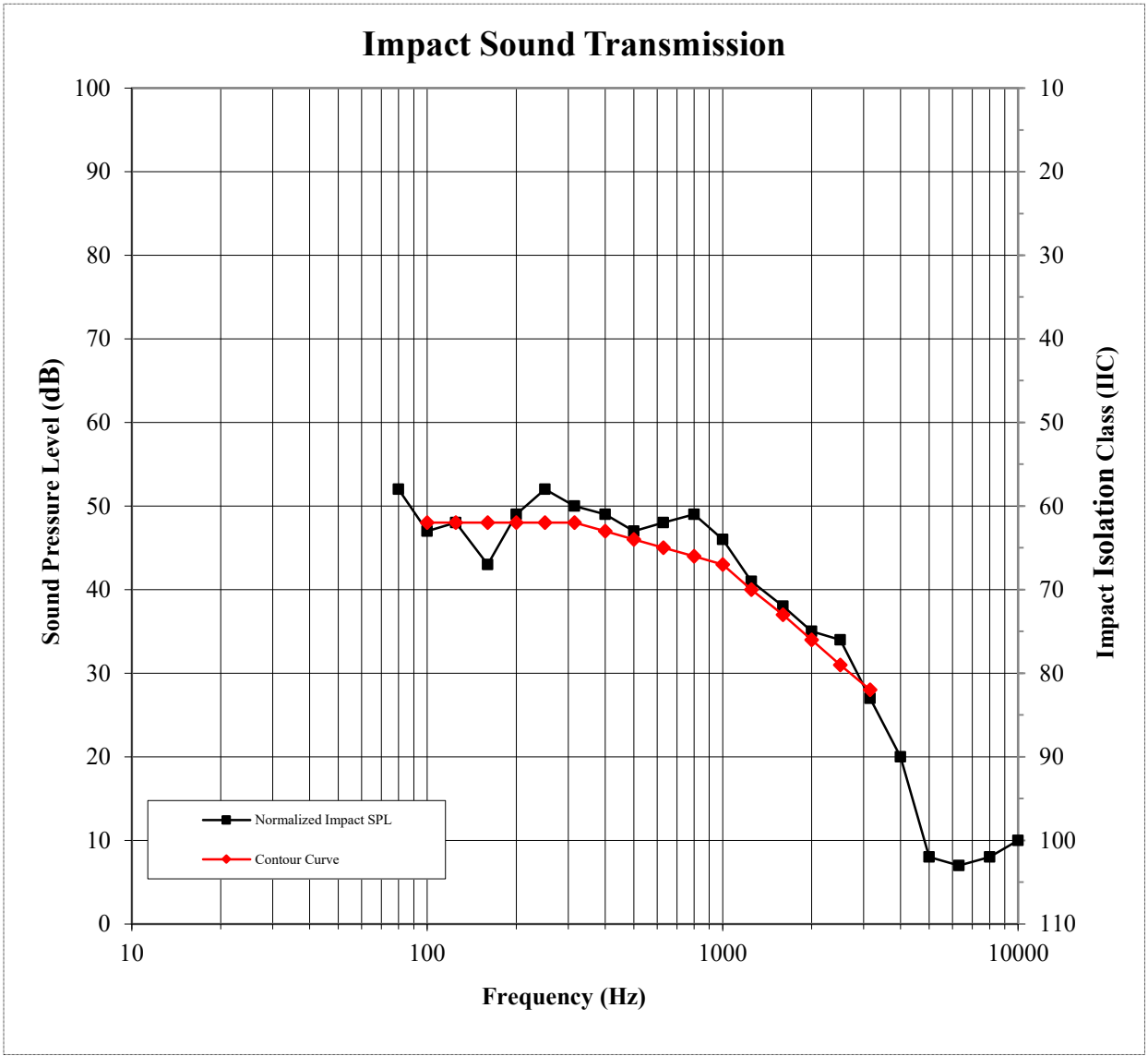
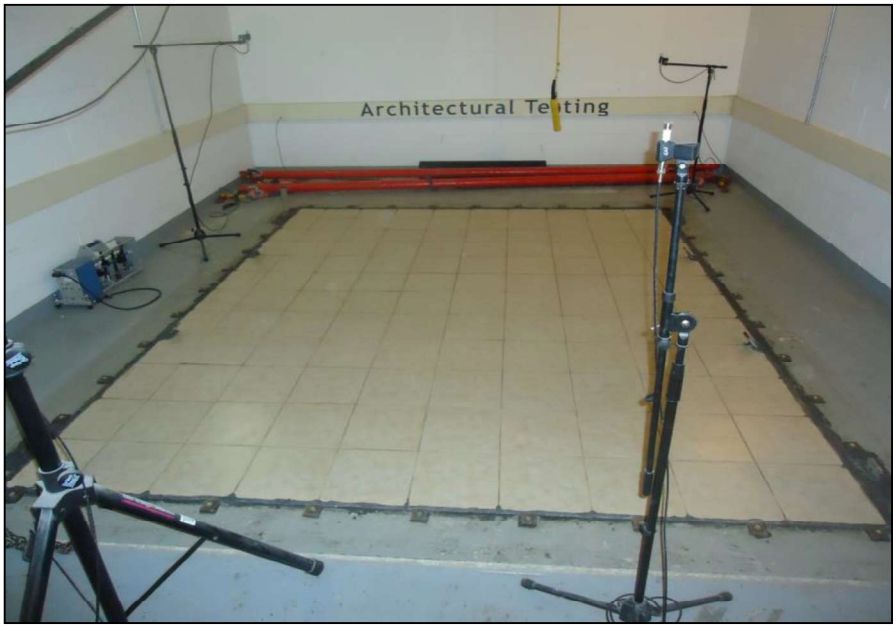


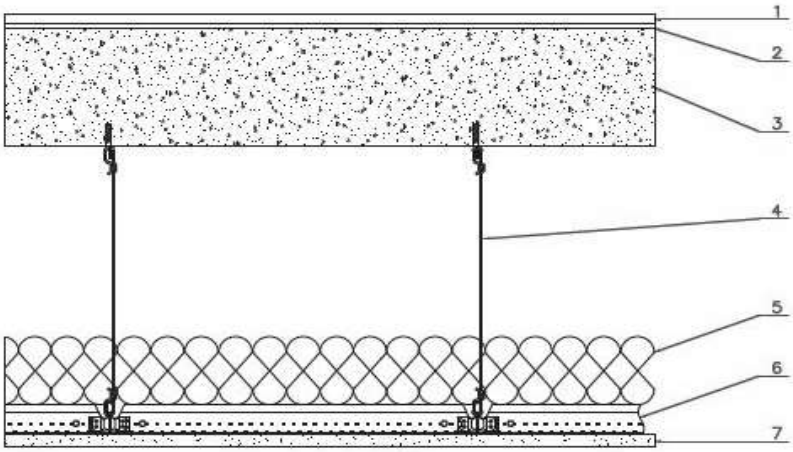
Photographs



Source Room View of Test Specimen Installation

Receive Room View of Test Specimen Installation

Drawing



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