NORTH ORBIT ACOUSTIC LABORATORIES

REPORT NUMBER	NOAL 26-02038
TEST METHOD	ASTM E90-23: Standard Test Method for Laboratory Measurement of Airborne Sound Transmission of Building Partitions and Elements
TEST SPONSOR	CEMCO®, 13191 Crossroads Pkwy N., Ste 325, City of Industry, CA 91746
ISSUED TO	CEMCO®, 13191 Crossroads Pkwy N., Ste 325, City of Industry, CA 91746
TEST SPECIMEN	Wall Assembly
RESULT SUMMARY	STC 68
TEST DATE	February 13, 2026
REPORT DATE	April 21, 2026
TEST SITE	North Orbit Acoustic Laboratory Facility, 917 Rice Street, Saint Paul, MN 55117
TECHNICIAN	D. Berg

CONTENTS

ELECTRONICALLY REPRODUCED SIGNATURE

DAVID M. BERG – LABORATORY MANAGER

ELECTRONICALLY REPRODUCED SIGNATURE

HEIDE GROSS – LABORATORY QUALITY MANAGER

ilac-MRA A2LA ACCREDITED

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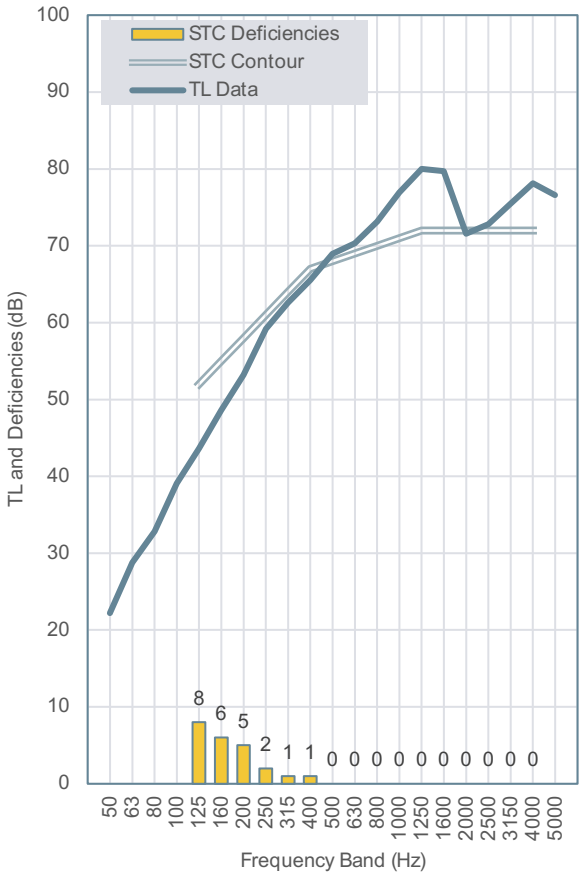
SECTION A – DATA SUMMARY

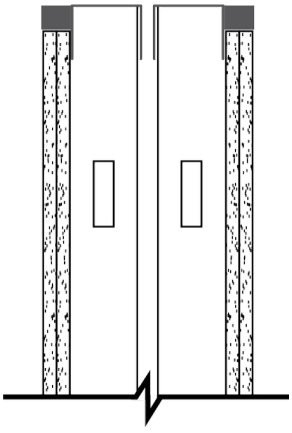
STC 68



FREQUENCY (Hz)	TL (dB)	DEFICIENCIES (dB)
50	22	-
63	29	-
80	33	-
100	39	-
125	44	8
160	49	6
200	53	5
250	59	2
315	63	1
400	66	1
500	69	0
630	70	0
800	73	0
1,000	77	0
1,250	80	0
1,600	80	0
2,000	72	0
2,500	73	0
3,150	75	0
4,000	78	0
5,000	77	-
	TOTAL DEFICIENCIES	**23**

ELEMENTS	FROM SOURCE ROOM SIDE TO RECEIVING ROOM SIDE
Hardware	CEMCO Smoke & Sound Stop Blue
Sheathing	5/8" Type X gypsum panels; #6 x 1-5/8" type S screws spaced 12" OC
Sheathing	5/8" Type X gypsum panels; #6 x 1" type S screws spaced 16" OC
Framing	2" internal lateral bracing
Framing	double row 2-1/2" CEMCO 33 mil steel slotted top track
Framing	double row 2-1/2" CEMCO ViperStud® 18 mil steel studs spaced 24" OC
Framing	double row 2-1/2" CEMCO ViperTrack® 18 mil steel tracks
Insulation	double layer 2-1/2" unfaced glass fiber batt insulation (R8)
Sheathing	5/8" Type X gypsum panels; #6 x 1" type S screws spaced 16" OC
Sheathing	5/8" Type X gypsum panels; #6 x 1-5/8" type S screws spaced 12" OC
Hardware	CEMCO Smoke & Sound Stop Blue

SCHEMATIC



See Section C on page 4 and 5 for a full specimen description.

SECTION B – APPROACH

INSTALLATION

The specimen is a wall assembly that was originally constructed on February 13, 2026, at the Saint Paul, MN, acoustic laboratory facility. The assembly and building element descriptions can be found in Section C on pages 4 & 5 of this report.

Qualified representatives from North Orbit Acoustic Laboratories observed or performed the installation and inspected all major building elements when completed and prior to testing.

TEST METHODS

North Orbit Acoustic Laboratory (NOAL) is accredited through A2LA certificate number 4240.01 for this test method.

Test methods follow the published standards listed below.

ASTM E90-23: *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*

ASTM E413-22: *Classification for Rating Sound Insulation*

All results reported herein were derived from tests performed in full accordance with the test method ASTM E90. The laboratory and measurement systems fully meet all requirements of the test standard and ASTM E90 Annex A2: Qualification of room sound fields and microphone systems used for sampling. All values stated are derived from single-direction transmission loss measurements.

The standard deviation of reproducibility is stated in ASTM E90 as <2 dB for frequencies from 125 Hz to 4 kHz. Detailed test procedures for this test method, the flanking limit report, repeatability measurements, and reference specimen tests are available upon request.

The Sound Transmission Class (STC) value was obtained by applying the Transmission Loss (TL) values to the STC reference contour of ASTM E413, which was used to calculate a single number rating.

TEST REPORTS

This report does not constitute certification of the assembly or test item nor an opinion or endorsement by this laboratory. The report applies only to the specimen tested and may not be reproduced, except in full, without the permission of the client or test sponsor. It is the exclusive property of the test sponsor so named herein.

CONFIDENTIALITY

The test sponsor has full control over this information. Any release of information will be only to the test sponsor. The specific testing results are deemed confidential and are to be used exclusively by the test sponsor. Reproduction of this report, except in full, is prohibited.

SECTION C – SPECIMEN DESCRIPTION

The test sponsor supplied steel framing and Smoke & Sound Stop Blue. All other materials were purchased through regional retail or wholesale channels.

FRAMING

Framing was constructed on February 12, 2026, and was retained from previous tests in the series.

A double steel stud frame was constructed within the perimeter of the laboratory test specimen opening. The frame consisted of two rows of 33 mil designated thickness (20 ga.) 2-1/2" x 3" steel slotted top track, two rows of 2-1/2" x 1-1/4" 18 mil designated thickness bottom track, and two rows of 18 mil designated thickness 2-1/2" x 1-1/4" steel studs installed vertically, spaced 24" on centers (OC). The studs in each row were offset 12", resulting in eight studs on the source side and seven studs on the receiving side. Each row of studs was separated by a 1" air space. The sides and bottom perimeter of the frame was sealed at the specimen opening with non-hardening acoustic sealant.

Top Track:	CEMCO 250CST300-33 20 GA 33 KSI
Bottom Track:	CEMCO 250VT125-18 NS 33 KSI
Studs:	CEMCO 250VS125-18 NS 33 KSI

LATERAL BRACING

A 12' length of 2" wide, 20-gauge steel strapping was fastened horizontally to the interior of the studs, perpendicular across the midpoint of both frames. The strapping was fastened with a #8 x 1/2" type S-12 screw at each intersection.

INSULATION

Glass fiber insulation batts were friction fit into the stud cavities, resulting in two layers of batts. Two of the batts were 12" wide, and ten were 24" wide and 2-1/2" thick with an R-Value of R-8.

SHEATHING

Source Side: Two layers of gypsum panels were applied to the framing.

Base layer: 5/8" Type X gypsum panels were applied parallel to the studs. The panels were attached to the frame with #6 x 1" type S drywall screws, spaced 16" OC, except at the top track, where no fasteners were used.

Face layer: 5/8" Type X gypsum panels were applied parallel to the studs. The panels were attached to the frame with #6 x 1-5/8" type S drywall screws, spaced 12" OC, except at the top track, where no fasteners were used. Joints were staggered one stud cavity to offset each layer.

Receiving Side: Two layers of gypsum panels were applied to the framing.

Base layer: 5/8" Type X gypsum panels were applied parallel to the studs. The panels were attached to the frame with #6 x 1" type S drywall screws, spaced 16" OC, except at the top track, where no fasteners were used.

Face layer: 5/8" Type X gypsum panels were applied parallel to the studs. The panels were attached to the frame with #6 x 1-5/8" type S drywall screws, spaced 12" OC, except at the top track, where no fasteners were used. Joints were staggered one stud cavity to offset each layer.

All fasteners in the assembly were mechanically installed.

The panels were shimmed at installation so equal 1/4" gaps were maintained along the vertical perimeter and a 3/8" gap at the bottom perimeter. Shims were removed after the panels were fastened, and the specimen bottom and sides were sealed on the source and receiving room bottom and sides with non-hardening acoustical sealant and 7/8" dense putty tape.

JOINT SEAL (TOP)

The 3/4" joint above the drywall of both sides of the specimen was sealed to the specimen opening with CEMCO SMOKE & SOUND STOP BLUE (SSSB). SMOKE & SOUND STOP BLUE (SSSB) is a compressible foam that allows movement for dynamic joint applications. The joint products were friction-fit in the joint gap on each side of the specimen.

SECTION C – SPECIMEN DESCRIPTION (CONT.)

SPECIMEN DETAIL	
Specimen Face Dimensions	12.0' [3.66 m] x 8.00' [2.44 m]
Specimen Thickness	8.50" [21.6 cm]
Specimen Face Area	96.0 SF [8.92 m²]
Overall Mass	939 lb [426 kg]
Overall Surface Density	9.78 PSF [47.7 kg/m²]

Mass of fasteners, tape, and sealant is not represented in the above totals.

Photo of source side of specimen

Photo of receiving side of specimen

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SECTION C – SPECIMEN DESCRIPTION (CONT.)

HARDWARE			
Material	CEMCO Smoke & Sound Stop Blue	Mass	0.200 lb [0.0907 kg]
Dimensions	1.00" x 1.00" [2.5 cm x 2.5 cm]	Net Length	12.0' [3.66 m]
Lengths	1 @ 144.00" [365.8 cm]	Linear Density	0.0167 lb/ft [0.0248 kg/m]
SHEATHING	**SOURCE SIDE FACE LAYER**		
Material	Type X gypsum panels	Mass	214 lb [97.2 kg]
Thickness	0.63" [1.6 cm]	Net Area	95.3 SF [8.85 m²]
Face Dimensions	2 @ 48.00" x 95.25" [121.9 cm x 241.9 cm] 2 @ 24.00" x 95.25" [61.0 cm x 241.9 cm]	Surface Density	2.25 PSF [11.0 kg/m²]
SHEATHING	**SOURCE SIDE BASE LAYER**		
Material	Type X gypsum panels	Mass	214 lb [97.2 kg]
Thickness	0.63" [1.6 cm]	Net Area	95.3 SF [8.85 m²]
Face Dimensions	3 @ 48.00" x 95.25" [121.9 cm x 241.9 cm]	Surface Density	2.25 PSF [11.0 kg/m²]
FRAMING			
Material	internal lateral bracing	Mass	8.00 lb [3.63 kg]
Steel Thickness	0.0330" [838 µm]	Net Length	24.0' [7.32 m]
Dimensions	0.03" x 2.00" [0.1 cm x 5.1 cm]	Linear Density	0.333 lb/ft [0.496 kg/m]
Lengths	2 @ 144.00" [365.8 cm]		
FRAMING			
Material	CEMCO steel slotted top track	Mass	8.00 lb [3.63 kg]
Steel Thickness	0.0330" [838 µm]	Net Length	24.0' [7.32 m]
Dimensions	3.00" x 2.50" [7.6 cm x 6.4 cm]	Linear Density	0.333 lb/ft [0.496 kg/m]
Lengths	2 @ 144.00" [365.8 cm]		
FRAMING			
Material	CEMCO ViperStud® 18 mil steel studs	Mass	41.0 lb [18.6 kg]
Steel Thickness	0.0188" [478 µm]	Net Length	119' [36.4 m]
Dimensions	2.50" x 1.25" [6.4 cm x 3.2 cm]	Linear Density	0.343 lb/ft [0.511 kg/m]
Lengths	15 @ 95.50" [242.6 cm]		
FRAMING			
Material	CEMCO ViperTrack® 18 mil steel tracks	Mass	5.00 lb [2.27 kg]
Steel Thickness	0.0188" [478 µm]	Net Length	24.0' [7.32 m]
Dimensions	2.50" x 1.25" [6.4 cm x 3.2 cm]	Linear Density	0.208 lb/ft [0.310 kg/m]
Lengths	2 @ 144.0" [365.8 cm]		

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SECTION C – SPECIMEN DESCRIPTION (CONT.)

INSULATION			
Material	unfaced glass fiber batt insulation	Mass	22.0 lb [9.98 kg]
Thickness	2.50" [6.4 cm]	Net Volume	36.7 CF [1.04 m³]
Face Dimensions	10 @ 24.00" x 96.00" [61.0 cm x 243.8 cm] 2 @ 12.00" x 96.00" [30.5 cm x 243.8 cm]	Density	0.600 PCF [9.61 kg/m³]
SHEATHING	**RECEIVING SIDE BASE LAYER**		
Material	Type X gypsum panels	Mass	212 lb [96.3 kg]
Thickness	0.63" [1.6 cm]	Net Area	95.3 SF [8.85 m²]
Face Dimensions	2 @ 48.00" x 95.25" [121.9 cm x 241.9 cm] 1 @ 36.00" x 95.25" [91.4 cm x 241.9 cm] 1 @ 12.00" x 95.25" [30.5 cm x 241.9 cm]	Surface Density	2.23 PSF [10.9 kg/m²]
SHEATHING	**RECEIVING SIDE FACE LAYER**		
Material	Type X gypsum panels	Mass	213 lb [96.8 kg]
Thickness	0.63" [1.6 cm]	Net Area	95.3 SF [8.85 m²]
Face Dimensions	2 @ 48.00" x 95.25" [121.9 cm x 241.9 cm] 1 @ 36.00" x 95.25" [91.4 cm x 241.9 cm] 1 @ 12.00" x 95.25" [30.5 cm x 241.9 cm]	Surface Density	2.24 PSF [10.9 kg/m²]
HARDWARE			
Material	CEMCO Smoke & Sound Stop Blue	Mass	0.200 lb [0.0907 kg]
Dimensions	1.00" x 1.00" [2.5 cm x 2.5 cm]	Net Length	12.0' [3.66 m]
Lengths	1 @ 144.00" [365.8 cm]	Linear Density	0.0167 lb/ft [0.0248 kg/m]

All materials were weighed prior to installation. The nominal dimensions and product information were provided by the test sponsor or obtained from manufacturer data sheets.

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SECTION D – MEASUREMENT SET-UP

ENVIRONMENTAL CONDITIONS	
Source Room Temperature	66.0 °F [18.9 °C]
Source Room Relative Humidity	39.5%
Receiving Room Temperature	65.5 °F [18.6 °C]
Receiving Room Relative Humidity	38.8%

CHAMBER VOLUME	
Source Room	7,652 CF [216.7 m³]
Receiving Room	12,320 CF [349.0 m³]
Source Niche Depth	11.8" [29.8 cm]
Receiving Niche Depth	5.00" [12.7 cm]

INSTRUMENTATION

DESCRIPTION	BRAND	MODEL	SERIAL
Analyzer	Sinus	Apollo	7510
Software	Sinus	Samurai	ver. 2.8.3
Microphone	Brüel & Kjær	4166	1620281
Microphone	Brüel & Kjær	4166	1620312
Preamplifier	Brüel & Kjær	2669	2025373
Preamplifier	Brüel & Kjær	2669	2083679
Calibrator	Brüel & Kjær	4231	2314028
Thermohygrometer	Kestrel	5200	2807716
Thermohygrometer	Kestrel	5200	2947354

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SECTION E – TEST RESULTS

FREQUENCY BAND (Hz)	TL (dB)	DATA FLAGS (see below)	95% C.I. (dB)	FLANKING LIMIT (dB)	DEFICIENCIES (dB)
50	22.2		±4.0	44.8	-
63	28.8		±3.6	46.8	-
80	32.8		±2.1	52.8	-
100	39.1		±1.5	59.2	-
125	43.6		±1.4	65.2	8
160	48.6		±1.1	69.7	6
200	53.2		±1.1	72.8	5
250	59.2		±0.8	77.7	2
315	62.6		±0.7	82.6	1
400	65.6		±0.6	88.3	1
500	69.0		±0.6	93.4	0
630	70.3		±0.5	95.6	0
800	73.2		±0.5	100.5	0
1,000	76.9		±0.4	105.0	0
1,250	80.0		±0.4	107.9	0
1,600	79.7		±0.4	105.9	0
2,000	71.6		±0.4	106.0	0
2,500	72.8		±0.4	105.7	0
3,150	75.5		±0.3	105.2	0
4,000	78.1		±0.4	103.4	0
5,000	76.6	*	±0.3	100.7	-
6,300	73.7	*	±0.4	99.0	-
8,000	70.8	*	±0.5	95.8	-
10,000	66.4	*	±0.7	92.5	-
				TOTAL DEFICIENCIES BELOW CONTOUR [dB]	**23**
				STC RATING [ASTM E413]	**68**

Note: Composite 95% confidence intervals from room qualification testing. Extended frequency results below 80 Hz and above 5000 Hz are for reference only. Specimen TL rounded to 0.1 dB provided in this table for reference. Specimen TL rounded to whole decibels found on page 2.

Data Flags:

* Actual transmission loss of specimen may be higher than measured at this frequency band. Signal-to-noise in the receiving room less than 6 dB, therefore the result is "an estimate of the lower limit".