



# 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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### Impact Sound Transmission Test

ASTM E 492 – 09 / ASTM E 989 – 06

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 With Suspended Gypsum Board Ceiling**

Page 1 of 4

Report Number: NGC 7011090

Assignment Number: G-709

Test Date: 07/29/2011

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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**Test Method:** This test method is in accordance with American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine - Designation: E 492-09 / E 989-06.  
The uncertainty limits of each tapping machine location met the precision requirements of section A1.4 of ASTM E 492-09.

**Specimen Description:** 6 inch (152mm) Concrete Slab including suspended grid 5/8 inch gypsum board ceiling system, 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/m<sup>2</sup> (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/m<sup>2</sup> (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/m<sup>2</sup> (75.0 PSF).
- 88.9mm (3-1/2 in.) fiberglass unfaced batt insulation. Sample weight was 0.78 kg/m<sup>2</sup> (0.16 PSF). The insulation was laid over the suspended grid system parallel with the main tees.
- Gypsum board ceiling grid suspension system. System is comprised of main tees and cross tees. The main tees were placed 1219.2mm (48 in.) on center and the cross tees were placed 609.6mm (24 in.) on center. 16 gauge galvanized tie wire was used to attach the main tees to concrete anchors, located 1219.2mm (48 in.) o.c. along the longitudinal axis, suspending the grid 304.8mm (12 in.) below the concrete slab.
- 1 layer of 15.9mm (5/8 in.) Type X gypsum board. Sample was observed to be 15.9mm (0.628 in.) thick and weighed 11.2 kg/m<sup>2</sup> (2.3 PSF). The board was attached 304.8mm (12 in.) o.c. parallel to suspended grid suspension system mains, using 31.8mm (1.250 in.) Type S drywall screws. The board joints were taped.

The overall weight of the test assembly is 389.4 kg/m<sup>2</sup> (79.76 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.

**Test Floor 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 and 4.

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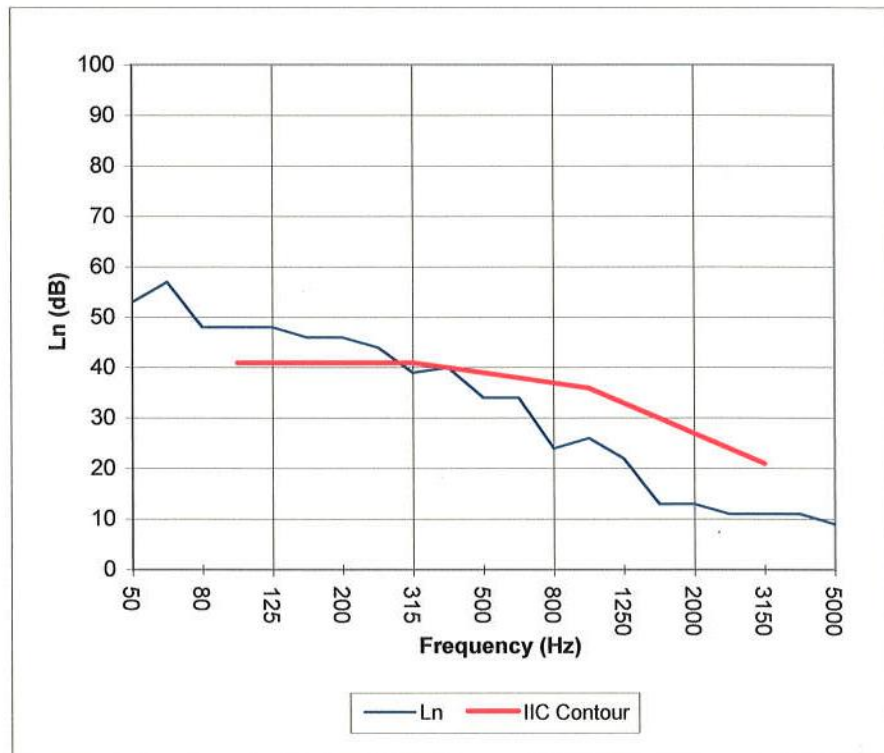
## Normalized impact sound pressure level

Test: ASTM E 492 - 09 / ASTM E 989 - 06

Test Report: NGC7011090  
 Test Date: 7/29/2011  
 Specimen Size [m<sup>2</sup>]: 17.8

**Impact Insulation Class IIC [dB]: 71**

Frequency [Hz]	L <sub>n</sub> [dB]
50	53
63	57
80	48
100	48
125	48
160	46
200	46
250	44
315	39
400	40
500	34
630	34
800	24
1000	26
1250	22
1600	13
2000	13
2500	11
3150	11
4000	11
5000	9



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

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

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Normalized impact sound pressure level						
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Test Report: NGC7011090						Page 3 of 4
Specimen Size [m <sup>2</sup> ]: 17.8						Date: 7/29/2011
<b>Source room</b>			<b>Receiving room</b>			
Rm Temp [°C]: 26			Volume [m <sup>3</sup> ]: 60			
Humidity [%]: 72			Rm Temp [°C]: 23.5			
Impact Insulation Class IIC [dB]: 71				Humidity [%]: 47		
Sum of Unfavorable Deviations [dB]: 27						
Max. Unfavorable Deviation [dB]: 7			at 100 Hz			
Frequency [Hz]	L <sub>n</sub> [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL <sub>n</sub>
50	53	56.6	24.72	-3.6		2.41
63	57	59.6	31.87	-2.6		2.25
80	48	51.9	22.87	-3.9		2.98
100	48	50.1	34.19	-2.1	7	2.00
125	48	53.6	2.88	-5.6	7	2.86
160	46	51.8	3.39	-5.8	5	1.94
200	46	51.1	3.45	-5.1	5	1.09
250	44	49.2	3.44	-5.2	3	1.09
315	39	44.8	3.26	-5.8		0.38
400	40	45.9	3.22	-5.9		0.49
500	34	40.9	3.13	-6.9		0.30
630	34	40.3	2.85	-6.3		1.34
800	24	30.9	2.74	-6.9		0.22
1000	26	30.6	2.53	-4.6		0.16
1250	22	26.1	2.26	-4.1		0.21
1600	13	18.8	2.12	-5.8		0.34
2000	13	18.3	1.86	-5.3		0.41
2500	11	15.5	1.67	-4.5		0.48
3150	11	14.8	1.54	-3.8		0.50
4000	11	14.5	1.37	-3.5		0.58
5000	9	11.9	1.20	-2.9		0.61
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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