



### SOUND TRANSMISSION LOSS TEST REPORT NO. TL20-216

CLIENT: **Hilti**  
 P.O. Box 21148  
 Tulsa, Oklahoma 74121

TEST DATE: 4 March 2020

23 March 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 (2012), *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](http://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 Hilti CP 606 Firestop acrylic sealant at the head-of-wall joint.

#### TEST CONFIGURATION

Source Room Layers	Source Framing	Air Gap	Receiving Framing	Receiving Room Layers
2 layers 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 CP 606 Firestop acrylic sealant at the 13 mm (1/2 inch) head-of-wall joint	25 mm (1 inch)	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 CP 606 Firestop acrylic sealant at the 13 mm (1/2 inch) head-of-wall joint	2 layers 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, two layers of 16 mm (5/8 inch) Type 'X' gypsum board were screwed to the studs.
  - The first layer was screwed using 32 mm (1-1/4 inch) long #6 drywall screws spaced 203 mm (8 inches) O.C. along the perimeter and 305 mm (12 inches) O.C. in the field.
  - The second layer was screwed using 41 mm (1-5/8 inch) long #6 drywall screws spaced 203 mm (8 inches) O.C. along the perimeter and 305 mm (12 inches) O.C. in the field.
  - Joints for the first and second layer were staggered.
  - All gypsum board was oriented vertically.
- On both sides, a gap at the head-of-wall joint was left. The gap size was 13 mm (1/2 inch) and was sealed with Hilti CP 606 Firestop acrylic sealant.



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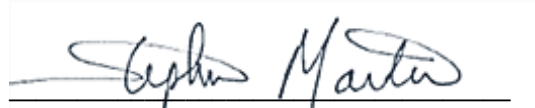
23 March 2020

- All gypsum board joints were staggered on opposite sides. Aside from the head-of-wall joint, 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 273 mm (10-3/4 inches) thick.
- The overall weight of the assembly was estimated to be 289.0 kg (637.1 lbs.) for a calculated surface density of 48.6 kg/m<sup>2</sup> (10.0 lbs./ft<sup>2</sup>).

### 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 54. The Sound Transmission Class rating determined in accordance with ASTM E 413-10 was STC 68.

Approved:



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

Respectfully submitted,  
Western Electro-Acoustic Laboratory



Raul Martinez  
Acoustical Test Technician

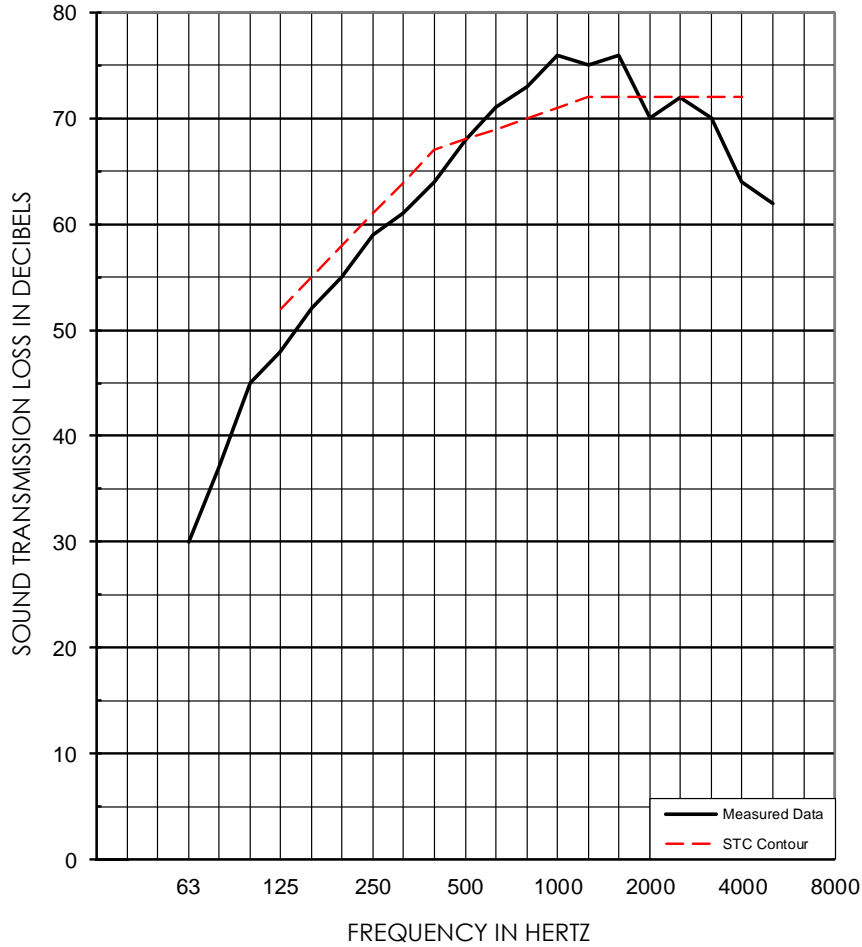


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1/3 OCT BAND CNTR FREQ	63	80	100	125	160	200	250	315	400	500
TL in dB	30*	37*	45*	48*	52*	55*	59*	61*	64*	68*
95% Confidence in dB deficiencies	1.42	1.92	2.07	1.47	0.89	0.76	0.80	0.52	0.36	0.38
			(4)	(3)	(3)	(2)	(3)	(3)	(3)	(0)
1/3 OCT BAND CNTR FREQ	630	800	1000	1250	1600	2000	2500	3150	4000	5000
TL in dB	71*	73*	76*	75*	76*	70*	72*	70	64	62
95% Confidence in dB deficiencies	0.29	0.44	0.38	0.39	0.36	0.56	0.55	0.31	0.32	0.50
						(2)	(0)	(2)	(8)	
<b>EWR</b>	<b>OITC</b>	Test Date: 04 March 2020 Specimen Area: 64 sq.ft. Temperature: 65.8 deg. F Relative Humidity: 30 %								<b>STC</b>
68	54									68 (30)

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