WESTERN ELECTRO - ACOUSTIC LABORATORY
TESTING • CALIBRATION • RESEARCH
25132 Rye Canyon Loop Santa Clarita, California 91355 Tel: (661) 775-3741 Fax: (661) 775-3742 www.weal.com

SOUND TRANSMISSION LOSS TEST REPORT NO. TL20-406

CLIENT: **Hilti**
P.O. Box 21148
Tulsa, Oklahoma 74121
TEST DATE: 29 July 2020

17 August 2020

INTRODUCTION

The test was performed in accordance with ASTM E 90-09 (2016), *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions* and ASTM E2235-04 (2020), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*. Copies of the test standard are available at www.astm.org. The test chamber source and receiving room volumes are 204 and 148.4 cubic meters respectively. Western Electro-Acoustic Laboratory is accredited by the United States Department of Commerce, National Institute of Standards and Technology under the National Voluntary Accreditation Program (NVLAP) Lab Code 100256-0 for this test procedure. This test report relates only to the item(s) tested. This report must not be used to claim product certification, approval, or endorsement by WEAL, NVLAP, NIST or any agency of the federal government.

DESCRIPTION OF TEST SPECIMEN

The test specimen consisted of a double steel stud wall assembly with Type 'X' gypsum board installed on both sides of the panel, batt insulation in the stud cavity, and a total of four (4) steel pipes with an outer diameter (O.D.) of 59 mm (2-3/8 inch) installed in the center of the stud bays, one (1) pipe in each stud bay. A 13 mm (1/2 inch) joint was left around the pipe and was sealed with Hilti CS-S SA LIGHT Smoke and Acoustic sealant. Additional information regarding pipe installation provided in the details below.

TEST CONFIGURATION

Source Room Layers	Source Framing	Air Gap	Receiving Framing	Receiving Room Layers
1 layer 16 mm (5/8 inch) Type 'X' gypsum board	92 mm (3-5/8 inch) 25-gauge steel studs and 20-gauge slotted slip track spaced 610 mm (24 inches) on center with R-13 batt insulation in the cavity and Hilti CS-S SA LIGHT Smoke and Acoustic sealant at the 13 mm (1/2 inch) joint surrounding the steel pipes	25 mm (1 inch) with four (4) 59 mm (2-3/8 inch) O.D. steel pipes	92 mm (3-5/8 inch) 25-gauge steel studs and 20-gauge slotted slip track spaced 610 mm (24 inches) on center with R-13 batt insulation in the cavity and Hilti CS-S SA LIGHT Smoke and Acoustic sealant at the 13 mm (1/2 inch) joint surrounding the steel pipes	1 layer 16 mm (5/8 inch) Type 'X' gypsum board

- On both sides, the 92 mm (3-5/8 inch) 25-gauge steel studs were spaced 610 mm (24 inches) on center (O.C.) and were screwed to the 20-gauge slotted slip track with 12 mm (1/2 inch) truss screws. Unfaced R-13 fiberglass insulation was installed in the stud cavities. The frames were isolated from the test opening with 6 mm (1/4 inch) neoprene pads.
- On both sides, one layer of 16 mm (5/8 inch) Type 'X' gypsum board was screwed to the studs using 32 mm (1-1/4 inch) long #6 drywall screws spaced at 203 mm (8 inches) O.C. at the perimeter and 305 mm (12 inches) in the field.

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- A total of four (4) steel pipes with an outer diameter (O.D.) of 59 mm (2-3/8 inch) were installed in the center of the stud bays, one (1) pipe in each stud bay. A 13 mm (1/2 inch) joint was left around the pipe and was sealed with Hilti CS-S SA LIGHT Smoke and Acoustic sealant. The pipes were installed using plumber's tape metal strapping looped around the pipe to suspend it in the center of the stud bay. 6 mm (1/4 inch) felt was used to isolate the pipe from the strapping. The pipe was packed with mineral wool insulation, capped on each side, and extended a total of 102 mm (4 inches) past the face of the gypsum board. See photos for conditions.
- All gypsum board was oriented vertically with joints staggered on opposite sides. Aside from the four (4) pipe joints, the remaining gypsum board joints were sealed with a bead of latex caulking and metal foil tape. All screw heads were covered with metal foil tape.
- The overall dimensions of the wall assembly were 2.44 m (96 inches) wide by 2.44 m (96 inches) high by 241 mm (9-1/2 inches) thick.
- The overall weight of the assembly was estimated to be 170.3 kg (375.5 lbs.) for a calculated surface density of 28.8 kg/m^2 (5.9 lbs./ft^2).

RESULTS OF THE MEASUREMENTS

One-third octave band sound transmission loss values are plotted and tabulated on the attached sheet. ASTM minimum volume requirements are met at 80 Hz and above. The Outdoor-Indoor Transmission Class rating determined in accordance with ASTM E 1332-10a was OITC 48. The Sound Transmission Class rating determined in accordance with ASTM E 413-10 was STC 65.

Respectfully submitted,
Western Electro-Acoustic Laboratory

Approved:

Stephen A. Martin, Ph.D., P.E.
Laboratory Director

Raul Martinez
Acoustical Test Technician

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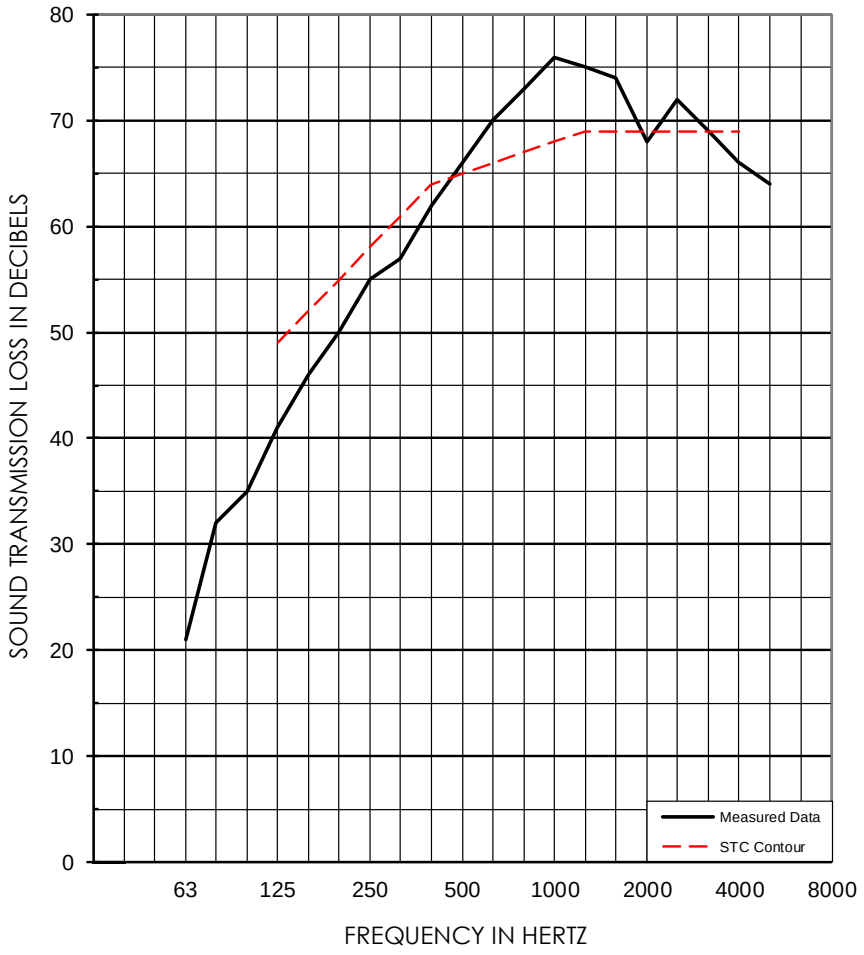

1/3 OCT BAND CNTR FREQ	63	80	100	125	160	200	250	315	400	500
TL in dB	**21**	**32**	**35**	**41**	**46**	**50***	**55***	**57***	**62***	**66***
95% Confidence in dB	1.42	1.92	2.07	1.47	0.89	0.76	0.80	0.52	0.36	0.38
deficiencies				(8)	(6)	(5)	(3)	(4)	(2)	

1/3 OCT BAND CNTR FREQ	630	800	1000	1250	1600	2000	2500	3150	4000	5000
TL in dB	**70***	**73***	**76***	**75***	**74***	**68**	**72***	**69**	**66**	**64**
95% Confidence in dB	0.29	0.44	0.38	0.39	0.36	0.56	0.55	0.31	0.32	0.50
deficiencies						(1)		(0)	(3)	

EWR	OITC
64	48

* Minimum estimate of transmission loss. Measurement limited by filler wall. Actual TL will be equal or greater than value reported.

Test Date: 29 July 2020
Specimen Area: 64 sq.ft.
Temperature: 78.8 deg. F
Relative Humidity: 37 %

STC
65
(32)

NVLAP TESTING
NVLAP LAB CODE 100256-0

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PHOTO(S) OF TEST SPECIMEN

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