MFPA Leipzig GmbH

Leipzig Institute for Materials Research and Testing

Testing, Inspection and Certification Authority for Construction Products and Construction Types

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Work Group 4.2
Sound Insulation

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Recognized Testing Laboratory by the VMPA

Acoustic Testing VMPA-SPG-129-97-SN

Test Report No. PB 4.2/25-009-2

March 3rd 2024
No. Copy: 1

Subject matter: Laboratory measurement of reflected walking sound (RWS) of an impact sound insulating underlay named *Acoustic Silence 360* under 3.8 mm vinyl flooring according to EN 16354

Client: Scan Underlay
Ursusvej 16
DK-8464 Galten

Date of order: 30-01-2025

Date of test: 14-02-2025

Person in charge: J. Richter, B. Eng.
Dipl.-Phys. D. Sprinz

This document consists of 5 pages and 2 annexes.

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1 Task Specification

The reflected walking sound (RWS) of an impact sound insulating underlay named *Acoustic Silence 360*, under 3.8 mm vinyl flooring, shall be measured according to actual EN 16354 (in conjunction with EN 16205, annex E) by order of the manufacturer

Scan Underlay
Ursusvej 16
DK-8464 Galten

on a concrete floor in the testing laboratory of the MFPA Leipzig GmbH.

2 Sampling, Location and Date of Measurement

The following components of the test object

- vinyl flooring (make *B!design, SPC – Sunny Pinie*, 3.8 mm thickness)
- impact sound insulating underlay *Acoustic Silence 360* in the form of long webs, supplied in rolls, with a width of 1000 mm and a thickness of 1 mm

were delivered by the client on 06 February 2025.

The test object was installed by craftsmen of the MFPA Leipzig GmbH in the testing laboratory of the MFPA Leipzig GmbH on 14 February 2025.

The date of test is revealed on the cover sheet of this report.

3 Test Object

The test object as described in the following was tested.
Pictures of the test object can be seen in annex 2.

The test was carried out with a weight load of approx. 22 kg² on the vinyl flooring according to the standard EN 16354 (in conjunction with EN 16205, annex E).

Test object (from top to bottom)

- 3.8 mm vinyl flooring
- 1 mm impact sound insulating underlay *Acoustic Silence 360*
- 140 mm reinforced concrete floor of testing room

Assembly

The insulating underlay was laid on the reinforced concrete floor (1 layer, edges butt jointed). The vinyl flooring was laid on the top side of the insulating underlay. Parallel rows of the vinyl pieces were mounted in offset to one another. Finally, the weight load, realized with bricks, was applied on the vinyl flooring.

Size of the test object: 10.0 m² (vinyl flooring)

The following dimensions and mass per unit area were found by the testing institute.

Table 1: dimensions and mass per unit area

Description	Length [mm]	Width [mm]	Thickness [mm]	Mass per unit area [kg/m²]
vinyl flooring	1220	180	3.8	7.79
insulating underlay	1000	997	1	0.38

4 Testing Room

The measurements were carried out in the testing room of the MFPA Leipzig GmbH, which complies with the requirements imposed by EN ISO 10140-5 and which is also suitable for measurements of impact sound insulation according to EN ISO 10140-3. The oblique angled testing room with a heavyweight standard floor (reinforced concrete with a thickness of 140 mm) has a volume of 57.9 m³.

The climatic conditions in the testing room during the measurements were:

Table 2: climatic conditions

air temperature	air humidity	static pressure
19 °C	38 %	100 kPa

5 Test Method

Measurements were carried out with the test object on concrete floor in the testing room according to

- EN 16354:2018, *Laminate floor coverings – Underlays – Specification, requirements and test methods*

In EN 16354 it is expelled that the procedure of annex E of EN 16205:2013 + A1:2018, *Laboratory measurements of walking noise on floors*, has to be applied. The measurements were carried out according to EN 16354 in conjunction with annex E of EN 16205

The test object was excited by a standard tapping machine on the top side. Sound pressure levels $L_{i,with}$ were measured in the testing room for 12 positions of the standard tapping machine with a rotating microphone. Measurements were carried out on 1/3rd octave band frequencies from 25 to 12500 Hz.

For every 1/3rd octave band frequency, the measured sound pressure levels were energetic averaged, with values $L_{i,loud}$ as the result.
The value of RWS (loudness RWS in Sone – for stationary signals and for diffuse sound field), was determined from the sound pressure levels $L_{i,loud}$ in the 1/3rd octave band frequencies in accordance with annex E of EN 16205 by using ISO 352:1975 (Prof. Zwickers method).

6 Measuring Instruments

The following listed measuring devices were used.

Table 3: Measuring devices

Device	Type	Manufacturer
Sound level meter	140	Norsonic
Free field microphone	1225	Norsonic
Preamplifier	1209	Norsonic
Calibrator	1251	Norsonic
Microphone panning system	265	Norsonic
Standard tapping machine	211	Norsonic

The measuring instruments are calibrated regularly and the measurement chain is calibrated before and after each measurement.
The MFPA Leipzig GmbH regularly takes part in the comparative measurements group 1 testing laboratories (qualification testing laboratories) of the Physikalisch Technische Bundesanstalt PTB (German national metrology institute) Braunschweig (the last one being in 2022) and is registered as a testing laboratory in the "List of testing, monitoring and certifying laboratories in accordance with the state building codes" of the Deutsches Institut für Bautechnik DIBt (German Institute for Construction Technology) under the code number "SAC 02".
The testing laboratory took part at the measurement of the round robin "Walking Noise" of the Physikalisch Technische Bundesanstalt PTB Braunschweig.

The MFPA Leipzig GmbH is a testing laboratory accredited by the DAkkS GmbH according to DIN EN ISO/IEC 17025.

7 Measuring Results

The measured loudness RWS of the test object amounts to

51.7 Sone.

The graphic representation of values in Sone / BARK can be seen in annex 1.

8 Notes on the Test Results

The result, loudness RWS, was achieved in the laboratory.

The results of the tests exclusively relate to the items tested. This document does not replace a certificate of conformity or suitability according to national and European building codes.

Leipzig, March 3rd 2024

Dr.-Ing. S. Reichel
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Dipl.-Phys. D. Sprinz
Head of Work Group

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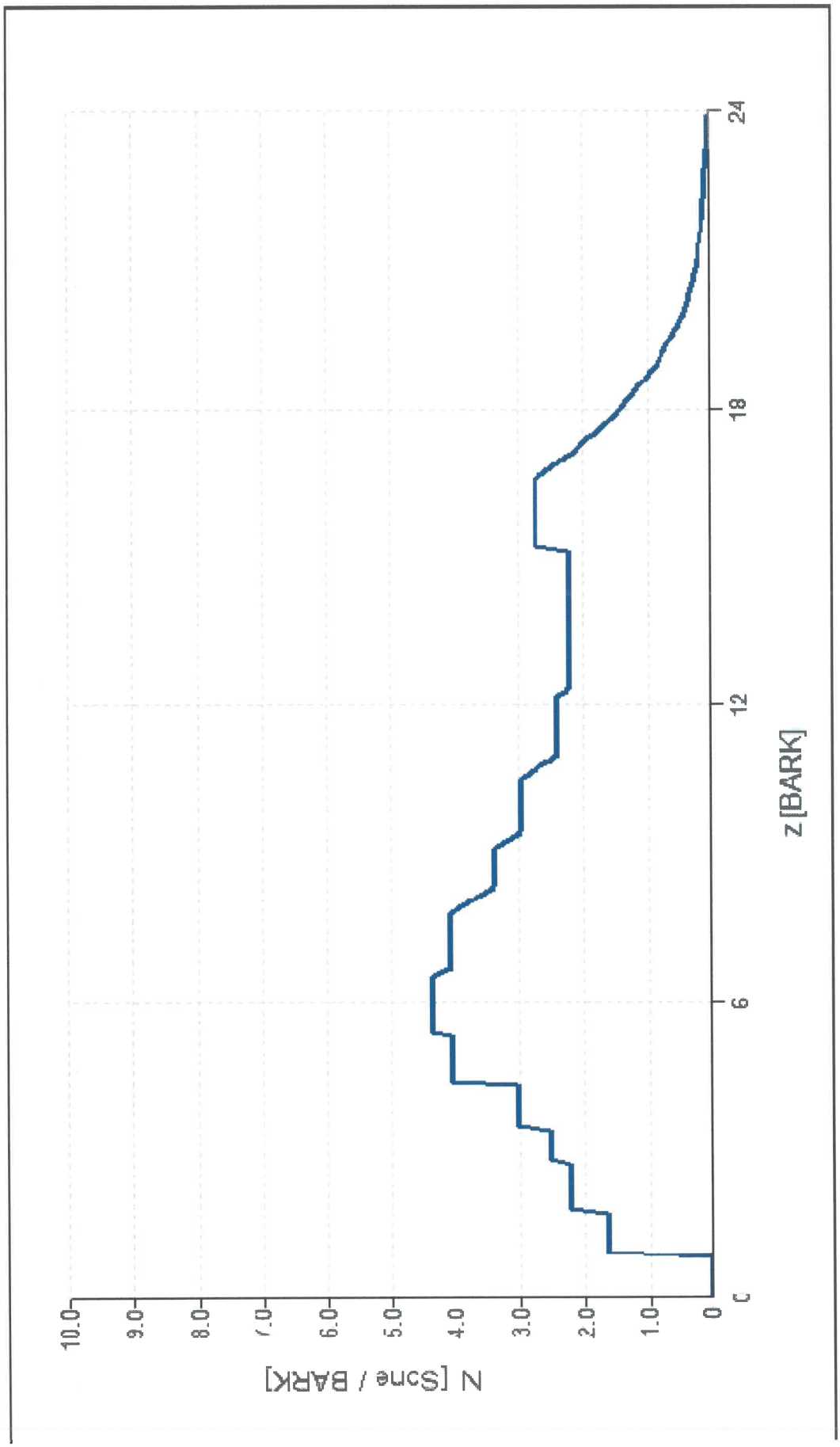
J. Richter, B. Eng.
Testing Engineer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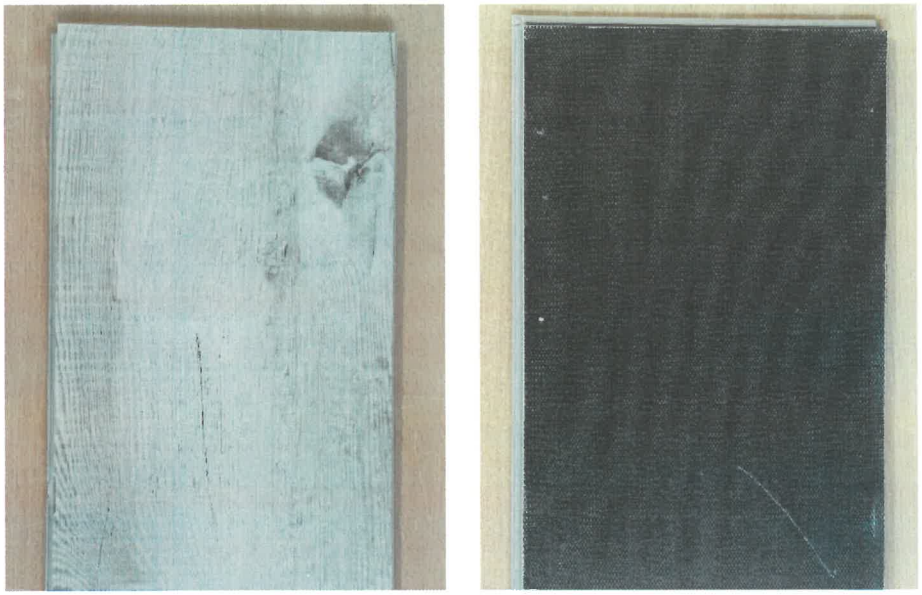

Figure 1: vinyl flooring close up

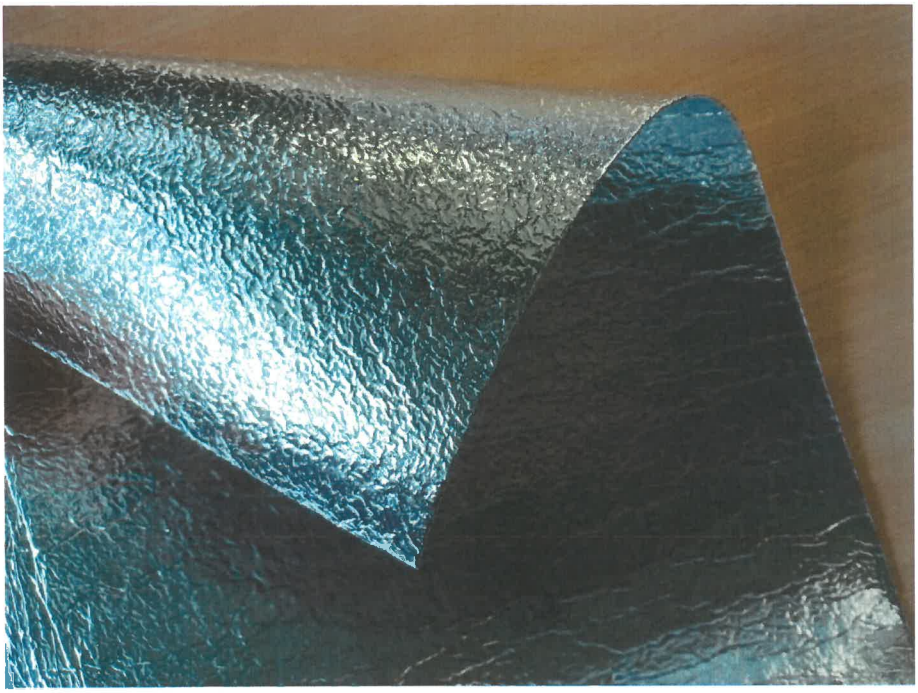

Figure 2: insulating underlay close up

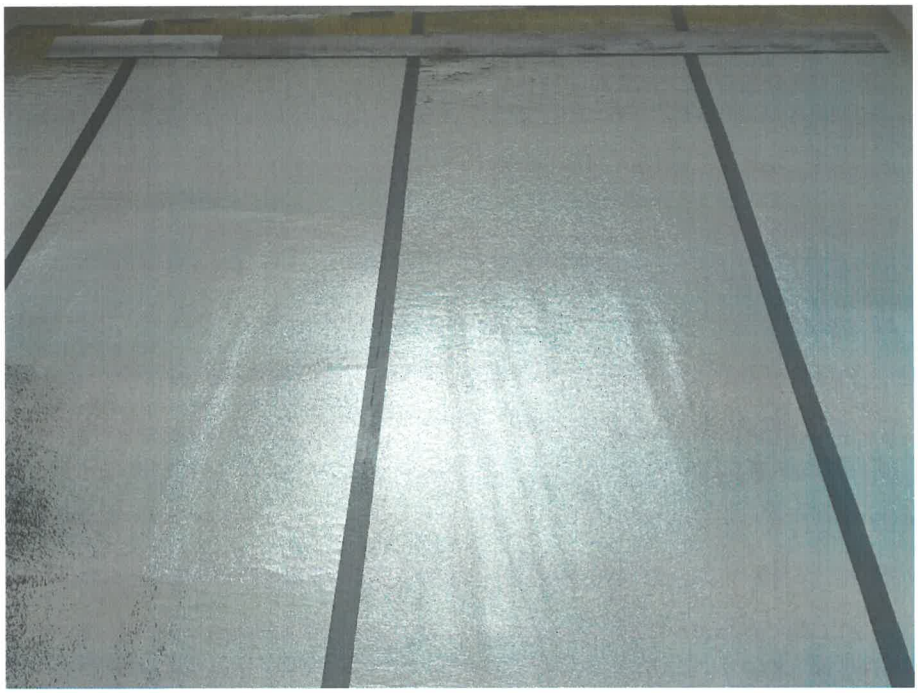

Figure 3: mounting situation of insulating underlay

Figure 4: completed floor with weight load (situation during test)