

TEST REPORT

for

Speedfloor Ltd.
16B Ormiston Rd.
Auckland, New Zealand 2016
Hamish Coubray / 64 9 3034825

Sound Transmission Loss Test

ASTM E 90 – 09 (2016) / E 413 – 16

On

**Speedfloor 8" (200mm) Joist Floor-Ceiling Assembly
Overlaid with 3-1/2 Inches (90mm) of Normal Weight Concrete,
and 3/8" Engineered Wood Flooring over Stock Underlayment
with 1.5"x2" Hat Channel, a Single Layer of 1/2 Inch Type C Gypsum Board
and 3 Inches of Mineral Wool Insulation**

Report Number: NGC 5020071_R1

Assignment Number: G-1631

Test Date: 06/16/2020

Report Reissue Date: 10/05/2020

Submitted by:


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Test Technician

Reviewed by:


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Director

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Revision Summary:

Date	SUMMARY
Approval Date: 07/24/2020	Original issue date: 07/24/2020 Original NGCTS report: NGC 5020071
Reissue Date: 10/05/2020	Report #: NGC 5020071_R1 The report was revised to fix a typographical error.

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Test Method: This test method conforms explicitly with the American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

Specimen Description: Speedfloor 8" (200mm) Joist floor-ceiling assembly overlaid with, according to client, 3-1/2 Inches (90mm) of Normal Weight concrete, 3/8" Engineered Wood flooring over Stock Underlayment, 1.5" x 2" Hat Channel and a layer of 1/2" Type C gypsum board, with 3 inches of Mineral wool insulation.

The test specimen was a floor assembly and was observed to consist of the following:
All weights and dimension are averaged:

- 1 layer of, 3/8" Engineered Wood flooring. The flooring was floating on the stock underlayment. Measured thickness: 9.65 mm (0.38 in.). Measured weight: 5.78 kg/m² (1.18 PSF)
- 1 layer of, stock underlayment. The underlayment was floating on the Normal Weight concrete. Measured thickness: 2.29 mm (0.09 in.). Measured weight: 0.78 kg/m² (0.16 PSF)
- 1 layer of, 90mm (3-1/2 in.) Normal Weight concrete. Measured weight: 213.59 kg/m² (43.75 PSF)
- According to the client, Speedfloor 8" (200mm) joists. Measured weight: 6.01 kg/m² (1.23 PSF)
- 1 layer of, 76.2 mm (3 in.) Mineral Wool insulation. Sample weight: 3.61 kg/m² (0.74 PSF)
- 1.5" x 2 in. Hat Channel. The channel was spaced 406.4 mm (16 in.) o.c and was attached perpendicular to the joist. Measured weight of the channel: 0.82 kg/m² (0.17 PSF)
- 1 layer of 12.70 mm (1/2 in.) Type C gypsum board. The Gypsum board was attached to the Hat channel with 31.8 mm (1-1/4 in.) Type S screws spaced 203.2 mm (8 in.) o.c. Measured weigh: 9.28 kg/m² (1.90 PSF)

The overall weight of the test assembly is: 236.24 kg/m² (48.39 PSF)

The perimeter of the test frame was sealed with a rubber gasket and a sand filled trough.

The test frame was structurally isolated from the receiving room.

Specimen size: 3657.6 mm x 4876.8 mm (12 ft. x 16 ft.)

Conditioning: Minimum 24 hours at 70°F, 55% R.H

Test Results: The results of the tests are given on pages 4 and 5 of the report.

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Sound Transmission Loss Test Data							
Test: ASTM E 90 - 09 (2016) / ASTM E 413 - 16							
Test Report: NGC 5020071_R1						Date: 6/15/2020	
Specimen Size [m ²]: 17.8						Page 4 of 5	
Source room				Receiving room			
Volume [m ³]: 86				Volume [m ³]: 124			
Rm Temp [°C]: 25				Rm Temp [°C]: 25			
Humidity [%]: 50				Humidity [%]: 50			
Sound Transmission Class STC [dB]: 55							
Sum of Unfavorable Deviations [dB]: 28							
Max. Unfavorable Deviation [dB]: 7 at 400 Hz							
Frequency [Hz]	STL [dB]	L1 [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔSTL
80	38	100.8	64.9	31.4	2.1		1.54
100	38	102.9	66.9	31.8	2.0		5.43
125	36	103.4	71.4	22.6	4.1	3	0.86
160	42	105.5	68.5	17.8	5.0		1.87
200	43	105.2	67.0	16.4	4.9	2	0.52
250	44	102.6	64.0	16.6	5.4	4	1.22
315	45	99.8	59.4	16.9	4.6	6	0.53
400	47	98.9	56.4	18.1	4.5	7	0.65
500	51	99.3	52.4	19.6	4.1	4	0.77
630	54	99.8	50.1	20.8	4.3	2	0.83
800	57	98.7	45.3	21.6	3.6		0.61
1000	60	96.6	40.7	20.4	4.1		0.75
1250	67	95.3	32.9	20.7	4.7		0.74
1600	71	96.0	28.8	21.4	3.9		1.15
2000	72	98.2	29.5	24.4	3.3		1.85
2500	73	99.6	29.6	27.6	3.0		1.53
3150	73	98.9	28.0	30.5	2.1		2.06
4000	73	96.7	25.9	32.9	2.2		2.93
5000	71	89.5	20.5	36.5	1.9		3.54

STL = Sound Transmission Loss, dB
 L1 = Source Room Level, dB
 L2 = Receiving Room Level, dB
 d = Decay Rate dB/second
 Δ STL = Uncertainty for 95% Confidence Level

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Sound Transmission Loss Test Data			Page 5 of 5
Test: ASTM E 90 - 09 (2016) / ASTM E 413 - 16			
Test Report: NGC 5020071_R1			
Test Date: 6/15/2020			
Specimen Size [m ²]: 17.8			
Sound Transmission Class STC = 55 dB			
Frequency [Hz]	STL [dB]	ΔSTL	
80	38	1.54	
100	38	5.43	
125	36	0.86	
160	42	1.87	
200	43	0.52	
250	44	1.22	
315	45	0.53	
400	47	0.65	
500	51	0.77	
630	54	0.83	
800	57	0.61	
1000	60	0.75	
1250	67	0.74	
1600	71	1.15	*
2000	72	1.85	*
2500	73	1.53	*
3150	73	2.06	*
4000	73	2.93	*
5000	71	3.54	*

STL vs. Frequency

STL = Sound Transmission Loss, dB
 Δ STL = Uncertainty for 95% Confidence Level

* Due to high insulating value of specimen, background levels limit results at these frequencies.

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