

# Laboratory Acoustical Test Report

Report No. FC25-0031R1

April 1, 2025

Impact Insulation Class and Sound Transmission Class  
ASTM E492, E90

## Test Assembly:

Urban Surfaces InstaGrip 20 LVP  
Urban Surfaces Floor Silencer Pro  
6-inch Concrete Slab with Drop Ceiling

**IIC- 64**

**HIIC- 66**

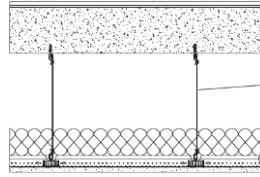
**LIIC- 68**

**STC- 60**

## Urban Surfaces

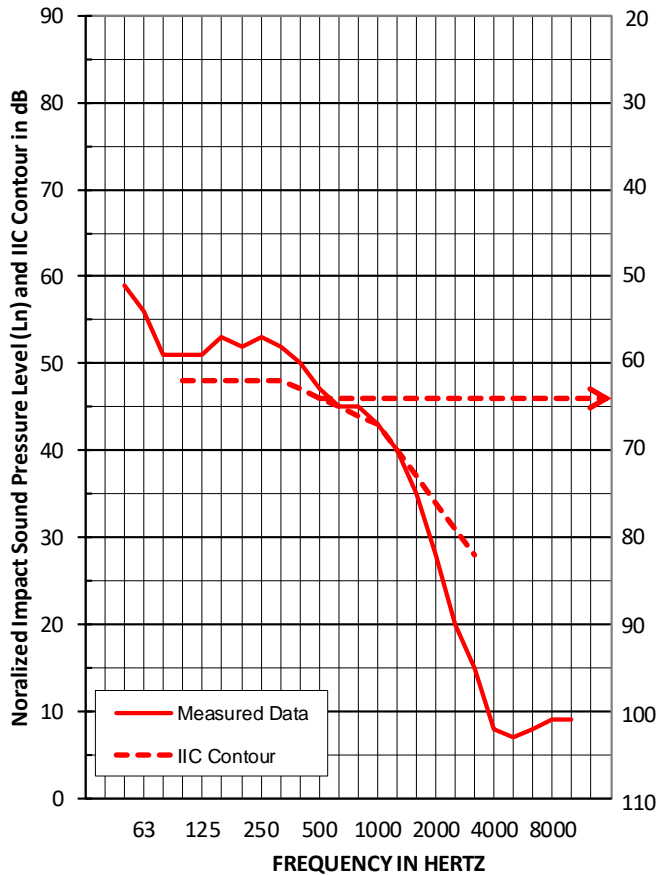
2380 Railroad Street, Suite 101  
Corona, California 92878

**Impact Insulation Class Test FC25-0031: IIC 64**



Finish Flooring	Urban Surfaces 4.5 mm InstaGrip 20 LVP
Acoustical Underlayment	Urban Surfaces 1.5 mm Floor Silencer Pro Premium
Concrete Slab	152.4 mm, 5000 PSI
Drywall Main Beam	43 mm Armstrong HD8906
Cross Tee	37.3 mm Armstrong XL8945P
Fiberglass Insulation	88.9 mm Johns Manville Unfaced R-13
Gypsum Panel	15.9 mm National Gypsum Gold Bond® Fire-Shield™ Type X

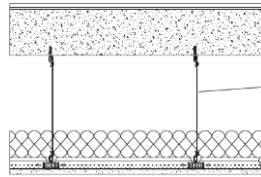
Test Date: 02/02/2025  
 Construction Date: 02/02/2025  
 Test Specimen Area: 11 sq.m.  
 Receiving Room Volume: 156 cu.m.  
 Receiving Room Temperature: 17.1-17.7 degrees C  
 Receiving Room Relative Humidity: 80-81 percent



95% Confidence		
Freq	Limit	Ln
50	1.3	59
63	3.4	56
80	1.2	51
100	0.9	51
125	0.6	51
160	1.0	53
200	0.6	52
250	0.6	53
315	1.0	52
400	0.6	50
500	0.3	47
630	0.4	45
800	0.3	45
1000	0.5	43
1250	0.3	40
1600	0.5	35
2000	0.4	28
2500	0.6	20
3150	0.7	<u>15</u>
4000	0.4	<u>8</u>
5000	0.4	<u>7</u>
6300	0.3	<u>8</u>
8000	0.3	<u>9</u>
10000	0.2	<u>9</u>

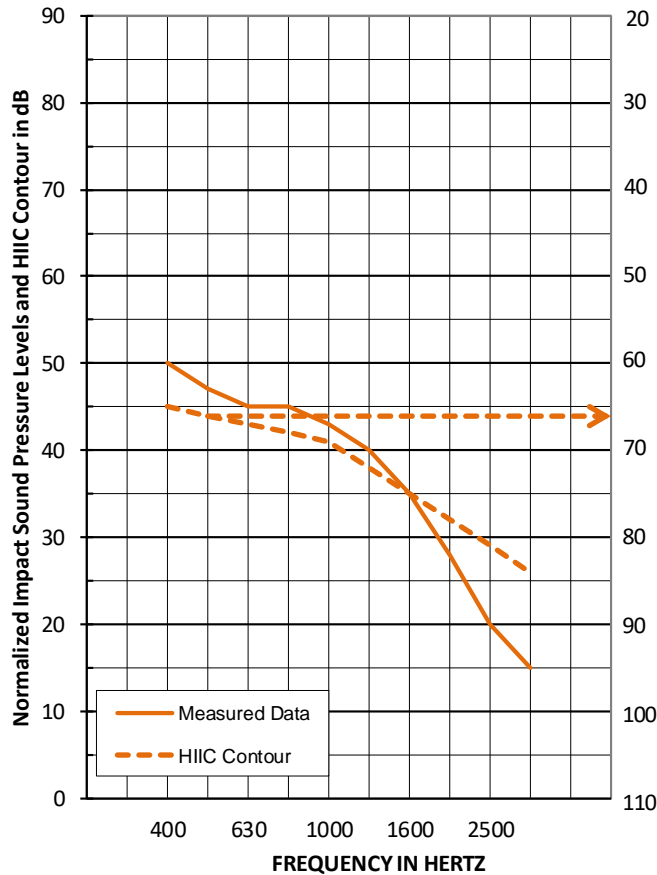
Background Affected

High-frequency Impact Insulation Class Test FC25-0031: HIIC 66



Finish Flooring	Urban Surfaces 4.5 mm InstaGrip 20 LVP
Acoustical Underlayment	Urban Surfaces 1.5 mm Floor Silencer Pro Premium
Concrete Slab	152.4 mm, 5000 PSI
Drywall Main Beam	43 mm Armstrong HD8906
Cross Tee	37.3 mm Armstrong XL8945P
Fiberglass Insulation	88.9 mm Johns Manville Unfaced R-13
Gypsum Panel	15.9 mm National Gypsum Gold Bond® Fire-Shield™ Type X

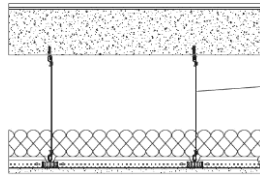
Test Date: 02/02/2025  
 Construction Date: 02/02/2025  
 Test Specimen Area: 11 sq.m.  
 Receiving Room Volume: 156 cu.m.  
 Receiving Room Temperature: 17.1-17.7 degrees C  
 Receiving Room Relative Humidity: 80-81 percent



95% Confidence		
Freq	Limit	Ln
400	0.6	50
500	0.3	47
630	0.4	45
800	0.3	45
1000	0.5	43
1250	0.3	40
1600	0.5	35
2000	0.4	28
2500	0.6	20
3150	0.7	15

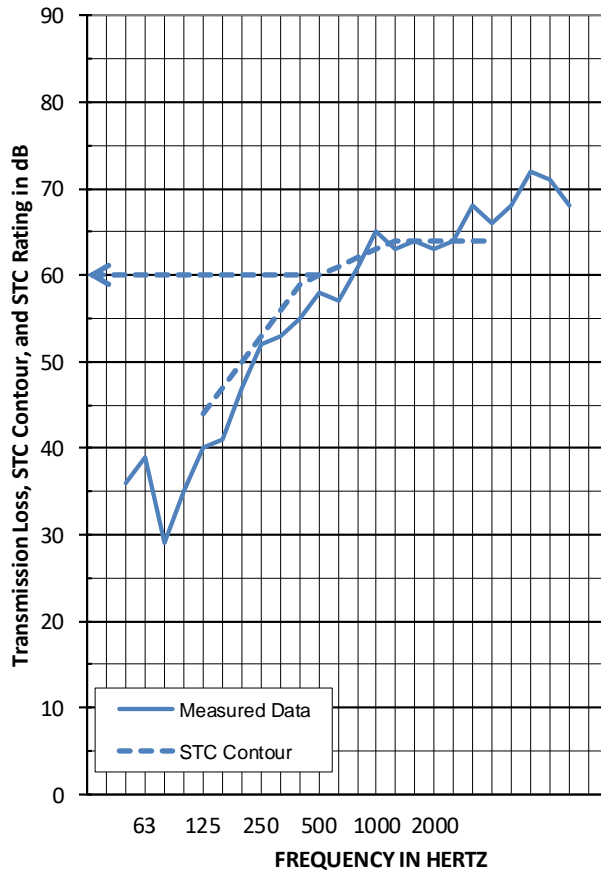
Background Affected

Sound Transmission Class Test FC25-0031: STC 60



Finish Flooring	Urban Surfaces 4.5 mm InstaGrip 20 LVP
Acoustical Underlayment	Urban Surfaces 1.5 mm Floor Silencer Pro Premium
Concrete Slab	152.4 mm, 5000 PSI
Drywall Main Beam	43 mm Armstrong HD8906
Cross Tee	37.3 mm Armstrong XL8945P
Fiberglass Insulation	88.9 mm Johns Manville Unfaced R-13
Gypsum Panel	15.9 mm National Gypsum Gold Bond® Fire-Shield™ Type X

Test Date: 02/02/2025  
 Construction Date: 02/02/2025  
 Test Specimen Area: 11 sq.m.  
 Source/Receiving Room Volume: 190/156 cu.m.  
 Source/Receiving Room Temperature: 17.3/17.3 degrees C  
 Source/Receiving Room Relative Humidity: 81/81 percent



Freq	TL
50	36
63	39
80	29
100	35
125	40
160	41
200	47
250	52
315	53
400	55
500	58
630	57
800	61
1000	65
1250	63
1600	64
2000	63
2500	64
3150	68
4000	66
5000	68
6300	72
8000	71
10000	68

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-68.**

### 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 InstaGrip 20 Luxury Vinyl Plank;
- Urban Surfaces Floor Silencer Pro premium acoustical underlayment;
- 6-inch thick concrete slab (5000 PSI) with 2-mil polyethylene protective sheeting;
- Armstrong HD8906 drywall main beam;
- Armstrong XL8945P cross tee;
- Johns Manville unfaced R-13 fiberglass insulation;
- National Gypsum Gold Bond® Fire-Shield® Type X.

Total mass of the floor-ceiling assembly was 4273.7 kg, having an area density of 389.2 kg/m<sup>2</sup>.

Product/Element	Thickness	Dimensions	Area	Area Density
Urban Surfaces LVP	4.5 mm	1524 mm x 229 mm	10.98 m <sup>2</sup>	7.75 kg/m <sup>2</sup>
Urban Surfaces Underlayment	1.5 mm	3023 mm x 914 mm	10.98 m <sup>2</sup>	1.61 kg/m <sup>2</sup>
Concrete Slab	152 mm	3023 mm x 3632 mm	10.98 m <sup>2</sup>	366 kg/m <sup>2</sup>
Drywall Main Beam	43 mm	38 mm x 2870 mm	10.9 lin m	0.45 kg/m
Cross Tee	37 mm	38 mm x 1219 mm	27.2 lin m	0.45 kg/m
Fiberglass Insulation	89 mm	610 mm x 2438 mm	10.98 m <sup>2</sup>	1.32 kg/m <sup>2</sup>
Gypsum Panel	16 mm	3023 mm x 1219 mm	10.56 m <sup>2</sup>	11.2 kg/m <sup>2</sup>

### 2.2 Installation

The materials were installed in the following manner:

- Finish flooring: Adhered to underlayment with manufacturer's adhesive. Adhesive allowed to cure per manufacturer's specifications.
- Acoustical underlayment: Adhered to the sheeting with the manufacturer's adhesive. Adhesive allowed to cure per manufacturer's specifications.
- Protective sheeting: 2-mil polyethylene plastic sheeting installed on top of concrete slab. Sheetting adhered to floor slab with 3M Super 77 spray adhesive.
- Concrete slab: Installed in a test frame flush to the source room. Mats of #5 reinforcing bars were placed 1 inch from both the top and bottom of the slab, with bars spaced on 305 mm centers in both directions. The test frame was isolated from the structure with a dense neoprene gasket. This slab was an existing assembly, reused. No noticeable shrinkage or cracking was visible.
- Drywall main beam: 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. The measured steel thickness was 0.5 mm.

- Cross tee: Inserted into the main beams on 610 mm centers. Measured steel thickness was 0.5 mm.
- Fiberglass insulation: Loose laid onto the ceiling grid system.
- Gypsum panel: Fastened with 25.4 mm fine thread drywall screws on 305 mm centers. Seams and perimeter were sealed with Pecora AC-20<sup>®</sup> Acoustical Sealant and covered with pressure-sensitive tape.

The assembly was constructed on February 2, 2025.

### 3.0 TESTING PROTOCOL

This report summarizes laboratory acoustical testing contracted by Westside to be completed for Urban Surfaces on InstaGrip 20 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 February 2, 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 similar initials, 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 <sup>3</sup>		
Test Chamber Source Room Volume			190 m <sup>3</sup>		



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



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