

Laboratory Acoustical Test Report

Report No. FC25-0028R1

April 1, 2025

Impact Insulation Class and Sound Transmission Class
ASTM E492, E90

Test Assembly:

Urban Surfaces Studio 12 Premium LVP
Urban Surfaces Floor Silencer Pro
18-inch Open Web Truss

IIC- 52

HIIC- 57

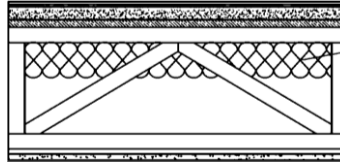
LIIC- 40

STC- 58

Urban Surfaces

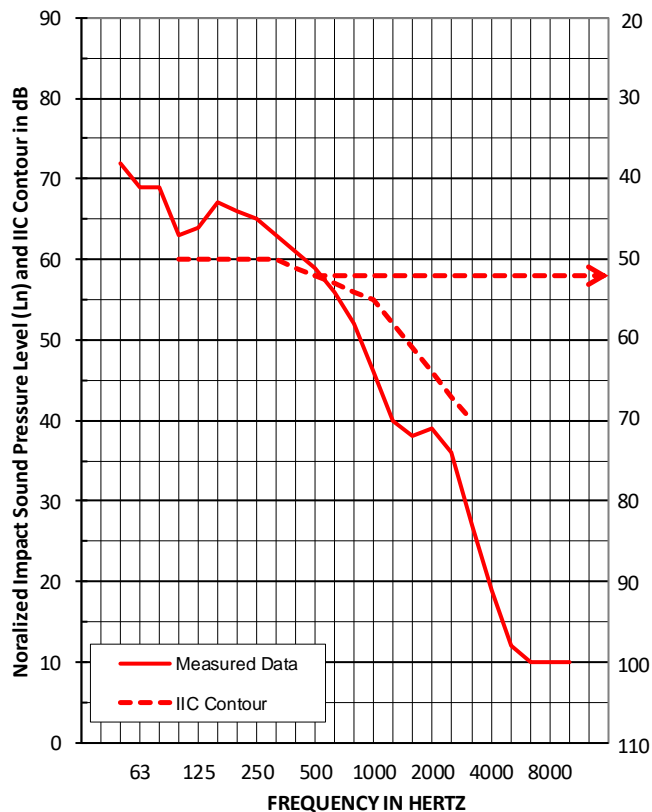
2380 Railroad Street, Suite 101
Corona, California 92878

Impact Insulation Class Test FC25-0028: IIC 52



Finish Flooring	Urban Surfaces 2 mm Studio 12 Glued Down LVP
Acoustical Underlayment	Urban Surfaces 1.5 mm Floor Silencer Pro Premium
Gypsum Concrete	19.1 mm USG Levelrock® Brand 2500
Sheathing	18.8 mm oriented strand board
Insulation	88.9 mm Johns Manville Unfaced R-13 fiberglass
Open Web Truss	457.2 mm York PB Truss L/360
Resilient Channel	12.7 mm ClarkDietrich RC Deluxe™
Gypsum Panel	15.9 mm National Gypsum Gold Bond® Fire-Shield C™

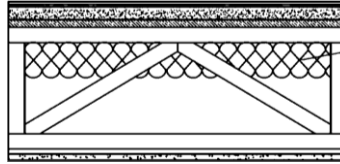
Test Date:	03/01/2025	
Construction Date:	03/01/2025	
Test Specimen Area:	11	sq.m.
Receiving Room Volume:	156	cu.m.
Receiving Room Temperature:	15.3-15.3	degrees C
Receiving Room Relative Humidity:	39-39	percent



95% Confidence		
Freq	Limit	Ln
50	1.3	72
63	2.2	69
80	1.9	69
100	0.8	63
125	0.7	64
160	0.6	67
200	0.4	66
250	0.6	65
315	0.5	63
400	0.5	61
500	0.4	59
630	0.3	56
800	0.2	52
1000	0.3	46
1250	0.2	40
1600	0.3	38
2000	0.3	39
2500	0.3	36
3150	0.3	27
4000	0.4	19
5000	0.3	<u>12</u>
6300	0.3	<u>10</u>
8000	0.4	<u>10</u>
10000	0.4	<u>10</u>

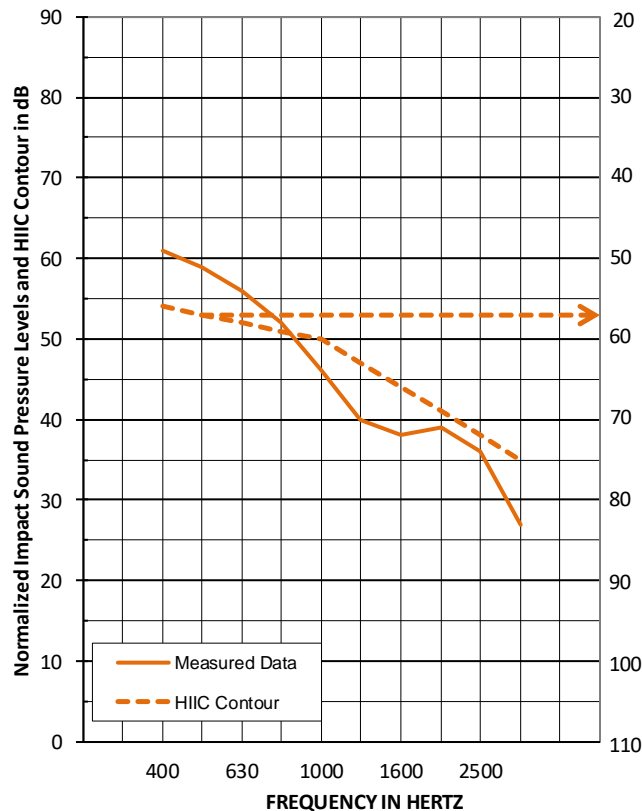
Background Affected

High-frequency Impact Insulation Class Test FC25-0028: HIIC 57



Finish Flooring	Urban Surfaces 2 mm Studio 12 Glued Down LVP
Acoustical Underlayment	Urban Surfaces 1.5 mm Floor Silencer Pro Premium
Gypsum Concrete	19.1 mm USG Levelrock® Brand 2500
Sheathing	18.8 mm oriented strand board
Insulation	88.9 mm Johns Manville Unfaced R-13 fiberglass
Open Web Truss	457.2 mm York PB Truss L/360
Resilient Channel	12.7 mm ClarkDietrich RC Deluxe™
Gypsum Panel	15.9 mm National Gypsum Gold Bond® Fire-Shield C™

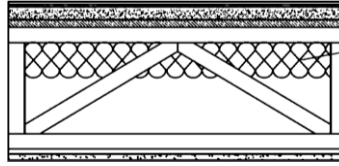
Test Date:	03/01/2025	
Construction Date:	03/01/2025	
Test Specimen Area:	11	sq.m.
Receiving Room Volume:	156	cu.m.
Receiving Room Temperature:	15.3-15.3	degrees C
Receiving Room Relative Humidity:	39-39	percent



95% Confidence		
Freq	Limit	Ln
400	0.5	61
500	0.4	59
630	0.3	56
800	0.2	52
1000	0.3	46
1250	0.2	40
1600	0.3	38
2000	0.3	39
2500	0.3	36
3150	0.3	27

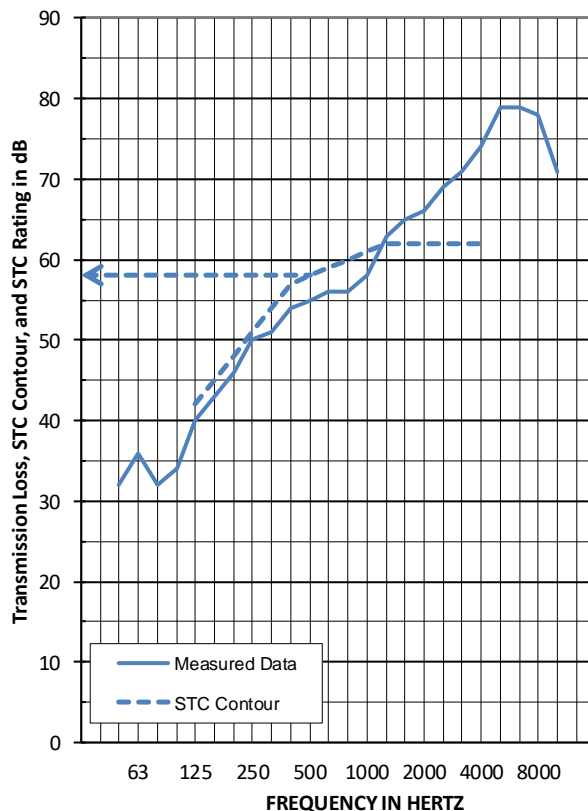
No Ln values were
affected by background
noise or flanking.

Sound Transmission Class Test FC25-0028: STC 58



Finish Flooring	Urban Surfaces 2 mm Studio 12 Glued Down LVP
Acoustical Underlayment	Urban Surfaces 1.5 mm Floor Silencer Pro Premium
Gypsum Concrete Sheathing	19.1 mm USG Levelrock® Brand 2500
Insulation	18.8 mm oriented strand board
Open Web Truss	88.9 mm Johns Manville Unfaced R-13 fiberglass
Resilient Channel	457.2 mm York PB Truss L/360
Gypsum Panel	12.7 mm ClarkDietrich RC Deluxe™
	15.9 mm National Gypsum Gold Bond® Fire-Shield C™

Test Date:	03/01/2025	
Construction Date:	03/01/2025	
Test Specimen Area:	11	sq.m.
Source/Receiving Room Volume:	190/156	cu.m.
Source/Receiving Room Temperature:	15.3/17.4	degrees C
Source/Receiving Room Relative Humidity:	39/39	percent



Freq	TL
50	32
63	36
80	32
100	34
125	40
160	43
200	46
250	50
315	51
400	54
500	55
630	56
800	56
1000	58
1250	63
1600	65
2000	66
2500	69
3150	71
4000	74
5000	79
6300	79
8000	78
10000	71

Background Affected
Flanking Affected

1.0 TEST PROCEDURES

1.1 *Impact Insulation Tests*

All tests were conducted in accordance with ASTM E492, "Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine." The IIC is a single-number rating derived from the Impact Sound Pressure Level in accordance with ASTM E989, "Standard Classification for Determination of Impact Insulation Class (IIC)." Results are presented above.

95% confidence intervals represent uncertainty for microphone averaging, not tapping positions.

1.2 *High-frequency Impact Insulation Class Tests*

The HIIC is the High-frequency Impact Insulation Class and is meant to assess the high-frequency impact noise on a floor-ceiling assembly. The higher the value, the better the floor, meaning less noise from high-frequency impacts in the space below.

All tests were conducted in accordance with the requirements of ASTM E492, "Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine," using ASTM E3222 "Standard Classification for Determination of High-frequency Impact Sound Ratings" to calculate the High-frequency Impact Insulation Class (HIIC). Results are presented above.

1.3 *Low-frequency Impact Insulation Class Tests*

The LIIC is the Low-frequency Impact Insulation Class and is meant to assess the low-frequency impact noise on a floor-ceiling assembly. The higher the value, the better the floor, meaning less noise from low-frequency impacts in the space below.

All tests were conducted in accordance with the requirements of ASTM E492, "Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine," using ASTM E3207 "Standard Classification for Determination of Low-frequency Impact Noise Ratings" to calculate the Low-frequency Impact Insulation Class (LIIC).

Measured result is LIIC-40.

1.4 *Transmission Loss Tests*

All tests were conducted in accordance with ASTM E90, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions," using the single-direction method. STC is a single-number rating derived from measured values of Sound Transmission Loss through a test specimen in accordance with ASTM E413, "Classification for Rating Sound Insulation." Results are presented above.

2.0 TEST ASSEMBLY

2.1 Assembly Description

The test assembly consists of:

- Urban Surfaces Studio 12 Glued Down Luxury Vinyl Plank;
- Urban Surfaces Floor Silencer Pro premium acoustical underlayment;
- USG Levelrock® Brand 2500 gypsum concrete with 2-mil polyethylene protective sheeting;
- Oriented strand board sheathing;
- Johns Manville Unfaced R-13 fiberglass insulation;
- York PB Truss L/360 open web truss;
- ClarkDietrich RC Deluxe™ resilient channel;
- National Gypsum Gold Bond® Fire-Shield C™ gypsum panel.

Total mass of the floor-ceiling assembly was 867 kg, having an area density of 79 kg/m².

Product/Element	Thickness	Dimensions	Area	Area Density
Urban Surfaces LVP	2 mm	1219 mm x 178 mm	10.98 m ²	3.94 kg/m ²
Urban Surfaces Underlayment	1.5 mm	3023 mm x 914 mm	10.98 m ²	1.61 kg/m ²
Gypsum Concrete	19.1 mm	3023 mm x 3632 mm	10.98 m ²	36.6 kg/m ²
Sheathing	18.8 mm	1219 mm x 2438 mm	10.98 m ²	11.7 kg/m ²
Fiberglass Insulation	88.9 mm	521 mm x 3023 mm	10.98 m ²	1.32 kg/m ²
Open Web Truss	457 mm	89 mm x 2934 mm	7 trusses	19.1 kg/truss
Resilient Channel	12.7 mm	69 mm x 3454 mm	31.05 lin m	0.33 kg/m
Gypsum Panel	15.9 mm	1219 mm x 3023 mm	10.98 m ²	10.7 kg/m ²

2.2 Installation

The materials were installed in the following manner:

- Finish flooring: Adhered to underlayment with manufacturer's adhesive and allowed to cure per manufacturer's specifications.
- Acoustical underlayment: Adhered to protective sheeting with manufacturer's adhesive. Adhesive allowed to cure per manufacturer's specifications.
- Protective sheeting: 2-mil polyethylene plastic sheeting installed on top of gypsum concrete. Sheeting adhered to gypsum concrete with 3M Super 77 spray adhesive.
- Gypsum concrete: Poured directly onto the subfloor underlayment, cured a minimum of 14 days. The gypsum panel had a closed cell foam perimeter isolation. No noticeable shrinkage or cracking was visible on the specimen.
- Sheathing: Adhered to the floor trusses with Loctite PL 400 Subfloor adhesive. Fastened with 9D nails on 203 mm centers along perimeter and 305 mm centers along trusses.

- Fiberglass insulation: Installed in the cavity between trusses, stapled flush with the subfloor.
- Open web truss: Installed on 610 mm centers using JUS414 hanger brackets.
- Resilient channel: Installed on 305 mm centers perpendicular to the trusses. The measured thickness of the metal was 0.7 mm.
- Gypsum panel: Fastened to the 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.

The assembly was constructed on March 1, 2025.

3.0 TESTING PROTOCOL

This report summarizes laboratory acoustical testing contracted by Westside to be completed for Urban Surfaces on Studio 12 glued down luxury vinyl plank and Floor Silencer Pro acoustical underlayment. The scope of the acoustical testing is for Impact Insulation Class (IIC), High-frequency Impact Insulation Class (HIIC), and Sound Transmission Class (STC), in accordance with ASTM standards E492, E90.

The tests were conducted on March 1, 2025. Details of the tests are contained in this report. Testing was completed in strict accordance with the following standards:

- ASTM E90, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions"
- ASTM E413, "Classification for Rating Sound Insulation"
- ASTM E492, "Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine"
- ASTM E989, "Standard Classification for Determination of Impact Insulation Class (IIC)"
- ASTM E2235, "Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods"
- ASTM E3207, "Standard Classification for Determination of Low-frequency Impact Noise Ratings."
- ASTM E3222, "Standard Classification for Determination of High-frequency Impact Sound Ratings."

3.1 Equipment

Equipment list and information associated with this test, including calibration information, is included in the Appendix.

3.2 Accreditation and Reporting

Report must be distributed in its entirety except with written authorization from Westside. Test was conducted at IAS-accredited and NVLAP-accredited test facility; the full report is available upon request. Detailed test procedures, data for flanking limit

tests, repeatability measurements, and reference specimen tests are available on request.

Westside provides no warranties, expressed or implied, regarding the structural integrity or fitness of these assemblies for a specific installation. Any advertising which utilizes this test report or test data must not imply product certification or endorsement by Westside, NVLAP, NIST or the U.S. Government.

Please feel free to contact us with any questions.

Sincerely,

Westside Acoustics

A handwritten signature in black ink, appearing to be 'JL' or 'John LoVerde', written in a cursive style.

John LoVerde, FASA
President

APPENDIX

Test Equipment and Photos

Instrument	Manufacturer	Model	Description	Serial Number	Calibration Date
2-CHANNEL ANALOG INPUT	NATIONAL INSTRUMENTS	NI 9250	2-CHANNEL ANALOG INPUT	INT02586	03/24
2-CHANNEL ANALOG INPUT	NATIONAL INSTRUMENTS	NI 9250	2-CHANNEL ANALOG INPUT	INT02587	03/24
2-CHANNEL ANALOG INPUT	NATIONAL INSTRUMENTS	NI 9250	2-CHANNEL ANALOG INPUT	INT02608	03/24
2-CHANNEL ANALOG INPUT	NATIONAL INSTRUMENTS	NI 9250	2-CHANNEL ANALOG INPUT	INT02609	03/24
2-CHANNEL ANALOG INPUT	NATIONAL INSTRUMENTS	NI 9250	2-CHANNEL ANALOG INPUT	INT02610	03/24
2-CHANNEL ANALOG INPUT	NATIONAL INSTRUMENTS	NI 9250	2-CHANNEL ANALOG INPUT	INT02612	03/24
2-CHANNEL ANALOG OUTPUT	NATIONAL INSTRUMENTS	NI 9260	2-CHANNEL ANALOG OUTPUT	INT02611	N/A
MICROPHONE CALIBRATOR	NORSONIC	34093	ACOUSTICAL CALIBRATOR	65105	08/24
RECEIVE ROOM MICROPHONE	PCB PIEZOTRONICS	378C20	MICROPHONE AND PREAMPLIFIER	INT03739	10/24
RECEIVE ROOM MICROPHONE	PCB PIEZOTRONICS	378B20	MICROPHONE AND PREAMPLIFIER	INT02912	03/24
RECEIVE ROOM MICROPHONE	PCB PIEZOTRONICS	378B20	MICROPHONE AND PREAMPLIFIER	64902	09/24
RECEIVE ROOM MICROPHONE	PCB PIEZOTRONICS	378B20	MICROPHONE AND PREAMPLIFIER	64903	07/24
RECEIVE ROOM MICROPHONE	PCB PIEZOTRONICS	378B20	MICROPHONE AND PREAMPLIFIER	INT03720	10/24
RECEIVE ROOM ENVIRONMENTAL INDICATOR	COMET	T7510	TEMPERATURE AND HUMIDITY TRANSMITTER	63810	09/24
				63811	09/24
SOURCE ROOM MICROPHONE	PCB PIEZOTRONICS	378C20	MICROPHONE AND PREAMPLIFIER	63745	10/24
SOURCE ROOM MICROPHONE	PCB PIEZOTRONICS	378C20	MICROPHONE AND PREAMPLIFIER	64340	09/24
SOURCE ROOM MICROPHONE	PCB PIEZOTRONICS	378C20	MICROPHONE AND PREAMPLIFIER	INT03738	10/24
SOURCE ROOM MICROPHONE	PCB PIEZOTRONICS	378C20	MICROPHONE AND PREAMPLIFIER	64909	07/24
SOURCE ROOM MICROPHONE	PCB ELECTRONICS	378C20	MICROPHONE AND PREAMPLIFIER	64911	09/24
SOURCE ROOM ENVIRONMENTAL INDICATOR	COMET	T7510	TEMPERATURE AND HUMIDITY TRANSMITTER	63812	11/24
TAPPING MACHINE	NORSONIC	NOR277	TAPPING MACHINE	INT03333	02/25
Test Chamber Receive Room Volume			156 m ³		
Test Chamber Source Room Volume			190 m ³		



Photo 1: View of Source Chamber, finish flooring installation observed



Photo 2: View of Receive Chamber, bottom of gypsum panel observed