627 RIVERBANK DRIVE
GENEVA, IL 60134

630-232-0104

# Test Report

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FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Overly Door Company**
Greensburg, PA

**Sound Transmission Loss**
**RAL™-TL25-450**

CONDUCTED: 2025-10-01



ON: Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom

## TEST METHODOLOGY

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2017 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM E90-09 (2016): "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements." The single number rating of the specimen was calculated according to ASTM E413-22: "Classification for Rating Sound Insulation." A description of the measurement procedure and room specifications is available upon request. The transmission loss values are for a single direction of measurement. The results presented in this report apply to the sample as received from the test sponsor.

## INFORMATION PROVIDED BY SPONSOR

The test specimen was designated by the sponsor as Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom. The following nominal product information was provided by the sponsor prior to testing. The accuracy of such sponsor-provided information can affect the validity of the test results.

### Product Under Test

| | |
|---|---|
| Product Name: | Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom |
| Manufacturer: | Overly Door Company |

## SPECIMEN MEASUREMENTS & TEST CONDITIONS

Through a full external visual inspection performed on the test specimen, Riverbank personnel verified the following specimen properties:

### Door Frame

| | |
|---|---|
| Materials: | Metal door frame, concrete casting at perimeter |
| Dimensions: | Overall @ 1194 mm (47 in.) wide by 2413 mm (95 in.) high<br>Door frame @ 1013 mm (39.875 in.) wide by 2162 mm (85.125 in.) high |
| Depth: | 194 mm (7.625 in.) |
| Overall Weight: | 498.04 kg (1098 lbs) |

SPECIMEN MEASUR EMENTS & TEST CONDITIONS (continued)

**Door Leaf**

| | |
|---|---|
| Materials: | Metal exterior, level swing metal hinges, metal lock, and door handle |
| Dimensions: | 908 mm (35.75 in.) wide by 2127 mm (83.75 in.) high |
| Thickness: | 46 mm (1.8125 in.) |
| Installation: | Suspended from jamb of door frame via three (3) hinges |
| | Door opens into source room |
| Overall Weight: | Door leaf @ 117.59 kg (259.25 lbs) |
| | Hinges @ 2.04 kg (4.5 lbs) total |
| | Door handle and lockset @ 2.04 kg (4.5 lbs) |

**Additional Door Hardware**

**Applied Stops**

| | |
|---|---|
| Materials: | Metal angled pieces |
| Installation: | Fastened to perimeter of door frame |
| Overall Weight: | 11 kg (24.25 lbs) |

**Gasket**

| | |
|---|---|
| Materials: | S 88 Bubble Gasket |
| Installation: | Along perimeter of door frame |
| Overall Weight: | 0.34 kg (0.75 lbs) |

**Door Bottom**

| | |
|---|---|
| Materials: | Semi Mortise Automatic Door Bottom |
| Installation: | Fastened to receive side bottom edge of door leaf with screws |
| Overall Weight: | 1.13 kg (2.5 lbs) |

Note: The specimen was fully opened and closed five (5) times immediately prior to testing in order to demonstrate operability. No further adjustments were made to the specimen.

SPECIMEN MEASUREMENTS & TEST CONDITIONS (continued)

**Overall Specimen Measurements**

| | |
|---|---|
| Dimensions: | 1.01 m (39.875 in) wide by 2.16 m (85.125 in) high |
| Thickness: | 0.19 m (7.625 in) |
| Weight: | 632.19 kg (1393.75 lbs) |
| Overall Area: | 2.19 m² (23.57 ft²) |
| Mass per Unit Area: | 288.69 kg/m² (59.13 lbs/ft²) |

**Test Aperture**

| | |
|---|---|
| Opening Size: | 1.22 m (4.0 ft.) by 2.44 m (8.0 ft.) |
| Filler Wall: | Yes |
| Aperture Size: | 1.01 m (39.875 in) wide by 2.16 m (85.125 in) high |
| Transmission Area: | 2.19 m² (23.57 ft²) |
| Sealed: | Entire periphery (both sides) with dense mastic<br>Joints where door stops meet door frame sealed with mastic on receive room side<br>Joints where door leaf and frame meet left unsealed |

**Note: The dimensions used to determine the transmission area exclude those of the concrete-filled frame into which the door frame was cast. Given that the transmission loss performance of massive solid partitions is expected to be considerably greater than that of operable doors, the amount of flanking sound transmission through the mastic-covered concrete is assumed to be negligible. The specimen dimensions reflect this assumption.*

**Test Environment**

Source Room

| | |
|---|---|
| Volume: | 178.33 m³ |
| Temperature: | 22.8 °C ± 0.0 °C |
| Relative Humidity: | 61.0 % ± 0.0 % |

Receive Room

| | |
|---|---|
| Volume: | 131.02 m³ |
| Temperature: | 22.8 °C ± 0.0 °C |
| Relative Humidity: | 61.0 % ± 0.0 % |

Requirements

| | |
|---|---|
| Temperature: | 22º C +/- 2° C, not more than 3° C change over all tests. |
| Relative Humidity: | ≥ 30%, not more than +/- 3% change over all tests. |

Figure 1 – Specimen mounted in test aperture, as viewed from source room (left) and receive room (right)

Figure 3 – Specimen door leaf installed, detail of door bottom

Figure 4 – Detail of stops and hinges

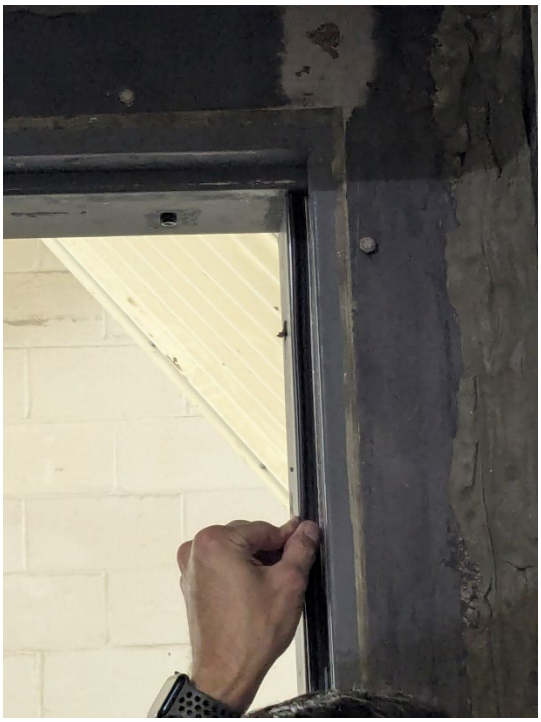

Figure 5 – Installation of bubble gasket

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## TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequency bands. A graphic presentation of the data and additional information appear on the following pages. The precision of the transmission loss test data is within the limits set by the ASTM Standard E90-09 (2016). See Appendix A for identification of corrections applied to the reported data.

| FREQ. | TL | ΔTL | DEF. | FREQ. | TL | ΔTL | DEF. |
|---|---|---|---|---|---|---|---|
| 100 | 27 | 0.71 | 0 | 800 | 45 | 0.20 | 3 |
| 125 | 32 | 0.57 | 0 | 1000 | 44 | 0.18 | 5 |
| 160 | 36 | 0.58 | 0 | 1250 | 46 | 0.17 | 4 |
| 200 | 38 | 0.50 | 0 | 1600 | 47 | 0.13 | 3 |
| 250 | 42 | 0.32 | 0 | 2000 | 48 | 0.20 | 2 |
| 315 | 44 | 0.48 | 0 | 2500 | 48 | 0.13 | 2 |
| 400 | 44 | 0.20 | 1 | 3150 | 48 | 0.13 | 2 |
| 500 | 44 | 0.30 | 2 | 4000 | 49 | 0.07 | 1 |
| 630 | 46 | 0.22 | 1 | 5000 | 50 | 0.09 | 0 |

STC=46

ABBREVIATION INDEX

FREQ. = 1/3 OCTAVE BAND CENTER FREQUENCY, Hz
TL = TRANSMISSION LOSS, dB
ΔTL = 95% CONFIDENCE INTERVAL FOR TL MEASUREMENTS, dB
DEF. = DEFICIENCIES, dB BELOW SHIFTED STC CONTOUR (SUM OF DEF = 26)
STC = SOUND TRANSMISSION CLASS

Tested by _____
Keith Kimberling
*Test Engineer*

Report by _____
Keith Kimberling
*Test Engineer*

Approved by _____
Eric P. Wolfram
*Laboratory Manager*

Digitally signed by
Eric P Wolfram
Date: 2025.10.14
12:56:46 -05'00'

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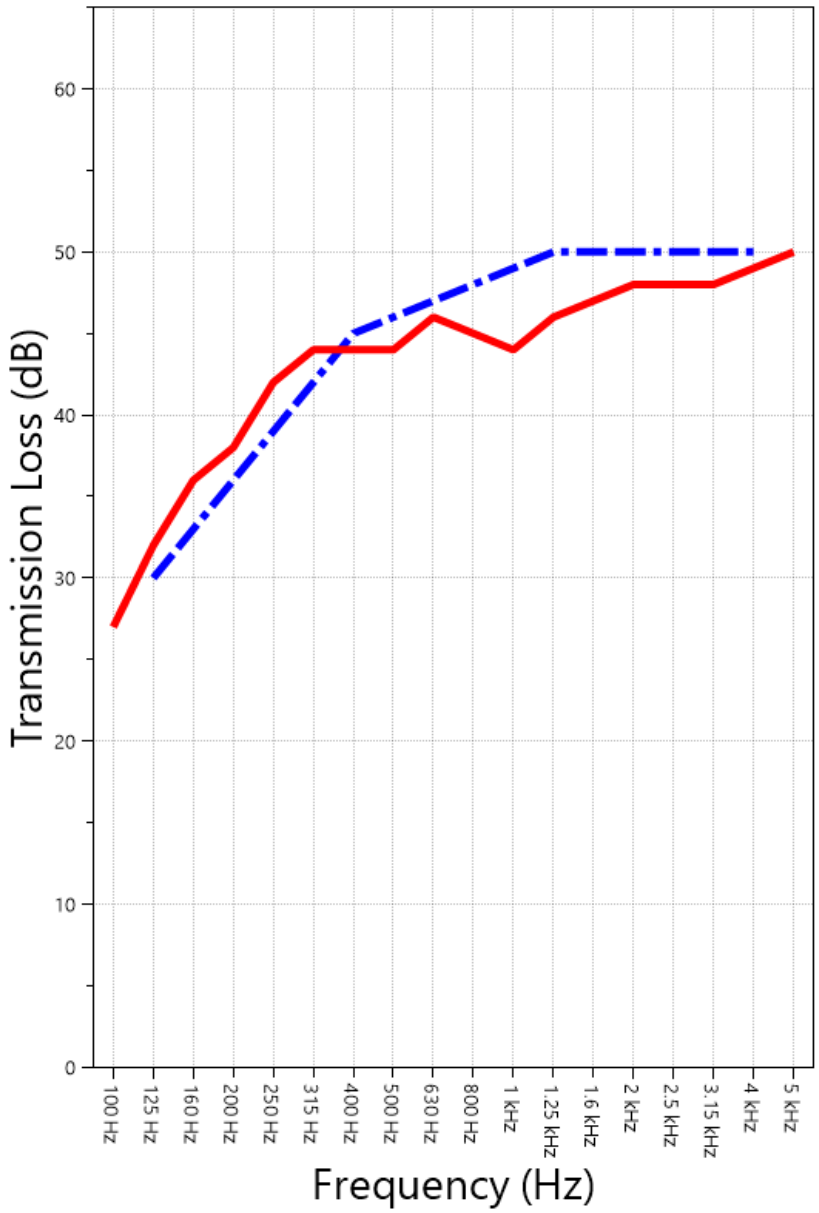
2025-10-01

**RAL™-TL25-450**


## SOUND TRANSMISSION REPORT

Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom




**STC=46**
**OITC=36**

**TRANSMISSION LOSS**
**SOUND TRANSMISSION CLASS CONTOUR**

NVLAP TESTING
NVLAP LAB CODE 100227-0

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2025-10-01

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## APPENDIX A: Extended Frequency Range Data

Specimen: Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom (See Full Report)

*The following non-accredited data were obtained in accordance with ASTM E90-09 (2016), but extend beyond the defined frequency range of 100Hz to 5,000Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes. Sampling precision observed during this procedure is reported below. Corrections are detailed in Appendix B.*

| 1/3 Octave Band Center Frequency (Hz) | **Sound Transmission Loss** (dB) | **Applicable Corrections** | **ΔTL (Eq. A2.5)** (dB) | **Repeatability** (dB) |
|---|---|---|---|---|
| 31.5 | 21 | *F* | 0.73 | 1.24 |
| 40 | 24 | | 0.82 | 1.44 |
| 50 | 24 | | 1.09 | 0.98 |
| 63 | 22 | | 1.32 | 2.33 |
| 80 | 19 | | 0.63 | 1.46 |
| 100 | 27 | | 0.71 | 0.77 |
| 125 | 32 | | 0.57 | 1.28 |
| 160 | 36 | | 0.58 | 1.18 |
| 200 | 38 | | 0.50 | 0.74 |
| 250 | 42 | | 0.32 | 0.53 |
| 315 | 44 | | 0.48 | 0.46 |
| 400 | 44 | | 0.20 | 0.41 |
| 500 | 44 | | 0.30 | 0.41 |
| 630 | 46 | | 0.22 | 0.32 |
| 800 | 45 | | 0.20 | 0.30 |
| 1000 | 44 | | 0.18 | 0.29 |
| 1250 | 46 | | 0.17 | 0.15 |
| 1600 | 47 | | 0.13 | 0.18 |
| 2000 | 48 | | 0.20 | 0.12 |
| 2500 | 48 | | 0.13 | 0.28 |
| 3150 | 48 | | 0.13 | 0.23 |
| 4000 | 49 | | 0.07 | 0.18 |
| 5000 | 50 | | 0.09 | 0.26 |
| 6300 | 54 | | 0.13 | 0.28 |
| 8000 | 54 | | 0.12 | 0.67 |
| 10000 | 53 | *F* | 0.19 | 0.93 |
| 12500 | 52 | *F* | 0.30 | 1.93 |

## APPENDIX B: Glossary of Standardized Corrections and Adjustments

Specimen: Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom (See Full Report)

| Mark | Interpretation |
|---|---|
| *A* | Measured sound pressure levels in the receive room are within 10 dB of the ambient noise level at the marked frequency band. Receive room levels used to calculate Transmission Loss are corrected according to ASTM E90 Section 10.3. |
| *AA* | Measured sound pressure levels in the receive room are within 5 dB of the ambient noise level at the marked frequency band. Receive room levels used to calculate Transmission Loss are corrected according to ASTM E90 Section 10.3.1. Transmission Loss values calculated from levels corrected this way will be less than or equal to Transmission Loss values from a hypothetical test using the same specimen and a receive room with idealized ambient sound levels of (-∞) dB. |
| *F* | The reported Transmission Loss is within 10 dB of the laboratory flanking limit at the marked frequency band. The measured performance of the specimen may be limited by the performance of the laboratory building structure at this frequency band. |
| *Z* | The reported Transmission Loss at the marked frequency band has been corrected according to ASTM E90 Section A3.2.7 to account for possible sound transmission through the filler assembly. |
| *ZZ* | The reported Transmission Loss at the marked frequency band has been corrected according to ASTM E90 Section A3.2.8 to account for possible sound transmission through the filler assembly. Transmission Loss values corrected this way will be less than or equal to Transmission Loss values from a hypothetical test using the same specimen and an idealized filler assembly with a Sound Transmission Class rating of (∞). |

## APPENDIX C: Glossary of Variability Metrics

Specimen: Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom (See Full Report)

**ΔTL**, the 95% confidence interval for reported transmission loss values, is calculated from the standard deviation of the sets of measurements for source room sound pressure level, receive room sound pressure level, and receive room sound absorption. This metric is calculated in an effort to quantify the combined influences of room geometry, microphone positioning, and other varying environmental conditions on reported results.

**Repeatability**, expressed as a 95% confidence interval, is calculated from the standard deviation of transmission loss as obtained from a set of six (6) consecutive tests conducted according to this test method by RAL on 2020-02-24. The tests were performed on a specimen composed of welded aluminum tubing, using the same test opening as used in this report. This metric provides an estimate of the variation in results that might be observed if the test were repeated with no change to the installed specimen. Note that repeatability will vary with the construction type.

**APPENDIX D: Determination of Outdoor Indoor Transmission Class (OITC)**

Specimen: Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom (See Full Report)

The determination of the Outdoor Indoor Transmission Class (OITC) as reported below was made with explicit conformity to the procedures described in the ASTM E1332-22 test standard. Test Method ASTM E90-09 (2016) was used to obtain the sound transmission loss data. This rating is based on an average transportation noise source spectrum and an A-weighted sound level reduction, either of which may be inappropriate for some applications.

| One-third Octave Band Center Frequency, Hz | Reference Sound Spectrum, dB | Test Specimen Transmission Loss, dB |
|---|---|---|
| 80 | 103 | 19 |
| 100 | 102 | 27 |
| 125 | 101 | 32 |
| 160 | 98 | 36 |
| 200 | 97 | 38 |
| 250 | 95 | 42 |
| 315 | 94 | 44 |
| 400 | 93 | 44 |
| 500 | 93 | 44 |
| 630 | 91 | 46 |
| 800 | 90 | 45 |
| 1000 | 89 | 44 |
| 1250 | 89 | 46 |
| 1600 | 88 | 47 |
| 2000 | 88 | 48 |
| 2500 | 87 | 48 |
| 3150 | 85 | 48 |
| 4000 | 84 | 49 |

*OITC = 36*

## APPENDIX E: Instruments of Traceability

Specimen: Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom (See Full Report)

| Description | Model | Serial Number | Date of Certification | Calibration Due |
|---|---|---|---|---|
| System 2 | 3160-A-042 | 3160-106974 | 2025-08-20 | 2026-08-20 |
| Bruel & Kjaer Mic And Preamp C | Type 4943-B-001 | 2311439 | 2025-04-11 | 2026-04-11 |
| Bruel & Kjaer Pistonphone | Type 4228 | 2781248 | 2025-07-21 | 2026-07-21 |
| EXTECH Hygro 663 | SD700 | A083663 | 2024-12-30 | 2025-12-30 |
| EXTECH Hygro 639 | SD700 | A.103639 | 2024-12-10 | 2025-12-10 |

## APPENDIX F: Revisions to Original Test Report

Specimen: Overly Model STC4625450 flush steel door assembly with double bubble seals and Automatic Door Bottom (See Full Report)

| Date | Revision |
|---|---|
| 2025-10-14 | Original report issued |

END