



Institut pro testování a certifikaci, a.s. (Institute for Testing and Certification)

CSI Division – Centre of Civil Engineering, branch
Zlín, K Cihelně 304, 764 32 Zlín-Louky

Testing laboratory for physical properties of materials,

constructions and buildings – Zlín

Testing laboratory No. 1007.1, accredited by ČIA (Czech Accreditation Institute) according to ČSN EN ISO/IEC 17025:2018



Test Report no. 083/20

**Laboratory measurement of airborne sound insulation
according to ČSN EN ISO 10140-2**

**Subject of the test: wall between flats, visual on both sides
NOVATOP SOLID 84 with a pre-wall**

Order number: 963 389

Number of pages:6

Number of copies:3

Copy number: 1e

Ordering party: **AGROP NOVA a.s**
Ptenský Dvorek 99
798 43 Ptení

Sample receipt date: March 10, 2020

Date of test examination: March 12, 2020

The test was performed by the acoustics laboratory

Technical head of the laboratory: Ing. Miroslav
Figalla

Manager of testing laboratory no. 1007.1:

Ing. Petra Hrdinová

An accredited testing laboratory declares that the test result refers only to the subject of this test and does not mean approval or certification of the product tested. The test report may not be reproduced other than in its entirety, without the written consent of the testing laboratory.

On: March 30, 2020



1. Ordering of the test

The test was performed on the basis of order no. 3591208856 dated December 3, 2019, in the premises of laboratory no. 1007.1, K Cihelně 304, 764 32 Zlín-Louky.

2. Subject of the test

Determination of airborne sound insulation by laboratory method according to ČSN EN ISO 10140-2.

Element tested: NOVATOP SOLID 84 wall between rooms with a pre-wall, visual on both sides, dimensions: 3,560 x 2,850 mm. Manufacturer: AGROP NOVA a.s., Ptenský Dvorek 99, 798 43 Ptení. The technical description supplied by the ordering party is specified on p. 5. The data on the sample determined by the laboratory are shown on the standard measurement record, on page 4; photo documentation of the sample is found on page 6. The testing laboratory is not responsible for the correctness of technical data and information about the sample tested supplied by the ordering party.

3. Test sample

The ordering party delivered the test sample on March 10, 2020. The wall was installed in the measuring opening for vertical elements. The perimeter joints were sealed with textile rope, rubber profiles and acrylic putty. The wall was installed by the ordering party together with the laboratory staff.

4. Regulations and measuring technique applied

4.1 Regulations

- ČSN EN ISO 10140-2 Acoustics – Laboratory measurement of sound insulation of building structures. Part 2: Measurement of airborne sound insulation,
- ČSN EN ISO 10140-1 Acoustics – Laboratory measurement of sound insulation of building structures. Part 1: Application rules for certain products,
- ČSN EN ISO 10140-4 Acoustics – Laboratory measurement of sound insulation of building structures. Part 4: Measurement procedures and requirements,
- ČSN EN ISO 717-1 Acoustics – Evaluation of sound insulation properties of buildings and building structures. Airborne sound insulation of buildings and building structures.

Related Standards:

- ČSN EN 10140-5 Acoustics – Evaluation of sound insulation properties of buildings and building structures. Requirements for test equipment and instrumentation.
- ČSN EN ISO 12999-1 Acoustics – Determination and use of measurement uncertainties in building acoustics – Part 1: Sound insulation.

4.2 Devices

- | | |
|--------------------------------|-----------|
| - Norsonic RTA 840 analyzer | M 07 2024 |
| - B.K. measuring microphone | M 07 2005 |
| - AM-39 amplifier | I 05160 |
| - omnidirectional sound source | I 52346 |

5. Test procedure

The measurement is performed in sound chambers that meet the requirements of ČSN EN ISO 10140-5. The test sample is installed between the source room and the reception room, in the measuring opening for vertical elements. A steady sound with a continuous spectrum in the range from 100 to 5,000 Hz is generated in the source room. The mean sound pressure levels (in dB) in

both rooms are measured.

Sound insulation R is determined by the following relation:

$$R = L_1 - L_2 + \frac{\Sigma}{A} 10 \log S \text{ (dB)},$$

where L_1 is the mean sound pressure level in the source room,

L_2 ... is the average sound pressure level in the reception room,

S ... is the area of the sample tested in m^2 ,

A ... is the equivalent absorbing surface in the reception room in m^2 .

The size of the equivalent absorbing surface is determined from the reverberation time measured in accordance with ČSN ISO 3382-2 using Sabine equation:

$$A = \frac{0,16 V}{T}$$

where V is the volume of the reception room in m^3 ,

T ... is the reverberation time in the reception room in seconds.

From the values of sound insulation R in the one-third octave bands of 100 to 3,150 Hz, a single-number value – weighted sound insulation R_w and spectrum adjustment factors C , C_{tr} – is determined using a directional curve based on the procedure according to ČSN EN ISO 717-1.

6. Measurement results

Registration number	Sample description	Weighted sound insulation R_w (C ; C_{tr}) (dB)
31/20	NOVATOP SOLID 84 wall between rooms with a pre-wall, visual on both sides	52 (-1; -5)

The course of sound insulation as a function of frequency and other measurement data are shown in the standard measurement record on p. 4.

7. Measurement uncertainty

The measurement uncertainty is expressed according to ČSN EN ISO 12999-1 using the standard deviation of reproducibility. Measurement results, including uncertainty:

$$R_w = (52.6 \pm 2.4) \text{ dB}$$

$$R_w + C = (50.7 \pm 2.6) \text{ dB}$$

$$R_w + C_{tr} = (47.0 \pm 3.0) \text{ dB}$$

The values are determined for the expansion factor $k = 2$, which corresponds to a confidence level of 95% for a two-sided interval.

The person who produced the Report and who is responsible for the test: Ing. Miroslav Figalla

Airborne sound insulation according to ČSN EN ISO 10140-2

Registration number:

Laboratory measurement of airborne sound insulation of building structures

Ordering party:
AGROP NOVA a.s
Ptenský Dvorek 99
798 43 Ptení

Product: NOVATOP SOLID 84 wall between rooms with a pre-wall

Composition of the sample: wooden panel NOVATOP Solid 84 mm, a grid made of CW profiles of 100 mm, fixed in the lower and upper parts of the wall with anchoring L profiles, contact flexible seal, filling: fibreboard having a thickness of 100 mm, wooden panel NOVATOP SWP 19 mm. Sample dimensions: 3,560 mm x 2,850 mm, thickness of 204 mm, surface weight: 59 kg/m².
Sample number: 15/A/20.

Freq. (Hz)	R 1/3 oct. (dB)
50	28.4
63	30.2
80	27.6
100	39.0
125	34.7
160	35.6
200	40.9
250	42.4
315	42.2
400	43.9
500	48.6
630	52.3
800	52.9
1,000	56.1
1,250	57.7
1600	60.6
2,000	62.0
2,500	63.0
3,150	65.2
4,000	>65.1
5,000	>62.2

Evaluation according to EN ISO 717-1
R_w (C;) = 52 (-1; -5) dB

C₅₀₋₃₁₅₀ = -2dB, C_{tr,50-3150} = -8 dB
C₅₀₋₅₀₀₀ = -1 dB, C_{tr,50-5000} = -8 dB
C₁₀₀₋₅₀₀₀ = 0 dB, C_{tr,100-5000} = -5 dB



CSI Division – Centre of Civil Engineering

Date: March 30, 2020

Test conditions Test area: 10,3 m²
Source room volume: 90 m³
Volume of the reception: 70 m³

Ing. Miroslav Figalla
Technical head of the

Test date: March 12,
Air temperature: 2020
Relative humidity: 52%
Atmospheric: 983 hPa

DESCRIPTION:

The main material of the manufacturer is: panels (boards made of cross-laminated solid wood). SOLID panels are manufactured from spruce lamellas put together in layers and glued in all directions. The number of layers can differ and determines the final thickness of the panel. The timber for the production is dried to the moisture of approximately 8%.

NOVATOP products used:

- Solid 84mm – 2x SWP 42mm
- SWP 19 mm

The size of the test wall is 3.56 m x 2.85 m.

NOVATOP SOLID 84 with a pre-wall

1. NOVATOP SOLID 84 mm
2. a grid made of CW profiles anchored only at the bottom and top of the wall by anchoring L profiles flexibly separated from NOVATOP Solid 84. The contact of the grid with NOVATOP Solid is secured by contact seal. Thickness of 100 mm + 3-5 mm flexible seal.
Acoustic insulation between the profiles: STEICO FLEX 100 mm.
3. NOVATOP SWP 19 mm.

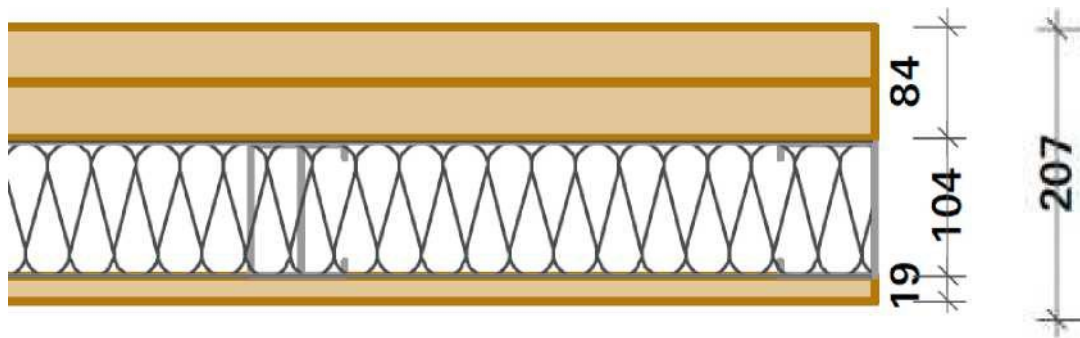


Photo documentation of the test
sample



End of report