F7070.02-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E 90 AND ASTM E 492

Rendered to

COMMERCIAL ACOUSTICS

Series/Model: 5 mm AcoustiStep Rubber Underlayment

Specimen Type: Hollow Core Plank - 254 mm

Overall Size: 3023 mm by 3632 mm

STC	**61**
IIC	**58**

Test Specimen Identification:
Floor Topping: 12.07 mm Mannington® Hometown Lexington Hickory Engineered Wood
Floor Underlayment: 5 mm AcoustiStep Rubber Underlayment
Subfloor Topping: 19.05 mm Hacker Industries, Inc. Firm-Fill 2010+ Gypsum Concrete
Floor Slab: 254 mm Hollow Core Plank
Insulation: 50.8 mm Owens Corning R-6.7 Unfaced Fiberglass Insulation
Ceiling Isolation: 0.55 mm ClarkDietrich® Z-Channel
Ceiling: 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel

Reference should be made to Intertek-ATI Report F7070.02-113-11 for complete test specimen description. This page alone is not a complete report.

Acoustical Performance Test Report

Report	F7070.02-113-11
Test Date	05/16/16
Report Date	06/02/16

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(2016)e1, 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	19.9°C	Average Temperature	19.5°C
Average Relative Humidity	58%	Average Relative Humidity	59%

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	Varied by 127	12.1	Mannington® Hometown Lexington Hickory	10.98 m²	7.9 kg/m²
	Note: Loose laid				
Rubber Underlayment	1219.2 by 3048	5.0	AcoustiStep	10.98 m²	4.27 kg/m²
	Note: Loose laid				
Gypsum Concrete	3023 by 3632	19.1	Hacker Industries, Inc. Firm-Fill 2010+	10.98 m²	30.49 kg/m²
	Note: A 2-mil thick sheet of polyethylene was adhered to the floor slab with a spray adhesive. The gypsum concrete was poured directly onto the plastic sheeting and allowed to cure for a minimum of 14 days.				
Hollow Core Plank	3023 by 3632	254.0	N/A	10.98 m²	398.29 kg/m²
	Note: The concrete slab was installed in a test frame flush to the source room.				
Fiberglass Insulation	3023 by 609.6	50.8	Owens Corning R-6.7 Unfaced	10.98 m²	1.13 kg/m²
	Note: Laid in the cavities between the ceiling channels, secured with duct tape				
Z-Channel	50.8 by 3657.6	0.6	ClarkDietrich®	6 pieces	5.2 kg/piece
	Note: Secured to the floor slab using 50.8 mm Tapcon screws on 610 mm centers				

Test Specimen Materials and Installation Details (Continued)

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Gypsum Panel	1219 by 3023	15.9	National Gypsum Gold Bond® Fire-Shield® Type X	10.98 m²	11.23 kg/m²
	Note: Fastened to the resilient channels on 305 mm centers with 25.4 mm Type S bugle head screws. The seams of the gypsum panels were sealed with Pecora AC-20 FTR caulk and covered with pressure sensitive tape.				

Comments

The total weight of the floor/ceiling assembly was 5008.5 kg. Intertek-ATI will store samples of the test specimen for four years. Photographs of the test specimen are included in the attachments. The client did not supply drawings of the test specimen.

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: Cody Snyder

Cody R. Snyder
Technician II - Acoustical Testing

Digitally Signed by: Jordan Strybos

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	06/02/16	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	INT00127	01/16
Receive Room Microphone	Scantek	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	10/15
			63811	10/15
Source Room Microphone	PCB Piezotronics	378B20	63738	05/16
Source Room Microphone	PCB Piezotronics	378B20	63739	05/16
Source Room Microphone	PCB Piezotronics	378B20	63740	05/16
Source Room Microphone	PCB Piezotronics	378B20	63742	05/16
Source Room Microphone	PCB Piezotronics	378B20	63741	05/16
Source Room Environmental Indicator	Comet	T7510	63812	11/15
Tapping Machine	Look Line s.r.l.	EM50 (TM50)	65351	02/16

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

Test Chambers

VT Receive Room Volume	157.83 m³
VT Source Room Volume	190 m³

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	05/16/16
Data File No.	F7070.02
Client	Commercial Acoustics
Description	12.07 mm Mannington® Hometown Lexington Hickory Engineered Wood, 5 mm AcoustiStep Rubber Underlayment , 19.05 mm Hacker Industries, Inc. Firm-Fill 2010+ Gypsum Concrete, 254 mm Hollow Core Plank, 50.8 mm Owens Corning R-6.7 Unfaced Fiberglass Insulation, 0.55 mm ClarkDietrich® Z-Channel, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel
Specimen Area	10.98 m²
Technician	Cody R. Snyder

Freq (Hz)	**Background SPL** (dB)	**Absorption** (m²)	**Source SPL** (dB)	**Receive SPL** (dB)	**Specimen TL** (dB)	**95% Confidence Limit**	**Number of Deficiencies**
80	36.5	19.1	109	73	34	2.70	-
100	28.6	16.0	107	70	35	2.10	-
125	29.6	11.2	105	68	39	2.10	6
160	22.9	10.7	107	65	43	1.30	5
200	19.2	11.9	105	57	48	1.10	3
250	21.7	10.3	105	54	52	0.70	2
315	21.6	11.0	105	54	53	0.50	4
400	17.4	8.9	104	50	56	0.80	4
500	19.1	8.9	103	47	58	0.40	3
630	18.5	8.4	105	45	63	0.40	0
800	17.7	8.7	105	42	65	0.40	0
1000	16.9	8.5	104	42	65	0.20	0
1250	15.0	8.6	105	40	67	0.50	0
1600	10.2	8.6	105	40	67	0.30	0
2000	5.7	9.1	104	38	68	0.40	0
2500	4.9	10.5	102	35	68	0.30	0
3150	4.1	11.2	103	33	71	0.50	0
4000	4.7	12.6	104	32	72	0.40	0
5000	5.2	14.4	104	29	74	0.50	-
6300	5.7	18.3	98	24	72	0.60	-
8000	6.1	23.5	97	20	75	1.00	-
10000	6.3	29.5	92	12	77	0.60	-

STC Rating **61** *(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

Architectural Testing

ACCREDITED Testing Laboratory

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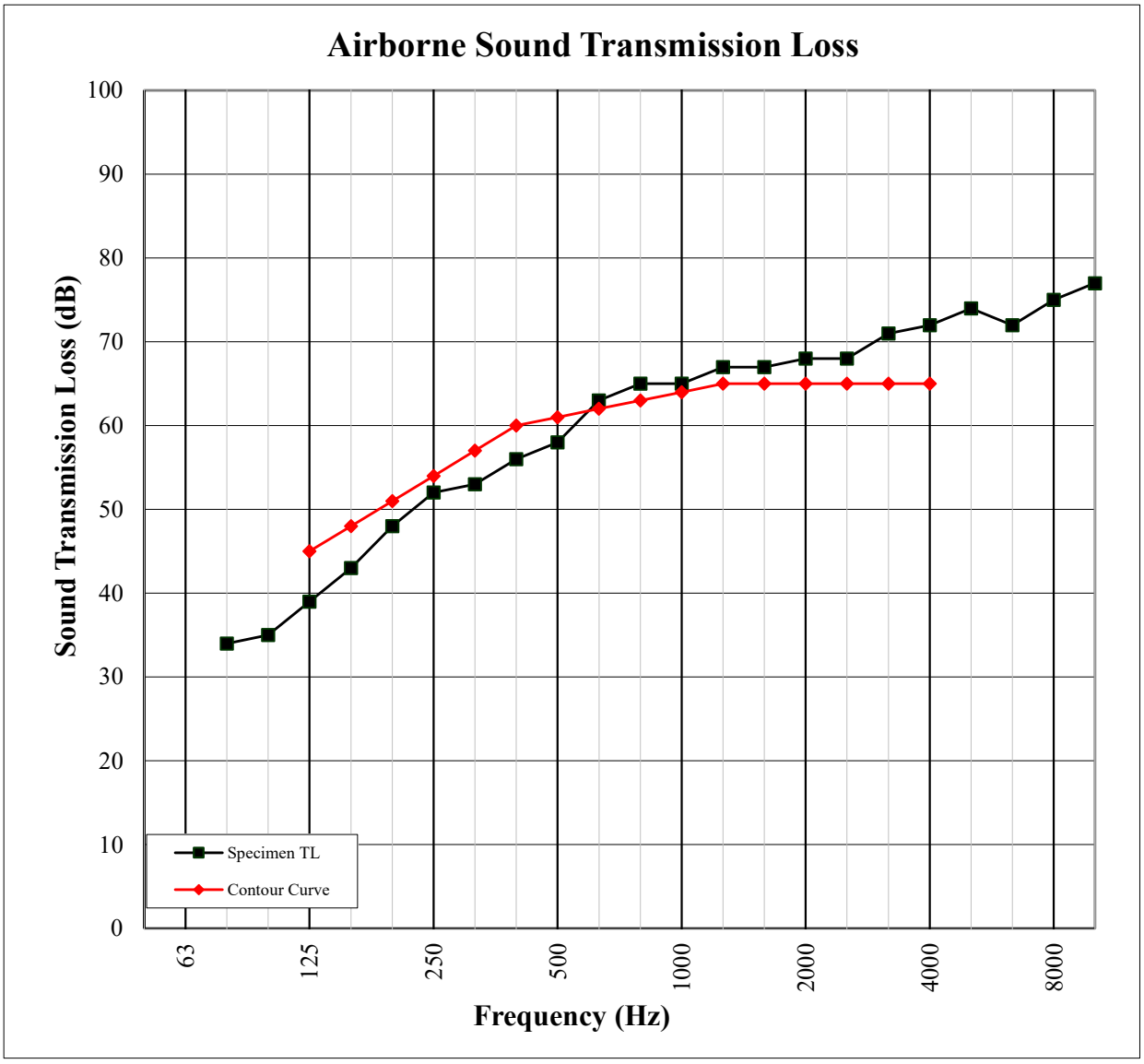
Technician	Cody R. Snyder



IMPACT SOUND TRANSMISSION

ASTM E 492

Test Date	05/16/16
Data File No.	F7070.02
Client	Commercial Acoustics
Description	12.07 mm Mannington® Hometown Lexington Hickory Engineered Wood, 5 mm AcoustiStep Rubber Underlayment , 19.05 mm Hacker Industries, Inc. Firm-Fill 2010+ Gypsum Concrete, 254 mm Hollow Core Plank, 50.8 mm Owens Corning R-6.7 Unfaced Fiberglass Insulation, 0.55 mm ClarkDietrich® Z-Channel, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel
Specimen Area	10.98 m²
Technician	Cody R. Snyder

Freq (Hz)	**Background SPL** (dB)	**Absorption** (m²)	**Normalized Impact SPL** (dB)	**95% Confidence Limit**	**Number of Deficiencies**
80	37.2	18.4	60	3.1	-
100	31.0	18.7	62	0.9	8
125	29.6	11.7	59	2.3	5
160	24.9	10.2	54	1.1	0
200	20.8	11.3	53	0.8	0
250	22.2	11.1	58	0.9	4
315	21.5	10.7	53	0.5	0
400	16.9	8.8	55	1.1	2
500	18.4	8.9	55	0.6	3
630	18.1	8.6	52	0.5	1
800	15.8	8.7	47	0.5	0
1000	15.8	8.6	46	0.6	0
1250	13.0	8.5	43	0.4	0
1600	8.6	8.5	45	0.2	2
2000	5.1	9.3	40	0.3	0
2500	4.5	10.5	37	0.3	0
3150	4.0	11.3	33	0.3	0
4000	4.7	12.5	29	0.6	-
5000	5.2	14.5	22	0.4	-
6300	5.7	18.2	13	0.4	-
8000	6.1	23.7	9	0.5	-
10000	6.3	28.9	9	0.6	-

IIC Rating **58** *(Impact Insulation Class)*

Deficiencies 25 *(Sum of Deficiencies)*

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

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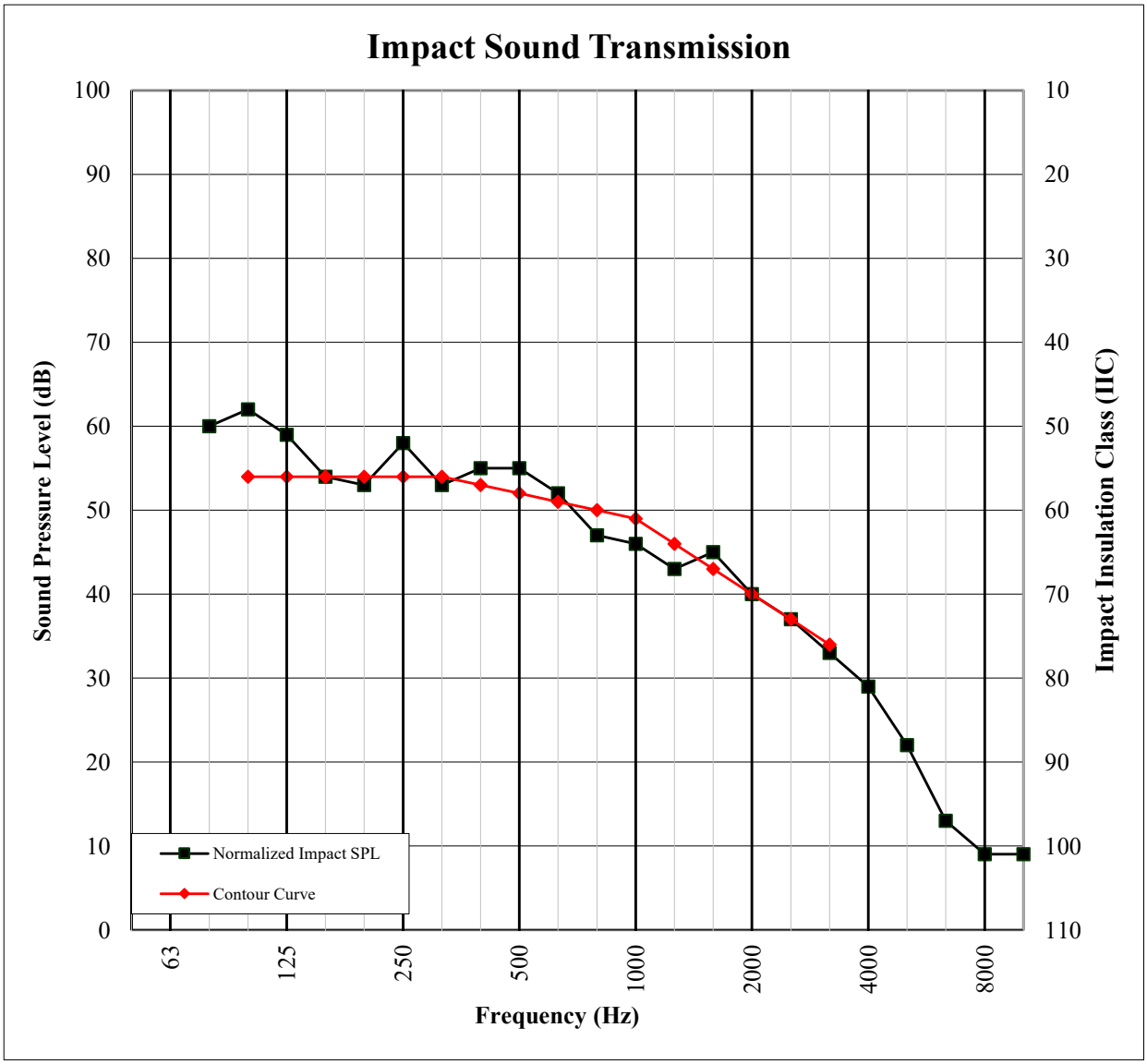

Photographs

Source Room View of Test Specimen Installation

Receive Room View of Test Specimen Installation