

## Acoustical Testing Laboratory

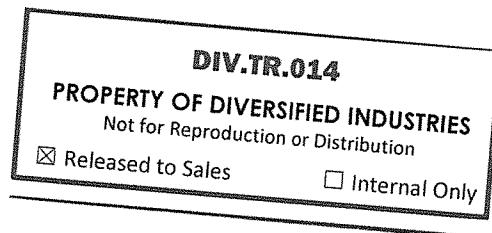


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under Lab Code 200291

### TEST REPORT

For

Diversified Industries  
121 High Hill Road  
Swedesboro, NJ 08085  
Craig P. Keane / 856-662-1981



### Sound Transmission Loss Test

ASTM E 90 - 04 / E 413 - 04

On

6 in. (152 mm) Concrete Slab Floor-Ceiling Assembly  
with Suspended Gypsum Board Ceiling Overlaid with;  
Vinyl Tile Flooring over Underlayment No. 120110.L004T

Report Number: NGC 5010077

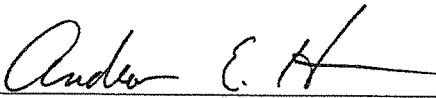
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Assignment Number: G-646

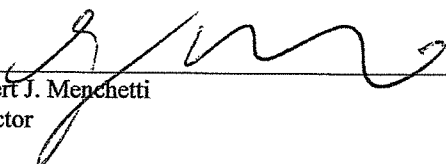
Test Date: 12/22/2010

Report Date: 01/12/2011

Submitted by:

  
Andrew E. Heuer  
Test and Quality Engineer

Reviewed by:

  
Robert J. Menchetti  
Director

The results reported above apply to specific samples submitted for measurement.

No responsibility is assumed for performance of any other specimen.

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Report Number: NGC 5010077

**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 - 04.

**Specimen Description:** 6 inch (152mm) concrete slab floor-ceiling assembly overlaid with, according to client, vinyl tile flooring on underlayment No. 120110.L004T, with suspended grid 5/8 inch gypsum board ceiling system.

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

- 1 layer of Armstrong Luxe Plank™ vinyl tile flooring, Lot (JK-9378), Pattern (FPA6800721). Nominal plank size: 2.7mm (0.106 in.) thick, 152.4mm (6.0 in.) wide, 914mm (36.0 in.) long. Sample weight was 9.6kg/m<sup>2</sup> (1.96 PSF). Planks were installed floating on the underlayment and held together with glue strips.
- 1 layer of according to client: underlayment No. 120110.L004T.  
Observed to be:  
1.0mm (0.038 in.) thick, 0.10 kg/m<sup>2</sup> (0.02 PSF).  
The seams were butted and taped together.
- 6 inch (152.4mm) thick reinforced concrete slab 366.1 kg/m<sup>2</sup> (75.0 PSF).
- 88.9mm (3-1/2 in.) fiberglass unfaced batt insulation. Sample weight was 1.12 kg/m<sup>2</sup> (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 1219mm (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 1219mm (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 28.6mm (1.125 in.) Type S drywall screws. The board joints were taped.

The overall weight of the test assembly is 388.2 kg/m<sup>2</sup> (79.51 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:** 3658mm x 4877mm (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 - 04

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Test Report: NGC5010077

Date: 12/22/2010

Specimen Size [m²]: 17.8

### Source room

Volume [m³]: 53.2

Rm Temp [°C]: 20

Humidity [%]: 29

### Receiving room

Volume [m³]: 60

Rm Temp [°C]: 18.5

Humidity [%]: 61

### Sound Transmission Class STC [dB]: 66

Sum of Unfavorable Deviations [dB]: 29

Max. Unfavorable Deviation [dB]: 5 at 200 Hz

Frequency	STL	L1	L2	d	Corr.	u.Dev.	ΔSTL
[Hz]	[dB]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
100	41	105.9	69.0	39.4	4.1		3.34
125	46	105.2	65.8	24.4	6.6	4	1.78
160	49	108.4	67.5	19.4	8.0	4	2.14
200	51	106.0	62.7	17.7	7.7	5	1.19
250	55	107.7	60.3	18.4	7.7	4	0.97
315	57	105.3	55.8	19.0	7.5	5	0.79
400	60	104.3	52.0	19.2	7.7	5	1.18
500	64	102.5	45.5	20.1	7.0	2	0.38
630	68	104.3	43.4	22.4	7.0		0.62
800	72	106.4	41.9	21.6	7.5		0.58
1000	74	103.1	36.1	23.5	7.0		0.69
1250	77	100.6	29.7	26.0	6.1		0.44
1600	79	102.3	29.0	27.0	5.7		0.70
2000	78	103.4	30.7	30.6	5.3		0.63
2500	78	104.6	31.5	34.0	4.9		1.00
3150	79	103.4	28.9	35.7	4.5		1.12
4000	82	100.4	22.8	40.2	4.4		1.69
5000	83	94.1	15.5	45.5	4.3		1.78

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

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

Test Report: NGC5010077

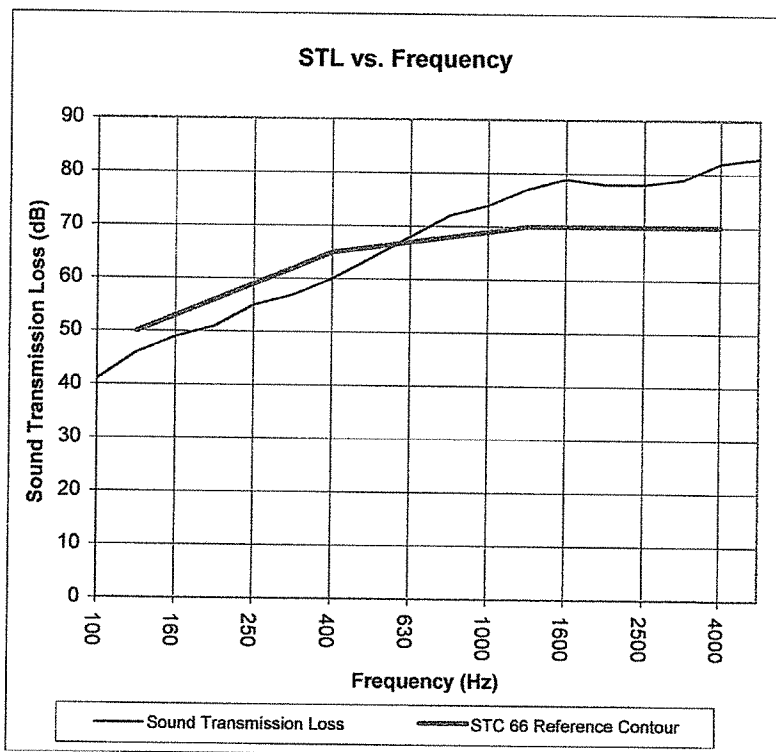
Test Date: 12/22/2010

Specimen Size [m<sup>2</sup>]: 17.8

**Sound Transmission Class STC = 66 dB**

Frequency [Hz]	STL [dB]	ΔSTL
100	41	3.34
125	46	1.78
160	49	2.14
200	51	1.19
250	55	0.97
315	57	0.79
400	60	1.18
500	64	0.38
630	68	0.62
800	72	0.58
1000	74	0.69
1250	77	0.44
1600	79	0.70
2000	78	0.63
2500	78	1.00
3150	79	1.12
4000	82	1.69
5000	83	1.78

\* 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

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