

# CANAM STEEL CORPORATION ACOUSTICAL PERFORMANCE TEST REPORT

## SCOPE OF WORK

ASTM E90 AND ASTM E492 TESTING ON  
BARE CONCRETE

## SPECIMEN TYPE

88.9 mm (3.5") Normal Weight Concrete on UFX 1 5/16" 24 Ga Form Deck over  
Vescom Composite Steel Joist be CSC

## REPORT NUMBER

S2730.01-113-11-R0

## TEST DATE

05/22/25

## ISSUE DATE

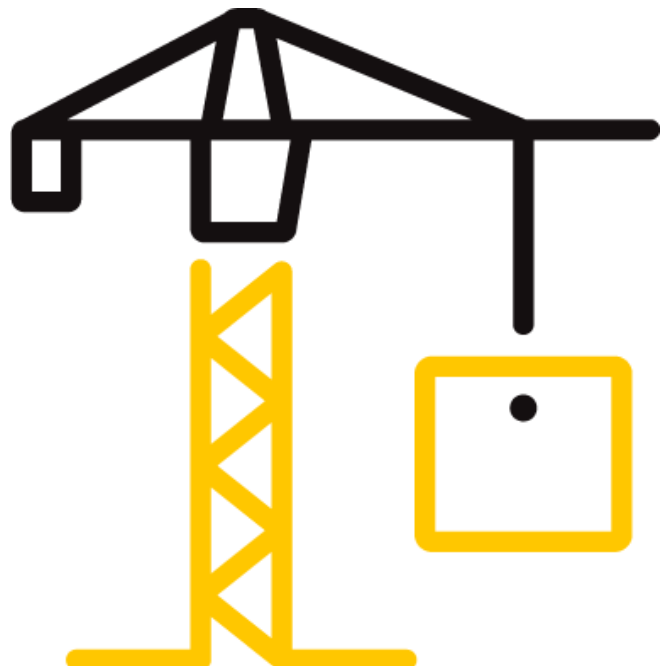
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## PAGES

14

## DOCUMENT CONTROL

RTTDS-R-AMER-Test-2844 (03/23/22)  
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## TEST REPORT FOR CANAM STEEL CORPORATION

Report No.: S2730.01-113-11-R0

Date: 06/26/25

### REPORT ISSUED TO

#### CANAM STEEL CORPORATION

22253 West Southern Avenue

Buckeye, Arizona 85326

### SECTION 1

#### SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Canam Steel Corporation to perform testing in accordance with ASTM E90 AND ASTM E492 on Bare Concrete. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted in the VT test chambers at Intertek B&C located in York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

### SECTION 2

#### SUMMARY OF TEST RESULTS

<b>DATA FILE NO.</b>	S2730.01
<b>SERIES/MODEL:</b>	Bare Concrete
<b>STC</b>	56
<b>IIC</b>	29
<b>LIIC</b>	53
<b>HIIC</b>	29

**COMPLETED BY:** Morgan S. J. Kennedy  
Technician - Acoustical  
**TITLE:** Testing

**SIGNATURE:**

**DATE:** 06/26/25

**REVIEWED BY:** Daniel B. Mohler  
Project Manager - Acoustical  
**TITLE:** Testing

**SIGNATURE:**

**DATE:** 06/26/25

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**SECTION 3****TEST METHODS**

The specimen was evaluated in accordance with the following:

**ASTM E90-23**, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*

**ASTM E413-22**, *Classification for Rating Sound Insulation*

**ASTM E492-22**, *Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine*

**ASTM E989-21**, *Classification for Determination of Impact Insulation Class (IIC)*

**ASTM E2235-04 (2020)**, *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

**ASTM E3207-21**, *Standard Classification for Determination of Low-Frequency Impact Sound Ratings*

**ASTM E3222-20**, *Standard Classification for Determination of High-Frequency Impact Sound Ratings*

**SECTION 4****MATERIAL SOURCE/INSTALLATION**

The full test specimen was assembled on the day of testing by B&C. All materials provided by the client were installed on an existing B&C assembly (88.9 mm (3.5") Normal Weight Concrete on UFX 1 5/16" 24 Ga Form Deck over Vescom Composite Steel Joist be CSC) utilizing B&C-supplied materials. The assembly was installed in a steel test frame which was installed into the opening between the source and receive rooms in the test chamber. The test frame was isolated from the structure with dense neoprene gasket.

The total weight of the floor/ceiling assembly was 2294.9 kg / 5059.3 lbs. B&C will store samples of the test specimen for four years. Photographs of the test specimen are included in the report. The client did not supply drawings of the test specimen.

B&C 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 B&C for the entire test record retention period.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

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### SECTION 5 EQUIPMENT

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE	
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02672	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02673	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02674	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02675	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02676	10/24	*
2-Channel Analog Input	National Instruments	NI 9250	2-Channel Analog Input	INT02677	10/24	*
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	64908	01/25	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT037389	10/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT03720	10/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64903	07/24	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	09/24	
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	07/24	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64340	09/24	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT037389	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	INT00936	07/24	

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

<b>VT RECEIVE ROOM VOLUME</b>	155.77 m <sup>3</sup> (5500.85 ft <sup>3</sup> )
<b>VT SOURCE ROOM VOLUME</b>	190 m <sup>3</sup> (6709.79 ft <sup>3</sup> )

### SECTION 6 LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Morgan S. J. Kennedy	Intertek B&C
Daniel B. Mohler	Intertek B&C

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**SECTION 7****TEST PROCEDURE**

The microphones were calibrated before conducting the tests. The air temperature and relative humidity conditions were monitored and recorded during all measurements. The average temperature and humidity of both the source and receive rooms are listed in Sections 10 and 11. The maximum and minimum temperatures and humidities of the receive room from the duration of the test are listed in Sections 12 and 13.

The airborne transmission loss test was conducted in accordance with the ASTM E90 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. Two sound pressure level measurements were made simultaneously in both rooms, at each of five microphone positions.

The impact sound transmission test was conducted in accordance with the ASTM E492 test method. Two background noise sound pressure level, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E492, and five sound absorption measurements were conducted at each of five microphone positions.

Detailed test procedures, data for flanking limit tests, repeatability measurements, and reference specimen tests are available upon request.

**SECTION 8****TEST CALCULATIONS**

The STC (Sound Transmission Class), IIC (Impact Insulation Class), LIIC (Low-Frequency Impact Insulation Class), and HIIC (High-Frequency Impact Insulation Class) ratings were calculated in accordance with ASTM E413, ASTM E989, ASTM E3207, and ASTM E3222, respectively.

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### SECTION 9

#### TEST SPECIMEN DESCRIPTION

MATERIAL	Dimensions (mm/inch)	Thickness (mm/inch)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Normal Weight Concrete	3556 by 2952.8 140 by 116.3	88.9 / 3.5	N/A	10.98 m <sup>2</sup> 118.19 ft <sup>2</sup>	180.67 kg/m <sup>2</sup> 37 lb/ft <sup>2</sup>
	Note: Poured directly on the steel deck, cured for 21 days. No shrinkage or cracking was visible on the specimen.				
UFX 1 5/16" 24 Ga Form Deck	3635 by 3023 143.1 by 119	33.3 / 1.31	N/A	10.98 m <sup>2</sup> 118.19 ft <sup>2</sup>	5.99 kg/m <sup>2</sup> 1.23 lb/ft <sup>2</sup>
	Note: Fastened to joists with 76.20 mm by 9.53 mm ShearFlex® HD Screws per each deck rib. The measured steel thickness was 0.75 mm.				
Composite Steel Joist by CSC	2743.2 by 184.1 108 by 7.2	355.6 / 14	Vescom	3 trusses	33.57 kg/truss 74.01 lb/truss
	Note: Installed on 1219 mm centers				
Furring/Hat Channel	3657.6 by 76.2 144 by 3	22.3 / 0.88	ClarkDietrich 087F125-18	29.1 lin m 95.47 lin ft	0.48 kg/m 0.32 lb/ft
	Note: Wire-tied on 406 mm centers perpendicular to the trusses. The measured thickness of the metal was 0.7 mm.				
Gypsum Panel	1219 by 3023 48 by 119	15.9 / 0.63	National Gypsum Type C	10.98 m <sup>2</sup> 118.19 ft <sup>2</sup>	11.9 kg/m <sup>2</sup> 2.44 lb/ft <sup>2</sup>
	Note: 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.				

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**SECTION 10**
**TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS**


<b>TEST DATE</b>	5/22/2025				
<b>DATA FILE NO.</b>	S2730.01				
<b>CLIENT</b>	Canam Steel Corporation				
<b>DESCRIPTION</b>	88.9 mm (3.5") Normal Weight Concrete, 33.34 mm (1.31") UFX 1 5/16" 24 Ga Form Deck , 355.6 mm (14") Vescom Composite Steel Joist by CSC, 22.3 mm (0.88") ClarkDietrich 087F125-18 Furring/Hat Channel, 15.9 mm (0.63") National Gypsum Type C Gypsum Panel				
<b>SPECIMEN AREA</b>	10.98 m <sup>2</sup>	<b>Receive Temp.</b>	17.1°C (62.7°F)	<b>Source Temp.</b>	20.8°C (69.5°F)
<b>TECHNICIAN</b>	MSJK	<b>Receive Humidity</b>	74%	<b>Source Humidity</b>	74%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m <sup>2</sup>	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% SAMPLING LIMIT	NUMBER OF DEFICIENCIES
50	37.4	25.8	102	63	36	3.3	-
63	32.8	25.1	103	60	40	3.4	-
80	34.7	16.3	93	59	33	3.1	-
100	27.0	10.1	90	54	37	2.6	-
125	28.1	9.1	92	55	40	2.6	0
160	27.7	8.8	90	49	43	1.1	0
200	19.2	9.3	91	46	48	0.7	0
250	17.1	10.5	95	50	46	0.9	3
315	25.1	9.5	99	55	46	1.4	6
400	23.2	8.3	96	49	48	1.0	7
500	21.2	7.6	95	46	51	0.8	5
630	22.2	7.4	96	44	54	0.5	3
800	24.2	7.1	98	42	57	0.4	1
1000	22.8	7.2	99	41	60	0.4	0
1250	23.8	7.2	98	38	62	0.7	0
1600	19.7	7.3	97	39	59	0.3	1
2000	17.5	7.8	98	41	58	0.4	2
2500	14.8	9.0	96	39	57	0.4	3
3150	12.6	9.1	93	32	63	0.4	0
4000	10.6	9.6	93	28	66	0.5	0
5000	9.8	10.3	93	25	69	0.8	-
6300	10.4	11.0	93	20	73	0.9	-
8000	10.9	12.0	91	13	79	0.8	-
10000	11.7	12.0	92	12	81	1.3	-
<b>STC Rating</b>	<b>56</b>	<i>(Sound Transmission Class)</i>			<b>Sum of Deficiencies</b>	<b>31</b>	

**Notes:**

- 1) Receive Room levels less than 6 dB above the Background levels are highlighted in yellow.
- 2) Specimen TL levels listed in red are potentially limited by the laboratory flanking limit.
- 3) Specimen TL levels listed in blue indicate the lower limit of the transmission loss.
- 4) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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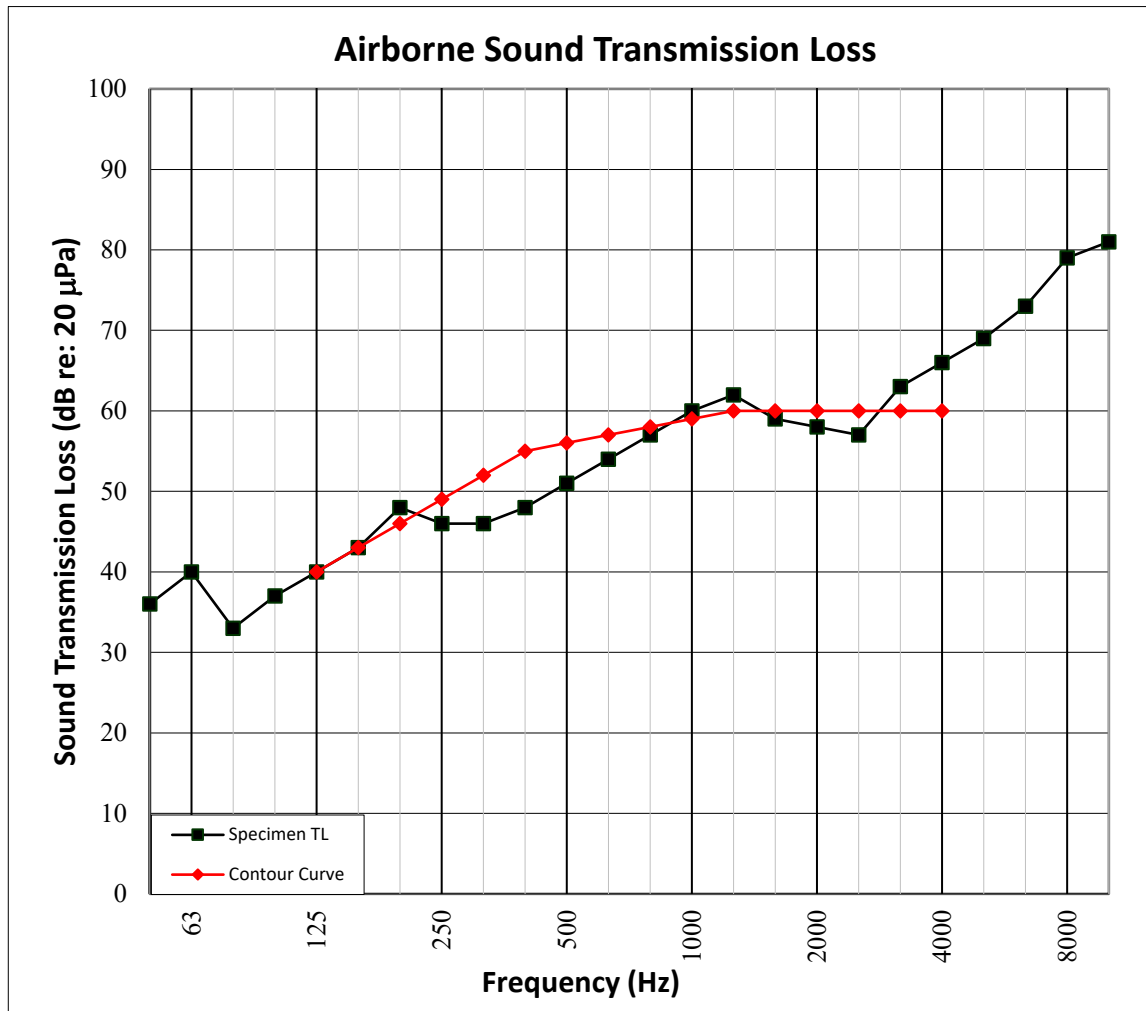
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## SECTION 11

### TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH



TEST DATE	5/22/2025				
DATA FILE NO.	S2730.01				
CLIENT	Canam Steel Corporation				
DESCRIPTION	88.9 mm (3.5") Normal Weight Concrete, 33.34 mm (1.31") UFX 1 5/16" 24 Ga Form Deck , 355.6 mm (14") Vescom Composite Steel Joist by CSC, 22.3 mm (0.88") ClarkDietrich 087F125-18 Furring/Hat Channel, 15.9 mm (0.63") National Gypsum Type C Gypsum Panel				
SPECIMEN AREA	10.98 m <sup>2</sup>	Receive Temp.	17.1°C (62.7°F)	Source Temp.	20.8°C (69.5°F)
TECHNICIAN	MSJK	Receive Humidity	74%	Source Humidity	74%





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**SECTION 12**
**TEST RESULTS - IMPACT SOUND TRANSMISSION**


<b>TEST DATE</b>	5/22/2025				
<b>DATA FILE NO.</b>	S2730.01				
<b>CLIENT</b>	Canam Steel Corporation				
<b>DESCRIPTION</b>	88.9 mm (3.5") Normal Weight Concrete, 33.34 mm (1.31") UFX 1 5/16" 24 Ga Form Deck , 355.6 mm (14") Vescom Composite Steel Joist by CSC, 22.3 mm (0.88") ClarkDietrich 087F125-18 Furring/Hat Channel, 15.9 mm (0.63") National Gypsum Type C Gypsum Panel				
<b>SPECIMEN AREA</b>	10.98 m <sup>2</sup>	<b>Maximum Temp.</b>	17.6°C (63.6°F)	<b>Minimum Temp.</b>	16.2°C (61.2°F)
<b>TECHNICIAN</b>	MSJK	<b>Max. Humidity</b>	77%	<b>Min. Humidity</b>	73%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m <sup>2</sup>	NORMALIZED IMPACT SPL (dB)	95% SAMPLING LIMIT	NUMBER OF DEFICIENCIES
50	36.7	26.5	68	2.1	-
63	32.8	22.4	59	2.2	-
80	33.5	15.7	58	1.7	-
100	28.7	10.3	58	1.5	0
125	30.5	8.6	61	1.4	0
160	30.7	8.5	62	1.0	0
200	20.2	9.8	60	0.5	0
250	17.3	11.6	65	0.8	0
315	24.9	9.5	65	0.8	0
400	23.2	8.2	62	0.5	0
500	22.4	7.6	64	0.3	0
630	21.8	7.2	65	0.4	0
800	23.3	7.0	66	0.3	0
1000	21.9	7.2	68	0.3	0
1250	20.2	7.1	67	0.1	0
1600	18.7	7.3	67	0.2	0
2000	16.8	7.8	72	0.1	3
2500	14.3	8.8	74	0.2	8
3150	12.5	9.1	70	0.1	7
4000	10.4	9.6	65	0.3	-
5000	9.2	10.4	62	0.5	-
6300	9.3	11.8	56	0.5	-
8000	10.1	13.2	47	0.7	-
10000	11.0	13.2	41	1.0	-
<b>IIC Rating</b>	<b>29</b>	<i>(Impact Insulation Class)</i>		<b>Sum of Deficiencies</b>	<b>18</b>
<b>LIIC Rating</b>	<b>53</b>	<i>(Low-Frequency Impact Insulation Class)</i>			

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

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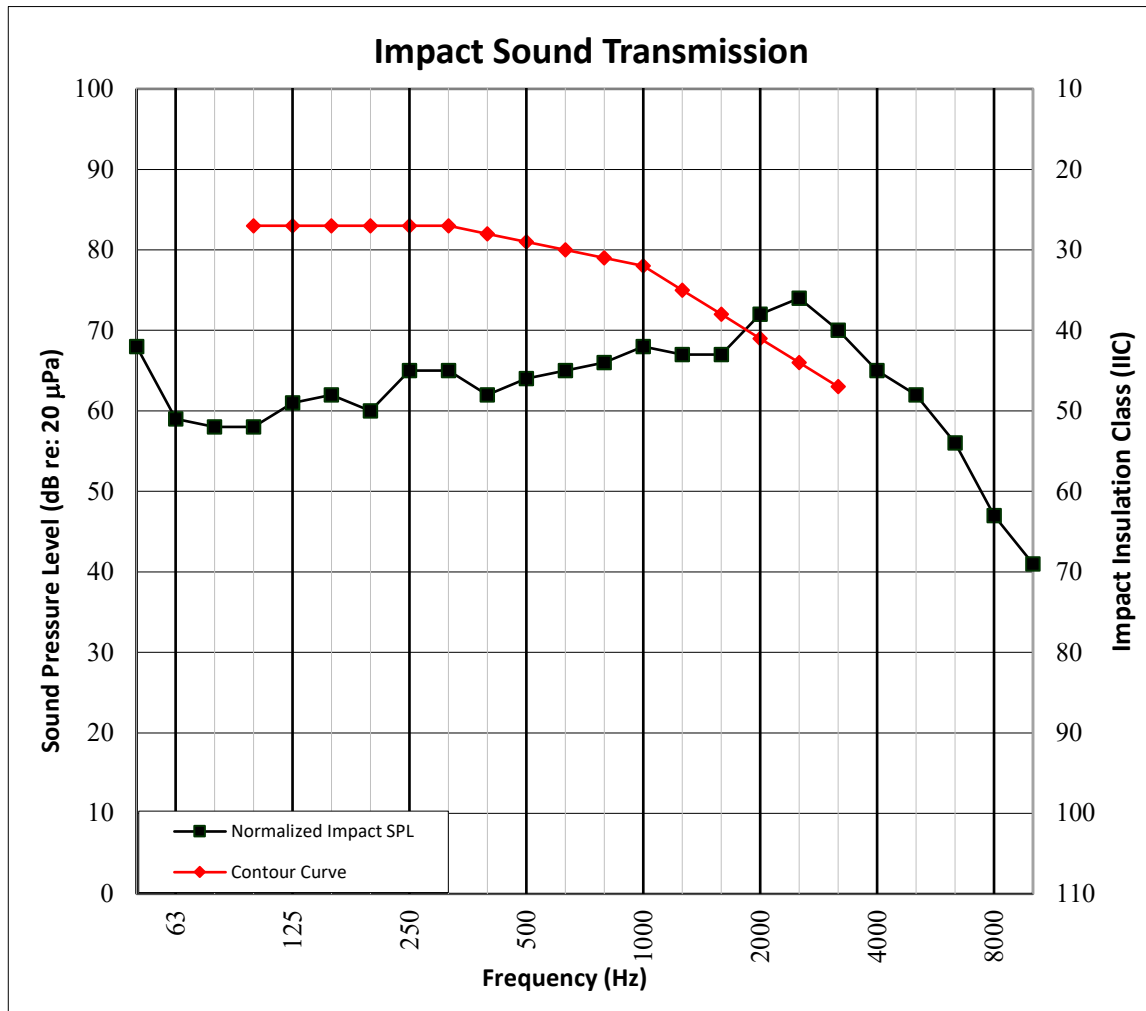
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**SECTION 13**

**TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH**



<b>TEST DATE</b>	5/22/2025				
<b>DATA FILE NO.</b>	S2730.01				
<b>CLIENT</b>	Canam Steel Corporation				
<b>DESCRIPTION</b>	88.9 mm (3.5") Normal Weight Concrete, 33.34 mm (1.31") UFX 1 5/16" 24 Ga Form Deck , 355.6 mm (14") Vescom Composite Steel Joist by CSC, 22.3 mm (0.88") ClarkDietrich 087F125-18 Furring/Hat Channel, 15.9 mm (0.63") National Gypsum Type C Gypsum Panel				
<b>SPECIMEN AREA</b>	10.98 m <sup>2</sup>	<b>Maximum Temp.</b>	17.6°C (63.6°F)	<b>Minimum Temp.</b>	16.2°C (61.2°F)
<b>TECHNICIAN</b>	MSJK	<b>Max. Humidity</b>	77%	<b>Min. Humidity</b>	73%



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**SECTION 14**
**TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION**


<b>TEST DATE</b>	5/22/2025				
<b>DATA FILE NO.</b>	S2730.01				
<b>CLIENT</b>	Canam Steel Corporation				
<b>DESCRIPTION</b>	88.9 mm (3.5") Normal Weight Concrete, 33.34 mm (1.31") UFX 1 5/16" 24 Ga Form Deck , 355.6 mm (14") Vescom Composite Steel Joist by CSC, 22.3 mm (0.88") ClarkDietrich 087F125-18 Furring/Hat Channel, 15.9 mm (0.63") National Gypsum Type C Gypsum Panel				
<b>SPECIMEN AREA</b>	10.98 m <sup>2</sup>	<b>Maximum Temp.</b>	17.6°C (63.6°F)	<b>Minimum Temp.</b>	16.2°C (61.2°F)
<b>TECHNICIAN</b>	MSJK	<b>Max. Humidity</b>	77%	<b>Min. Humidity</b>	73%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m <sup>2</sup>	NORMALIZED IMPACT SPL (dB)	95% SAMPLE CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
400	23.2	8.2	62	0.5	0.0
500	22.4	7.6	64	0.3	0.0
630	21.8	7.2	65	0.4	0.0
800	23.3	7.0	66	0.3	0.0
1000	21.9	7.2	68	0.3	0.0
1250	20.2	7.1	67	0.1	0.0
1600	18.7	7.3	67	0.2	0.0
2000	16.8	7.8	72	0.1	2.8
2500	14.3	8.8	74	0.2	7.7
3150	12.5	9.1	70	0.1	6.9
<b>IIIC Rating</b>	<b>29</b>	<i>(High-Frequency Impact Insulation Class)</i>		<b>Sum of Deficiencies</b>	<b>17.4</b>

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

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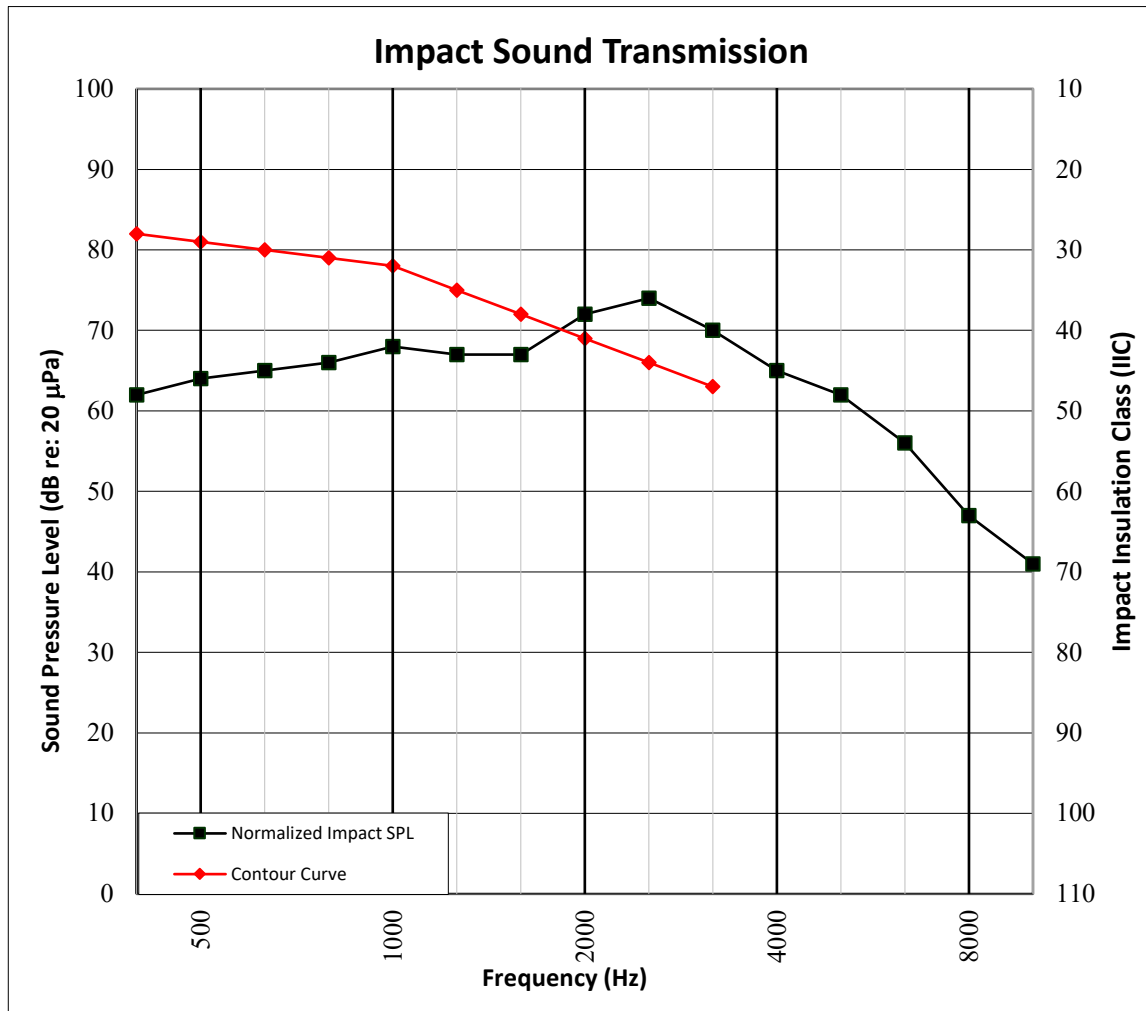
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**SECTION 15**

**TEST RESULTS - HIGH-FREQUENCY IMPACT SOUND TRANSMISSION GRAPH**



<b>TEST DATE</b>	5/22/2025				
<b>DATA FILE NO.</b>	S2730.01				
<b>CLIENT</b>	Canam Steel Corporation				
<b>DESCRIPTION</b>	88.9 mm (3.5") Normal Weight Concrete, 33.34 mm (1.31") UFX 1 5/16" 24 Ga Form Deck , 355.6 mm (14") Vescom Composite Steel Joist by CSC, 22.3 mm (0.88") ClarkDietrich 087F125-18 Furring/Hat Channel, 15.9 mm (0.63") National Gypsum Type C Gypsum Panel				
<b>SPECIMEN AREA</b>	10.98 m <sup>2</sup>	<b>Maximum Temp.</b>	17.6°C (63.6°F)	<b>Minimum Temp.</b>	16.2°C (61.2°F)
<b>TECHNICIAN</b>	MSJK	<b>Max. Humidity</b>	77%	<b>Min. Humidity</b>	73%



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**SECTION 16**

**PHOTOGRAPHS**



**Photo No. 1**

**Source Room View of Test Specimen Installation**



**Photo No. 2**

**Receive Room View of Test Specimen Installation**



Total Quality. Assured.

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### SECTION 17

#### REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	06/26/25	N/A	Original Report Issue