Riverbank Acoustical LABORATORIES®

RIVERBANK ACOUSTICAL LABORATORIES
NOVELTY TESTING
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TEST REPORT

SPONSOR: RIVERBANK ACOUSTICAL LABORATORIES | GENEVA, IL



PRODUCT NAME:

1/4" STEEL SHEET

TEST DATE:

AUGUST 14, 2026

TEST METHOD:

ASTM E90

RATING:

STC 36 | OITC 36

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Test Report

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FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Riverbank Acoustical Laboratories**
Geneva, IL

Sound Transmission Loss
RAL™-TL26-320

CONDUCTED: 2026-08-14

ON: ASTM A36 48"x96"x1/4"(nominal) Steel Sheet

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 E90-23: "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 ASTM A36 48”x96”x1/4”(nominal) Steel Sheet. 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:	ASTM A36 48”x96”x1/4”(nominal) Steel Sheet
Key Mechanical Properties:	Yield Strength: 36,000 psi (250 MPa) minimum Tensile Strength: 58,000 to 80,000 psi (400 to 550 MPa) Elongation: Roughly 20% in an 8-inch length Density: 0.284 lbs/in^3 (7.85 g/cm^3) [1, 2, 3, 4]
Chemical Makeup:	Carbon (C): Max 0.25% - 0.29% (low carbon for good weldability) Manganese (Mn): ~0.80% - 1.20% Trace elements: Small, controlled amounts of Silicon (Si), Sulfur (S), Phosphorus (P), and Copper (Cu) [1, 2, 3, 4]
Manufacturer:	WM. Horn Structural Steel Co.

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SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Overall Specimen Measurements

Dimensions:	1.21 m (47.75 in) wide by 2.43 m (95.75 in) high
*Thickness:	6.25 mm (0.2462 in.)
Weight:	144.24 kg (318.0 lbs)
Overall Area:	2.95 m² (31.75 ft²)
Mass per Unit Area:	48.9 kg/m² (10.02 lbs/ft²)

**Note: Thickness is the arithmetic average of five measurements with a digital micrometer at different locations along the panel.*

Test Aperture

Opening Size:	1.22 m (4.0 ft.) by 2.44 m (8.0 ft.)
Filler Wall:	None
Aperture Size:	1.21 m (47.75 in) wide by 2.43 m (95.75 in) high
Transmission Area:	2.95 m² (31.75 ft²)
Sealed:	Entire periphery (both sides) with dense mastic

Test Environment

Source Room

Volume:	178.33 m³
Temperature:	21.7 °C ± 0.0 °C
Relative Humidity:	70.0 % ± 0.0 %

Receive Room

Volume:	130.71 m³
Temperature:	21.7 °C ± 0.0 °C
Relative Humidity:	68.5 % ± 0.5 %

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 2 – Test specimen prior to installation

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Figure 3 – Detail of test specimen material

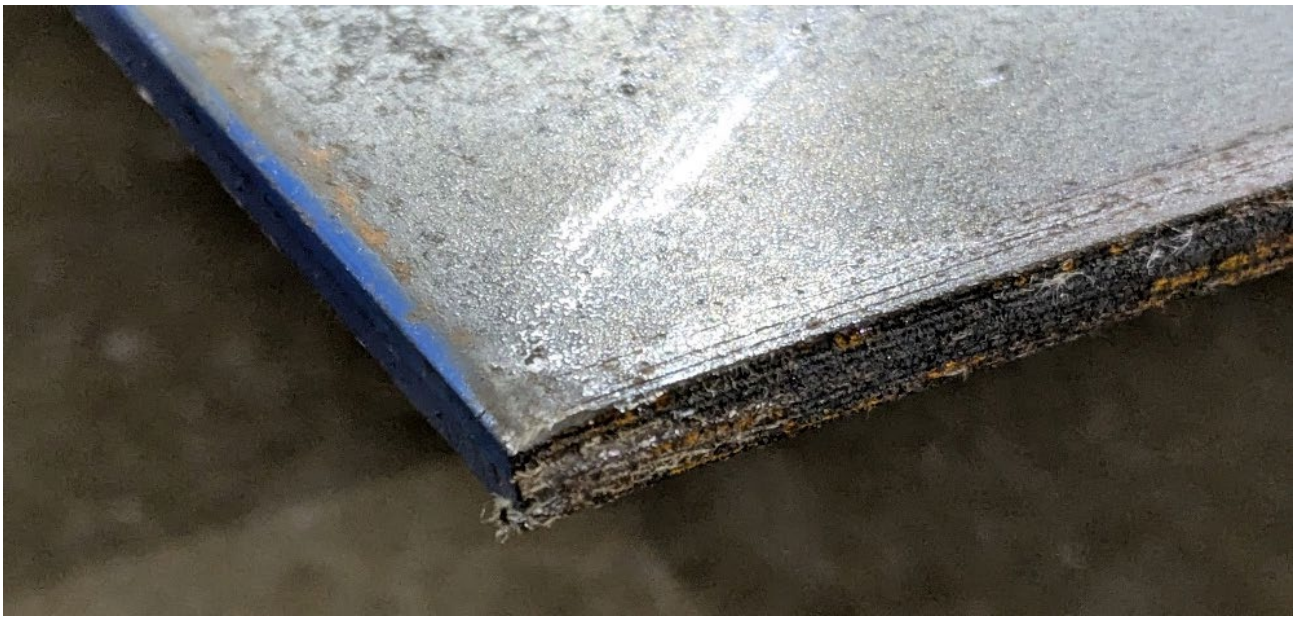


Figure 4 – Detail of test specimen material

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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 E90-23. See Appendix A for identification of corrections applied to the reported data.

FREQ.	TL	ΔTL	DEF.	FREQ.	TL	ΔTL	DEF.
100	29	0.56	0	800	41	0.23	0
125	30	0.74	0	1000	43	0.19	0
160	30	0.41	0	1250	43	0.13	0
200	31	0.40	0	1600	42	0.17	0
250	36	0.25	0	2000	32	0.11	8
315	36	0.27	0	2500	36	0.12	4
400	38	0.25	0	3150	40	0.09	0
500	39	0.18	0	4000	44	0.10	0
630	41	0.26	0	5000	47	0.29	0

STC=36

ABBREVIATION INDEX

FREQ. = 1/3 OCTAVE BAND CENTER FREQUENCY, Hz
TL = TRANSMISSION LOSS, dB
ΔTL = 95% CONFIDENCE INTERVAL OVER DURATION OF THIS TEST, dB
DEF. = DEFICIENCIES, dB BELOW SHIFTED STC CONTOUR (SUM OF DEF = 12)
STC = SOUND TRANSMISSION CLASS

Tested by _____
Marc Sciaky
Senior Experimentalist

Report by _____
Keith Kimberling
Test Engineer

Approved by _____
Eric P. Wolfram
Laboratory Manager

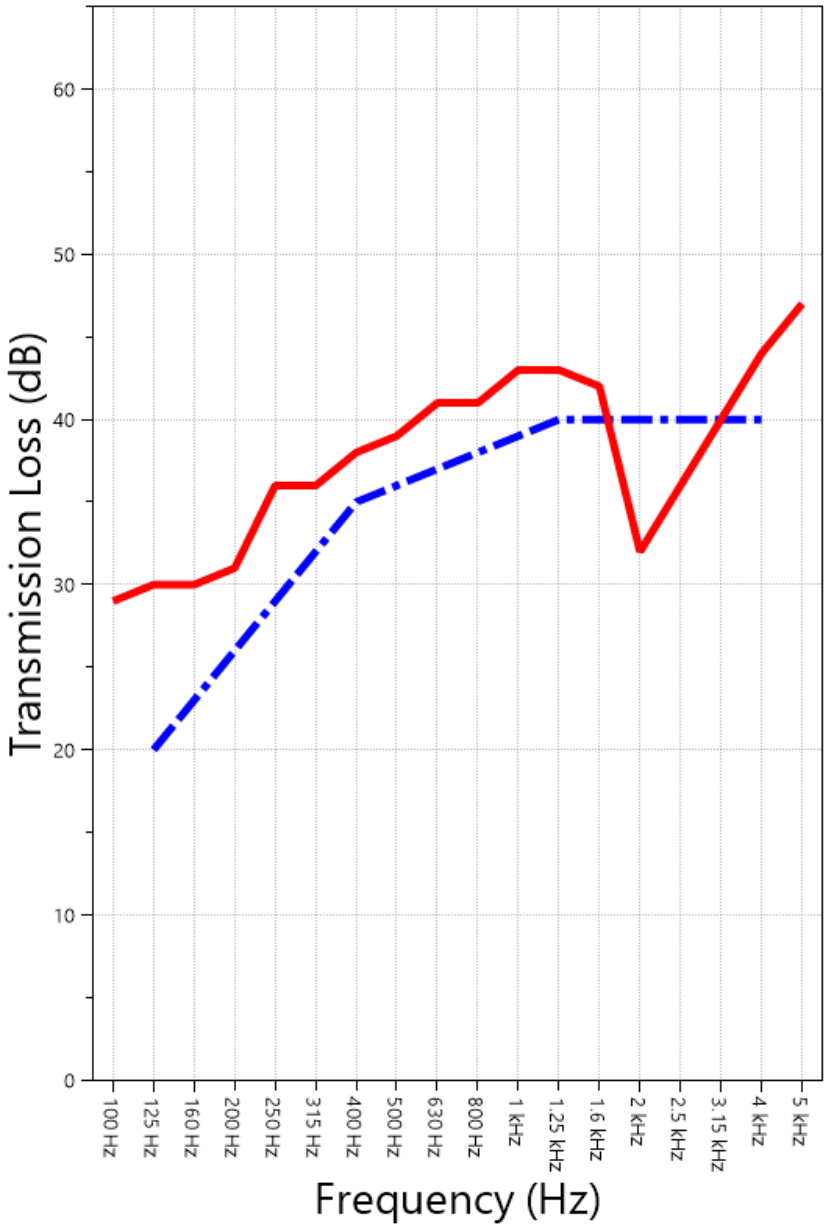
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Date: 2026.10.23 08:45:48 -05'00'

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SOUND TRANSMISSION REPORT

ASTM A36 48”x96”x1/4”(nominal) Steel Sheet



STC=36
OITC=36

TRANSMISSION LOSS
SOUND TRANSMISSION CLASS CONTOUR

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APPENDIX A: Extended Frequency Range Data

Specimen: ASTM A36 48”x96”x1/4”(nominal) Steel Sheet (See Full Report)

The following non-accredited data were obtained in accordance with ASTM E90-23, 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	20	*F*	0.69	1.24
40	26		0.94	1.44
50	25		0.90	0.98
63	27		1.05	2.33
80	27		0.78	1.46
100	29		0.56	0.77
125	30		0.74	1.28
160	30		0.41	1.18
200	31		0.40	0.74
250	36		0.25	0.53
315	36		0.27	0.46
400	38		0.25	0.41
500	39		0.18	0.41
630	41		0.26	0.32
800	41		0.23	0.30
1000	43		0.19	0.29
1250	43		0.13	0.15
1600	42		0.17	0.18
2000	32		0.11	0.12
2500	36		0.12	0.28
3150	40		0.09	0.23
4000	44		0.10	0.18
5000	47		0.29	0.26
6300	50		0.32	0.28
8000	51		0.26	0.67
10000	50	*F*	0.21	0.93
12500	45	*F*	0.27	1.93

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APPENDIX B: Glossary of Standardized Corrections and Adjustments

Specimen: ASTM A36 48”x96”x1/4”(nominal) Steel Sheet (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: ASTM A36 48”x96”x1/4”(nominal) Steel Sheet (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: ASTM A36 48”x96”x1/4”(nominal) Steel Sheet (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 E90-23 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	27
100	102	29
125	101	30
160	98	30
200	97	31
250	95	36
315	94	36
400	93	38
500	93	39
630	91	41
800	90	41
1000	89	43
1250	89	43
1600	88	42
2000	88	32
2500	87	36
3150	85	40
4000	84	44

OITC = 36

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APPENDIX E: Instruments of Traceability

Specimen: ASTM A36 48”x96”x1/4”(nominal) Steel Sheet (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	2026-04-15	2027-04-15
Bruel & Kjaer Pistonphone	Type 4228	2781248	2026-07-17	2027-07-17
EXTECH Hygro 662	SD700	A.083662	2026-01-21	2027-01-21
EXTECH Hygro 663	SD700	A083663	2026-01-21	2027-01-21

APPENDIX F: Revisions to Original Test Report

Specimen: ASTM A36 48”x96”x1/4”(nominal) Steel Sheet (See Full Report)

Date	Revision
2026-09-17	Original report issued

END

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