



Acoustical Testing Laboratory



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TEST REPORT

for

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

ASTM E 2179 – 03 (2009)

On

**6 Inch (152 mm) Concrete Slab Floor-Ceiling Assembly
Overlaid with;
Laminated Flooring on Kronoswiss ProVent Underlayment**

Page 1 of 6

Report Number: NGC 7012015

Assignment Number: G-775

Test Date: 02/29/2012

Report Date: 05/22/2012

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.
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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 (152.4 mm) concrete slab floor-ceiling assembly overlaid with laminate wood flooring on, according to client, Kronoswiss ProVent underlayment.

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

- 1 layer of laminate wood flooring, nominal plank size: 8mm (0.315 in.) thick, 199.6 mm (7.86 in.) wide, 1208.0 mm (47.56 in.) long. Sample weight was 7.08 kg/m² (1.45 PSF).
- 1 layer of, according to client, Kronoswiss ProVent underlayment.
Observed to be:
3.15mm (0.124 in.) thick, weighing 0.1 kg/m² (0.02 PSF). The seams were butted and taped together.
- 6 inch (152.4 mm) thick reinforced concrete slab 366.2 kg/m² (75.0 PSF).

The overall weight of the test assembly is 373.3 kg/m² (76.47 PSF).

The perimeter of the concrete slab was sealed with a rubber gasket and a sand filled trough. The test assembly is 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 3 through 6.

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Test: ASTM E 2179 - 03 (2009)		Bare 6" Concrete Slab				
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Specimen Size [m ²]: 17.8						
Source room			Receiving room			
Rm Temp [°C]: 17			Volume [m ³]: 63.9			
Humidity [%]: 40			Rm Temp [°C]: 16.5			
			Humidity [%]: 56			
Frequency	L _n	L2	d	Corr.	u.Dev.	ΔL _n
[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_n = Normalized Sound Pressure Level, dB
 L2 = Receiving Room Level, dB
 d = Decay Time, dB/second
 ΔL_n = Uncertainty for 95% Confidence Level

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Frequency		L_n	L2	d	Corr.	u.Dev.	ΔL_n
[Hz]		[dB]	[dB]	[dB/s]	[dB]	[dB]	
50	54	64.0	15.02	-6.0		2.27	
63	55	56.8	22.06	-3.8		1.52	
80	54	61.3	14.31	-6.3		2.03	
100	58	66.6	15.80	-5.6		2.41	
125	65	67.9	3.16	-4.9	1	2.05	
160	67	71.8	4.03	-5.8	4	2.38	
200	66	72.2	3.77	-5.2	4	0.69	
250	67	75.4	3.04	-4.4	7	0.72	
315	65	74.7	3.18	-4.7	3	0.56	
400	67	76.2	2.98	-4.2	5	0.43	
500	62	72.1	2.89	-4.1	3	0.31	
630	51	69.3	2.66	-4.3		0.42	
800	45	66.4	2.64	-4.4		0.20	
1000	41	60.4	2.44	-3.4		0.20	
1250	37	56.8	2.17	-2.8		0.19	
1600	33	52.7	2.03	-2.7		0.12	
2000	30	48.6	1.88	-2.6		0.09	
2500	31	46.2	1.71	-2.2		0.09	
3150	29	41.1	1.55	-2.1		0.12	
4000	25	32.9	1.37	-0.9		0.14	
5000	18	26.2	1.20	-0.2		0.15	

L_n	=	Normalized Sound Pressure Level, dB
L2	=	Receiving Room Level, dB
d	=	Decay Time, 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

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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	58	1	67.0	66.0
125	68	65	3	67.5	64.5
160	68	67	1	68.0	67.0
200	68	66	2	68.5	66.5
250	70	67	3	69.0	66.0
315	69	65	4	69.5	65.5
400	70	67	3	70.0	67.0
500	68	62	6	70.5	64.5
630	70	51	19	71.0	52.0
800	70	45	25	71.5	46.5
1000	71	41	30	72.0	42.0
1250	72	37	35	72.0	37.0
1600	73	33	40	72.0	32.0
2000	74	30	44	72.0	28.0
2500	75	31	44	72.0	28.0
3150	75	29	46	72.0	26.0

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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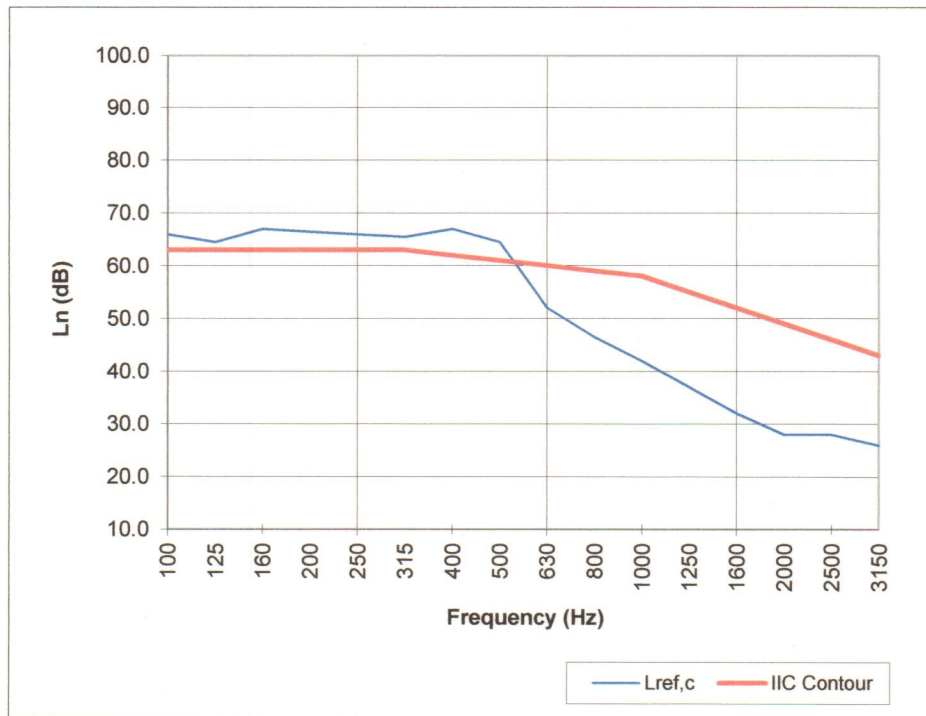
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Increase in Impact Insulation Class Δ IIC = 21.0

Frequency [Hz]	Lref,c [dB]
100	66.0
125	64.5
160	67.0
200	66.5
250	66.0
315	65.5
400	67.0
500	64.5
630	52.0
800	46.5
1000	42.0
1250	37.0
1600	32.0
2000	28.0
2500	28.0
3150	26.0



* 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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