

## TEST REPORT

for

**Sound Seal**  
50 H.P. Almgren Drive  
Agawam, MA 01001  
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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 (152 mm) Concrete Slab Floor- Ceiling Assembly  
Overlaid with 3/8" Engineered Wood Flooring  
over CeraZorb 5mm 1.9# Underlayment**

Report Number: NGC 7019156

Assignment Number: G-1649

Test Date: 12/04/2019

Report Approval Date: 12/19/2019

Submitted by:

  
Anthony J. Rivers  
Test Technician

Reviewed by:

  
Robert J. Menchetti  
Director

The results reported above apply to specific samples submitted for measurement. No responsibility is assumed for performance of any other specimen. The laboratory's accreditation or any of its test reports in no way constitute or imply product certification, approval, or endorsement by NVLAP, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

**Revision Summary:**

Date	SUMMARY
Approval Date: 12/19/2019	Original issue date: 12/19/2019 Original NGCTS report #: NGC 7019156

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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 client, 3/8” Engineered Wood Flooring over CeraZorb 5mm 1.9# 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, 3/8” Engineered Wood flooring. The flooring was floating on the CeraZorb 5mm 1.9# underlayment. Measured thickness: 9.65 mm (0.38 in.). Measured weight: 5.78 kg/m<sup>2</sup> (1.18 PSF)
- 1 layer of, CeraZorb 5mm 1.9# underlayment. The underlayment was floating on the concrete slab. Measured thickness: 4.83 mm (0.19 in.). Measured weight: 0.10 kg/m<sup>2</sup> (0.02 PSF)
- 152.4 mm (6 in.) thick reinforced concrete slab, weighing: 366.2 kg/m<sup>2</sup> (75.00 PSF)

The overall weight of the test assembly is: 372.01 kg/m<sup>2</sup> (76.20 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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Frequency		L <sub>n</sub>	L2	d	Corr.	u.Dev.	ΔL <sub>n</sub>
[Hz]		[dB]	[dB]	[dB/s]	[dB]	[dB]	
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 <sub>n</sub>	=	Normalized Sound Pressure Level, dB
L2	=	Receiving Room Level, dB
d	=	Decay rate dB/second
ΔL <sub>n</sub>	=	Uncertainty for 95% Confidence Level

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Test: ASTM E 2179 - 03 (2016)		6" Concrete Slab with Specimen				
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Specimen Size [m <sup>2</sup> ]: 17.8						
<b>Source room</b>			<b>Receiving room</b>			
Rm Temp [°C]: 21		Volume [m <sup>3</sup> ]: 128				
Humidity [%]: 55		Rm Temp [°C]: 18				
		Humidity [%]: 63				
Frequency	L <sub>n</sub>	L2	d	Corr.	u.Dev.	ΔL <sub>n</sub>
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
50	60	63.2	14.5	-3.2		3.70
63	55	58.2	14.1	-3.2		3.70
80	56	56.7	22.64	-0.7		1.52
100	59	60.3	23.15	-1.3		1.24
125	70	71.6	19.15	-1.6	8	2.27
160	66	69.3	15.14	-3.3	4	1.64
200	67	69.9	14.89	-2.9	5	0.58
250	69	71.7	15.68	-2.7	7	1.45
315	64	67.1	15.25	-3.1	2	0.58
400	63	65.7	16.78	-2.7	2	0.56
500	58	60.1	17.90	-2.1		0.45
630	52	54.6	17.73	-2.6		0.38
800	46	47.9	18.74	-1.9		0.56
1000	41	43.3	18.54	-2.3		0.70
1250	38	40.1	19.69	-2.1		0.53
1600	35	36.5	21.26	-1.5		0.71
2000	30	30.7	23.14	-0.7		0.64
2500	28	28.7	25.72	-0.7		0.78
3150	24	24.6	27.94	-0.6		0.71
4000	22	21.6	33.19	0.4		0.74
5000	17	16.9	37.67	0.1		0.69
L <sub>n</sub> = Normalized Sound Pressure Level, dB L2 = Receiving Room Level, dB d = Decay Rate, dB/second ΔL <sub>n</sub> = 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  $\Delta IIC = 22.0$**

Frequency	$L_o$	$L_c$	$L_d$	$L_{ref}$	$L_{ref,c}$
[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]
100	60	59	1	67.0	66.0
125	69	70	-1	67.5	68.5
160	69	66	3	68.0	65.0
200	69	67	2	68.5	66.5
250	72	69	3	69.0	66.0
315	70	64	6	69.5	63.5
400	70	63	7	70.0	63.0
500	67	58	9	70.5	61.5
630	69	52	17	71.0	54.0
800	69	46	23	71.5	48.5
1000	71	41	30	72.0	42.0
1250	72	38	34	72.0	38.0
1600	73	35	38	72.0	34.0
2000	73	30	43	72.0	29.0
2500	73	28	45	72.0	27.0
3150	74	24	50	72.0	22.0

$L_o$  = 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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Test: ASTM E 2179 - 03 (2016)

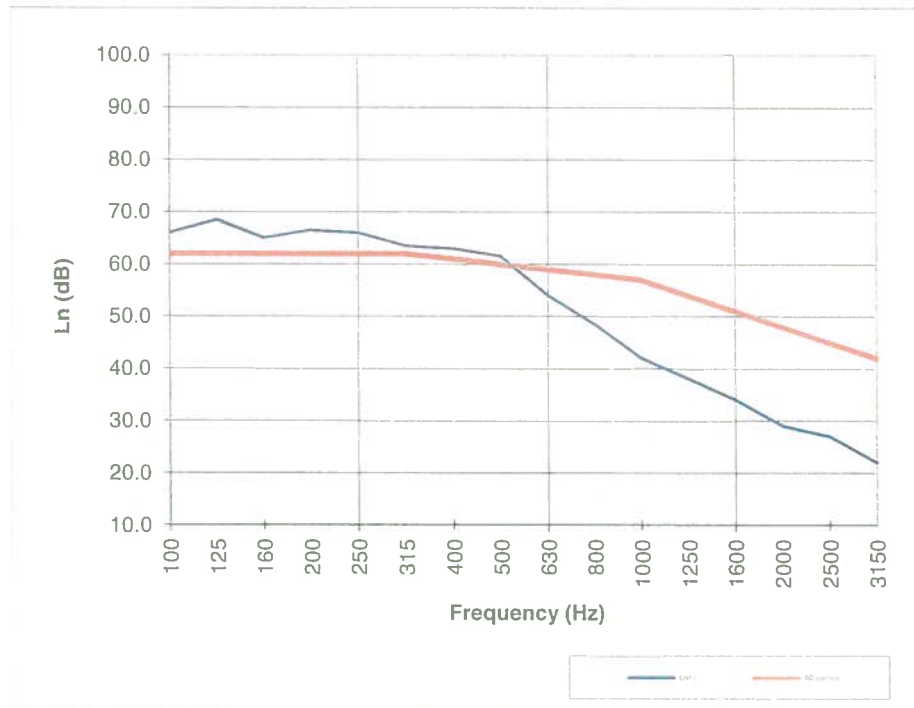
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**Increase in Impact Insulation Class  $\Delta IIC = 22.0$**

Frequency [Hz]	Lref,c [dB]
100	66.0
125	68.5
160	65.0
200	66.5
250	66.0
315	63.5
400	63.0
500	61.5
630	54.0
800	48.5
1000	42.0
1250	38.0
1600	34.0
2000	29.0
2500	27.0
3150	22.0



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

Lref,c = Lref - Ld, dB

L<sub>n</sub> = Normalized Sound Pressure Level, dB

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