NGC Testing Services™

Acoustical Testing Laboratory

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TEST REPORT

For

Arcoplast®, Inc.
1873 Williamstown Drive
St. Peters, MO 63376
Ghislain Beauregard / 636-978-7781

Sound Transmission Loss Test

ASTM E 90 – 09 / E 413 – 10
On

Wall Partition Assembly Consisting of
Side 1 – Single Layer of 3/8 Inch (9.5mm) Arcoplast® Modular Glass / Resin Panels
Side 2 - Single Layer of 3/8 Inch (9.5mm) Arcoplast® Modular Glass / Resin Panels
3-5/8 Inch Steel Studs, 3 Inch Mineral Wool in Stud Cavities

Report Number: NGC 2012042

Assignment Number: G-815

Test Date: 07/26/2012

Report Date: 08/10/2012

Submitted by: _____
Andrew E. Heuer
Senior Test Engineer

Reviewed by: _____
Robert J. Menchetti
Director

Report Number: NGC 2012042

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 - 09 / E 413 - 10.

Specimen Description: The test specimen was a partition assembly constructed within the 12 ft. Wide by 9 ft. High (3657.6mm W by 2743.2mm H) test opening. The test specimen was described by client as, steel stud framing 16 in. on center with. a single layer of Acroplast® 3/8 in. (9.5mm) Modular Glass/Resin Panels applied to each side, and 3 inch thick Mineral Wool batts in each stud cavity.

Standard direction of sound from Source Room (Room 1) to Receiving Room (Room 2).
The wall system was constructed in the test opening and consisted of:
From Room 1 to Room 2.

- 1 Layer of Arcoplast® 3/8 in. (9.5mm) Modular Glass/Resin Panels. Observed thickness was 9.3mm (0.367 in.) and observed sample weight was 15.6 kg/m^2 (3.20 PSF). The three 1219.2mm by 2743.2mm (4 ft. by 9 ft) panels were mounted vertically to the stud framework using Arcoplast® extruded aluminum splines which accepted the panel's slot existing at the panel's joint edges. Splines were screw attached to doubled up studs using a 15.9mm (0.625 in.) Pancake screws. In addition, 12 inch strips of double-sided 1 in. wide 3M 4959 tape were placed at the 1/3 points of each receiving side stud and the panels adhered to them. Spline weight was 0.10 kg/m^2 (0.02 PSF).
- 3-5/8 in. (92.1mm) wide by 1-1/4 in. (31.7mm) deep, 20 ga. metal studs mounted vertically 16 in. (406.4mm) o.c. between the top and bottom tracks and doubled up at the vertical Arcoplast® panel joints. Sample weighed 2.88 kg/m^2 (0.59 PSF).
- 3-5/8 in. (92.1mm) 20 ga. metal track top and bottom. 0.49 kg/m^2 (0.10 PSF).
- 1 Layer of 76.2mm (3 inch) Mineral Wool Batts was friction fit into the stud cavities. The sample weight was 3.81 kg/m^2 (.78 PSF).
- 1 Layer of Arcoplast® 3/8 in. (9.5mm) Modular Glass/Resin Panels. Observed thickness was 9.3mm (0.367 in.) and observed sample weight was 15.6 kg/m^2 (3.20 PSF). The three 1219.2mm by 2743.2mm (4 ft. by 9 ft) panels were mounted vertically to the stud framework using Arcoplast® extruded aluminum splines which accepted the panel's slot existing at the panel's joint edges. Splines were screw attached to doubled up studs using a 15.9mm (0.625 in.) Pancake screws. In addition, 12 inch strips of double-sided 1 in. wide 3M 4959 tape were placed at the 1/3 points of each receiving side stud and the panels adhered to them. Spline weight was 0.10 kg/m^2 (0.02 PSF).
  The tile joints were sealed with tape.

Total weight of the wall system was 38.5 kg/m^2 (7.89 PSF)

The perimeter of the wall system was sealed with acoustical caulk and exposed board joints were taped.

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

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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Sound Transmission Loss Test Data

Test: ASTM E 90 - 09 / ASTM E 413 - 10

Test Report: NGC2012042 Date: 7/26/2012

Specimen Size [m²]: 10.1

Source room		**Receiving room**	
Volume [m³]:	91.4	Volume [m³]:	98.6
Rm Temp [°C]:	25	Rm Temp [°C]:	25
Humidity [%]:	51	Humidity [%]:	51

Sound Transmission Class STC [dB]: 57

Sum of Unfavorable Deviations [dB]: 25

Max. Unfavorable Deviation [dB]: 5 at 125 Hz

Frequency [Hz]	STL [dB]	L1 [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔSTL
100	31	105.8	77.1	19.2	2.3		0.0
125	36	103.1	71.1	16.6	4.0	5	1.8
160	39	102.4	68.5	11.8	5.1	5	2.4
200	42	101.7	65.0	11.4	5.3	5	1.3
250	47	100.5	57.9	12.3	4.4	3	0.8
315	51	100.4	54.6	12.2	5.2	2	0.5
400	56	99.6	48.7	12.5	5.1		0.2
500	59	101.6	47.4	11.4	4.8		0.2
630	62	101.8	45.4	11.4	5.6		0.1
800	65	102.1	42.9	11.7	5.8		0.1
1000	65	101.2	41.2	12.8	5.0		0.1
1250	65	99.9	39.1	13.9	4.2		0.1
1600	64	97.1	36.3	16.5	3.2		0.1
2000	64	95.7	34.4	19.8	2.7		0.0
2500	59	95.8	38.8	23.7	2.0	2	0.0
3150	58	94.6	38.2	25.5	1.6	3	0.0
4000	64	93.2	30.2	28.6	1.0		0.0
5000	68	93.1	25.6	32.4	0.5		0.0

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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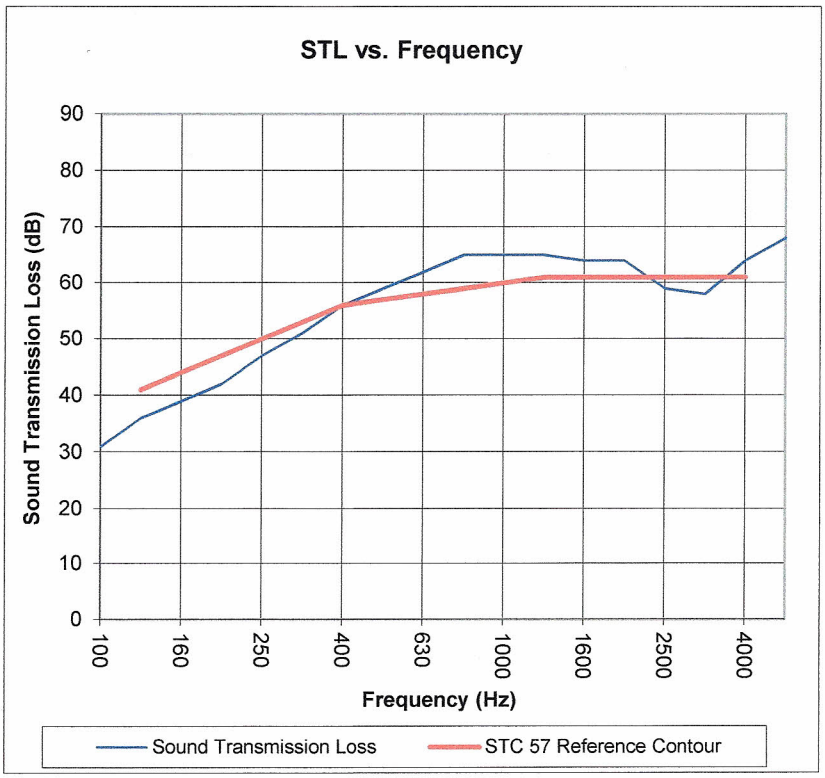
Sound Transmission Loss Test Data

Per: ASTM E 90 - 09 / ASTM E 413 - 10

Test Report: NGC2012042
Test Date: 7/26/2012
Specimen Size [m²]: 10.1

Sound Transmission Class STC = 57 dB

Frequency [Hz]	STL [dB]	ΔSTL
100	31	2.4
125	36	1.3
160	39	0.8
200	42	0.5
250	47	0.2
315	51	0.2
400	56	0.1
500	59	0.1
630	62	0.1
800	65	0.1
1000	65	0.1
1250	65	0.0
1600	64	0.0
2000	64	0.0
2500	59	0.0
3150	58	0.0
4000	64	0.0
5000	68	0.0



* 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