NGC Testing Services

Acoustical Testing Laboratory

NVLAP

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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; Hardwood Flooring over WhisperMat HW Membrane Underlayment

Report Number: NGC 7003031

Assignment Number: G-183

Specimen Receipt Date: NA

Test Date: 06/24/2003

Report Date: 07/10/2003

Submitted by: Craig G. Cooper
Craig G. Cooper
Test 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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National Gypsum

1650 Military Road · Buffalo, NY 14217-1198
(716)873-9750 · Fax (716)873-9753 · ngctest@nationalgypsum.com

Report Number: NGC 7003031

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 HW Membrane Underlayment.

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

- 1 layer of 7/16" thick T&G hardwood flooring, 2-3/8" wide planks (1.47 PSF), from BERTI. Description; Rovere N. Flooring attached to membrane using Franklin Adhesive 211 wood flooring adhesive with ¼" x ¼" V notched trowel.
- 1 layer of 0.20" thick WhisperMat HW asphalt membrane floor underlayment with foam side up. (0.26 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 89.86 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: Adhesive cured for a minimum of 1 hour. 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

Test Number: NGC7003031 Date: 06/24/2003
Size: 17.84 m²

Source room
Temperature [°C]: 23.4
Humidity [%]: 60

Receiving room
Volume V = 45.71 m³
Temperature [°C]: 21.9
Humidity [%]: 55

Impact Insulation Class IIC = 72 dB

Sum of unfavourable deviations: 14.0 dB
Max. unfavourable deviation: 8.0 dB at 125 Hz

Frequency [Hz]	L_n [dB]	L2 [dB]	T [s]	Corr. [dB]	u.Dev. [dB]	ΔL_n
100	40.0	45.3	2.45	-5.3	-.-	0.260
125	48.0	53.5	2.66	-5.5	8.0	0.290
160	41.0	48.0	3.76	-7.0	1.0	0.266
200	45.0	51.0	3.10	-6.0	5.0	0.116
250	38.0	44.3	3.08	-6.3	-.-	0.122
315	33.0	39.8	3.13	-6.8	-.-	0.091
400	29.0	35.2	2.96	-6.2	-.-	0.110
500	31.0	36.3	2.75	-5.3	-.-	0.069
630	33.0	38.5	2.70	-5.5	-.-	0.064
800	28.0	34.0	2.72	-6.0	-.-	0.053
1000	24.0	29.9	2.65	-5.9	-.-	0.042
1250	26.0	31.0	2.39	-5.0	-.-	0.045
1600	23.0	28.0	2.17	-5.0	-.-	0.039
2000	19.0	22.9	1.87	-3.9	-.-	0.041
2500	16.0	19.3	1.66	-3.3	-.-	0.039
3150	14.0	17.2	1.58	-3.2	-.-	0.044
4000	12.0	14.5	1.43	-2.5	-.-	0.036
5000	11.0	13.5	1.29	-2.5	-.-	0.030

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

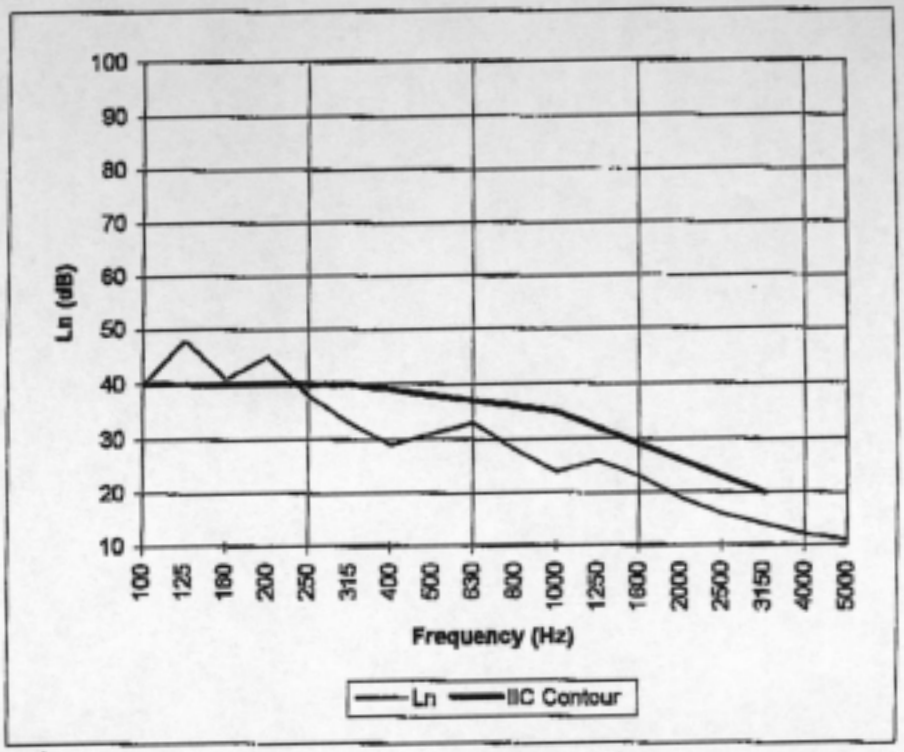
Test: ASTM E 492 - 90 / ASTM E 989 - 89

Test Number: NGC7003031

Date: 06/24/2003

Impact Insulation Class IIC = 72 dB

Frequency [Hz]	L_n [dB]	
100	40	
125	48	*
160	41	
200	45	
250	38	
315	33	
400	29	*
500	31	*
630	33	*
800	28	
1000	24	
1250	26	
1600	23	
2000	19	*
2500	16	*
3150	14	*
4000	12	*
5000	11	*



* 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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TEST REPORT

for

Protecto Wrap Company
2255 South Delaware Street
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Marc Lester / 303 777-3001

Sound Transmission Loss Test
ASTM E 90 - 02
On

8" Concrete Slab and Suspended Gypsum Board Ceiling Overlaid with; Hardwood Flooring over WhisperMat HW Membrane Underlayment

Report Number: NGC 5003012

Assignment Number: G-183

Specimen Receipt Date: NA

Test Date: 06/24/2003

Report Date: 07/10/2003

Submitted by: Craig G. Cooper
Craig G. Cooper
Test Engineer

Reviewed by:
Robert J. Menchetti
Director

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Report Number: NGC 5003012

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 HW Membrane Underlayment.

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

- 1 layer of 7/16" thick T&G hardwood flooring, 2-3/8" wide planks (1.47 PSF), from BERTI. Description; Rovere N. Flooring attached to membrane using Franklin Adhesive 211 wood flooring adhesive with ¼" x ¼" V notched trowel.
- 1 layer of 0.20" thick WhisperMat HW asphalt membrane floor underlayment with foam side up. (0.26 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 89.86 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: Adhesive cured for a minimum of 1 hour. 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.

Sound Transmission Loss Test Data

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

No. of test report: NGC5003012
Test Date: 06/24/2003
Size: 17.8 m²
Temperature [°C]: 21.9

Sound Transmission Class STC = 71 dB
Sum of unfavourable deviations: 29.0 dB
Max. unfavourable deviation: 8.0 dB at 200 Hz

Frequency [Hz]	STL [dB]	L1 [dB]	L2 [dB]	T [s]	Corr. [dB]	u.Dev. [dB]	ΔSTL
100	50	104.8	62.2	2.45	7.7	-.-	1.100
125	48	99.9	59.9	2.66	8.1	7.0	1.459
160	53	101.5	58.4	3.76	9.6	5.0	0.742
200	53	99.1	54.8	3.10	8.8	8.0	0.548
250	58	99.5	49.8	3.08	8.7	6.0	0.346
315	69	100.2	40.5	3.13	8.8	-.-	0.566
400	73	102.9	38.7	2.96	8.6	-.-	0.346
500	73	101.5	36.7	2.75	8.3	-.-	0.877
630	69	99.0	37.7	2.70	8.2	3.0	0.300
800	77	98.9	29.7	2.72	8.2	-.-	0.141
1000	82	97.9	24.4	2.65	8.1	-.-	0.663
1250	84	99.0	22.9	2.39	7.6	-.-	0.200
1600	84	99.7	23.2	2.17	7.2	-.-	0.469
2000	87	101.1	20.2	1.87	6.6	-.-	0.173
2500	92	102.9	17.3	1.66	6.1	-.-	0.361
3150	94	103.4	15.4	1.58	5.8	-.-	0.374
4000	94	102.0	13.7	1.43	5.4	-.-	0.400
5000	90	96.5	11.6	1.29	5.0	-.-	0.557

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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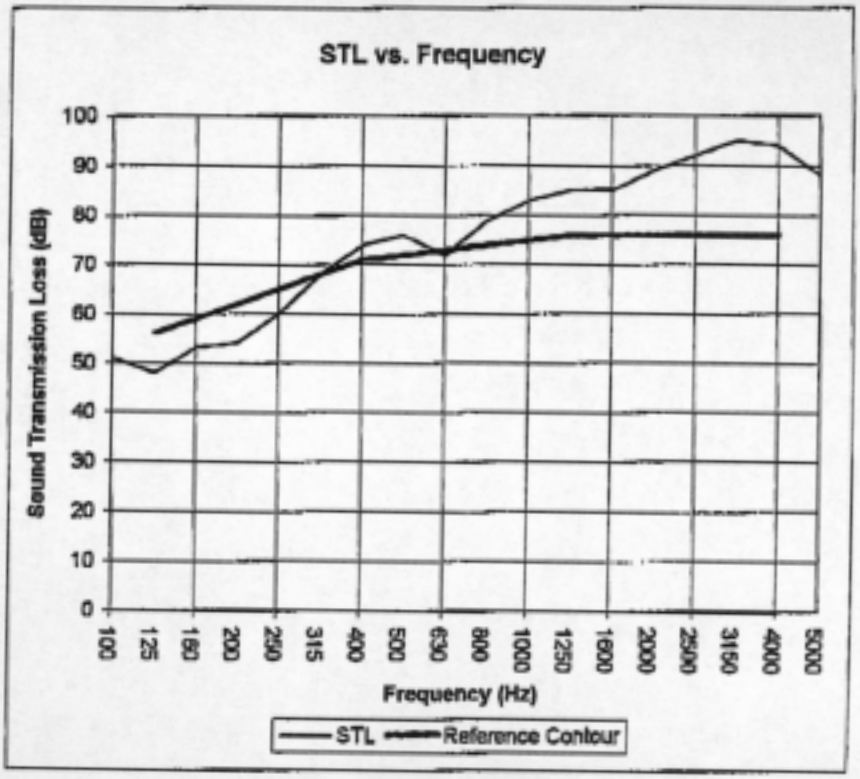
Sound Transmission Loss Test Data

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	0.489	*
800	79	0.316	*
1000	83	0.332	*
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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