



Acoustical Testing Laboratory



Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code 200291

TEST REPORT

For

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Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors Test ASTM E 2179 – 03 On

6 Inch (152mm) Concrete Slab Overlaid with Engineered Hardwood Flooring Adhered with Sikabond-T35 Adhesive over 5mm Impacta-Regupol Probase Underlayment Adhered with Sikabond-T35 Adhesive

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Report Number: NGC 7011089

Assignment Number: G-709

Test Date: 07/28/2011

Report Date: 09/12/2011

Submitted by:

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Test and Quality Engineer

Reviewed by:

Robert J. Menchetti
Director

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Report Number: NGC 7011089

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.

A 30 second averaging time was used for measurement of sound pressure levels.

Specimen Description: 6 inch (152mm) Concrete Slab overlaid with, according to client, Engineered wood flooring with Sikabond-T35 adhesive over 5mm Impacta-Regupol Probase underlayment adhered with Sikabond-T35 adhesive.

The test specimen was a floor-ceiling assembly consisting of the following:

- 1 layer of 13.1mm (0.515 in.) Hard Maple Select V Engineered Hardwood flooring. Samples were 127mm (5 in.) wide, by random length planks. Sample weight was 7.5 kg/m² (1.54 PSF).
- 1 layer of Sikabond-T35 adhesive. Sample was troweled on using client supplied P5 trowel.
- 5mm-Impacta Regupol Probase underlayment, 5.18mm (0.204 in.) thick. Sample weight was 3.7 kg/m² (0.76 PSF).
- 1 layer of Sikabond-T35 adhesive. Sample was troweled on using client supplied P5 trowel.
- 152.4mm (6 in.) thick reinforced concrete slab 366.2 kg/m² (75.0 PSF).

The overall weight of the test assembly is 377.4 kg/m² (77.30 PSF).

The perimeter of the concrete slab was sealed with rubber gasketing and a sand filled trough. The test assembly is structurally isolated from the receiving room.

Specimen size: 3657.6mm x 4876.8mm (12 ft. x 16 ft.).

Category II

Specimen size: 3657.6mm x 4876.8mm (12 ft. x 16 ft.).

Conditioning: Adhesive cured for minimum of 24 hours.
Concrete cured minimum of 28 days.

Test Results: The results of the tests are given on pages 3 through 6.

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Test: ASTM E 2179 - 03		Bare 6" Concrete Slab					Page 3 of 6
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Specimen Size [m ²]: 17.8							
Source room			Receiving room				
Rm Temp [°C]: 27		Volume [m ³]: 63.9					
Humidity [%]: 52		Rm Temp [°C]: 24					
					Humidity [%]: 47		
Frequency [Hz]	L _n [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL _n	
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	
<p>L_n = Normalized Sound Pressure Level, dB L2 = Receiving Room Level, dB d = Decay Time, dB/second ΔL_n = Uncertainty for 95% Confidence Level</p>							

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Test: ASTM E 2179 - 03			6" Concrete Slab with Specimen			
Test Report: NGC7011089			Date: 7/28/2011		Page 4 of 6	
Specimen Size [m ²]: 17.8						
Source room			Receiving room			
Rm Temp [°C]: 27			Volume [m ³]: 63.9			
Humidity [%]: 52			Rm Temp [°C]: 24			
			Humidity [%]: 47			
Frequency [Hz]	L _n [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL _n
50	58	64.0	15.02	-6.0		2.27
63	57	56.8	22.06	-3.8		1.52
80	56	61.3	14.31	-6.3		2.03
100	60	66.6	15.80	-5.6		2.41
125	64	67.9	3.16	-4.9	1	2.05
160	64	71.8	4.03	-5.8	4	2.38
200	69	72.2	3.77	-5.2	4	0.69
250	67	75.4	3.04	-4.4	7	0.72
315	64	74.7	3.18	-4.7	3	0.56
400	65	76.2	2.98	-4.2	5	0.43
500	61	72.1	2.89	-4.1	3	0.31
630	58	69.3	2.66	-4.3		0.42
800	53	66.4	2.64	-4.4		0.20
1000	49	60.4	2.44	-3.4		0.20
1250	41	56.8	2.17	-2.8		0.19
1600	35	52.7	2.03	-2.7		0.12
2000	29	48.6	1.88	-2.6		0.09
2500	25	46.2	1.71	-2.2		0.09
3150	20	41.1	1.55	-2.1		0.12
4000	19	32.9	1.37	-0.9		0.14
5000	16	26.2	1.20	-0.2		0.15
<p>L_n = Normalized Sound Pressure Level, dB L2 = Receiving Room Level, dB d = Decay Time, dB/second ΔL_n = Uncertainty for 95% Confidence Level</p>						

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

Test: ASTM E 2179 - 03

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Increase in Impact Insulation Class $\Delta IIC = 21.0$

Frequency [Hz]	L_o [dB]	L_c [dB]	L_d [dB]	L_{ref} [dB]	$L_{ref,c}$ [dB]
100	59	60	-1	67.0	68.0
125	68	64	4	67.5	63.5
160	68	64	4	68.0	64.0
200	68	69	-1	68.5	69.5
250	70	67	3	69.0	66.0
315	69	64	5	69.5	64.5
400	70	65	5	70.0	65.0
500	68	61	7	70.5	63.5
630	70	58	12	71.0	59.0
800	70	53	17	71.5	54.5
1000	71	49	22	72.0	50.0
1250	72	41	31	72.0	41.0
1600	73	35	38	72.0	34.0
2000	74	29	45	72.0	27.0
2500	75	25	50	72.0	22.0
3150	75	20	55	72.0	17.0

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

Test: ASTM E 2179 - 03

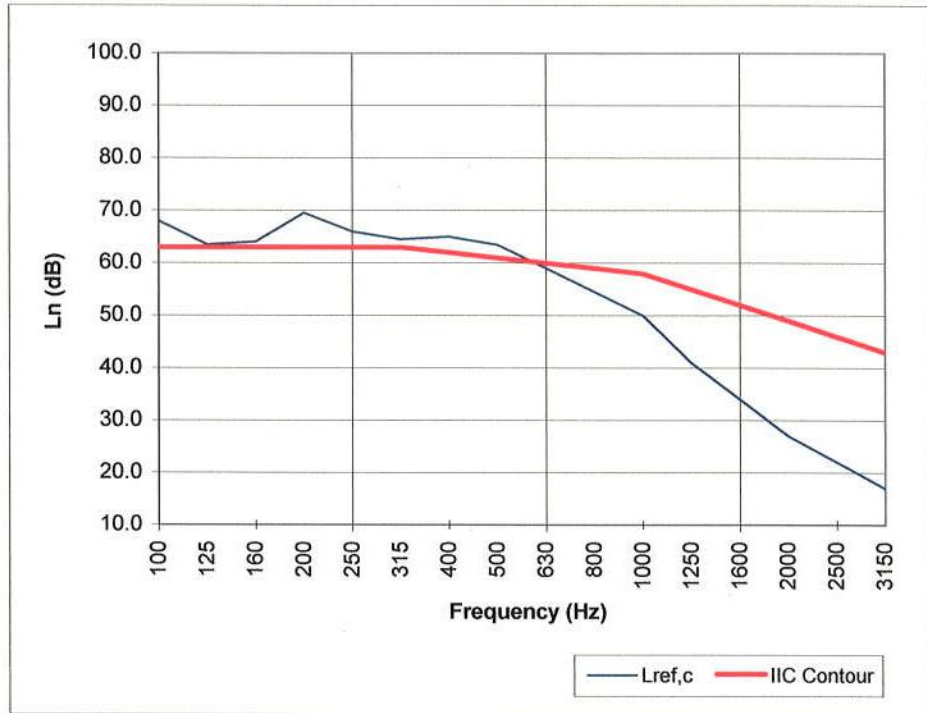
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Test Report: NGC7011089

Date: 7/28/2011

Increase in Impact Insulation Class $\Delta IIC = 21.0$

Frequency [Hz]	Lref,c [dB]
100	68.0
125	63.5
160	64.0
200	69.5
250	66.0
315	64.5
400	65.0
500	63.5
630	59.0
800	54.5
1000	50.0
1250	41.0
1600	34.0
2000	27.0
2500	22.0
3150	17.0



* 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

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