



SOUND TRANSMISSION LOSS TEST REPORT NO. TL20-499

CLIENT: **Hilti**
P.O. Box 21148
Tulsa, Oklahoma 74121
TEST DATE: 02 October 2020

20 October 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. 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 concrete metal deck slab assembly with a CPVC plastic pipe installed in the Hilti CFS-CID MD P cast-in firestop sleeve with the Hilti CFS-CID PLT platform for metal deck sleeves with a gypsum board chase installed around the piping on each side.

TEST CONFIGURATION

- The 178 mm (7 inch) concrete slab was poured atop 18-gauge metal decking. The slab thickness was measured from the bottom of the flutes of the metal deck to the top of the concrete slab.
 - The perimeter in which the concrete slab was poured consisted of wood framing to match the depth of the assembly and was sealed with a bead of latex caulking.
 - The flutes of the metal deck were 76 mm (3 inches) deep.
 - The 76 mm (3 inch) deep flutes were filled with concrete with an additional 102 mm (4 inches) of concrete poured atop.
- In the concrete slab, a 51 mm (2 inch) CPVC plastic pipe was installed through the Hilti CFS-CID MD P cast-in firestop sleeve with the Hilti CFS-CID PLT platform for metal deck sleeves.
 - The length of the pipe was 610 mm (24 inches) long and was centered in the concrete slab.
 - Mineral wool insulation was installed in the pipe with tape to cap and seal each side.
 - A small piece of duct seal putty was placed beneath the pipe to ensure the pipe was positioned in the center of the Hilti CFS-CID MD.
 - The pipe extended approximately 216 mm (8-1/2 inches) beyond the slab on each side.
- On both sides, a gypsum board chase was constructed around the pipe extending beyond the concrete slab to cover the penetration.
 - The framing for the chase consisted of 152 mm (6 inch) 20-gauge steel stud framing.
 - A single layer of gypsum board was installed to the steel stud framing.
- The overall dimensions of the wall assembly were 914 mm (36 inches) wide by 914 mm (36 inches) high. The thickness is described below:
 - The concrete slab metal deck assembly was a total of 178 mm (7 inches) thick.
 - The gypsum board chase extended an additional 267 mm (10-1/2 inches) beyond the concrete slab on each side for a total thickness of 711 mm (28 inches)



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- The overall weight of the assembly was estimated to be 308.0 kg (679.0 lbs.) for a calculated surface density of 368.4 kg/m² (75.4 lbs./ft²).

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 43. The Sound Transmission Class rating determined in accordance with ASTM E 413-10 was STC 50.

Approved:

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

Respectfully submitted,
Western Electro-Acoustic Laboratory

Raul Martinez
Acoustical Test Technician

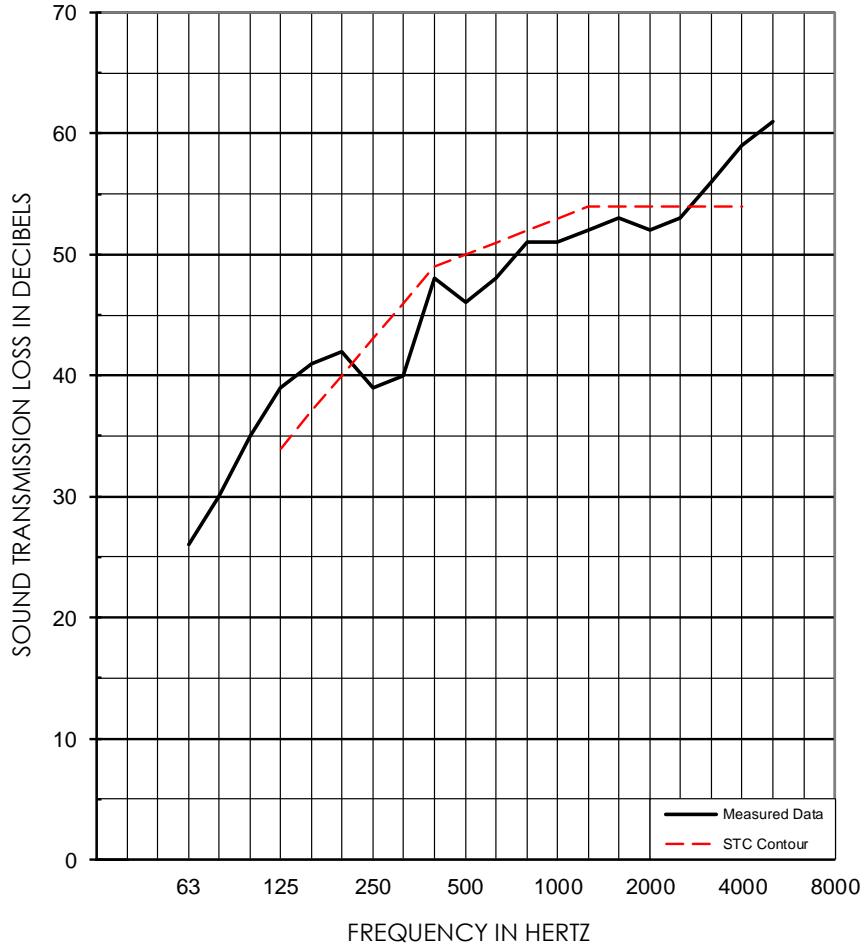


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1/3 OCT BAND CNTR FREQ	63	80	100	125	160	200	250	315	400	500
TL in dB	26*	30*	35*	39*	41*	42*	39	40	48*	46
95% Confidence in dB deficiencies	1.42	1.92	2.07	1.47	0.89	0.76	0.80 (4)	0.52 (6)	0.36 (1)	0.38 (4)
1/3 OCT BAND CNTR FREQ	630	800	1000	1250	1600	2000	2500	3150	4000	5000
TL in dB	48	51	51	52	53	52	53	56	59	61
95% Confidence in dB deficiencies	0.29 (3)	0.44 (1)	0.38 (2)	0.39 (2)	0.36 (1)	0.56 (2)	0.55 (1)	0.31	0.32	0.50
EWR	OITC	Test Date: 02 October 2020 Specimen Area: 9 sq.ft. Temperature: 81.2 deg. F Relative Humidity: 31 %								STC
51	43									50 (27)

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

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PHOTO(S) OF TEST SPECIMEN



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