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TEST REPORT

for

CONFIDENTIAL OEM ON BEHALF OF DIVINE FLOORING

[redacted]

Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors Test

ASTM E 2179 – 03 (2016)

On

6 Inch (152 mm) Concrete Slab Floor- Ceiling Assembly Overlaid with Loose Lay 7" x 48" 5.0mm x 0.5mm flooring

Report Number: NGC 7020153

Assignment Number: G-1695

Test Date: 09/03/2020

Report Approval Date: 10/16/2020

Submitted by: _____
Anthony J. Rivers
Test Technician

Reviewed by: _____
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Revision Summary:

Date	SUMMARY
Approval Date: 10/16/2020	Original issue date: 10/16/2020 Original NGCTS report #: NGC 7020153

Report Number: NGC 7020153

Test Method: This test method is in accordance with American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors – Designation: E 2179 – 03 (2016)

A 30 second averaging time was used for measurement of sound pressure levels.

Specimen Description: 6 inch concrete slab floor ceiling assembly overlaid with, according to client, Loose Lay 7" X 48" 5.0mm x 0.5mm flooring.

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

- 1 layer of, according to the client, Loose Lay 7" X 48" 5.0mm x 0.5mm flooring. The flooring was floating on the concrete slab. Measured average thickness: 5.08 mm (0.20 in.). Measured average weight: 9.71 kg/m^2 (1.99 PSF)

- 152.4 mm (6 in.) thick reinforced concrete slab, weighing: 366.2 kg/m^2 (75.00 PSF)

The overall weight of the test assembly is: 375.87 kg/m^2 (76.99 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: Concrete slab cured for a minimum of 28 days.

Test Results: The results of the tests are given on pages 4 through 7 of the report.

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Test: ASTM E 2179 - 03 (2016) Bare 6" Concrete Slab

Test Report: NGC7020153 Date: 8/31/2020
Specimen Size [m²]: 17.8

Source room
Rm Temp [°C]: 21
Humidity [%]: 55

Receiving room
Volume [m³]: 128
Rm Temp [°C]: 18
Humidity [%]: 63

Frequency [Hz]	L_n [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL_n
50	64	67.2	13.97	-5.7		5.0
63	59	62.3	14.64	-3.9		3.9
80	60	61.1	21.69	-1.1		1.84
100	59	59.9	26.20	-0.9		2.49
125	71	72.8	19.23	-1.8		2.03
160	68	70.5	16.00	-2.5		1.73
200	69	71.8	14.79	-2.8		0.54
250	72	75.1	16.23	-3.1		1.47
315	68	71.0	15.44	-3.0		0.39
400	70	72.3	17.57	-2.3		0.46
500	68	69.8	17.58	-1.8		0.30
630	69	71.2	18.14	-2.2		0.31
800	70	72.1	18.69	-2.1		0.45
1000	71	72.7	18.39	-1.7		0.52
1250	72	73.5	19.76	-1.5		0.60
1600	72	73.8	21.48	-1.8		0.64
2000	72	73.3	23.45	-1.3		0.72
2500	74	74.4	26.15	-0.4	5	0.93
3150	74	74.3	27.61	-0.3	8	1.02
4000	76	75.1	32.49	0.9		1.12
5000	76	75.2	36.81	0.8		1.40

L_n = Normalized Sound Pressure Level, dB
L2 = Receiving Room Level, dB
d = Decay rate dB/second
ΔL_n = Uncertainty for 95% Confidence Level

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Test: ASTM E 2179 - 03 (2016) 6" Concrete Slab with Specimen

Test Report: NGC7020153 Date: 8/31/2020
Specimen Size [m²]: 17.8

Source room
Rm Temp [°C]: 25
Humidity [%]: 55

Receiving room
Volume [m³]: 128
Rm Temp [°C]: 25
Humidity [%]: 55

Frequency [Hz]	L_n [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL_n
50	59	61.4	17.51	-2.4		3.80
63	58	61.5	13.43	-3.5		4.10
80	59	59.4	24.90	-0.4		1.21
100	57	57.7	24.44	-0.7		2.52
125	68	69.0	21.05	-1.0		1.52
160	67	69.8	16.87	-2.8		1.12
200	67	70.1	14.49	-3.1		0.61
250	70	72.4	16.86	-2.4		1.40
315	66	68.5	16.13	-2.5		0.58
400	68	70.0	17.40	-2.0		0.36
500	66	68.3	17.97	-2.3		0.49
630	66	68.4	18.73	-2.4		0.45
800	65	67.3	19.22	-2.3		0.60
1000	65	67.0	18.81	-2.0		0.62
1250	67	68.3	19.89	-1.3	2	0.61
1600	67	68.1	21.69	-1.1	5	0.62
2000	65	66.0	24.22	-1.0	6	0.75
2500	64	64.5	27.48	-0.5	8	1.02
3150	61	61.1	30.37	-0.1	8	1.06
4000	57	56.2	34.11	0.8		1.25
5000	49	47.5	38.99	1.5		1.45

L_n = Normalized Sound Pressure Level, dB
L2 = Receiving Room Level, dB
d = Decay Rate, dB/second
ΔL_n = Uncertainty for 95% Confidence Level

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EFFECTIVENESS OF FLOOR COVERINGS IN REDUCING IMPACT SOUND TRANSMISSION THROUGH CONCRETE FLOORS

Test: ASTM E 2179 - 03 (2016)

Test Report: NGC7020153

Date: 8/31/2020

Increase in Impact Insulation Class ΔIIC = 12.0

Frequency [Hz]	L_o [dB]	L_c [dB]	L_d [dB]	L_{ref} [dB]	$L_{ref,c}$ [dB]
100	59	57	2	67.0	65.0
125	71	68	3	67.5	64.5
160	68	67	1	68.0	67.0
200	69	67	2	68.5	66.5
250	72	70	2	69.0	67.0
315	68	66	2	69.5	67.5
400	70	68	2	70.0	68.0
500	68	66	2	70.5	68.5
630	69	66	3	71.0	68.0
800	70	65	5	71.5	66.5
1000	71	65	6	72.0	66.0
1250	72	67	5	72.0	67.0
1600	72	67	5	72.0	67.0
2000	72	65	7	72.0	65.0
2500	74	64	10	72.0	62.0
3150	74	61	13	72.0	59.0

L_o = Normalized Sound Pressure Level for Bare Standard Concrete Floor, dB
L_c = Normalized Sound Pressure Level for Covering over Concrete Floor, dB
L_d = L_o - L_c, dB
Lref = Reference Floor Average Normalized Impact Sound Pressure Level, dB
Lref,c = Lref - Ld, dB

EFFECTIVENESS OF FLOOR COVERINGS IN REDUCING IMPACT SOUND TRANSMISSION THROUGH CONCRETE FLOORS

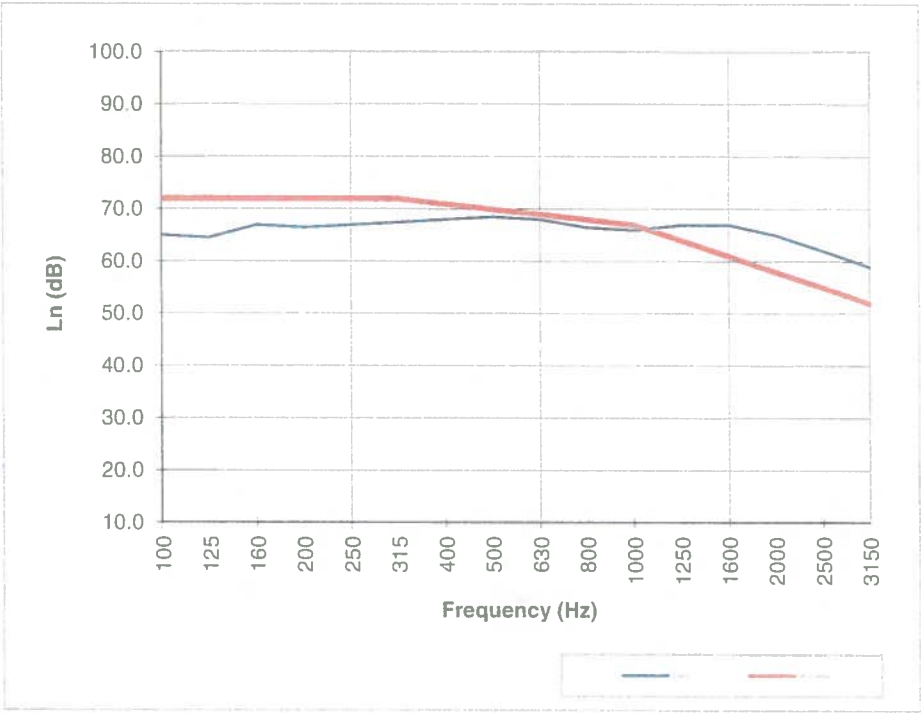
Test: ASTM E 2179 - 03 (2016)

Test Report: NGC7020153

Date: 8/31/2020

Increase in Impact Insulation Class ΔIIC = 12.0

Frequency [Hz]	Lref,c [dB]
100	65.0
125	64.5
160	67.0
200	66.5
250	67.0
315	67.5
400	68.0
500	68.5
630	68.0
800	66.5
1000	66.0
1250	67.0
1600	67.0
2000	65.0
2500	62.0
3150	59.0



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

Lref,c = Lref - Ld, dB

L_n = Normalized Sound Pressure Level, dB