



Acoustical Testing Laboratory

TEST REPORT

for

Protecto Wrap Company
2255 South Delaware Street
Denver, CO 80223
Marc Lester / 303 777 3001

Sound Transmission Loss Test
ASTM E 90 - 02
On

**8" Concrete Slab and Suspended Gypsum Board Ceiling Overlaid with;
Quarry Tile over WhisperMat CS Membrane Underlayment**

Page 1 of 4

Report Number: NGC 5003015

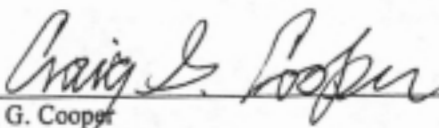
Assignment Number: G-183

Specimen Receipt Date: NA

Test Date: 06/27/2003

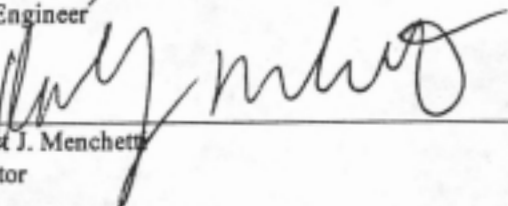
Report Date: 07/10/2003

Submitted by:



Craig G. Cooper
Test Engineer

Reviewed by:



Robert J. Menchetti
Director

The results reported above apply to specific samples submitted for measurement.
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or endorsement by this laboratory.

Acoustical Testing Laboratory

Report Number: NGC 5003015

Test Method: This test method generally follows * 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 - 02.

Specimen Description: 8" Concrete Slab and Suspended Gypsum Board Ceiling Overlaid with; Hard Flooring over, according to client, WhisperMat CS Membrane Underlayment.

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

- 1 layer of 6" x 6" x 1/2" unglazed clay quarry tile (5.6 PSF) installed using Ultra Contact RS rapid set - full contact mortar and polymer modified grout (1.0 PSF).
- 1 layer of 0.24" thick WhisperMat CS asphalt membrane floor underlayment with fiber side up. (0.55 PSF) Membrane was self-adhered to kraft paper that is adhered to the concrete at the perimeter and tapping machine areas with double-sided tape.
- 8" thick reinforced concrete slab (85.6 PSF).
- Suspended ceiling system consisting of nominal 5/8" type X gypsum board (2.3 PSF) attached with 1-1/8" screws, 12" o.c. to suspended Rigid X ceiling grid system. 10" plenum with 6" of lay-in fiberglass insulation (0.23 PSF).

The overall weight of the test assembly is 95.28 PSF.

The perimeter of the concrete slab was sealed with fiber gasketing and a sand filled trough. The test assembly is structurally isolated from the receiving room. The ceiling joints were taped.

Specimen size: 12 ft x 16 ft.

Conditioning: Mortar and grout cured for a minimum of 24 hours. Concrete slab cured for a minimum of 28 days.

Test samples were submitted by client and tested as received.

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

* Tests conducted in Floor-Ceiling chambers do not meet all requirements of the most recent ASTM E 90 Standard.

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Sound Transmission Loss Test Data

Per: ASTM E 90 - 02 / ASTM E 413 - 87

No. of test report: NGC5003015

Test Date: 06/27/2003

Size: 17.8 m²

Temperature [°C]: 22.8

Sound Transmission Class STC = 72 dB

Sum of unfavourable deviations: 28.0 dB

Max. unfavourable deviation: 8.0 dB at 125 Hz

Frequency [Hz]	STL [dB]	L1 [dB]	L2 [dB]	T [s]	Corr. [dB]	u.Dev. [dB]	ΔSTL
100	51	104.1	61.3	2.50	7.8	--	1.225
125	48	99.2	59.1	2.53	7.8	8.0	1.237
160	53	101.8	57.8	3.69	9.5	6.0	0.877
200	54	99.3	53.7	3.07	8.7	8.0	0.714
250	60	99.9	48.7	3.26	8.9	5.0	0.387
315	68	100.5	40.8	3.05	8.6	--	0.632
400	74	103.4	38.2	2.92	8.5	--	0.200
500	76	102.6	34.8	2.73	8.2	--	0.755
630	72	99.9	35.4	2.63	8.0	1.0	0.469
800	79	100.5	29.9	2.68	8.1	--	0.316
1000	83	99.3	24.3	2.64	8.0	--	0.332
1250	85	100.4	22.8	2.38	7.6	--	0.265
1600	85	100.7	23.0	2.20	7.2	--	0.316
2000	89	102.1	20.0	1.88	6.5	--	0.173
2500	92	103.6	17.2	1.63	5.9	--	0.173
3150	95	103.6	14.6	1.56	5.7	--	0.346
4000	94	102.6	13.7	1.41	5.3	--	0.361
5000	88	97.7	14.5	1.26	4.8	--	0.374

STL = Sound Transmission Loss, dB
 L1 = Source Room Level, dB
 L2 = Receiving Room Level, dB
 T = Reverberation Time, seconds
 Δ STL = Uncertainty for 95% Confidence Level

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Sound Transmission Loss Test Data

Per: ASTM E 90 - 02 / ASTM E 413 - 87

No. of test report: NGC5003015

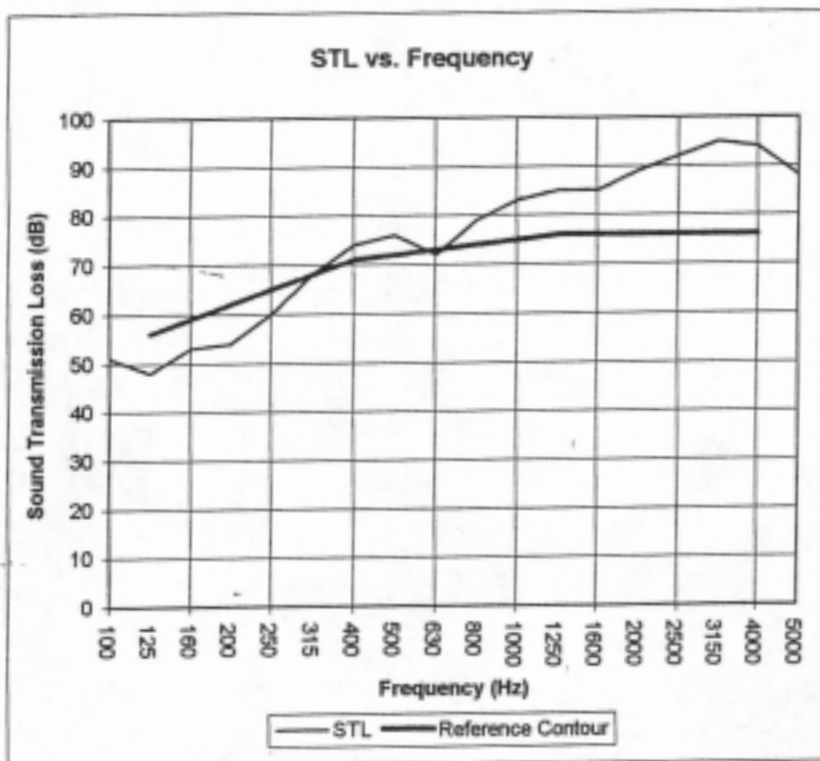
Test Date: 06/27/2003

Size: 17.8 m²

Temperature [°C]: 22.8

Sound Transmission Class STC = 72 dB

Frequency [Hz]	STL [dB]	ΔSTL
100	51	1.225
125	48	1.237
160	53	0.877
200	54	0.714
250	60	0.387
315	68	0.632
400	74	0.200
500	76	0.755
630	72	0.469
800	79	0.316
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1250	85	0.265
1600	85	0.316
2000	89	0.173
2500	92	0.173
3150	95	0.346
4000	94	0.361
5000	88	0.374



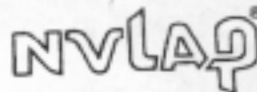
* Due to high insulating value of specimen, background levels limit results at these frequencies.

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

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Acoustical Testing Laboratory



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under Lab Code 200291

TEST REPORT

for

Protecto Wrap Company
2255 South Delaware Street
Denver, CO 80223
Marc Lester / 303 777 3001

Impact Sound Transmission Test
ASTM E 492 - 90 / ASTM E 989 - 89
On

**8" Concrete Slab and Suspended Gypsum Board Ceiling Overlaid with;
Quarry Tile over WhisperMat CS Membrane Underlayment**

Page 1 of 4

Report Number: NGC 7003034

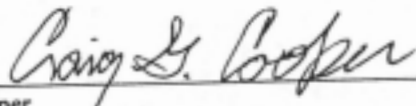
Assignment Number: G-183

Specimen Receipt Date: NA

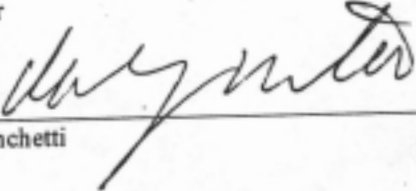
Test Date: 06/27/2003

Report Date: 07/10/2003

Submitted by:


Craig G. Cooper
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Report Number: NGC 7003034

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 - 90.

Specimen Description: 8" Concrete Slab and Suspended Gypsum Board Ceiling Overlaid with; Hard Flooring over, according to client, WhisperMat CS Membrane Underlayment.

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

- 1 layer of 6" x 6" x 1/2" unglazed clay quarry tile (5.6 PSF) installed using Ultra Contact RS rapid set - full contact mortar and polymer modified grout (1.0 PSF).
- 1 layer of 0.24" thick WhisperMat CS asphalt membrane floor underlayment with fiber side up. (0.55 PSF) Membrane was self-adhered to kraft paper that is adhered to the concrete at the perimeter and tapping machine areas with double-sided tape.
- 8" thick reinforced concrete slab (85.6 PSF).
- Suspended ceiling system consisting of nominal 5/8" type X gypsum board (2.3 PSF) attached with 1-1/8" screws, 12" o.c. to suspended Rigid X ceiling grid system. 10" plenum with 6" of lay-in fiberglass insulation (0.23 PSF).

The overall weight of the test assembly is 95.28 PSF.

The perimeter of the concrete slab was sealed with fiber gasketing and a sand filled trough. The test assembly is structurally isolated from the receiving room. The ceiling joints were taped.

Specimen size: 12 ft x 16 ft.

Conditioning: Mortar and grout cured for a minimum of 24 hours. Concrete slab cured for a minimum of 28 days.

Test samples were submitted by client and tested as received.

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 - 90 / ASTM E 989 - 89						
						Page 3 of 4
Test Number: NGC7003034			Date: 06/24/2003			
Size: 17.84 m ²						
Source room			Receiving room			
Temperature [°C]: 22.8			Volume V = 46.28 m ³			
Humidity [%]: 46			Temperature [°C]: 23.4			
			Humidity [%]: 49			
Impact Insulation Class IIC = 72 dB						
Sum of unfavourable deviations: 30.0 dB						
Max. unfavourable deviation: 7.0 dB at 125 Hz						
Frequency	L _n	L2	T	Corr.	u.Dev.	ΔL _n
[Hz]	[dB]	[dB]	[s]	[dB]	[dB]	
100	42.0	47.4	2.50	-5.4	2.0	0.307
125	47.0	51.9	2.53	-4.9	7.0	0.317
160	39.0	46.3	3.69	-7.3	--	0.291
200	45.0	51.6	3.07	-6.6	5.0	0.139
250	42.0	48.1	3.26	-6.1	2.0	0.163
315	36.0	42.3	3.05	-6.3	--	0.087
400	34.0	39.5	2.92	-5.5	--	0.086
500	34.0	39.2	2.73	-5.2	--	0.067
630	35.0	40.2	2.63	-5.2	--	0.065
800	35.0	40.3	2.68	-5.3	--	0.055
1000	30.0	35.1	2.64	-5.1	--	0.050
1250	31.0	36.1	2.38	-5.1	--	0.052
1600	30.0	34.7	2.20	-4.7	1.0	0.032
2000	30.0	34.0	1.88	-4.0	4.0	0.030
2500	29.0	32.2	1.63	-3.2	6.0	0.039
3150	23.0	26.4	1.56	-3.4	3.0	0.044
4000	20.0	22.9	1.41	-2.9	--	0.028
5000	19.0	20.9	1.26	-1.9	--	0.042

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 - 90 / ASTM E 989 - 89

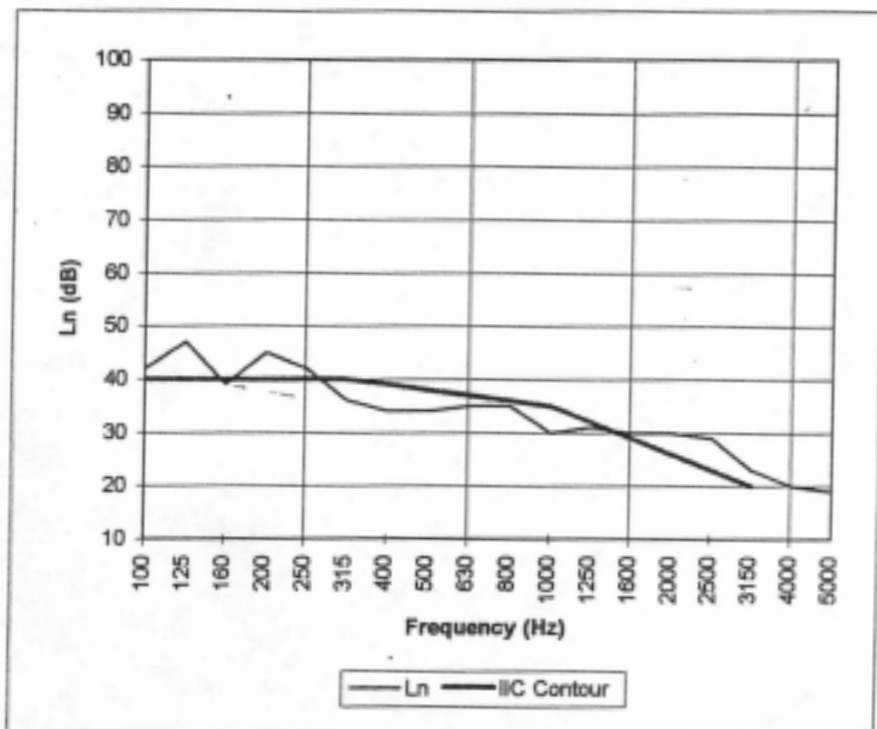
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Test Number: NGC7003034

Date: 06/24/2003

Impact Insulation Class IIC = 72 dB

Frequency	L_n
[Hz]	[dB]
100	42
125	47
160	39
200	45
250	42
315	36
400	34
500	34
630	35
800	35
1000	30
1250	31
1600	30
2000	30
2500	29
3150	23
4000	20
5000	19



* 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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