NGC Testing Services

Acoustical Testing Laboratory

NVLAP

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

8 Inch (203mm) Concrete Slab Overlaid with Engineered Hardwood Flooring Adhered with Sikabond-T35 Adhesive over 3mm Impacta-Regupol Probase Underlayment Adhered with Sikabond-T35 Adhesive With Suspended Gypsum Board Ceiling

Report Number: NGC 7011100

Assignment Number: G-709

Test Date: 08/22/2011

Report Date: 09/13/2011

Submitted by: _____
Andrew E. Heuer
Test and Quality Engineer

Reviewed by: _____
Robert J. Menchetti
Director

Report Number: NGC 7011100

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: 8 inch (203mm) 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 3mm 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^2 (1.54 PSF).
- 1 layer of Sikabond-T35 adhesive. Sample was troweled on using client supplied P5 trowel.
- 3mm-Impacta Regupol Probase underlayment, 3.1mm (0.12 in.) thick. Sample weight was 2.3 kg/m^2 (0.48 PSF).
- 1 layer of Sikabond-T35 adhesive. Sample was troweled on using client supplied P5 trowel.
- 203.2mm (8 in.) thick reinforced concrete slab 488.2 kg/m^2 (100.0 PSF).
- 88.9mm (3-1/2 in.) fiberglass unfaced batt insulation. Sample weight was 0.78 kg/m^2 (0.16 PSF). The insulation was laid over the suspended grid system parallel with the main tee's.
- 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^2 (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 510.1 kg/m^2 (104.48 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: NGC7011100 Date: 8/22/2011

Specimen Size [m²]: 17.8

Source room

Rm Temp [°C]: 23.5
Humidity [%]: 56

Receiving room

Volume [m³]: 63
Rm Temp [°C]: 23
Humidity [%]: 49

Impact Insulation Class IIC [dB]: 70

Sum of Unfavorable Deviations [dB]: 13

Max. Unfavorable Deviation [dB]: 8 at 100 Hz

Frequency [Hz]	L_n [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL_n
100	50	52.9	31.1	-2.9	8	2.95
125	45	49.2	22.0	-4.2	3	2.16
160	43	47.9	18.2	-4.9	1	1.52
200	43	48.4	17.4	-5.4	1	1.20
250	38	43.5	17.6	-5.5		0.98
315	41	46.2	17.9	-5.2		0.46
400	39	45.1	18.8	-6.1		0.49
500	34	40.6	18.9	-6.6		0.32
630	33	39.8	20.8	-6.8		0.83
800	25	30.7	20.9	-5.7		0.15
1000	27	31.1	22.8	-4.1		0.11
1250	24	27.5	25.3	-3.5		0.23
1600	13	18.7	26.9	-5.7		0.21
2000	13	17.9	30.4	-4.9		0.23
2500	10	14.6	33.9	-4.6		0.31
3150	10	14.3	36.4	-4.3		0.34
4000	11	14.2	40.8	-3.2		0.35
5000	8	11.2	46.5	-3.2		0.33

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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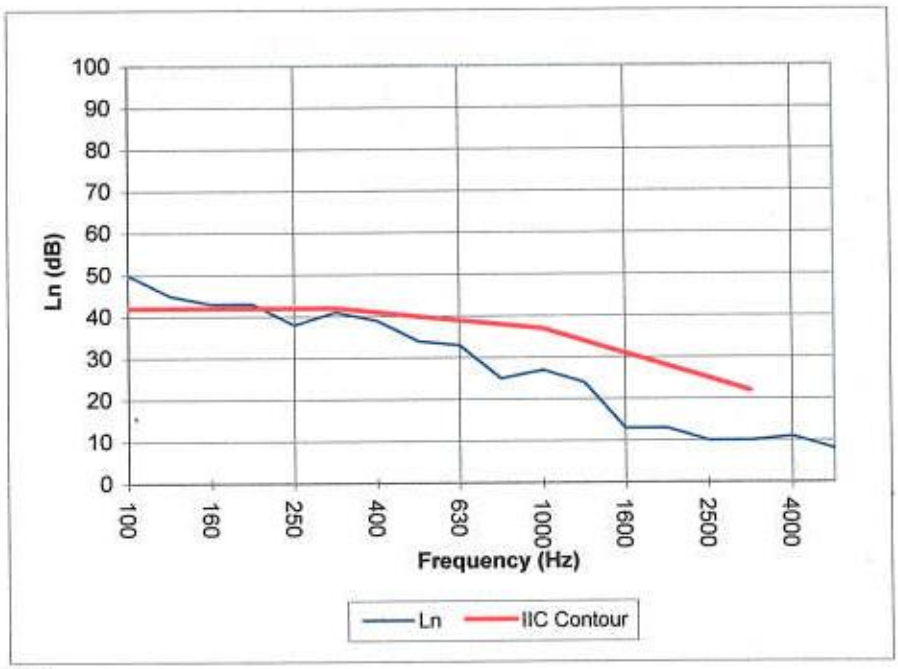
Normalized impact sound pressure level

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

Test Report: NGC7011100
Test Date: 8/22/2011
Specimen Size [m²]: 17.8

Impact Insulation Class IIC [dB]: 70

Frequency [Hz]	L_n [dB]	
100	50	
125	45	
160	43	
200	43	
250	38	
315	41	
400	39	
500	34	*
630	33	*
800	25	
1000	27	
1250	24	
1600	13	*
2000	13	*
2500	10	*
3150	10	*
4000	11	*
5000	8	*



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

L_n = Normalized Sound Pressure Level, dB