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™-TL25-070

CONDUCTED: 2025-02-20

ON: Overly Model STC4525070 wood clad steel door assembly with a 15” x 34” dual glazed vision light with double bubble seals and Super H 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 STC4525070 wood clad steel door assembly with a 15” x 34” dual glazed vision light with double bubble seals and Super H 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

Components:	Double bubble seals Super H door bottom
Materials:	Wood clad steel door assembly with a 15” x 34” dual glazed vision light
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 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 MEASUREMENTS & TEST CONDITIONS (continued)

Door Leaf

Materials:	Wood exterior, with window, metal lockset and metal cam-lift hinges
Dimensions:	908 mm (35.75 in.) by 2124 mm (83.625 in.)
Thickness:	57 mm (2.25 in.)
Installation:	Suspended from jamb of door frame via three (3) hinges
	Door opens into source room
Overall Weight:	Door leaf @ 105.46 kg (232.5 lbs)
	Hinges @ 2.72 kg (6 lbs) total
	Latch bolt @ 0.11 kg (0.25 lbs)
	Door knob @ 1.7 kg (3.75 lbs)

Additional Door Hardware

Frame Stops

Materials:	Metal angled pieces
Installation:	Fastened to perimeter of door frame
Depth:	121 mm (4.75 in.)
Overall Weight:	11.11 kg (24.5 lbs)

“Bubble” gaskets

Installation:	One set installed along frame stop perimeter
	Second set installed along door frame perimeter
Overall Weight:	0.34 kg (0.75 lbs)

Super H Door Bottom

Materials:	Solid foam rubber, metal plate
Dimensions:	Steel @ 851 mm (33.5 in.) wide by 76 mm (3 in.) high
	Foam @ 851 mm (33.5 in.) wide by 57 mm (2.25 in.) high
Thickness:	Steel @ 2.96 mm (0.1165 in.)
	Foam @ 25 mm (1 in.)
Installation:	Foam fits flush with receive room side face of door leaf via matching routed channel in door leaf
	Plate fastened to receive side bottom edge of door leaf, covering foam
Overall Weight:	Steel @ 1.36 kg (3 lbs)
	Foam @ 0.11 kg (0.25 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:	1.19 m (47 in.) wide by 2.41 m (95 in.) high
Thickness:	0.19 m (7.625 in)
Weight:	620.97 kg (1369.0 lbs)
Overall Area:	2.881 m² (31.01 ft²)
Mass per Unit Area:	215.5 kg/m² (44.1 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

**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:	21.7 °C ± 0.0 °C
Relative Humidity:	54.0 % ± 2.0 %

Receive Room

Volume:	131.39 m³
Temperature:	22.5 °C ± 0.6 °C
Relative Humidity:	55.0 % ± 0.0 %

Requirements

Temperature:	22° 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 2 – Door hinge prior to installation

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Figure 3 – "Bubble" gasket piece

Figure 4 – Detail of frame stops

Figure 5 – "Bubble" gaskets installed along door frame and frame stops

Figure 6 – Detail of "bubble" gaskets

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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	33	0.43	0	800	44	0.23	3
125	30	0.56	0	1000	45	0.15	3
160	31	0.31	1	1250	45	0.12	4
200	35	0.33	0	1600	47	0.08	2
250	35	0.48	3	2000	48	0.09	1
315	38	0.37	3	2500	49	0.10	0
400	41	0.33	3	3150	49	0.11	0
500	42	0.21	3	4000	50	0.08	0
630	42	0.35	4	5000	50	0.05	0

STC=45

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 = 30)
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: 2025.03.04
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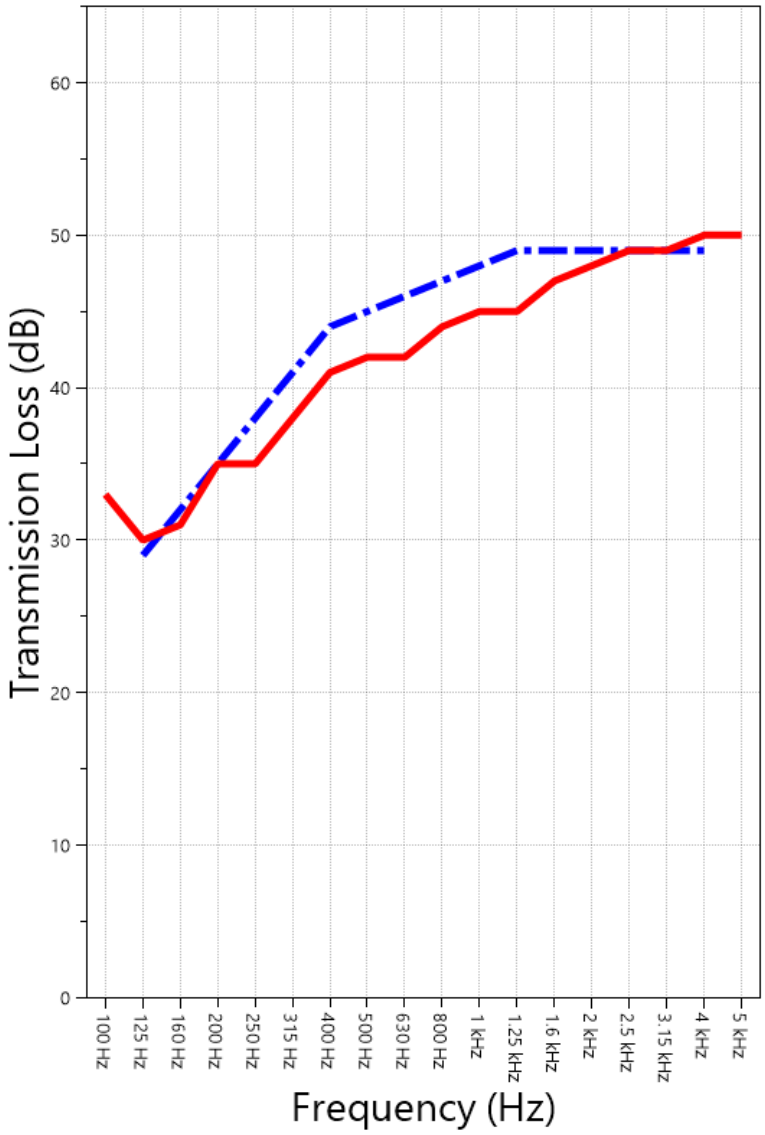
SOUND TRANSMISSION REPORT

Overly Model STC4525070 wood clad steel door assembly with a 15" x 34" dual glazed vision light with double bubble seals and Super H door bottom



STC=45
OITC=37

TRANSMISSION LOSS
SOUND TRANSMISSION CLASS CONTOUR

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APPENDIX A: Extended Frequency Range Data

Specimen: Overly Model STC4525070 wood clad steel door assembly with a 15" x 34" dual glazed vision light with double bubble seals and Super H 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	22	*F*	0.80	1.24
40	27		0.69	1.44
50	27		1.16	0.98
63	28		0.80	2.33
80	22		1.75	1.46
100	33		0.43	0.77
125	30		0.56	1.28
160	31		0.31	1.18
200	35		0.33	0.74
250	35		0.48	0.53
315	38		0.37	0.46
400	41		0.33	0.41
500	42		0.21	0.41
630	42		0.35	0.32
800	44		0.23	0.30
1000	45		0.15	0.29
1250	45		0.12	0.15
1600	47		0.08	0.18
2000	48		0.09	0.12
2500	49		0.10	0.28
3150	49		0.11	0.23
4000	50		0.08	0.18
5000	50		0.05	0.26
6300	50		0.06	0.28
8000	51		0.05	0.67
10000	52	*F*	0.06	0.93
12500	49	*F*	0.07	1.93

APPENDIX B: Glossary of Standardized Corrections and Adjustments

Specimen: Overly Model STC4525070 wood clad steel door assembly with a 15" x 34" dual glazed vision light with double bubble seals and Super H 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 STC4525070 wood clad steel door assembly with a 15" x 34" dual glazed vision light with double bubble seals and Super H 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.

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

Specimen: Overly Model STC4525070 wood clad steel door assembly with a 15" x 34" dual glazed vision light with double bubble seals and Super H 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	22
100	102	33
125	101	30
160	98	31
200	97	35
250	95	35
315	94	38
400	93	41
500	93	42
630	91	42
800	90	44
1000	89	45
1250	89	45
1600	88	47
2000	88	48
2500	87	49
3150	85	49
4000	84	50

OITC = 37

APPENDIX E: Instruments of Traceability

Specimen: Overly Model STC4525070 wood clad steel door assembly with a 15" x 34" dual glazed vision light with double bubble seals and Super H door bottom (See Full Report)

Description	Model	Serial Number	Date of Certification	Calibration Due
System 2	3160-A-042	3160-106968	2024-07-19	2025-07-19
Bruel & Kjaer Mic And Preamp C	Type 4943-B-001	2311439	2024-03-29	2025-03-29
Bruel & Kjaer Pistonphone	Type 4228	2781248	2024-07-19	2025-07-19
EXTECH Hygro 639	SD700	A.103639	2024-12-10	2025-12-10
EXTECH Hygro 6015	SD700	A.116015	2024-06-05	2025-06-05

APPENDIX F: Revisions to Original Test Report

Specimen: Overly Model STC4525070 wood clad steel door assembly with a 15" x 34" dual glazed vision light with double bubble seals and Super H door bottom (See Full Report)

Date	Revision
2025-03-03	Original report issued

END