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 Furring Channel, a Single Layer of 1/2 Inch Type C Gypsum Board and 3 Inches of Mineral Wool Insulation

Report Number: NGC 5020072_R1

Assignment Number: G-1631

Test Date: 06/16/2020

Report Reissue Date: 10/05/2020

Submitted by: _____
Anthony J. Rivers
Test Technician

Reviewed by: _____
Robert J. Menchetti
Director

Revision Summary:

Date	SUMMARY
Approval Date: 07/24/2020	Original issue date: 07/24/2020 Original NGCTS report: NGC 5020072
Reissue Date: 10/05/2020	Report #: NGC 5020072_R1 The report was revised to fix a typographical error.

Report Number: NGC 5020072_R1

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, Furring 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/m^2 (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/m^2 (0.16 PSF)
- 1 layer of, 90mm (3-1/2 in.) Normal Weight concrete. Measured weight: 213.59 kg/m^2 (43.75 PSF)
- According to the client, Speedfloor 8" (200mm) joists. Measured weight: 6.01 kg/m^2 (1.23 PSF)
- Furring. The channel was spaced 406.4 mm (16 in.) o.c and was attached perpendicular to the joist. Measured weight of the channel: 0.73 kg/m^2 (0.15 PSF)
- 1 layer of, 76.2 mm (3 in.) Mineral Wool insulation. Sample weight: 3.61 kg/m^2 (0.74 PSF)
- 1 layer of 12.70 mm (1/2 in.) Type C gypsum board. The Gypsum board was attached to the furring 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/m^2 (1.90 PSF)

The overall weight of the test assembly is: 239.76 kg/m^2 (49.11 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 5020072_R1 Date: 6/16/2020
Specimen Size [m²]: 17.8

Source room		Receiving room	
Volume [m³]:	86	Volume [m³]:	124
Rm Temp [°C]:	25	Rm Temp [°C]:	25
Humidity [%]:	50	Humidity [%]:	50

Sound Transmission Class STC [dB]: 57

Sum of Unfavorable Deviations [dB]: 26
Max. Unfavorable Deviation [dB]: 6 at 400 Hz

Frequency [Hz]	STL [dB]	L1 [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔSTL
80	38	100.9	65.2	32.6	2.3		2.20
100	41	103.2	65.2	30.3	3.0		4.86
125	37	104.6	71.8	20.3	4.2	4	1.73
160	44	105.8	66.9	16.7	5.1		1.61
200	44	104.9	66.4	15.4	5.4	3	0.68
250	47	102.8	61.6	15.5	5.8	3	1.27
315	48	100.5	57.3	16.5	4.8	5	0.52
400	50	99.4	54.0	17.7	4.6	6	0.90
500	53	99.0	50.9	19.2	4.9	4	0.71
630	57	100.4	47.9	20.2	4.5	1	1.33
800	59	99.0	43.7	20.7	3.7		1.33
1000	62	96.7	38.6	19.6	3.9		1.04
1250	67	95.4	33.0	20.0	4.6		1.45
1600	68	96.4	32.2	21.4	3.8		1.84
2000	68	98.7	34.2	24.5	3.5		1.87
2500	71	100.4	32.1	27.4	2.7		2.06
3150	69	99.7	32.7	30.7	2.1		2.44
4000	68	97.3	31.6	32.9	2.2		2.89
5000	66	90.7	26.5	37.2	1.7		3.03

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

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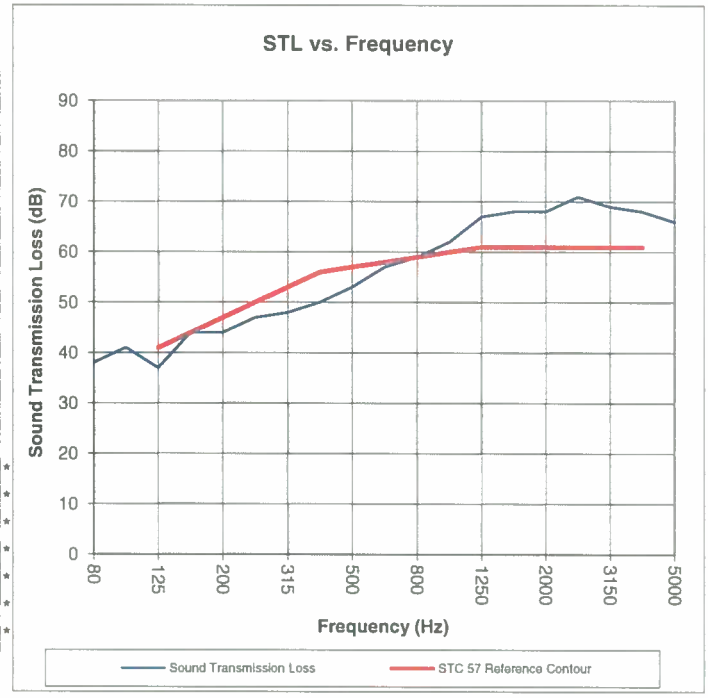
Specimen Size [m²]: 17.8

Sound Transmission Class STC = 57 dB

Frequency [Hz]	STL [dB]	ΔSTL	
80	38	2.20	
100	41	4.86	
125	37	1.73	
160	44	1.61	
200	44	0.68	
250	47	1.27	
315	48	0.52	
400	50	0.90	
500	53	0.71	
630	57	1.33	
800	59	1.33	
1000	62	1.04	
1250	67	1.45	*
1600	68	1.84	*
2000	68	1.87	*
2500	71	2.06	*
3150	69	2.44	*
4000	68	2.89	*
5000	66	3.03	*



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

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

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