627 RIVERBANK DRIVE
GENEVA, IL 60134

630-232-0104

Test Report

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WALLACE CLEMENT SABINE

SPONSOR: **ClarkDietrich**
West Chester, OH

Sound Transmission Loss
RAL™-TL25-581

CONDUCTED: 2025-12-17

ON: 3-5/8 in (92mm) SilentXpress™ Sound Wall – Stud pack [1-5/8 in (41 mm). dbl. stud bridged with type CWSC Clip] spaced at 16 in. (406mm) o.c. – 1 Layer 5/8in. (16 mm) Type-X, Source Side - (3.625 in. (92 mm) R-15 Insulation, stud web not filled) - 1 Layer 5/8 in. (16 mm) Type-X, Receive Side

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 3-5/8 in (92mm) SilentXpress™ Sound Wall – Stud pack [1-5/8 in (41 mm). dbl. stud bridged with type CWSC Clip] spaced at 16 in. (406mm) o.c. – 1 Layer 5/8in. (16 mm) Type-X, Source Side - (3.625 in. (92 mm) R-15 Insulation, stud web not filled) - 1 Layer 5/8 in. (16 mm) Type-X, Receive Side. 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:	SilentXpress™, Type CWSC
Manufacturer:	ClarkDietrich

NVLAP TESTING
NVLAP LAB CODE 100227-0

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SPECIMEN MEASUREMENTS & TEST CONDITIONS

The building contractor (Seth Priser) and RAL staff compiled a detailed construction specification as follows:

Tracks (Top & Bottom)

Material:	ProTRAK20 (18 mil)
Manufacturer:	ClarkDietrich
Dimensions:	2 tracks @ 2438 mm (96 in.) long by 32 mm (1.25 in.) high, each
Depth:	92 mm (3.625 in.)
Metal Thickness:	18 mil - 0.49 mm (0.01915 in.)
Installation:	Friction fit over sill sealer
Overall Weight:	2.83 kg (6.25 lbs)
Mass per Unit Length:	0.58 kg/m (0.39 lbs/ft)

SilentXpress™ Stud-Packs

Material:	ProSTUD 20 (18 mil)
Dimensions:	7 stud-packs, in pairs of 41 mm (1.625 in) deep by 2743 mm (108 in.) tall studs.
Depth:	92 mm (3.625 in.) Studs-pack consisting of 41 mm (1.625 in.) each, installed as described below
Steel Thickness:	18 mil - 0.49 mm (0.0193 in.)
Stud Spacing:	SilentXpress™ Stud-Pack spaced 406 mm (16 in.) on center
Installation:	Studs installed in pairs with approx. 10 mm (0.375 in.) space in between each, and connected by SilentXpress™ Sound Clips (Type CWSC) Stud-packs fastened to tracks, 1 screw at track flange to stud flange intersection as required by UL design. End wall stud-pack oriented with the web of the studs to the edge of test frame and fastened to test frame at midpoint with 1 screw
Fasteners:	#8 Wafer head studs screws
Overall Weight:	16.22 kg (35.75 lbs)
Mass per Unit Length:	0.42 kg/m (0.28 lbs/ft)

Note: A bead of acoustical sealant was used to seal the source side of the specimen where framing members met the test frame (0.91 kg (2 lbs) total).

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SPECIMEN MEASUREMENTS & TEST CONDITIONS (continued)

SilentXpress™ Sound Clips (Type CWSC)

Materials:	33 mil – 0.88 mm (0.0346 in.) steel clip with isolating rubber grommets
Dimensions:	15 clips @ 25 mm (1 in.) wide by 51 mm (2 in.) high
Depth:	76 mm (3 in.)
Installation:	15 SilentXpress™ clips were installed, fastened to stud-packs with fasteners, 1 fastener at each clip-to-stud isolation grommet, clips were spaced 178 mm (7 in.) from bottom track, 178 mm (7 in.) from top track, and a midpoint of stud-pack. 1372mm (54 in.)
Fasteners:	Type S bugle head drywall screws, 41 mm (1.625 in.) long
Overall Weight:	1.13 kg (2.5 lbs)

Source Room Side

Base Layer

Material:	Type X gypsum board
Dimensions:	2 panels @ 1219 mm (48 in.) wide by 2743 mm (108 in.) high
Thickness:	16 mm (0.625 in.)
Installation:	Panels installed with long dimension vertically and fastened to studs with screws
Fasteners:	Type S bugle head drywall screws, 32 mm (1.25 in.) long
Fastener Spacing:	203 mm (8 in.) on center and 305 mm (12 in.) on center perimeter and field, respectively
Overall Weight:	73.71 kg (162.5 lbs)
Mass Per Unit Area:	11.00 kg/m^2 (2.25 lbs/ft^2)

Receive Room Side

Material:	Type X gypsum board
Dimensions:	1 panel @ 1219 mm (48 in.) wide by 2743 mm (108 in.) high 1 panel @ 813 mm (32 in.) wide by 2743 mm (108 in.) high 1 panel @ 406 mm (16 in.) wide by 2743 mm (108 in.) high
Thickness:	16 mm (0.625 in.)
Installation:	Panels installed vertically, fastened through base layer to studs with screws Panel joints staggered from receive side base layer panel joints
Fasteners:	Type S bugle head drywall screws, @ 41 mm (1.625 in.) long
Fastener Spacing:	203 mm (8 in.) on center and 305 mm (12 in.) on center perimeter and field, respectively
Overall Weight:	73.94 kg (163 lbs)
Mass Per Unit Area:	11.05 kg/m^2 (2.26 lbs/ft^2)

Note: Joints between gypsum board panels, and screw heads on both sides of the partition were treated with a thin bead of acoustical sealant and metal tape (0.45 kg (1 lbs) total).

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SPECIMEN MEASUREMENTS & TEST CONDITIONS (continued)

Insulation

Materials:	Fire and Sound Guard Plus
Manufacturer:	Owens Corning/Thermafiber
Dimensions:	12 pieces @ 381 mm (15 in.) wide by 1219 mm (48 in.) high
	6 pieces @ 381 mm (15 in.) wide by 305 mm (12 in.) high
Depth:	89 mm (3.5 in.)
Installation:	Pieces friction fit in cavities between stud-packs
Overall Weight:	26.54 kg (58.5 lbs)
Mass per Unit Volume:	47.6 kg/m^3 (2.97 lbs/ft^3) as installed

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SPECIMEN MEASUREMENTS & TEST CONDITIONS (continued)

Overall Specimen Measurements

Dimensions:	2.44 m (96.0 in) wide by 2.74 m (108.0 in) high
Thickness:	0.12 m (4.875 in)
Weight:	195.72 kg (431.5 lbs)
Overall Area:	6.689 m² (72.0 ft²)
Mass per Unit Area:	29.26 kg/m² (5.99 lbs/ft²)

Test Aperture

Opening Size:	2.74 m (9.0 ft.) by 4.27 m (14.0 ft.)
Filler Wall:	Yes
Aperture Size:	2.44 m (96.0 in) wide by 2.74 m (108.0 in) high
Transmission Area:	6.689 m² (72.0 ft²)
Sealed:	Entire periphery (both sides) with dense mastic

Test Environment

Source Room

Volume:	177.11 m³
Temperature:	22.8 °C ± 0.0 °C
Relative Humidity:	53.5 % ± 0.5 %

Receive Room

Volume:	178.33 m³
Temperature:	22.8 °C ± 0.0 °C
Relative Humidity:	53.5 % ± 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

Figure 2 – Specimen mounted in test aperture, as viewed from receive room

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Figure 3 – Tracks, studs, clips, and insulation installed, viewed from the receive room

Figure 4 – Source room side gypsum board partially installed

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Figure 5 – Receive room side gypsum board partially installed

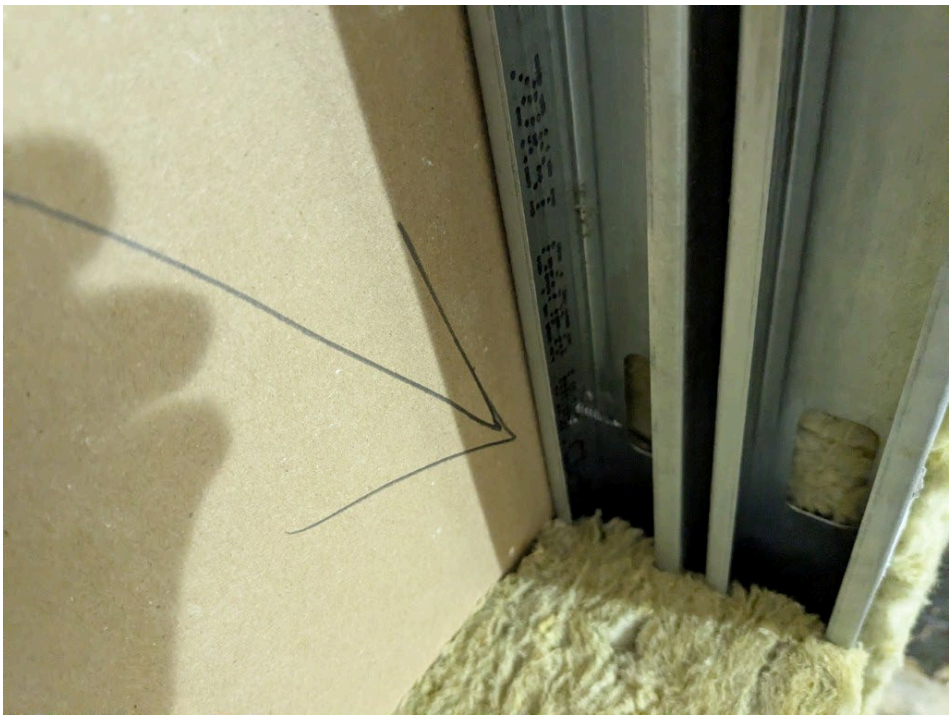

Figure 6 – Receive room side gypsum board partially installed

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2025-12-17

RAL™-TL25-581

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	19	0.74	0	800	59	0.19	0
125	30	0.55	8	1000	60	0.09	0
160	34	0.57	7	1250	61	0.13	0
200	39	0.58	5	1600	62	0.10	0
250	45	0.26	2	2000	55	0.10	3
315	50	0.43	0	2500	53	0.10	5
400	53	0.37	0	3150	58	0.05	0
500	56	0.31	0	4000	62	0.10	0
630	58	0.21	0	5000	66	0.09	0

STC=54

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 = 30)
STC = SOUND TRANSMISSION CLASS

Tested by _____
Marc Sciaky
Senior Experimentalist

Report by _____
Keith Kimberling
Test Engineer

Approved by _____
Eric P. Wolfram
Laboratory Manager

Digitally signed by Eric P Wolfram
Date: 2026.02.05 08:44:34 -06'00'

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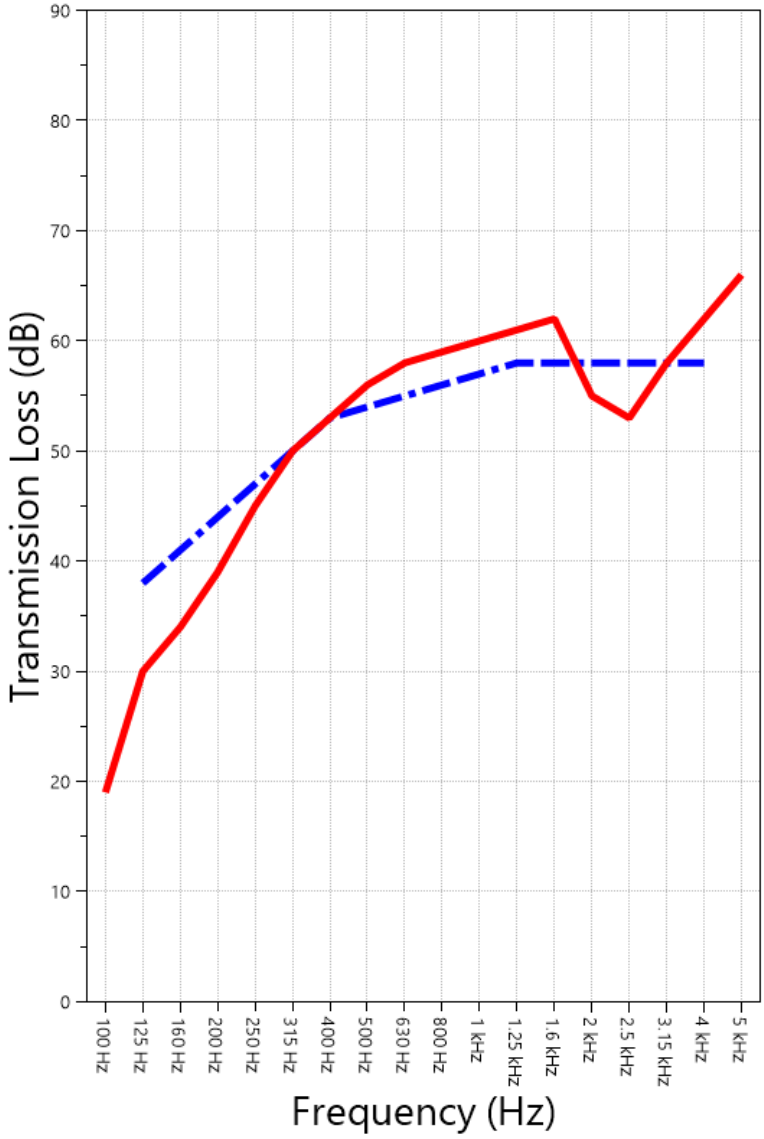
2025-12-17

RAL™-TL25-581

SOUND TRANSMISSION REPORT

3-5/8 in (92mm) SilentXpress™ Sound Wall – Stud pack [1-5/8 in (41 mm). dbl. stud bridged with type CWSC Clip] spaced at 16 in. (406mm) o.c. – 1 Layer 5/8in. (16 mm) Type-X, Source Side - (3.625 in. (92 mm) R-15 Insulation, stud web not filled) - 1 Layer 5/8 in. (16 mm) Type-X, Receive Side



STC=54
OITC=30

TRANSMISSION LOSS
SOUND TRANSMISSION CLASS CONTOUR

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APPENDIX A: Extended Frequency Range Data

Specimen: 3-5/8 in (92mm) SilentXpress™ Sound Wall – Stud pack [1-5/8 in (41 mm). dbl. stud bridged with type CWSC Clip] spaced at 16 in. (406mm) o.c. – 1 Layer 5/8in. (16 mm) Type-X, Source Side - (3.625 in. (92 mm) R-15 Insulation, stud web not filled) - 1 Layer 5/8 in. (16 mm) Type-X, Receive Side (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	*ZZ F*	1.39	1.01
40	20	*Z F*	0.94	2.26
50	14		0.81	1.52
63	12		0.61	1.47
80	12		0.75	0.60
100	19		0.74	0.67
125	30		0.55	0.71
160	34		0.57	0.35
200	39		0.58	0.33
250	45	*Z*	0.26	0.42
315	50		0.43	0.41
400	53		0.37	0.46
500	56		0.31	0.18
630	58		0.21	0.26
800	59		0.19	0.24
1000	60		0.09	0.27
1250	61		0.13	0.15
1600	62		0.10	0.12
2000	55		0.10	0.13
2500	53		0.10	0.19
3150	58		0.05	0.14
4000	62		0.10	0.17
5000	66		0.09	0.17
6300	69	*Z F*	0.14	0.21
8000	69	*Z F*	0.21	0.50
10000	63	*Z F*	0.24	1.21
12500	58	*Z F*	0.44	1.74

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APPENDIX B: Glossary of Standardized Corrections and Adjustments

Specimen: 3-5/8 in (92mm) SilentXpress™ Sound Wall – Stud pack [1-5/8 in (41 mm). dbl. stud bridged with type CWSC Clip] spaced at 16 in. (406mm) o.c. – 1 Layer 5/8in. (16 mm) Type-X, Source Side - (3.625 in. (92 mm) R-15 Insulation, stud web not filled) - 1 Layer 5/8 in. (16 mm) Type-X, Receive Side (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: 3-5/8 in (92mm) SilentXpress™ Sound Wall – Stud pack [1-5/8 in (41 mm). dbl. stud bridged with type CWSC Clip] spaced at 16 in. (406mm) o.c. – 1 Layer 5/8in. (16 mm) Type-X, Source Side - (3.625 in. (92 mm) R-15 Insulation, stud web not filled) - 1 Layer 5/8 in. (16 mm) Type-X, Receive Side (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 2020-02-13. The tests were performed on a specimen composed of 24 gauge steel paneling, 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: 3-5/8 in (92mm) SilentXpress™ Sound Wall – Stud pack [1-5/8 in (41 mm). dbl. stud bridged with type CWSC Clip] spaced at 16 in. (406mm) o.c. – 1 Layer 5/8in. (16 mm) Type-X, Source Side - (3.625 in. (92 mm) R-15 Insulation, stud web not filled) - 1 Layer 5/8 in. (16 mm) Type-X, Receive Side (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	12
100	102	19
125	101	30
160	98	34
200	97	39
250	95	45
315	94	50
400	93	53
500	93	56
630	91	58
800	90	59
1000	89	60
1250	89	61
1600	88	62
2000	88	55
2500	87	53
3150	85	58
4000	84	62

OITC = 30

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APPENDIX E: Instruments of Traceability

Specimen: 3-5/8 in (92mm) SilentXpress™ Sound Wall – Stud pack [1-5/8 in (41 mm). dbl. stud bridged with type CWSC Clip] spaced at 16 in. (406mm) o.c. – 1 Layer 5/8in. (16 mm) Type-X, Source Side - (3.625 in. (92 mm) R-15 Insulation, stud web not filled) - 1 Layer 5/8 in. (16 mm) Type-X, Receive Side (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 959	SD700	A.099959	2025-04-17	2026-04-17
EXTECH Hygro 6015	SD700	A.116015	2025-06-17	2026-06-17

APPENDIX F: Revisions to Original Test Report

Specimen: 3-5/8 in (92mm) SilentXpress™ Sound Wall – Stud pack [1-5/8 in (41 mm). dbl. stud bridged with type CWSC Clip] spaced at 16 in. (406mm) o.c. – 1 Layer 5/8in. (16 mm) Type-X, Source Side - (3.625 in. (92 mm) R-15 Insulation, stud web not filled) - 1 Layer 5/8 in. (16 mm) Type-X, Receive Side (See Full Report)

Date	Revision
2026-02-03	Original report issued
2026-02-05	Page 8: Added Figure 6 per sponsor's request. -EPW

END

NVLAP TESTING
NVLAP LAB CODE 100227-0

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