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TEST REPORT

For

Impact Sound Transmission Test

ASTM E 492 – 04 / ASTM E 989 – 06

On

Travertine Stone Tile and Mortar over Anti-Fracture Underlayment on on 8 Inch (203 mm) Concrete Slab with Suspended Gypsum Board Ceiling System

Report Number: NGC 7008184

Assignment Number: G-479

Test Date: 12/04/2008

Report Date: 01/08/2009

Submitted by: _____
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Director

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Report Number: NGC 7008184

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 – 04 / E 989 - 89.
The uncertainty limits of each tapping machine location met the precision requirements of section 11.3 of ASTM E 492-04.

Specimen Description: 8 inch (203mm) Concrete Slab Overlaid with; travertine tile over **anti-fracture/sound control** underlayment, over a suspended gypsum board ceiling with insulation.

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

- 1 layer of 12.1mm (0.476 in.) Travertine stone tile. Tile size was 457mm x 457mm (18 in. x 18 in.). Sample weight was 28.1 kg/m^2 (5.76 PSF).
- 1 layer of medium bed, latex modified mortar. Sample was trowled on with a 6.3 x 6.3mm x 9.5mm (1/4 in. x 1/4 in. x 3/8 in.) square notch trowel. Grout and mortar weight was nominally 5.27 kg/m^2 (1.08 PSF).
- Euclid Chemical Company Eucolastic 1 Sealant containing one-part polyurethane. Sealant was used to seal the underlayment joints.
- 1 layer of 1.0mm (0.041 in.) **anti-fracture/sound control underlayment. Sample** weight was found to be 1.4 kg/m^2 (0.28 PSF).
- 203mm (8 in.) thick reinforced concrete slab 488.2 kg/m^2 (100.0 PSF).
- 235mm (9-1/4 in.) fiberglass unfaced batt insulation. Sample weight was 1.95 kg/m^2 (0.40 PSF). The insulation was laid over the suspended grid system parallel with the Main tees.
- Gypsum board ceiling grid suspension system manufactured by Armstrong®. System is comprised of Main Tees (part number HD8906E) and Cross Tees (part number XL8945P). The Main Tees were placed 1218mm (48 in.) on center and the Cross tees were placed 609mm (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 305mm (12 in.) below the concrete slab.
- 1 layer of 15.9mm (5/8 in.) Type X gypsum board. Sample was observed to be 15.7mm (0.632 in.) thick and weighed 11.2 kg/m^2 (2.3 PSF). The board was attached 304.8mm (12 in.) o.c. perpendicular to suspended grid suspension system mains, using 25.4mm (1 in.) fine thread bugle head drywall screws. The board joints were taped.

The overall weight of the test assembly is nominal 536.1 kg/m^2 (109.82 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. Mortar and grout cured for 7 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 - 04 / ASTM E 989 - 06

Test Number: NGC7008184 Date: 12/4/2008
Size: 17.8 m²

Source room

Temperature [°C]: 17.0
Humidity [%]: 38

Receiving room
Volume V = 60.0 m³
Temperature [°C]: 18.7
Humidity [%]: 61

Impact Insulation Class IIC = 65 dB

Sum of unfavorable deviations: 28.0 dB
Max. unfavorable deviation: 7.0 dB at 2500 Hz

Frequency [Hz]	L_n [dB]	L2 [dB]	T [s]	Corr. [dB]	u.Dev. [dB]	ΔL_n
100	47	50.4	2.23	-3.4	-.-	0.231
125	40	44.4	2.71	-4.4	-.-	0.135
160	42	47.0	3.32	-5.0	-.-	0.173
200	41	46.0	3.30	-5.0	-.-	0.144
250	39	44.5	3.30	-5.5	-.-	0.121
315	44	49.0	3.09	-5.0	-.-	0.121
400	39	44.2	3.14	-5.2	-.-	0.075
500	37	41.6	2.90	-4.6	-.-	0.070
630	37	41.4	2.69	-4.4	-.-	0.071
800	37	41.1	2.73	-4.1	-.-	0.055
1000	39	43.2	2.60	-4.2	-.-	0.048
1250	42	45.8	2.32	-3.8	3	0.038
1600	41	44.6	2.21	-3.6	5	0.043
2000	39	41.6	1.93	-2.6	6	0.046
2500	37	39.2	1.75	-2.2	7	0.034
3150	34	36.2	1.66	-2.2	7	0.034
4000	32	33.9	1.46	-1.9	-.-	0.042
5000	28	29.5	1.30	-1.5	-.-	0.036

L_n = Normalized Sound Pressure Level, dB
L2 = Receiving Room Level, dB
T = Reverberation Time, seconds
ΔL_n = Uncertainty for 95% Confidence Level

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Normalized impact sound pressure level

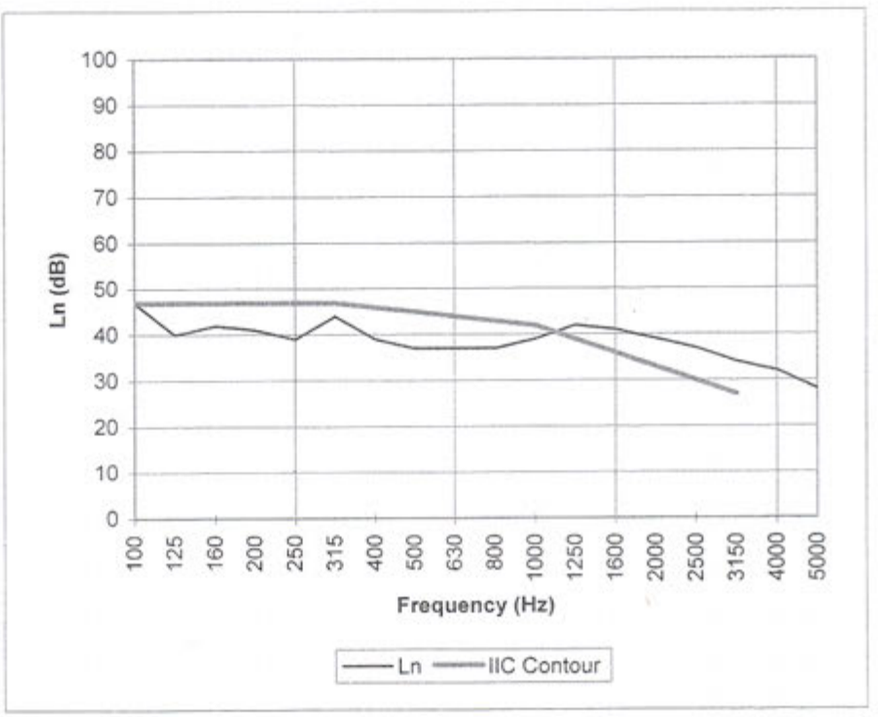
Test: ASTM E 492 - 04 / ASTM E 989 - 06

Test Number: NGC7008184

Date: 12/4/2008

Impact Insulation Class IIC = 65 dB

Frequency [Hz]	L_n [dB]	
100	47	
125	40	*
160	42	
200	41	
250	39	
315	44	
400	39	*
500	37	
630	37	*
800	37	
1000	39	
1250	42	
1600	41	
2000	39	
2500	37	
3150	34	
4000	32	
5000	28	



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

L_n = Normalized Sound Pressure Level, dB

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