

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

Specimen 38 mm precast concrete slab on 17 mm SonusWave placed on a OSB wood raft on top of glulam decking (89 mm)

Specimen ID A1-008253-34F

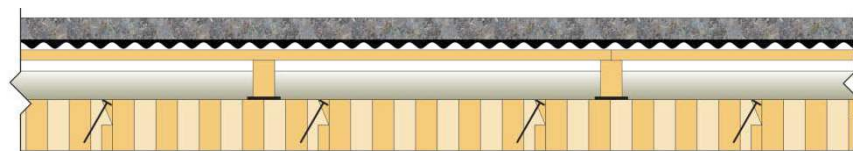
Construction Date April 13, 2016

Specimen Description

Topping: A 38 mm (1-1/2") precast concrete slab was placed on 17 mm Regupol® SonusWave™ on top of OSB sheeting. The 18 mm (23/32") OSB sheeting was screwed down with the long side perpendicular to 38 mm x 64 mm (2x3) wood battens, with the narrow side down, using 50 mm (2") long #10 wood screws spaced 150 mm (6") o.c. along the edges and 200 mm (8") o.c in the field. Wood battens running along the short direction (3978 mm) and spaced at 610 mm (24") o.c. and glued to strips of 10 mm thick rubber membranes at the bottom.

Fill: A 6 mil polyethylene sheet was placed on the CLT and the wood battens with rubber membrane were installed directly on top (floating). 50 mm (2") of dry silica sand (#71) filled the cavity of the battens leaving a 12 mm (1/2") air gap between the sand and the OSB.

Glulam Decking: The specimen was composed of 13 glued-laminated timber (glulam) decking panels nominally 384 mm wide x 89 mm thick x 3890 mm long (15" x 3-1/2" x 153"). The combined panels filled the entire floor opening of the test frame. The glulam decking panels were joined using 90 mm (3-1/2") long common nails spaced 300 mm (12") on centre along the joints. The glulam decking 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 glulam decking 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 glulam.



Cross-section of A1-008253-34F

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
17 mm Regupol® SonusWave™	17	157	8.1 kg/m ²
18 mm OSB Tongue and Groove Sheeting	18	202	10.5 kg/m ²
38 mm x 64 mm Wood Battens	64	47	0.3 kg/m
10 mm Rubber Membrane	10	21	7.7 kg/m ²
50 mm Silica Sand (#71)	*50	1 385	77.2 kg/m ²
6 mil Polyethylene Sheeting	0	2	0.1 kg/m ²
89 mm Glulam Decking	89	971	50.2 kg/m ²
Total	236	4 690	242.8 kg/m²

* The thickness of the sand is not included in the total specimen thickness.

Test Specimen Installation

- The exposed area of the floor specimen used for the calculations of the airborne sound transmission loss was 17.85 m^2 (4.71 m x 3.79 m).
- The total area of the floor assembly resting on top of the lip was 19.32 m^2 (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 m^2).

ASTM E90 Test Results – Airborne Sound Transmission Loss

Client: Nordic Engineered Wood
Specimen ID: A1-008253-34F

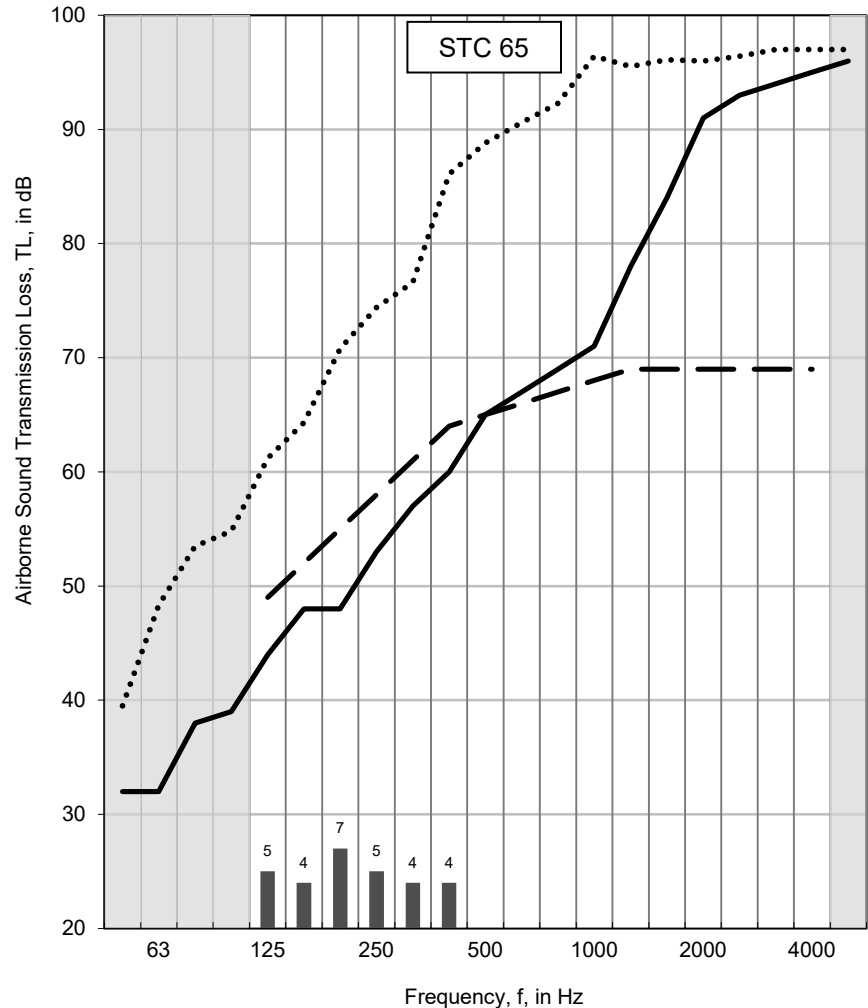
Test ID: TLF-16-026
Date of Test: April 13, 2016

Room	Volume (m ³)	Air Temperature (°C)	Humidity (%)
Upper	174.9	23.1 to 23.2	32.3 to 32.5
Lower	177.1	17.8 to 17.8	37.0 to 37.3

Area S of test specimen:	17.85 m ²
Mass per unit area:	242.8 kg/m ²

f (Hz)	Airborne TL (dB)
50	32
63	32
80	38
100	39
125	44
160	48
200	48
250	53
315	57
400	60
500	65
630	67
800	69
1000	71
1250	78
1600	84
2000	91 c
2500	93 *
3150	94 *
4000	95 *
5000	96 *
Sound Transmission Class (STC)	65

Sum of Deficiencies (dB)
29
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

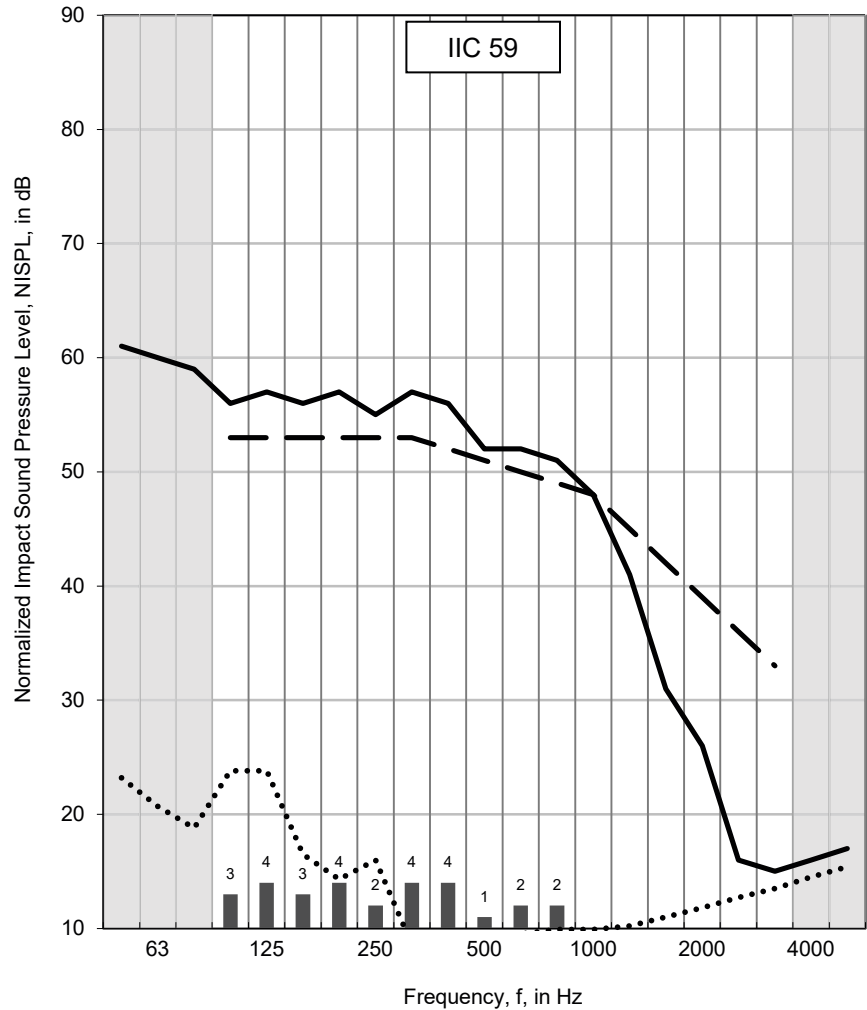
Client: Nordic Engineered Wood
Specimen ID: A1-008253-34F

Test ID: IIF-16-027
Date of Test: April 13, 2016

Room	Volume (m³)	Air Temperature (°C)	Humidity (%)
Upper	174.9	23.0 to 23.1	33.0 to 33.4
Lower	177.1	17.8 to 17.8	37.5 to 37.8

Area S of test specimen:	17.85 m²
Mass per unit area:	242.8 kg/m²

f (Hz)	NISPL (dB)
50	61
63	60
80	59
100	56
125	57
160	56
200	57
250	55
315	57
400	56
500	52
630	52
800	51
1000	48
1250	41
1600	31
2000	26
2500	16 *
3150	15 *
4000	16 *
5000	17 *
Impact Insulation Class (IIC)	59



Sum of Positive Differences (dB)	29
Max. Positive Difference (dB)	4 dB at 125, 200, 315 and 400 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.