

TEST REPORT

for

Sound Seal

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

ASTM E 2179 – 03 (2016)

On

6 Inch Concrete Slab Floor – Ceiling Assembly Overlaid with Luxury Vinyl Plank Flooring on ProBase Vinyl 3mm Underlayment

Report Number: NGC 7020107

Assignment Number: G-1705

Test Date: 07/20/2020

Report Date: 07/24/2020

Submitted by:


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Revision Summary:

Date	SUMMARY
Approval Date: 07/24/2020	Original issue date: 07/24/2020 Original NGCTS report: NGC 7020107

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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 the client, Luxury Vinyl Plank Flooring over ProBase Vinyl 3mm Underlayment.

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

- 1 layer of, according to the client, Luxury Vinyl Plank Flooring. The flooring was glued to the ProBase Vinyl 3mm Underlayment using Impacta T-440 acrylic adhesive. The adhesive was applied using a 1.59 mm x 1.59 mm x 1.59 mm (1/16 in. x 1/16 in. x 1/16 in.) Square-Notch trowel. Measured thickness: 3.30 mm (0.08 in.). Measured weight: 4.10 kg/m² (0.84 PSF)
- 1 layer of, according to the client, ProBase Vinyl 3mm Underlayment. The underlayment was glued to the concrete slab using Impacta T-440 acrylic adhesive. The adhesive was applied using a 1.59 mm x 1.59 mm x 1.59 mm (1/16 in. x 1/16 in. x 1/16 in.) Square-Notch trowel. Measured thickness: 1.27 mm (0.13 in.). Measured weight: 2.25 kg/m² (0.46 PSF)
- 152.4 mm (6 in.) thick reinforced concrete slab, weighing: 366.2 kg/m² (75.00 PSF)

The overall weight of the test assembly is: 372.50 kg/m² (76.30 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. Adhesive cured a minimum of 24 hours

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				
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Specimen Size [m ²]: 17.8						Date: 7/20/2020
Source room			Receiving room			
Rm Temp [°C]: 21			Volume [m ³]: 128			
Humidity [%]: 55			Rm Temp [°C]: 18			
			Humidity [%]: 63			
Frequency	L _n	L2	d	Corr.	u.Dev.	ΔL _n
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
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
<p>L_n = Normalized Sound Pressure Level, dB L2 = Receiving Room Level, dB d = Decay rate dB/second ΔL_n = Uncertainty for 95% Confidence Level</p>						

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Test: ASTM E 2179 - 03 (2016)		6" Concrete Slab with Specimen				
Test Report: NGC7020107		Date: 7/20/2020			Page 5 of 7	
Specimen Size [m ²]: 17.8						
Source room			Receiving room			
Rm Temp [°C]: 25		Volume [m ³]: 128				
Humidity [%]: 55		Rm Temp [°C]: 25				
		Humidity [%]: 55				
Frequency [Hz]	L _n [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL _n
50	60	62.2	16.0	-2.2		3.50
63	57	60.4	14.7	-3.4		3.80
80	59	59.2	26.14	-0.2		1.93
100	58	58.7	24.99	-0.7		1.94
125	69	71.1	18.68	-2.1	7	1.32
160	67	69.5	15.69	-2.5	5	1.03
200	68	71.1	14.94	-3.1	6	0.62
250	68	70.7	16.35	-2.7	6	0.87
315	64	66.6	16.36	-2.6	2	0.58
400	65	67.0	17.72	-2.0	4	0.59
500	59	61.4	17.69	-2.4		0.39
630	56	58.0	18.38	-2.0		0.45
800	50	51.4	19.17	-1.4		0.68
1000	42	44.0	18.60	-2.0		0.70
1250	35	36.9	19.84	-1.9		0.60
1600	30	31.1	21.27	-1.1		0.68
2000	26	27.2	23.86	-1.2		0.75
2500	20	21.4	25.92	-1.4		0.95
3150	20	20.9	28.05	-0.9		0.99
4000	17	17.7	31.27	-0.7		1.01
5000	13	13.9	35.46	-0.9		0.94
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)

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Increase in Impact Insulation Class Δ IIC = 22.0

Frequency	L_o	L_c	L_d	L_{ref}	$L_{ref,c}$
[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]
100	59	58	1	67.0	66.0
125	71	69	2	67.5	65.5
160	68	67	1	68.0	67.0
200	69	68	1	68.5	67.5
250	72	68	4	69.0	65.0
315	68	64	4	69.5	65.5
400	70	65	5	70.0	65.0
500	68	59	9	70.5	61.5
630	69	56	13	71.0	58.0
800	70	50	20	71.5	51.5
1000	71	42	29	72.0	43.0
1250	72	35	37	72.0	35.0
1600	72	30	42	72.0	30.0
2000	72	26	46	72.0	26.0
2500	74	20	54	72.0	18.0
3150	74	20	54	72.0	18.0

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
 L_{ref} = Reference Floor Average Normalized Impact Sound Pressure Level, dB
 $L_{ref,c}$ = $L_{ref} - L_d$, dB

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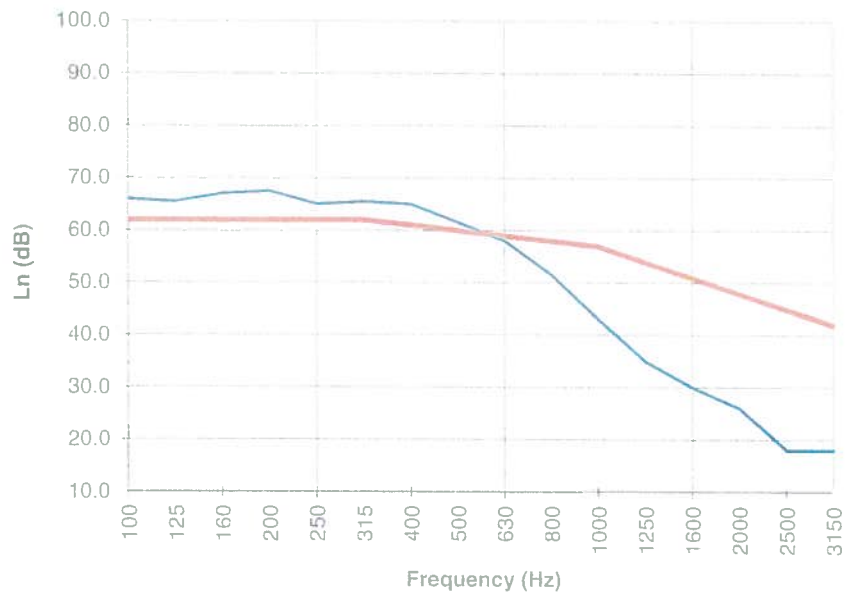
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Increase in Impact Insulation Class $\Delta IIC = 22.0$

Frequency [Hz]	Lref,c [dB]
100	66.0
125	65.5
160	67.0
200	67.5
250	65.0
315	65.5
400	65.0
500	61.5
630	58.0
800	51.5
1000	43.0
1250	35.0
1600	30.0
2000	26.0
2500	18.0
3150	18.0



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

Lref,c = Lref - Ld, dB
 L_{ij} = Normalized Sound Pressure Level, dB

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