

Client Nordic Engineered Wood
1100 Ave des Canadiens-de-Montreal
Montreal QC H3B 2S2

Specimen 38 mm precast concrete slab on 25 mm SonusWave™ placed on top of a CLT 5 ply (131 mm)

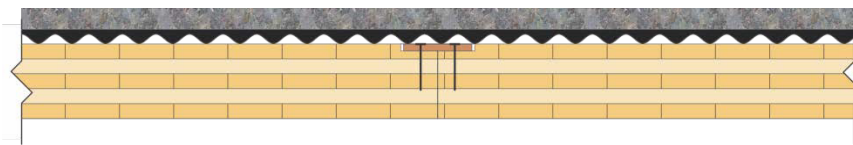
Specimen ID A1-008253-06F

Construction Date: March 10, 2016 to March 11, 2016

Specimen Description

Topping: A 38 mm (1-1/2”) precast concrete slab was placed on 25 mm Regupol® SonusWave™ which was placed on the CLT floor. The edge of the precast concrete slab was filled with insulation and taped.

CLT Floor: The specimen was composed of two cross-laminated timber (CLT) 5 ply panels (131 mm thick x 1989 mm wide x 4872 mm long) with a butt joint in the middle of the floor. The combined panels filled the entire floor opening of the test frame. The two CLT panels were joined using a 120 mm wide x 12 mm thick plywood strip spanning the full joint (4.9 m). The plywood strip was nailed with common nails 75 mm (3”) long spaced 305 mm (12”) on centre along the joint with beads of PL premium adhesive between the plywood strip and the CLT panels. The CLT floor was resting on the lip of the test frame and was not fastened to the test frame. The air gaps between the edges of the CLT floor and the test frame were filled with glass fiber insulation and covered with cloth tape. Duct putty was installed around the lower perimeter of the test frame and the CLT.



Cross-section of A1-008253-06F

Specimen Properties

Element	Actual thickness (mm)	Mass (kg)	Mass/length, area or volume
38 mm Precast Concrete Slab	38	1 905	98.6 kg/m ²
25 mm Regupol® SonusWave™	25	261	13.5 kg/m ²
131 mm CLT 5 ply	131	1 343	69.5 kg/m ²
Total	194	3 508	181.6 kg/m²

Test Specimen Installation

- The exposed area of the floor specimen used for the calculations of the airborne sound transmission loss was 17.85 m² (4.71 m x 3.79 m).
- The total area of the floor assembly resting on top of the lip was 19.32 m² (4.88 m x 3.96 m).
- The mass per area of the elements above the lip was calculated using the total area (19.32 m²).

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ASTM E90 Test Results – Airborne Sound Transmission Loss

Client: Nordic Engineered Wood
Specimen ID: A1-008253-06F

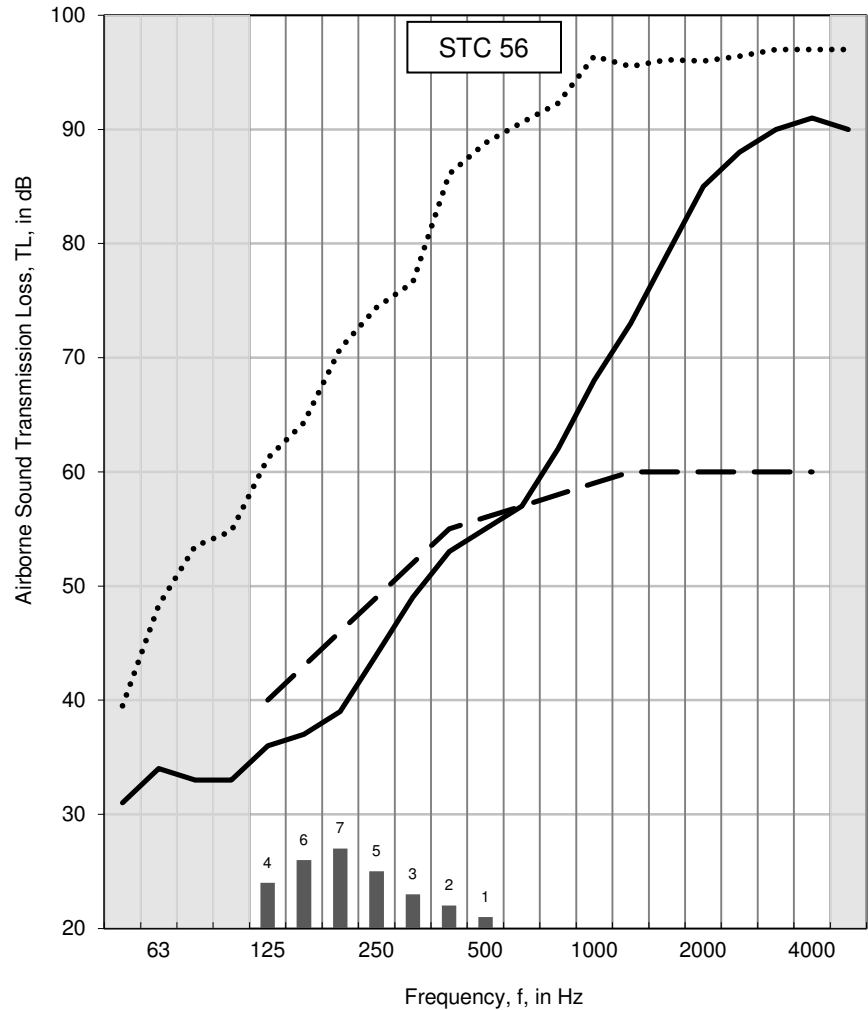
Test ID: TLF-16-016
Date of Test: March 11, 2016

Room	Volume (m ³)	Air Temperature (°C)	Humidity (%)
Upper	175.8	23.2 to 23.2	33.9 to 34.0
Lower	176.9	21.6 to 21.7	36.9 to 37.2

Area S of test specimen:	17.85 m ²
Mass per unit area:	181.6 kg/m ²

f (Hz)	Airborne TL (dB)
50	31
63	34
80	33
100	33
125	36
160	37
200	39
250	44
315	49
400	53
500	55
630	57
800	62
1000	68
1250	73
1600	79
2000	85 c
2500	88 *
3150	90 *
4000	91 *
5000	90 *
Sound Transmission Class (STC)	56

Sum of Deficiencies (dB)	28
Max. Deficiency (dB)	7 dB at 200 Hz



For a description of the test specimen and mounting conditions see text pages before. The results in this report apply only to the specific sample submitted for measurement. No responsibility is assumed for performance of any other specimen. **Airborne sound transmission loss measurements were conducted in accordance with the requirements of ASTM E90-09, “Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements”.**

In the graph:

The solid line is the measured sound transmission loss for this specimen. The dashed line is the STC contour fitted to the measured values according to ASTM E413-10. The dotted line (may be above the displayed range) is 10 dB below the flanking limit established for this facility. For any frequency band where the measured transmission loss is above the dotted line, the reported value is potentially limited by flanking transmission via laboratory surfaces, and the true value may be higher than that measured. Bars at the bottom of the graph show deficiencies where the measured data are less than the reference contour as described in the fitting procedure for the STC, defined in ASTM E413-10. The shaded cells in the table and areas in the graph are outside the STC contour range.

In the table:

Values marked “c” indicate that the measured background level was between 5 dB and 10 dB below the combined receiving room level and background level. The reported values have been corrected according to the procedure outlined in ASTM E90-09. Values marked “*” indicate that the measured background level was less than 5 dB below the combined receiving room level and background level, in which case, the corrected values provide an estimate of the lower limit of airborne sound transmission loss.

ASTM E492 Test Results – Normalized Impact Sound Pressure Levels

Client: Nordic Engineered Wood
Specimen ID: A1-008253-06F

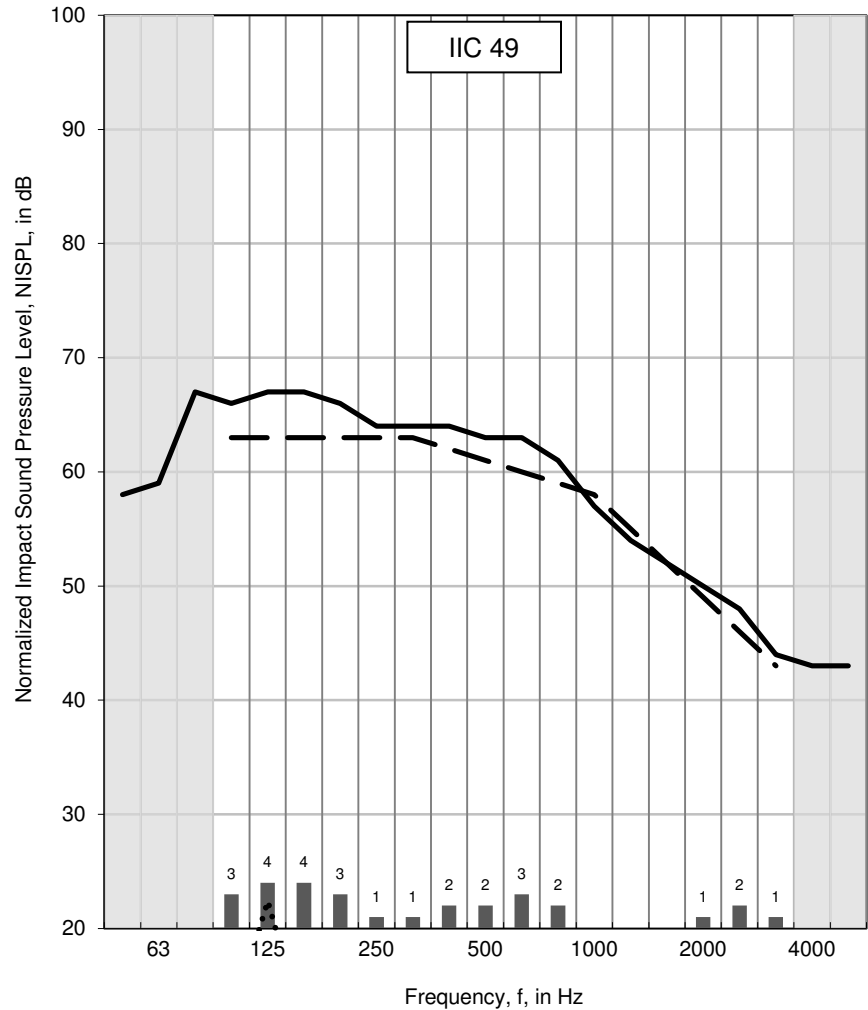
Test ID: IIF-16-017
Date of Test: March 11, 2016

Room	Volume (m³)	Air Temperature (°C)	Humidity (%)
Upper	175.8	23.6 to 23.7	33.8 to 34.3
Lower	176.9	21.5 to 21.6	37.0 to 37.2

Area S of test specimen:	17.85 m²
Mass per unit area:	181.6 kg/m²

f (Hz)	NISPL (dB)
50	58
63	59
80	67
100	66
125	67
160	67
200	66
250	64
315	64
400	64
500	63
630	63
800	61
1000	57
1250	54
1600	52
2000	50
2500	48
3150	44
4000	43
5000	43
Impact Insulation Class (IIC)	49

Sum of Positive Differences (dB)	29
Max. Positive Difference (dB)	4 dB at 125 and 160 Hz



For a description of the test specimen and mounting conditions see text pages before. The results in this report apply only to the specific sample submitted for measurement. No responsibility is assumed for performance of any other specimen. **Measurements of normalized impact sound pressure level (NISPL) were conducted in accordance with the requirements of ASTM E492-09, “Standard Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine”.**

In the graph:

The solid line is the measured normalized impact sound pressure level (NISPL) for this specimen. The dashed line is the IIC contour fitted to the measured values according to ASTM E989-06. The dotted line is the background sound level measured in the receiving room during this test (may be below the displayed range). For any frequency where the measured NISPL is less than 10 dB above the dotted line, the reported values were adjusted as noted below. Bars at the bottom of the graph show positive differences; where the measured data are greater than the reference contour as defined in ASTM E989-06. Shaded cells in the table and areas in the graph are outside the IIC contour range.

In the table:

Values marked “c” indicate that the measured background level was between 5 dB and 10 dB below the combined receiving room level and background level. Values marked “*” indicate that the measured background level was less than 5 dB below the combined receiving room level and background level and the reported values of NISPL provide an estimate of the upper limit of normalized impact sound pressure level, according to the procedure outlined in ASTM E492-09. The reported values of NISPL have been corrected according to the procedure outlined in ASTM E492-09.