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Acoustical Testing Laboratory

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TEST REPORT

for

Healthier Choice® Flooring, Inc.
401 Jones Street
Dalton, GA 30720
Mike Norton / 706-226-8293

Sound Transmission Loss Test

ASTM E 90 – 04 / E 413 - 10
On

6 in. (152 mm) Concrete Slab Floor-Ceiling Assembly
With Suspended Gypsum Board Ceiling
Overlaid with
Luxury Vinyl Tile Flooring over HCAU Underlayment

Report Number: NGC 5012019

Assignment Number: G-785

Test Date: 04/16/2012

Report Date: 05/10/2012

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

Reviewed by: _____
Robert J. Menchetti
Director

Test Method: This test method conforms explicitly with the American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements - Designation: E 90 - 04 / E 413 - 10.

Specimen Description: 6 inch (152mm) concrete slab floor-ceiling assembly with suspended grid 5/8 inch gypsum board ceiling overlaid with, according to client:
Luxury Vinyl Tile flooring on HCAU underlayment.

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

- 1 layer of Luxury Vinyl Tile Flooring, nominal plank size:
  5.03mm (0.198 in.) thick, 190.5mm (7-1/2 in.) wide, 1209.7mm (47-5/8 in.) long.
  Sample weight was 9.41 kg/m^2 (1.93 PSF).

- 1 layer of according to client: HCAU Underlayment.
  Specimen was observed to be: 1.30mm (0.051 in.) thick and weighed 0.59 kg/m^2 (0.12 PSF).

- 6 inch (152.4mm) thick reinforced concrete slab 366.2 kg/m^2 (75.0 PSF).

- 88.9mm (3-1/2 in.) fiberglass unfaced batt insulation. Sample weight was 1.12 kg/m^2 (0.23 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 31.9mm (1.250 in.) Type S drywall screws. The board joints were taped.

The overall weight of the test assembly is 387.4 kg/m^2 (79.35 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.)

Conditioning: Concrete slab cured for a minimum of 28 days.

Test Results: The results of the tests are given on pages 3 and 4.

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Sound Transmission Loss Test Data

Test: ASTM E 90 - 04 / ASTM E 413 - 10

Test Report: NGC5012019 Date: 4/16/2012
Specimen Size [m²]: 17.8

Source room		Receiving room	
Volume [m³]:	53.2	Volume [m³]:	60
Rm Temp [°C]:	17	Rm Temp [°C]:	19
Humidity [%]:	58	Humidity [%]:	51

Sound Transmission Class STC [dB]: 67

Sum of Unfavorable Deviations [dB]: 31
Max. Unfavorable Deviation [dB]: 7 at 400 Hz

Frequency [Hz]	STL [dB]	L1 [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔSTL
100	45	105.8	66.2	30.2	5.3		3.20
125	48	105.9	64.9	22.7	7.0	3	2.28
160	51	108.7	65.5	18.6	7.8	3	2.29
200	52	107.7	64.1	14.5	8.4	5	1.04
250	56	106.9	59.4	17.1	8.5	4	1.12
315	58	103.6	54.2	17.0	8.6	5	0.51
400	59	102.2	51.5	17.5	8.3	7	1.08
500	63	101.2	45.6	18.5	7.4	4	0.56
630	68	103.4	42.8	20.8	7.4		0.80
800	72	103.3	39.1	20.7	7.8		0.63
1000	74	100.5	33.2	23.2	6.7		0.59
1250	78	98.1	26.5	25.4	6.5		0.26
1600	80	99.3	25.0	27.0	5.7		0.63
2000	78	100.9	28.0	31.0	5.1		0.54
2500	78	101.7	28.3	34.7	4.5		0.81
3150	80	100.8	25.6	36.7	4.8		0.93
4000	81	98.6	21.7	42.2	4.1		1.39
5000	80	91.8	15.2	48.4	3.3		1.59

STL = Sound Transmission Loss, dB
L1 = Source Room Level, dB
L2 = Receiving Room Level, dB
d = Decay Time, dB/second
Δ STL = Uncertainty for 95% Confidence Level

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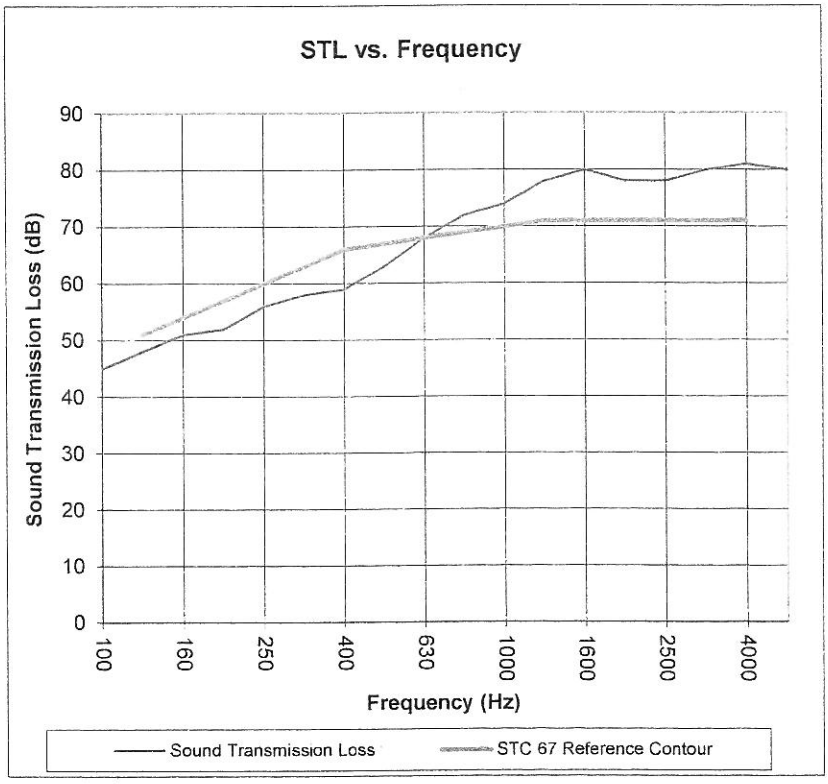
Sound Transmission Loss Test Data

Per: ASTM E 90 - 04 / ASTM E 413 - 10

Test Report: NGC5012019
Test Date: 4/16/2012
Specimen Size [m²]: 17.8

Sound Transmission Class STC = 67 dB

Frequency [Hz]	STL [dB]	ΔSTL
100	45	3.20
125	48	2.28
160	51	2.29
200	52	1.04
250	56	1.12
315	58	0.51
400	59	1.08
500	63	0.56
630	68	0.80
800	72	0.63
1000	74	0.59
1250	78	0.26
1600	80	0.63
2000	78	0.54
2500	78	0.81
3150	80	0.93
4000	81	1.39
5000	80	1.59



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

STL = Sound Transmission Loss, dB
Δ STL = Uncertainty for 95% Confidence Level