TEST REPORT

for

Palziv North America
7966 NC 56 Hwy
Louisburg, NC 27549

Impact Sound Transmission Test
ASTM E 492 – 09 / ASTM E 989 – 06

On

6 Inch Concrete Slab Floor – Suspended Ceiling Assembly Overlaid with; Engineered Wood Flooring on ECO Cork Foam Underlayment

Report Number:	NGC 7014130
Assignment Number:	G-1048
Test Date:	6/9/2014
Report Approval Date:	7/10/2014
Submitted by:	Andrew E. Heuer Senior Test Engineer
Reviewed by:	Robert J. Menchetti Director

Revision Summary:

Date	SUMMARY
Approval Date: 7/10/2014	Original issue date. Original NGCTS report: NGC 7014130

Report Number: NGC 7014130

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 concrete slab floor-suspended ceiling assembly overlaid with, according to client, Engineered Wood Flooring on ECO Cork Foam underlayment.

The test specimen was a floor- suspended ceiling assembly observed to consist of the following. All measured weights and dimensions are averaged:

- 1 layer of, according to client, Engineered Wood Flooring. The engineered wood flooring was floating on the underlayment. Observed dimensions: Random length planks
  Measured thickness: 9.63 mm (0.379 in.) Measured weight: 6.69 kg/m^2 (1.37 PSF)

- 1 layer of, according to the client, ECO Cork Foam underlayment. The underlayment seams were butted and taped together, and was floating over the concrete slab. Measured thickness: 3.25 mm (0.1280 in.)
  Measured weight: 0.40 kg/m^2 (0.08 PSF)

- 152.4 mm (6 in.) thick reinforced concrete slab, weighing: 366.2 kg/m^2 (75.0 PSF)

- 1 layer of, 88.9 mm (3.5 in.) unfaced fiberglass batt insulation which was laid over the suspended grid system\ parallel to the main tees. Sample weight: 0.78 kg/m^2 (0.16 PSF)

- Gypsum wallboard ceiling grid suspension system. System is comprised of main tees and cross tees. The main tees were placed 1219.2 mm (48 in.) o.c. and the cross tees were placed 609.6 mm (24 in.) o.c.
  16 gauge galvanized tie wire was used to attach the main tees to concrete anchors, located 1219.2 mm (48 in.) o.c. along the longitudinal axis, suspending the grid 304.8 mm (12 in.) below the concrete slab.

- 1 layer of, 15.9 mm (5/8 in.) Type X gypsum wallboard. The wallboard was attached parallel to the suspended grid suspension system mains, using 28.6 mm (1-1/8 in.) Type S drywall screws spaced 304.8 mm (12 in.) o.c. The wallboard joints were taped. Suspended gypsum wallboard grid ceiling weighted: 11.23 kg/m^2 (2.3 PSF)

The overall weight of the test assembly: 385.24 kg/m^2 (78.91 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.
Test Results: The results of the tests are given on pages 4 and 5 of the report.

Normalized impact sound pressure level

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

Test Report: NGC7014130 Date: 6/9/2014

Specimen Size [m²]: 17.8

Source room

Rm Temp [°C]: 21.5

Humidity [%]: 63

Receiving room

Volume [m³]: 60.5

Rm Temp [°C]: 21.5

Humidity [%]: 63

Impact Insulation Class IIC [dB]: 73

Sum of Unfavorable Deviations [dB]: 25

Max. Unfavorable Deviation [dB]: 8 at 125 Hz

Frequency [Hz]	L_n [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL_n
100	45	47.9	33.5	-2.9	6	2.19
125	47	52.1	21.4	-5.1	8	2.63
160	47	52.5	16.6	-5.5	8	2.78
200	40	46.3	15.5	-6.3	1	0.87
250	41	46.6	17.1	-5.6	2	0.44
315	38	43.8	17.0	-5.8		0.70
400	35	42.0	16.7	-7.0		0.49
500	32	38.8	18.3	-6.8		0.28
630	31	37.6	20.0	-6.6		0.35
800	26	31.9	20.3	-5.9		0.16
1000	26	30.1	22.1	-4.1		0.14
1250	22	25.7	24.4	-3.7		0.19
1600	12	18.0	25.6	-6.0		0.18
2000	17	20.7	29.6	-3.7		0.27
2500	13	17.6	32.2	-4.6		0.08
3150	11	15.8	33.8	-4.8		0.15
4000	9	13.3	37.6	-4.3		0.18
5000	7	11.1	42.2	-4.1		0.22

L_n = Normalized Sound Pressure Level, dB
L2 = Receiving Room Level, dB
d = Decay Time, dB/second
ΔL_n = Uncertainty for 95% Confidence Level

Normalized impact sound pressure level

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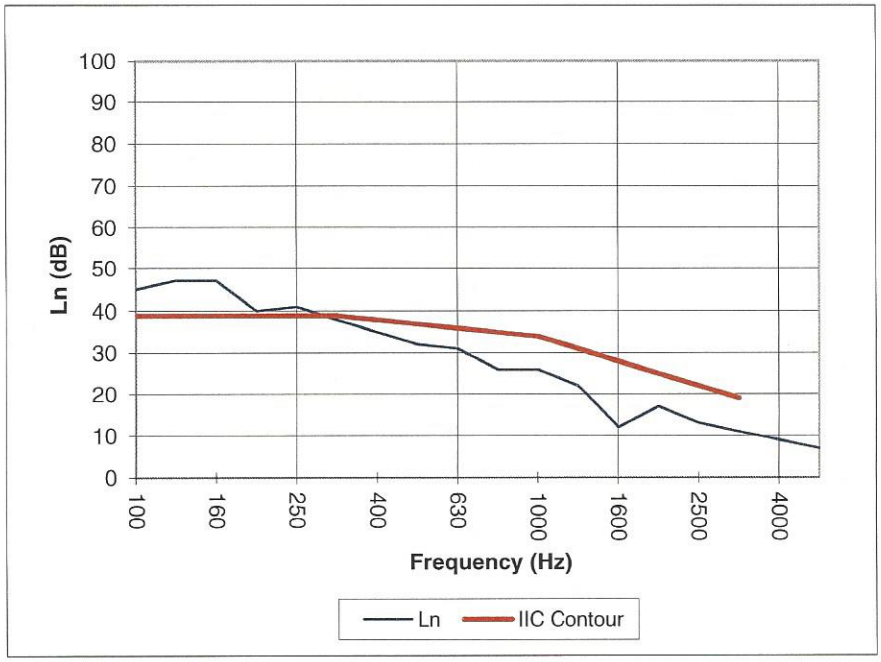
Impact Insulation Class IIC [dB]: 73

Frequency [Hz]	L_n [dB]	
100	45	
125	47	
160	47	
200	40	
250	41	
315	38	
400	35	
500	32	*
630	31	*
800	26	
1000	26	
1250	22	
1600	12	*
2000	17	
2500	13	*
3150	11	*
4000	9	*
5000	7	*



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

L_n = Normalized Sound Pressure Level, dB