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TEST REPORT

for

MP Global Products
2500 Old Hader Rd.
Norfolk, NE 68701
Duane Reimer / 402-379-9695

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 5 mm Vinyl Click Plank Flooring, over QuietWalk Luxury Vinyl Underlayment

Report Number: NGC 7019014

Assignment Number: G-1523

Test Date: 06/11/2018

Report Approval Date: 03/05/2019

Submitted by: _____
Anthony J. Rivers
Test Technician

Reviewed by: _____
Robert J. Menchetti
Director

Revision Summary:

Date	SUMMARY
Approval Date: 03/05/2019	Original issue date: 03/05/2019 Original NGCTS report #: NGC 7019014 this report corresponds to original report NGC 7018067

Report Number: NGC 7019014

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, 5 mm Vinyl Click Plank Flooring, QuietWalk Luxury Vinyl Underlayment.

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 client, 5 mm Vinyl Click Plank Flooring. The flooring was floating on the QuietWalk Luxury Vinyl Underlayment. The measured thickness of the flooring was 5.08 mm (0.20 in.), Measured weight of 8.16 kg/m^2 (1.67 PSF).
- 1 layer of, QuietWalk Luxury Vinyl Underlayment. The Underlayment was floating on the concrete slab. The measured thickness of the underlayment was 1.52 mm (0.06 in.), The measured weight was 0.29 kg/m^2 (0.06 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: 374.60 kg/m^2 (76.73 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.

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

Test Report: NGC7019014 Date: 6/11/2018
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	65	67.9	15.01	-5.7		3.8
63	61	64.0	14.71	-3.9		4.2
80	60	59.6	29.40	0.4		1.90
100	60	60.6	23.74	-0.6		2.35
125	69	71.2	16.39	-2.2		2.06
160	69	71.5	15.34	-2.5		1.13
200	69	72.5	13.88	-3.5		0.74
250	72	75.0	16.00	-3.0		1.36
315	70	72.4	15.58	-2.4		0.69
400	70	72.2	17.16	-2.2		0.58
500	67	69.7	17.23	-2.7		0.35
630	69	71.6	17.41	-2.6		0.40
800	69	70.9	18.25	-1.9		0.37
1000	71	72.8	17.91	-1.8		0.54
1250	72	73.4	19.18	-1.4		0.50
1600	73	74.3	20.43	-1.3		0.62
2000	73	73.7	22.90	-0.7	1	0.64
2500	73	73.8	24.90	-0.8	4	0.78
3150	74	74.2	26.89	-0.2	8	0.87
4000	75	75.3	30.61	-0.3		1.06
5000	75	74.7	34.14	0.3		1.19

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

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

Test Report: NGC7019014 Date: 6/11/2018

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	59	61.5	16.5	-2.5		4.20
63	54	57.1	13.9	-3.1		4.00
80	60	60.2	28.71	-0.2		1.02
100	55	56.8	20.96	-1.8		2.19
125	65	66.7	17.86	-1.7	8	2.28
160	63	65.6	15.75	-2.6	6	1.30
200	61	64.2	15.36	-3.2	4	1.04
250	59	61.1	16.50	-2.1	2	0.41
315	55	57.1	16.36	-2.1		0.48
400	54	56.3	17.88	-2.3		0.60
500	50	51.6	19.01	-1.6		0.55
630	48	50.1	18.95	-2.1		0.48
800	45	46.7	19.76	-1.7		0.80
1000	40	41.6	19.06	-1.6		0.77
1250	35	36.0	20.97	-1.0		0.83
1600	27	27.8	22.82	-0.8		0.79
2000	19	20.5	24.62	-1.5		0.78
2500	13	15.6	27.53	-2.6		0.80
3150	12	13.9	30.25	-1.9		0.88
4000	11	12.4	33.70	-1.4		0.65
5000	9	10.0	38.70	-1.0		0.48

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

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

Test: ASTM E 2179 - 03 (2016)

Test Report: NGC7019014 Date: 6/11/2018

Increase in Impact Insulation Class ΔIIC = 28.0

Frequency [Hz]	L_o [dB]	L_c [dB]	L_d [dB]	L_{ref} [dB]	$L_{ref,c}$ [dB]
100	60	55	5	67.0	62.0
125	69	65	4	67.5	63.5
160	69	63	6	68.0	62.0
200	69	61	8	68.5	60.5
250	72	59	13	69.0	56.0
315	70	55	15	69.5	54.5
400	70	54	16	70.0	54.0
500	67	50	17	70.5	53.5
630	69	48	21	71.0	50.0
800	69	45	24	71.5	47.5
1000	71	40	31	72.0	41.0
1250	72	35	37	72.0	35.0
1600	73	27	46	72.0	26.0
2000	73	19	54	72.0	18.0
2500	73	13	60	72.0	12.0
3150	74	12	62	72.0	10.0

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

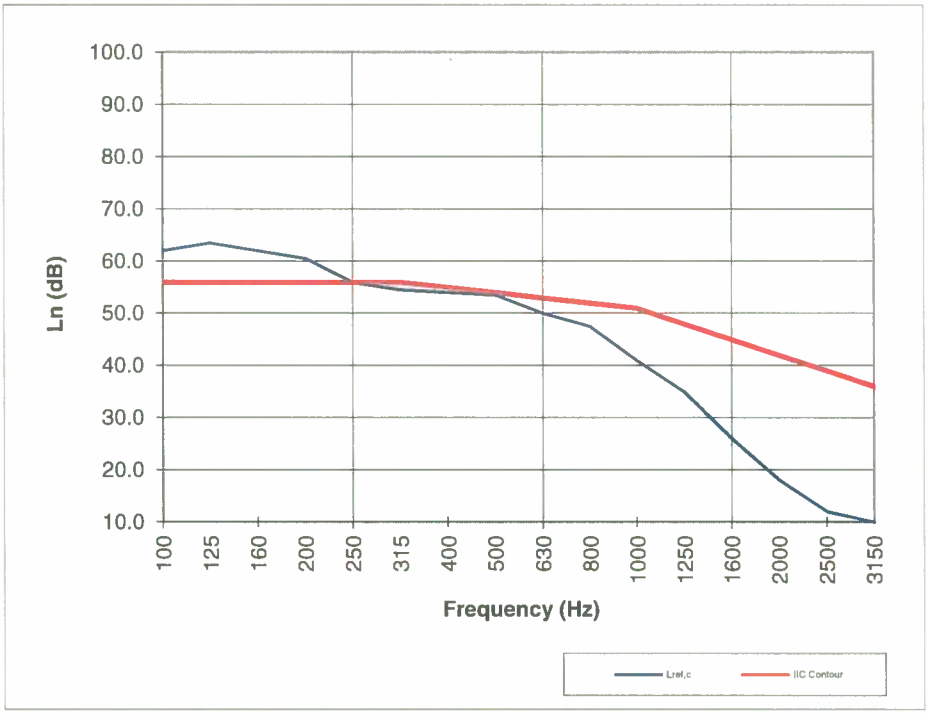
EFFECTIVENESS OF FLOOR COVERINGS IN REDUCING IMPACT SOUND TRANSMISSION THROUGH CONCRETE FLOORS

Test: ASTM E 2179 - 03 (2016)

Test Report: NGC7019014 Date: 6/11/2018

Increase in Impact Insulation Class ΔIIC = 28.0

Frequency [Hz]	Lref,c [dB]
100	62.0
125	63.5
160	62.0
200	60.5
250	56.0
315	54.5
400	54.0
500	53.5
630	50.0
800	47.5
1000	41.0
1250	35.0
1600	26.0
2000	18.0
2500	12.0
3150	10.0



* 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