

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 44 oz. Carpet and Foam Rubber 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 5020070_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

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Revision Summary:

Date	SUMMARY
Approval Date: 07/24/2020	Original issue date: 07/24/2020 Original NGCTS report: NGC 5020070
Reissue Date: 10/05/2020	Report #: NGC 5020070_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, 44 oz. Carpet over Foam Rubber 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 44 oz. Carpet. The carpet was floating on the Foam Rubber underlayment. Measured weight of 2.73 kg/m² (0.56 PSF).
- 1 layer of Foam Rubber Underlayment. The underlayment was floating on the Normal Weight concrete. The measured thickness of the underlayment was 9.65 mm (0.38 in.), Measured weight of 2.34 kg/m² (0.48 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: 238.39 kg/m² (48.83 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

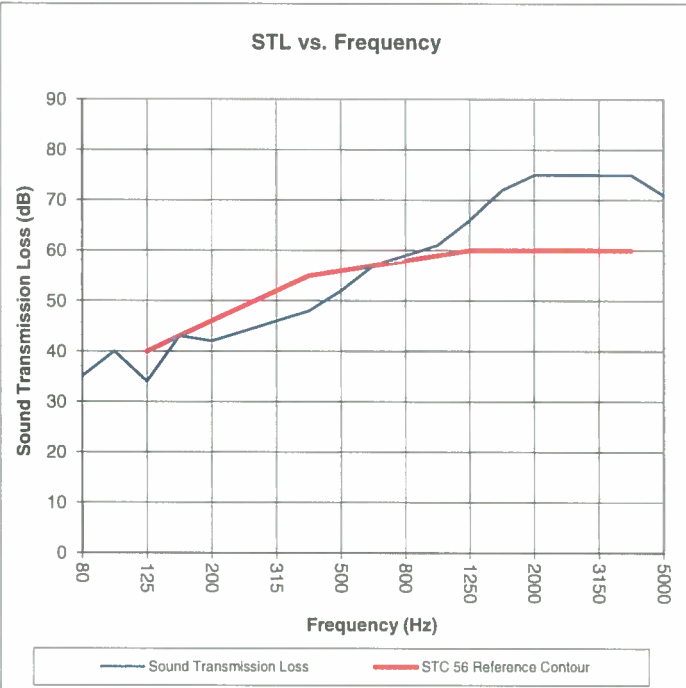
Test Results: The results of the tests are given on pages 4 and 5 of the report.

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Sound Transmission Loss Test Data							
Test: ASTM E 90 - 09 (2016) / ASTM E 413 - 16							
Test Report: NGC 5020070_R1				Date: 6/11/2020			
Specimen Size [m ²]: 17.8				Page 4 of 5			
Source room				Receiving room			
Volume [m ³]: 86				Volume [m ³]: 128			
Rm Temp [°C]: 20				Rm Temp [°C]: 22			
Humidity [%]: 54				Humidity [%]: 66			
Sound Transmission Class STC [dB]: 56							
Sum of Unfavorable Deviations [dB]: 32							
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	35	100.3	67.5	28.6	2.2		2.95
100	40	102.0	64.9	29.3	2.8		7.25
125	34	102.1	71.7	22.1	3.6	6	2.17
160	43	104.4	66.4	16.7	5.0		2.06
200	42	102.7	65.8	16.4	5.1	4	1.66
250	44	99.9	60.9	16.8	5.0	5	1.50
315	46	98.0	56.8	16.8	4.8	6	0.54
400	48	95.5	51.8	18.4	4.3	7	0.64
500	52	95.3	47.4	19.7	4.1	4	1.25
630	57	97.0	44.3	20.7	4.4		1.26
800	59	94.9	39.6	20.9	3.7		1.39
1000	61	92.0	35.0	20.5	4.1		1.27
1250	66	90.5	28.3	20.5	3.8		2.34
1600	72	91.2	22.9	21.6	3.7		2.38
2000	75	94.1	23.0	24.2	3.8		2.66
2500	75	95.5	23.3	27.3	2.8		3.03
3150	75	95.4	23.2	30.3	2.7		4.14
4000	75	93.6	20.3	33.1	1.7		4.25
5000	71	86.7	16.9	37.2	1.2		4.74

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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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Frequency [Hz]</th> <th>STL [dB]</th> <th>ΔSTL</th> </tr> </thead> <tbody> <tr><td>80</td><td>35</td><td>2.95</td></tr> <tr><td>100</td><td>40</td><td>7.25</td></tr> <tr><td>125</td><td>34</td><td>2.17</td></tr> <tr><td>160</td><td>43</td><td>2.06</td></tr> <tr><td>200</td><td>42</td><td>1.66</td></tr> <tr><td>250</td><td>44</td><td>1.50</td></tr> <tr><td>315</td><td>46</td><td>0.54</td></tr> <tr><td>400</td><td>48</td><td>0.64</td></tr> <tr><td>500</td><td>52</td><td>1.25</td></tr> <tr><td>630</td><td>57</td><td>1.26</td></tr> <tr><td>800</td><td>59</td><td>1.39</td></tr> <tr><td>1000</td><td>61</td><td>1.27</td></tr> <tr><td>1250</td><td>66</td><td>2.34</td></tr> <tr><td>1600</td><td>72</td><td>2.38</td></tr> <tr><td>2000</td><td>75</td><td>2.66</td></tr> <tr><td>2500</td><td>75</td><td>3.03</td></tr> <tr><td>3150</td><td>75</td><td>4.14</td></tr> <tr><td>4000</td><td>75</td><td>4.25</td></tr> <tr><td>5000</td><td>71</td><td>4.74</td></tr> </tbody> </table>	Frequency [Hz]	STL [dB]	ΔSTL	80	35	2.95	100	40	7.25	125	34	2.17	160	43	2.06	200	42	1.66	250	44	1.50	315	46	0.54	400	48	0.64	500	52	1.25	630	57	1.26	800	59	1.39	1000	61	1.27	1250	66	2.34	1600	72	2.38	2000	75	2.66	2500	75	3.03	3150	75	4.14	4000	75	4.25	5000	71	4.74	<p>* Due to high insulating value of specimen, background levels limit results at these frequencies.</p> <p>STL = Sound Transmission Loss, dB Δ STL = Uncertainty for 95% Confidence Level</p>		
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