

## TEST REPORT

For

**Palziv North America**

7966 NC 56 Hwy  
Louisburg, NC 27549

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

ASTM E 2179 – 03 (2009)

On

### **6 Inch Concrete Slab Floor – Ceiling Assembly Overlaid with; Engineered Wood Flooring on ECO Cork Foam Underlayment**

Report Number: NGC 7014116

Assignment Number: G-1048

Test Date: 6/04/2014

Report Approval Date: 7/10/2014

Submitted by: \_\_\_\_\_

Andrew E. Heuer  
Senior Test Engineer

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 or any agent of the U.S. Government. This report may not be reproduced except in full, without written approval of the laboratory.

**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date: 7/10/2014	Original issue date. Original NGCTS report: NGC 7014116

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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 (2009)

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, Engineered Wood Flooring on ECO Cork Foam underlayment.

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

- 1 layer of, according to client, Engineered Wood Flooring. The engineered wood flooring was floating on the underlayment. Observed dimensions: Random length planks  
Measured thickness: 9.63 mm (0.379 in.) Measured weight: 6.69 kg/m<sup>2</sup> (1.37 PSF)
- 1 layer of, according to the client, ECO Cork Foam underlayment. The underlayment seams were butted and taped together, and was floating over the concrete slab. Measured thickness: 3.25 mm (0.1280 in.)  
Measured weight: 0.40 kg/m<sup>2</sup> (0.08 PSF)
- 152.4 mm (6 in.) thick reinforced concrete slab, weighing: 366.2 kg/m<sup>2</sup> (75.0 PSF)

The overall weight of the test assembly: 373.23 kg/m<sup>2</sup> (76.45 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.)

**Category II 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 (2009)			Bare 6" Concrete Slab			
Test Report: NGC7014116			Date: 6/4/2014			
Specimen Size [m²]: 17.8						
Source room			Receiving room			
Rm Temp [°C]: 22.5			Volume [m³]: 64.4			
Humidity [%]: 61			Rm Temp [°C]: 22			
			Humidity [%]: 61			
Frequency	L <sub>n</sub>	L2	d	Corr.	u.Dev.	ΔL <sub>n</sub>
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
50	62	67.7	15.61	-5.7		1.9
63	60	63.9	21.96	-3.9		2.0
80	58	64.5	12.18	-6.5		2.6
100	59	66.4	11.32	-7.4		3.4
125	68	73.0	3.51	-5.0		2.8
160	68	74.4	4.00	-6.4		2.8
200	68	73.9	3.86	-5.9		1.0
250	70	74.7	3.05	-4.7		1.0
315	69	74.2	3.09	-5.2		0.9
400	70	74.4	2.91	-4.4		0.3
500	68	72.6	2.77	-4.6		0.3
630	70	73.7	2.65	-3.7		0.3
800	70	73.9	2.59	-3.9		0.3
1000	71	74.9	2.43	-3.9		0.3
1250	72	75.2	2.17	-3.2		0.1
1600	73	75.7	2.11	-2.7		0.1
2000	74	76.6	1.96	-2.6	1	0.3
2500	75	77.0	1.81	-2.0	5	0.3
3150	75	76.9	1.63	-1.9	8	0.4
4000	77	78.6	1.45	-1.6		0.6
5000	75	76.1	1.25	-1.1		0.7
L <sub>n</sub> = Normalized Sound Pressure Level, dB						
L2 = Receiving Room Level, dB						
d = Decay Time, dB/second						
ΔL <sub>n</sub> = Uncertainty for 95% Confidence Level						

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Test: ASTM E 2179 - 03 (2009)			6" Concrete Slab with Specimen			
Test Report: NGC7014116			Date: 6/4/2014			
Specimen Size [m²]: 17.8			Page 5 of 7			
Source room			Receiving room			
Rm Temp [°C]: 22.5			Volume [m³]: 64.4			
Humidity [%]: 61			Rm Temp [°C]: 22			
			Humidity [%]: 61			
Frequency	L <sub>n</sub>	L2	d	Corr.	u.Dev.	ΔL <sub>n</sub>
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
50	61	64.0	15.02	-6.0		2.27
63	56	56.8	22.06	-3.8		1.52
80	52	61.3	14.31	-6.3		2.03
100	59	66.6	15.80	-5.6		2.41
125	64	67.9	3.16	-4.9	1	2.05
160	66	71.8	4.03	-5.8	4	2.38
200	64	72.2	3.77	-5.2	4	0.69
250	65	75.4	3.04	-4.4	7	0.72
315	62	74.7	3.18	-4.7	3	0.56
400	62	76.2	2.98	-4.2	5	0.43
500	57	72.1	2.89	-4.1	3	0.31
630	53	69.3	2.66	-4.3		0.42
800	48	66.4	2.64	-4.4		0.20
1000	43	60.4	2.44	-3.4		0.20
1250	37	56.8	2.17	-2.8		0.19
1600	31	52.7	2.03	-2.7		0.12
2000	26	48.6	1.88	-2.6		0.09
2500	23	46.2	1.71	-2.2		0.09
3150	21	41.1	1.55	-2.1		0.12
4000	21	32.9	1.37	-0.9		0.14
5000	19	26.2	1.20	-0.2		0.15
L <sub>n</sub> = Normalized Sound Pressure Level, dB						
L2 = Receiving Room Level, dB						
d = Decay Time, 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 (2009)

Test Report: NGC7014116

Page 6 of 7  
 Date: 6/4/2014

**Increase in Impact Insulation Class  $\Delta IIC = 23.0$**

Frequency	$L_o$	$L_c$	$L_d$	$L_{ref}$	$L_{ref,c}$
[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]
100	59	59	0	67.0	67.0
125	68	64	4	67.5	63.5
160	68	66	2	68.0	66.0
200	68	64	4	68.5	64.5
250	70	65	5	69.0	64.0
315	69	62	7	69.5	62.5
400	70	62	8	70.0	62.0
500	68	57	11	70.5	59.5
630	70	53	17	71.0	54.0
800	70	48	22	71.5	49.5
1000	71	43	28	72.0	44.0
1250	72	37	35	72.0	37.0
1600	73	31	42	72.0	30.0
2000	74	26	48	72.0	24.0
2500	75	23	52	72.0	20.0
3150	75	21	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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Test: ASTM E 2179 - 03 (2009)

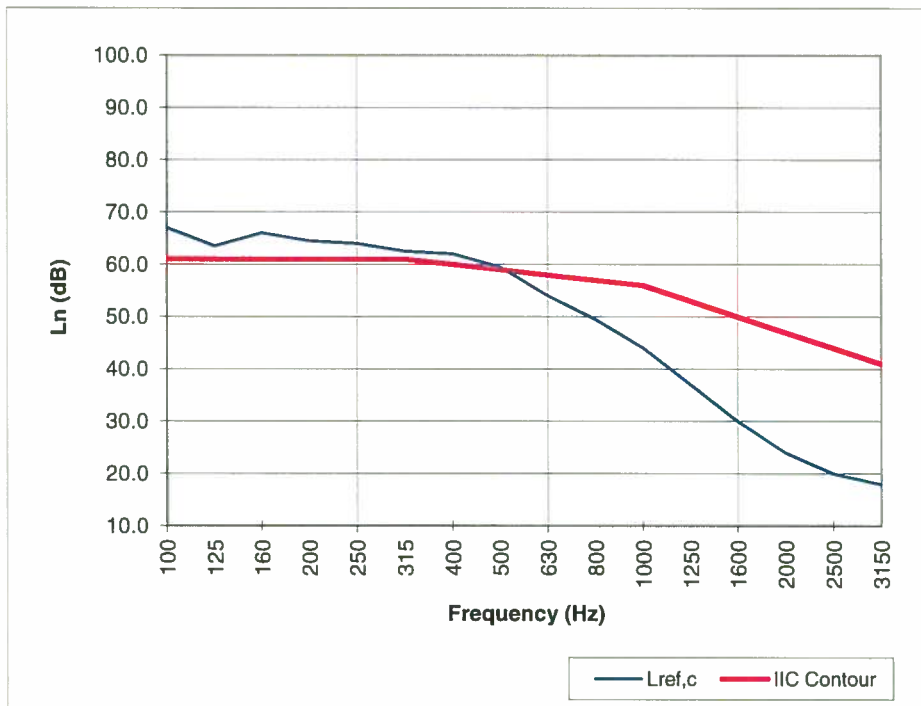
Page 7 of 7

Test Report: NGC7014116

Date: 6/4/2014

**Increase in Impact Insulation Class  $\Delta IIC = 23.0$**

Frequency [Hz]	Lref,c [dB]
100	67.0
125	63.5
160	66.0
200	64.5
250	64.0
315	62.5
400	62.0
500	59.5
630	54.0
800	49.5
1000	44.0
1250	37.0
1600	30.0
2000	24.0
2500	20.0
3150	18.0



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

$L_{ref,c} = L_{ref} - L_d$ , dB

$L_n$  = Normalized Sound Pressure Level, dB

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