



# NORTH ORBIT

## ACOUSTIC LABORATORIES

|                |                                                                                                                                 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------|
| REPORT NUMBER  | NOAL 26-02029                                                                                                                   |
| 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 60                                                                                                                          |
| TEST DATE      | February 11, 2026                                                                                                               |
| REPORT DATE    | April 21, 2026                                                                                                                  |
| TEST SITE      | North Orbit Acoustic Laboratory Facility, 917 Rice Street, Saint Paul, MN 55117                                                 |
| TECHNICIAN     | D. Berg                                                                                                                         |

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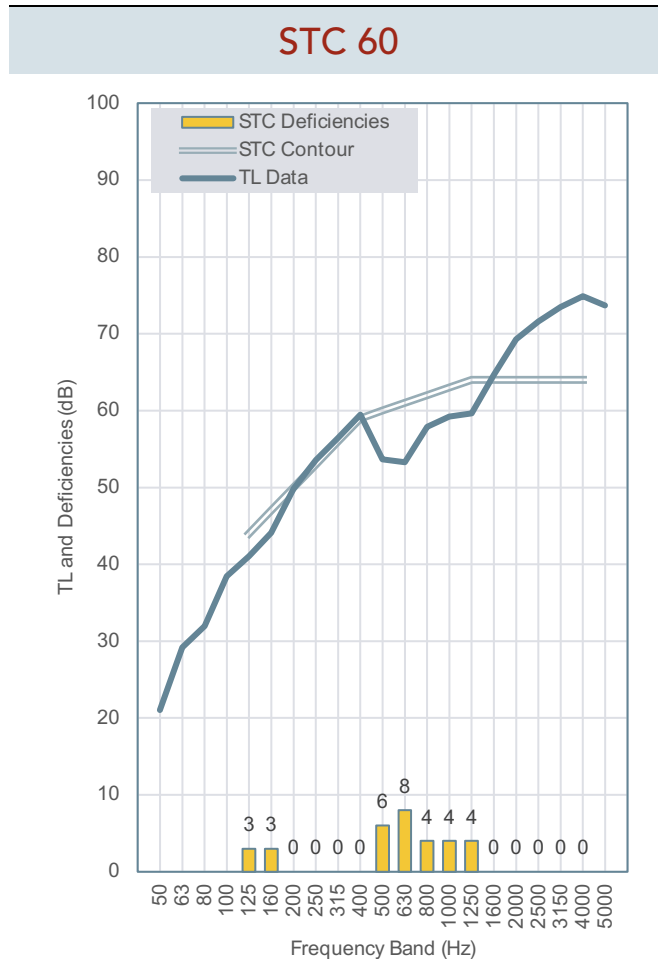
DAVID M. BERG – LABORATORY MANAGER

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HEIDE GROSS – LABORATORY QUALITY MANAGER

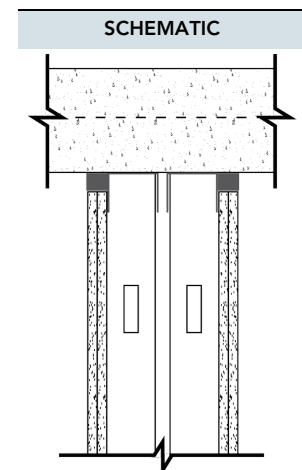


**SECTION A – DATA SUMMARY**



| FREQUENCY (Hz)            | TL (dB) | DEFICIENCIES (dB) |
|---------------------------|---------|-------------------|
| 50                        | 21      | -                 |
| 63                        | 29      | -                 |
| 80                        | 32      | -                 |
| 100                       | 38      | -                 |
| 125                       | 41      | 3                 |
| 160                       | 44      | 3                 |
| 200                       | 50      | 0                 |
| 250                       | 54      | 0                 |
| 315                       | 56      | 0                 |
| 400                       | 59      | 0                 |
| 500                       | 54      | 6                 |
| 630                       | 53      | 8                 |
| 800                       | 58      | 4                 |
| 1,000                     | 59      | 4                 |
| 1,250                     | 60      | 4                 |
| 1,600                     | 65      | 0                 |
| 2,000                     | 69      | 0                 |
| 2,500                     | 72      | 0                 |
| 3,150                     | 73      | 0                 |
| 4,000                     | 75      | 0                 |
| 5,000                     | 74      | -                 |
| <b>TOTAL DEFICIENCIES</b> |         | <b>32</b>         |

| ELEMENTS   | FROM SOURCE ROOM SIDE TO RECEIVING ROOM SIDE                        |
|------------|---------------------------------------------------------------------|
| Composite  | 2-1/2" lightweight concrete                                         |
| Floor      | 3" composite metal deck                                             |
| Assembly   | bare mineral fiber flute fill (33% compressed)                      |
| Hardware   | CEMCO SMOKE & SOUND STOP BLUE (SSSB)                                |
| 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    | 7/8" x 7/8" 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 (SSSB)                                |



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 11, 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.

### FILLER WALL

A high-transmission-loss filler wall was constructed to fully occupy the 12' x 8' test opening. The assembly consisted of two individual decoupled 3-5/8" 33-mil steel stud frames separated by an airspace, with studs spaced 24" OC. Glass fiber batt insulation was friction-fit in each stud cavity of both frames. A single layer of 1-3/8" constrained-layer-damped gypsum panels was applied directly to the exterior face of each frame. The completed filler wall had an overall thickness of 15". The assembly was tested, and the results were retained for composite wall corrections. The filler wall was subsequently modified to create a decoupled opening for the test specimen in accordance with ASTM E90 Annex A3, *Procedures for Dealing with Specimens Smaller than the Test Opening*.

### 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.



Certificate #4240.01

This page alone is not a complete report.

## SECTION C – SPECIMEN DESCRIPTION

The test sponsor supplied steel framing, SMOKE & SOUND STOP BLUE (SSSB), and the mineral fiber flute filler. All other materials were purchased through regional retail or wholesale channels.

### COMPOSITE FLOOR ASSEMBLY

The composite floor assembly was constructed on February 9, 2026, and was retained from previous tests in the series.

A sample composite floor assembly consisting of a composite metal deck and a poured concrete slab was installed at the top of the specimen opening. The composite floor assembly measured 102" x 11.25" x 5.5" and was supported by two filler wall sections and a center anchor point for the non-load-bearing wall assembly constructed below. The three sections of 20-gauge composite metal deck profile with rolled-in embossments measured 36" x 11-1/4" x 3" high. A slab made of lightweight concrete was poured into the 3" metal deck to the depth of a 2.5" topping in March 2025 and allowed to cure. The trapezoidal flutes of the deck profile were filled with 33% compressed, mineral fiber safing (nom. 4 PCF).

The sides and top, concrete edge of the head of wall was sealed to the specimen opening with non-hardening acoustic sealant and 7/8" dense putty tape. The notches in the bottom flange of the fluted deck were packed with mineral fiber insulation.

### FRAMING

Framing was constructed on February 11, 2026, and was retained for subsequent 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 six studs on the source side and five 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

Lateral bracing was installed mid-height. The lateral-bracing was 33 mil designated thickness 7/8" x 7/8" steel V-channels. The V-channels were fed through the mid-height stud knockouts and seated in place with the pre-notched slots.

### INSULATION

Glass fiber insulation batts were friction fit into the stud cavities, resulting in two layers of batts. Six batts were 24" wide, two batts were 12" 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.



## SECTION C – SPECIMEN DESCRIPTION, CONT.

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 bottom of the fluted deck with CEMCO SMOKE & SOUND STOP BLUE (SSSB) at the head of wall. 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.

### SPECIMEN DETAIL

|                          |                                 |
|--------------------------|---------------------------------|
| Specimen Face Dimensions | 8.00' [2.44 m] x 8.00' [2.44 m] |
| Specimen Thickness       | 8.50" [21.6 cm]                 |
| Specimen Face Area       | 64.0 SF [5.95 m²]               |
| Overall Mass             | 943 lb [428 kg]                 |
| Overall Surface Density  | 14.7 PSF [72.0 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*



**SECTION C – SPECIMEN DESCRIPTION (CONT.)**

| COMPOSITE FLOOR ASSEMBLY         |                                                                                                                                   |                 |                                    |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------|
| Material                         | lightweight concrete                                                                                                              | Mass            | 317 lb [144 kg]                    |
| Dimensions                       | 2.50" x 11.25" x 102.25" [6.4 cm x 28.6 cm x 259.7 cm]                                                                            | Quantity        | 1.0000                             |
|                                  |                                                                                                                                   | Unit Mass       | 317 lb [144 kg]                    |
| Material                         | composite metal deck                                                                                                              | Mass            | 16.0 lb [7.26 kg]                  |
| Dimensions                       | 3.00" x 11.75" x 36.00" [7.6 cm x 29.8 cm x 91.4 cm]                                                                              | Quantity        | 3.000                              |
|                                  |                                                                                                                                   | Unit Mass       | 5.33 lb [2.42 kg]                  |
| Material                         | bare mineral fiber flute fill                                                                                                     | Mass            | 5.10 lb [2.31 kg]                  |
| Dimensions                       | 3.00" x 5.00" x 7.00" x 8.50" [7.6 cm x 12.7 cm x 17.8 cm x 21.6 cm]                                                              | Quantity        | 8.000                              |
|                                  |                                                                                                                                   | Unit Mass       | 0.638 lb [0.289 kg]                |
| JOINT SEAL (TOP)                 |                                                                                                                                   |                 |                                    |
| Joint Seal                       | CEMCO SMOKE & SOUND STOP BLUE (SSSB)                                                                                              | Mass            | 0.120 lb [0.0544 kg]               |
| Dimensions                       | 1.00" x 1.00" [2.5 cm x 2.5 cm]                                                                                                   | Net Length      | 8.00' [2.44 m]                     |
| Lengths                          | 1 @ 96.00" [243.8 cm]                                                                                                             | Linear Density  | 0.0150 lb/ft [0.0223 kg/m]         |
| SHEATHING SOURCE SIDE FACE LAYER |                                                                                                                                   |                 |                                    |
| Material                         | Type X gypsum panels                                                                                                              | Mass            | 136 lb [61.7 kg]                   |
| Thickness                        | 0.63" [1.6 cm]                                                                                                                    | Net Area        | 60.5 SF [5.62 m <sup>2</sup> ]     |
| Face Dimensions                  | 1 @ 48.00" x 90.75" [121.9 cm x 230.5 cm]<br>1 @ 36.00" x 90.75" [91.4 cm x 230.5 cm]<br>1 @ 12.00" x 90.75" [30.5 cm x 230.5 cm] | Surface Density | 2.25 PSF [11.0 kg/m <sup>2</sup> ] |
| SHEATHING SOURCE SIDE BASE LAYER |                                                                                                                                   |                 |                                    |
| Material                         | Type X gypsum panels                                                                                                              | Mass            | 136 lb [61.7 kg]                   |
| Thickness                        | 0.63" [1.6 cm]                                                                                                                    | Net Area        | 60.5 SF [5.62 m <sup>2</sup> ]     |
| Face Dimensions                  | 1 @ 48.00" x 90.75" [121.9 cm x 230.5 cm]<br>1 @ 36.00" x 90.75" [91.4 cm x 230.5 cm]<br>1 @ 12.00" x 90.75" [30.5 cm x 230.5 cm] | Surface Density | 2.25 PSF [11.0 kg/m <sup>2</sup> ] |
| FRAMING                          |                                                                                                                                   |                 |                                    |
| Material                         | internal lateral bracing                                                                                                          | Mass            | 5.00 lb [2.27 kg]                  |
| Steel Thickness                  | 0.0330" [838 µm]                                                                                                                  | Net Length      | 14.5' [4.42 m]                     |
| Dimensions                       | 0.88" x 0.88" [2.2 cm x 2.2 cm]                                                                                                   | Linear Density  | 0.345 lb/ft [0.513 kg/m]           |
| Lengths                          | 3 @ 50.00" [127.0 cm]<br>1 @ 24.00" [61.0 cm]                                                                                     |                 |                                    |



**SECTION C – SPECIMEN DESCRIPTION (CONT.)**

| FRAMING                             |                                                                                       |                 |                            |
|-------------------------------------|---------------------------------------------------------------------------------------|-----------------|----------------------------|
| Material                            | CEMCO steel slotted top track                                                         | Mass            | 8.00 lb [3.63 kg]          |
| Steel Thickness                     | 0.0330" [838 µm]                                                                      | Net Length      | 16.0' [4.88 m]             |
| Dimensions                          | 2.50" x 3.00" [6.4 cm x 7.6 cm]                                                       | Linear Density  | 0.500 lb/ft [0.744 kg/m]   |
| Lengths                             | 2 @ 96.00" [243.8 cm]                                                                 |                 |                            |
| FRAMING                             |                                                                                       |                 |                            |
| Material                            | CEMCO ViperStud® 18 mil steel studs                                                   | Mass            | 28.0 lb [12.7 kg]          |
| Steel Thickness                     | 0.0188" [478 µm]                                                                      | Net Length      | 83.4' [25.4 m]             |
| Dimensions                          | 2.50" x 1.25" [6.4 cm x 3.2 cm]                                                       | Linear Density  | 0.336 lb/ft [0.500 kg/m]   |
| Lengths                             | 11 @ 91.00" [231.1 cm]                                                                |                 |                            |
| FRAMING                             |                                                                                       |                 |                            |
| Material                            | CEMCO ViperTrack® 18 mil steel tracks                                                 | Mass            | 5.00 lb [2.27 kg]          |
| Steel Thickness                     | 0.0188" [478 µm]                                                                      | Net Length      | 16.0' [4.88 m]             |
| Dimensions                          | 2.50" x 1.25" [6.4 cm x 3.2 cm]                                                       | Linear Density  | 0.313 lb/ft [0.465 kg/m]   |
| Lengths                             | 2 @ 96.00" [243.8 cm]                                                                 |                 |                            |
| INSULATION                          |                                                                                       |                 |                            |
| Material                            | unfaced glass fiber batt insulation                                                   | Mass            | 17.0 lb [7.71 kg]          |
| Thickness                           | 2.50" [6.4 cm]                                                                        | Net Volume      | 22.4 CF [0.633 m³]         |
| Face Dimensions                     | 6 @ 24.00" x 92.00" [61.0 cm x 233.7 cm]<br>2 @ 12.00" x 92.00" [30.5 cm x 233.7 cm]  | Density         | 0.760 PCF [12.2 kg/m³]     |
| SHEATHING RECEIVING SIDE BASE LAYER |                                                                                       |                 |                            |
| Material                            | Type X gypsum panels                                                                  | Mass            | 135 lb [61.2 kg]           |
| Thickness                           | 0.63" [1.6 cm]                                                                        | Net Area        | 60.5 SF [5.62 m²]          |
| Face Dimensions                     | 1 @ 48.00" x 90.75" [121.9 cm x 230.5 cm]<br>2 @ 24.00" x 90.75" [61.0 cm x 230.5 cm] | Surface Density | 2.23 PSF [10.9 kg/m²]      |
| SHEATHING RECEIVING SIDE FACE LAYER |                                                                                       |                 |                            |
| Material                            | Type X gypsum panels                                                                  | Mass            | 135 lb [61.2 kg]           |
| Thickness                           | 0.63" [1.6 cm]                                                                        | Net Area        | 60.5 SF [5.62 m²]          |
| Face Dimensions                     | 2 @ 48.00" x 90.75" [121.9 cm x 230.5 cm]                                             | Surface Density | 2.23 PSF [10.9 kg/m²]      |
| JOINT SEAL (TOP)                    |                                                                                       |                 |                            |
| Joint Seal                          | CEMCO SMOKE & SOUND STOP BLUE (SSSB)                                                  | Mass            | 0.120 lb [0.0544 kg]       |
| Dimensions                          | 1.00" x 1.00" [2.5 cm x 2.5 cm]                                                       | Net Length      | 8.00' [2.44 m]             |
| Lengths                             | 1 @ 96.00" [243.8 cm]                                                                 | Linear Density  | 0.0150 lb/ft [0.0223 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.



Certificate #4240.01



**TEST SPONSOR** CEMCO®  
13191 Crossroads Pkwy N., Ste 325  
City of Industry, CA 91746

## ASTM E90 TEST REPORT

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### SECTION D – MEASUREMENT SET-UP

#### ENVIRONMENTAL CONDITIONS

|                                  |                   |
|----------------------------------|-------------------|
| Source Room Temperature          | 68.1 °F [20.1 °C] |
| Source Room Relative Humidity    | 40.5%             |
| Receiving Room Temperature       | 66.9 °F [19.4 °C] |
| Receiving Room Relative Humidity | 40.3%             |

#### CHAMBER VOLUME

|                       |                      |
|-----------------------|----------------------|
| Source Room           | 7,627 CF [216.0 m³]  |
| Receiving Room        | 12,330 CF [349.2 m³] |
| Source Niche Depth    | 2.00" [5.08 cm]      |
| Receiving Niche Depth | 4.50" [11.4 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<br>(Hz)                | TL<br>(dB) | DATA FLAGS<br>(see below) | 95% C.I.<br>(dB) | FLANKING LIMIT<br>(dB) | DEFICIENCIES<br>(dB) |
|---------------------------------------|------------|---------------------------|------------------|------------------------|----------------------|
| 50                                    | 21.0       | ‡                         | ±4.0             | 44.8                   | -                    |
| 63                                    | 29.2       | ‡                         | ±3.6             | 46.8                   | -                    |
| 80                                    | 32.0       | ‡                         | ±2.1             | 52.8                   | -                    |
| 100                                   | 38.4       | ‡                         | ±1.5             | 59.2                   | -                    |
| 125                                   | 41.1       | ‡                         | ±1.4             | 65.2                   | 3                    |
| 160                                   | 44.1       |                           | ±1.1             | 69.7                   | 3                    |
| 200                                   | 49.8       |                           | ±1.1             | 72.8                   | 0                    |
| 250                                   | 53.6       |                           | ±0.8             | 77.7                   | 0                    |
| 315                                   | 56.4       |                           | ±0.7             | 82.6                   | 0                    |
| 400                                   | 59.5       |                           | ±0.6             | 88.3                   | 0                    |
| 500                                   | 53.7       |                           | ±0.6             | 93.4                   | 6                    |
| 630                                   | 53.3       |                           | ±0.5             | 95.6                   | 8                    |
| 800                                   | 57.9       |                           | ±0.5             | 100.5                  | 4                    |
| 1,000                                 | 59.2       |                           | ±0.4             | 105.0                  | 4                    |
| 1,250                                 | 59.7       |                           | ±0.4             | 107.9                  | 4                    |
| 1,600                                 | 64.6       |                           | ±0.4             | 105.9                  | 0                    |
| 2,000                                 | 69.3       |                           | ±0.4             | 106.0                  | 0                    |
| 2,500                                 | 71.6       |                           | ±0.4             | 105.7                  | 0                    |
| 3,150                                 | 73.5       |                           | ±0.3             | 105.2                  | 0                    |
| 4,000                                 | 74.9       |                           | ±0.4             | 103.4                  | 0                    |
| 5,000                                 | 73.7       |                           | ±0.3             | 100.7                  | -                    |
| 6,300                                 | 71.4       | *                         | ±0.4             | 99.0                   | -                    |
| 8,000                                 | 69.1       | *                         | ±0.5             | 95.8                   | -                    |
| 10,000                                | 64.7       | *                         | ±0.7             | 92.5                   | -                    |
| TOTAL DEFICIENCIES BELOW CONTOUR [dB] |            |                           |                  |                        | 32                   |
| STC RATING [ASTM E413]                |            |                           |                  |                        | 60                   |

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".
- ‡ Correction included in calculation due to a portion of the sound transmitted by way of the filler wall. Sound transmission through the filler wall is within correction limits established in ASTM E90.

