

## TEST REPORT

For

**Diversified Industries**  
121 High Hill Road  
Swedesboro, NJ 08085  
Ricardo Gonzalez / 856-662-1981

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

ASTM E 2179 – 03 (2009)

On

**8 Inch Concrete Slab Floor – Ceiling Assembly  
Overlaid with 10 mm Laminate Wood Flooring and 151223-03 Underlayment**

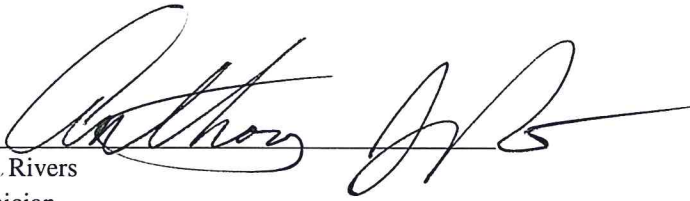
Report Number: NGC 7016057

Assignment Number: G-1256

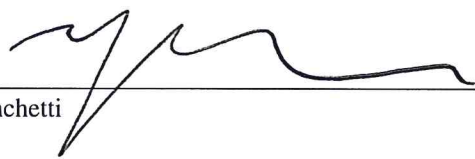
Test Date: 03/04/2016

Report Date: 03/17/2016

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 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: 03/17/2016	Original issue date: 03/17/2016 Original NGCTS report: NGC 7016057

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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:** 8 inch concrete slab floor-ceiling assembly, overlaid with according to client, 10 mm Laminate Wood Flooring and 151223-03 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 client, 10 mm Laminate Wood Flooring. The flooring was floating on the 151223-03 Underlayment. Dimensions of laminate flooring was 1200.15 mm length x 203.2 mm width (47-1/4 in. x 8 in.) Measured thickness: 9.98 mm (0.393 in.). Measured weight: 9.67 kg/m<sup>2</sup> (1.98 PSF)
- 1 layer of, according to client, 151223-03 Underlayment. The underlayment was floating on the concrete slab. Measured thickness: 1.91 mm (0.075 in.). Measured weight: 0.098 kg/m<sup>2</sup> (0.02 PSF)
- 203.2 mm (8 in.) thick reinforced concrete slab, weighing: 488.2 kg/m<sup>2</sup> (100.0 PSF)

The overall weight of the test assembly is: 497.96 kg/m<sup>2</sup> (102.00 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. Mortar and grout cured for a minimum of 7 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		Bare 8" Concrete Slab				
(Not official due to slab thickness)						Page 4 of 7
Test Report: NGC7016057		Date: 3/4/2016				
Specimen Size [m <sup>2</sup> ]: 17.8						
<b>Source room</b>			<b>Receiving room</b>			
Rm Temp [°C]: 18			Volume [m <sup>3</sup> ]: 127			
Humidity [%]: 66			Rm Temp [°C]: 18			
			Humidity [%]: 66			
Frequency	L <sub>n</sub>	L2	d	Corr.	u.Dev.	ΔL <sub>n</sub>
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
50	61	65.6	20.89	-4.6		1.4
63	55	59.6	20.08	-4.6		3.2
80	57	66.5	26.00	-5.5		1.8
100	60	64.6	23.43	-5.6		2.6
125	65	65.3	16.41	-4.3		2.8
160	67	71.5	14.72	-5.5		2.0
200	66	70.8	14.69	-5.8		0.7
250	65	69.8	15.79	-4.8		0.9
315	69	72.1	14.93	-4.1		0.5
400	66	70.3	16.45	-4.3		0.5
500	67	70.6	17.65	-3.6		0.5
630	67	70.0	17.85	-4.0		0.3
800	69	71.2	17.60	-4.2		0.3
1000	69	70.9	17.02	-3.9		0.3
1250	70	72.7	17.94	-2.7		0.2
1600	71	72.9	19.42	-2.9		0.2
2000	73	73.5	22.61	-2.5	1	0.2
2500	74	73.4	23.68	-2.4	4	0.1
3150	74	73.5	25.86	-1.5	8	0.2
4000	74	75.1	29.09	-1.1		0.2
5000	74	73.3	33.16	-0.3		0.3
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			8" Concrete Slab with Specimen			
(Not official due to slab thickness)			Page 5 of 7			
Test Report: NGC7016057		Date: 3/4/2016				
Specimen Size [m <sup>2</sup> ]: 17.8						
<b>Source room</b>			<b>Receiving room</b>			
Rm Temp [°C]: 18		Volume [m <sup>3</sup> ]: 127				
Humidity [%]: 66		Rm Temp [°C]: 18				
				Humidity [%]: 66		
Frequency	L <sub>n</sub>	L2	d	Corr.	u.Dev.	ΔL <sub>n</sub>
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
50	52	61.8	19.04	-4.8		1.55
63	59	55.4	20.07	-4.4		2.41
80	55	63.3	26.10	-6.3		1.91
100	56	63.7	22.28	-5.7		2.71
125	64	62.8	18.76	-4.8		2.96
160	67	70.1	14.89	-6.1	3	1.98
200	62	69.3	14.10	-5.3	3	0.92
250	64	68.6	14.96	-4.6	3	0.96
315	65	70.2	14.66	-4.2	5	0.41
400	62	67.0	16.17	-4.0	3	0.51
500	62	66.6	17.06	-3.6	4	0.24
630	59	65.8	17.22	-3.8	4	0.21
800	54	62.5	17.78	-3.5	2	0.28
1000	48	56.1	16.87	-3.1		0.25
1250	45	52.2	17.88	-3.2		0.33
1600	40	47.1	19.81	-3.1		0.22
2000	34	41.6	22.51	-2.6		0.15
2500	29	37.7	24.08	-1.7		0.21
3150	26	33.9	26.21	-1.9		0.14
4000	24	31.2	29.79	-1.2		0.22
5000	19	27.0	33.86	0.0		0.31
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 (Not official due to slab thickness)

Test Report: NGC7016057

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 Date: 3/4/2016

**Increase in Impact Insulation Class  $\Delta$ IIC = 25.0**

Frequency	$L_o$	$L_c$	$L_d$	$L_{ref}$	$L_{ref,c}$
[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]
100	60	56	4	59	55.0
125	65	64	1	61	60.0
160	67	67	0	66	66.0
200	66	62	4	65	61.0
250	65	64	1	65	64.0
315	69	65	4	68	64.0
400	66	62	4	66	62.0
500	67	62	5	67	62.0
630	67	59	8	66	58.0
800	69	54	15	67	52.0
1000	69	48	21	67	46.0
1250	70	45	25	70	45.0
1600	71	40	31	70	39.0
2000	73	34	39	71	32.0
2500	74	29	45	71	26.0
3150	74	26	48	72	24.0

$L_o$  = 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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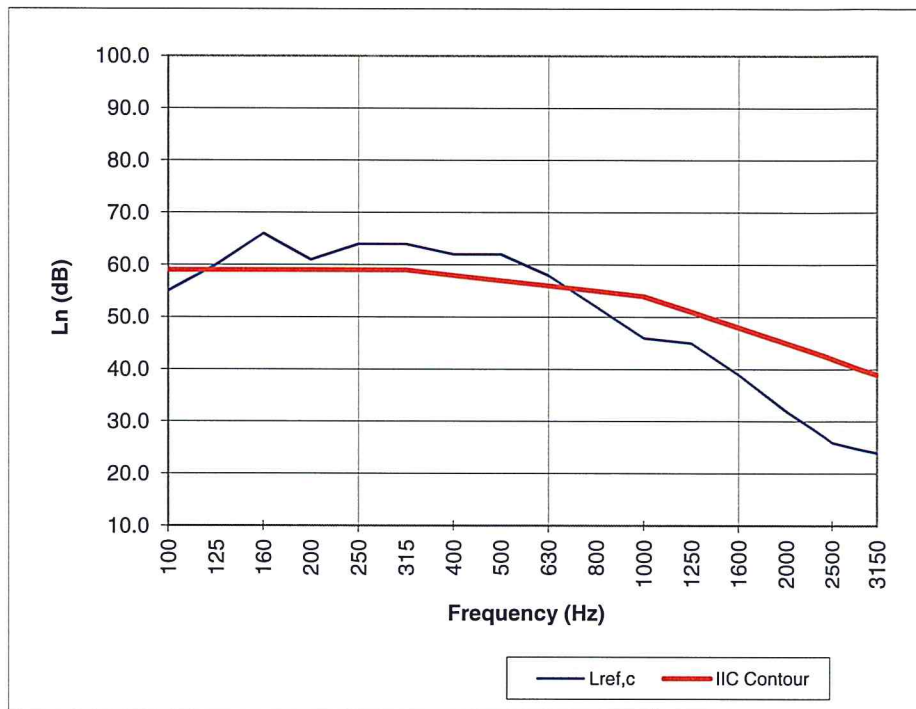
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Test Report: NGC7016057

Date: 3/4/2016

**Increase in Impact Insulation Class  $\Delta$ IIC = 25.0**

Frequency [Hz]	Lref,c [dB]
100	55.0
125	60.0
160	66.0
200	61.0
250	64.0
315	64.0
400	62.0
500	62.0
630	58.0
800	52.0
1000	46.0
1250	45.0
1600	39.0
2000	32.0
2500	26.0
3150	24.0



\* 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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