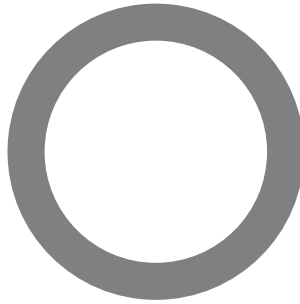


ASTM E 90: Laboratory Measurement of Airborne Sound Transmission of Building Partitions and Elements

Orfield Laboratories Inc



Design Research Testing

Acoustics / Vibration / Vision / Lighting / Architecture / Market Research

TEST

Client: **Supress, LLC**
Report Date: **August 6, 2007**
Test Date: **July 11, 2007**
Test Number: **OL 07-0708**

ACCREDITATION



For the scope of accreditation under NVLAP code 200248-0

RESULT SUMMARY

STC=56

CLIENT

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Signatures are required on this document for an official laboratory test report. Copies of this document without signatures are for reference only.

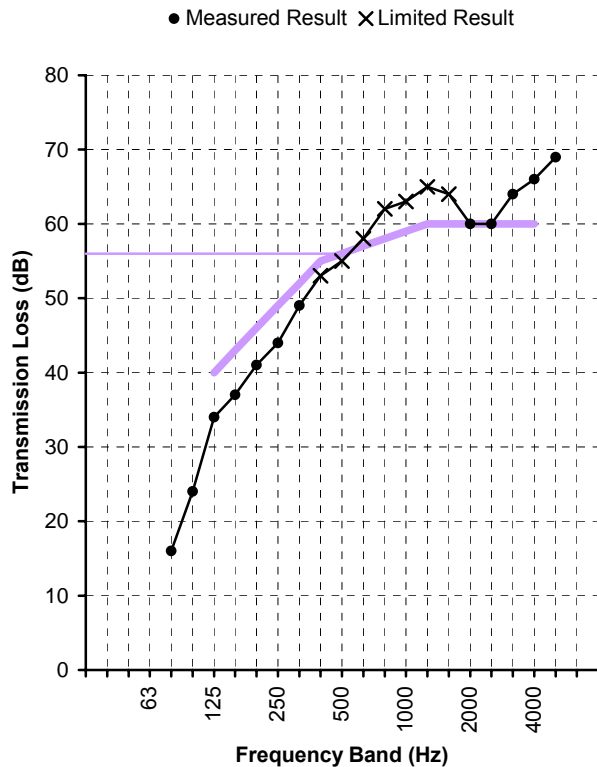




Test Date July 11, 2007
Specimen Interior Wall Assembly

Method ASTM Standard E90

Single Number Rating
STC = 56



Freq. (Hz)	TL (dB)	Def. (dB)
80	16	
100	24	
125	34	6
160	37	6
200	41	5
250	44	5
315	49	3
400	53*	2
500	55*	1
630	58*	-
800	62*	-
1000	63*	-
1250	65*	-
1600	64*	-
2000	60	-
2500	60	-
3150	64	-
4000	66	-
5000	69	-
Total Deficiencies		28

* Estimate of lower limit

Assembly Elements (listed in order from floor top to ceiling bottom)

- 0.625" (5/8") Supress SED 5848; 2" screws @ 12" O.C.
- 0.625" (5/8") type X gypsum board; 1.25" screws @ 12" O.C.
- 3-5/8" Dietrich Ultrasteel 25 gauge steel studs @ 24" O.C.
- 3-1/2" R13 glass fiber batts
- 0.625" (5/8") type X gypsum board; 1.25" screws @ 12" O.C.

Seam Treatment: tape and mud
 Perimeter Treatment: latex caulk (inner layer), 7/8" Mortite on outer layer





SPECIMEN DESCRIPTION

The specimen under test was interior wall assembly. The elements in the assembly are described below the results table and chart. Additional information regarding the specimen may be found in the appendices.

Test results pertain to this specimen only.

INSTALLATION AND DISPOSITION

Independent contractors fabricated the floor-ceiling assembly in the specimen opening. Qualified representatives of Orfield Laboratories observed the installation progress, and visually inspected the specimen and seals prior to testing.

TEST METHODS

The methods followed these published standards:

ASTM E90*: *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*

ASTM E413: *Classification for Rating Sound Insulation*

ASTM E2235: *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

** Orfield Laboratories, Inc. has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under their National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure. This report shall not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.*

CONFIDENTIALITY

The client has full control over this information and any release of information will be only to the client. The specific testing results are deemed to be confidential exclusively for the client's use. Reproduction of this report, except in full, is prohibited.



APPENDIX A: MEASUREMENT SETUP

Environment

Temperature	70°F [21.1°C]
Relative Humidity	55%

Specimen Area

Specimen Area	64.5 ft² [5.99 m²]
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Chamber Volume - Airborne Transmission

Source Room Volume	3284 ft³ [93.0 m³]
Receiving Room Volume	8281 ft³ [234.5 m³]

INSTRUMENTATION

Description	Brand	Model	S/N
Microphone	Brüel & Kjær	Type 4134	1478843
Preamplifier	Brüel & Kjær	Type 2639	1202479
Microphone	Brüel & Kjær	Type 4134	558007
Preamplifier	Brüel & Kjær	Type 2639	1312237
Analyzer	Brüel & Kjær	Type 2133	1389369



APPENDIX B: AIRBORNE CALCULATION RESULTS

Freq. Band (Hz)	Specimen T.L. (dB)	95% Conf. (dB)	Flanking Limit (dB)	STC Defic. (dB)	R _w Defic. (dB)
25					
31.5	20.8		40		
40	14.8		47		
50	18.5		43		
63	13.9		43		
80	16.4	±1.63	42		
100	23.6	±1.15	45		
125	33.8	±0.95	46	6	6.2
160	37.4	±1.27	52	6	5.6
200	41.3	±1.24	53	5	4.7
250	43.9	±0.65	56	5	5.1
315	48.6	±0.65	60	3	3.4
400	53.3 §	±0.62	61	2	1.7
500	55.5 §	±0.40	65	1	0.5
630	58.4 §	±0.50	66	-	-
800	61.9 §	±0.40	69	-	-
1000	63.4 §	±0.25	70	-	-
1250	65.0 §	±0.25	72	-	-
1600	64.2 §	±0.32	72	-	-
2000	59.9	±0.44	74	-	0.1
2500	59.9	±0.35	79	-	0.1
3150	64.5	±0.31	83	-	-
4000	66.0	±0.49		-	-
5000	69.1	±0.35		-	-
6300	71.3 *				
8000	72.1 *				
10000	68.1 *				
Total deficiencies below STC contour (dB)				28	
STC contour [ASTM E413]				56	
Average deficiencies below R _w contour (dB)					1.7
R _w contour [ISO 717/1]					56

* Actual transmission loss of specimen may be higher than measured at this frequency band. Signal-to-noise in the receiving room less than 5 dB, therefore the result is "an estimate of the lower limit".

§ Actual transmission loss of specimen may be higher than measured at this frequency band. Result within 10 dB of flanking limit found in separate study, therefore the result may be "potentially limited by the laboratory" due to flanking around the specimen.

Note: 95% Confidence from room qualification data. Flanking Limit from chamber flanking measurements. Data available upon request. Extended frequency results below 80Hz and above 5000Hz for reference only.





APPENDIX C: SPECIMEN ASSEMBLY DESCRIPTION

The following table shows the elements in the floor-ceiling assembly, with the top-most element first and the bottom-most element last (from floor-top to ceiling-surface).

Overall Mass = 488.0 lb [221.4 kg]

Overall Surface Density = 7.57 PSF [36.94 kg/m²]

Element	Mass		Surf. Dens.	
	lb	[kg]	PSF	[kg/m ²]
0.625" (5/8") Supress SED 5848; 2" screws @ 12" O.C.	156.0	[70.8]	2.42	[11.81]
0.625" (5/8") type X gypsum board; 1.25" screws @ 12" O.C.	149.0	[67.6]	2.31	[11.28]
3-5/8" Dietrich Ultrasteel 25 gauge steel studs @ 24" O.C.	22.0	[10.0]	0.34	[1.67]
3-1/2" R13 glass fiber batts	17.0	[7.7]	0.26	[1.29]
0.625" (5/8") type X gypsum board; 1.25" screws @ 12" O.C.	144.0	[65.3]	2.23	[10.90]

Independent contractors constructed and installed the specimen wall assembly in the laboratory test opening. A qualified representative of Orfield Laboratories observed the installation in process and visually inspected the completed specimen and seal. All materials were weighed just before installation. Fasteners were not weighed.

Supress SED 5848 was provided by the client. All other materials were acquired by the contractors through construction material suppliers. A small sample of Supress SED 5848 was retained. The remainder of the materials were disposed of after testing.



Dietrich UltraSteel track sections were attached to the test opening at the top and bottom. Dietrich UltraSteel studs were installed vertically at 24" O.C. in the test opening. Type X gypsum boards were fastened to the receive side using 1.25" screws. The screws were placed at 12" O.C at the specimen perimeter and at 12" x 24" O.C. in the field. 3.5" R13 glass fiber batt insulation was fitted into the stud cavities. A photograph of the construction in progress is shown in **Figure 1**.



Figure 1: Installing Insulation in Stud Cavities

Type X gypsum boards were fastened to the receive side using 1.25" screws. The screws were placed at 12" O.C at the specimen perimeter and at 12" x 24" O.C. in the field. The perimeter of the base layer was sealed with latex caulk. A layer of 5/8" Supress SED 5848 was installed over the base layer of type X gypsum. The screws were placed at 12" O.C at the specimen perimeter and at 12" x 24" O.C. in the field. The center seams of the outer gypsum board panels were sealed with tape and mud. The perimeter of each side of the specimen was sealed with 7/8" Mortite brand putty tape.

Figure 2 is a photograph of the nearly completed sample.



Figure 2: Mudding the center seam