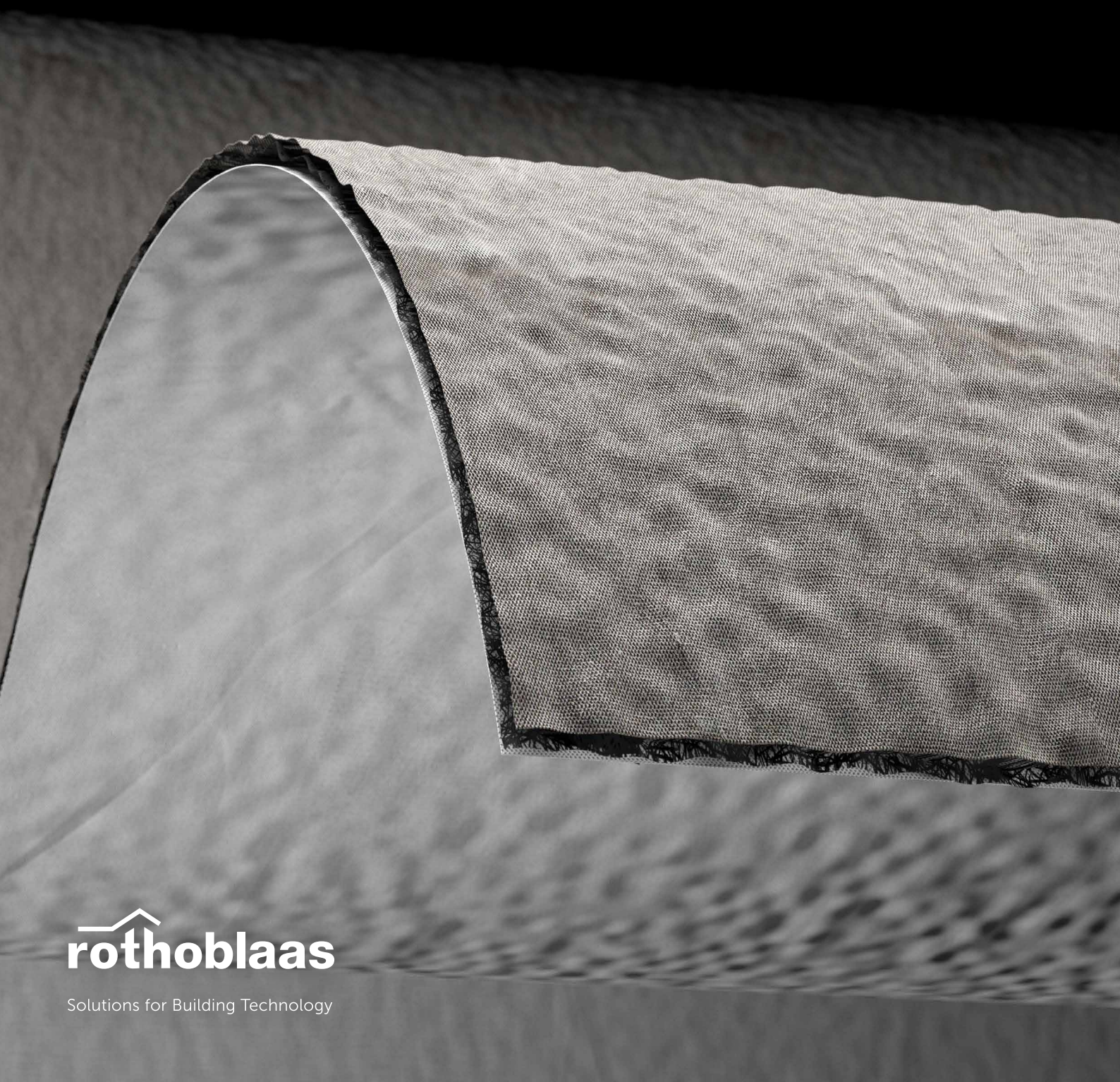
SILENT FLOOR NET 3D

TECHNICAL MANUAL



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Solutions for Building Technology

CONTENTS

ACOUSTIC PROBLEMS OF FLOORS

WHAT IS IMPACT NOISE?

When it comes to floors, impact noise is the main acoustic problem because it constantly affects them. When a body impacts on the floor structure, the noise quickly spreads throughout the building either by air, affecting the nearest rooms, or by structure, propagating into the most distant rooms.

WHAT IS AIRBORNE NOISE?

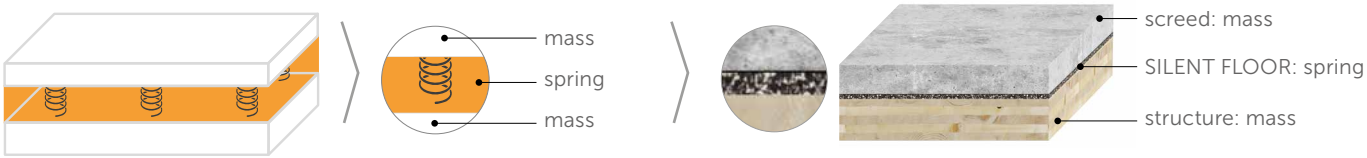
Airborne noise is generated in the air and, after an initial airborne phase, is transported both by air and by structure. This is a problem that affects both walls and floors, but if we are talking about floors, the most important problem is certainly impact noise.

HERE IS THE SOLUTION

In order to be able to minimise the discomfort caused by impact noise, a stratigraphic package should be designed consisting of layers of different materials that are disconnected from each other and are able to dissipate the energy transmitted by the impact.

MASS-SPRING-MASS SYSTEM

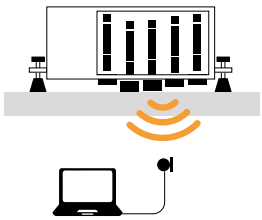
A floating screed system such as the one shown in the images below can be schematised with a mass-spring-mass system, in which the structural floor represents the mass, the impact-absorbing product is equivalent to the spring, and the upper screed with the floor constitutes the second mass of the system. In this context, "resilient layer" is defined as the element with the spring function characterised by its own *dynamic stiffness s'*.



HOW IS THE IMPACT NOISE LEVEL MEASURED?

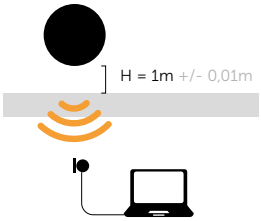
The impact noise level is a measure of the disturbance perceived in a room when an impact noise source is activated in the upper room. It can be measured both on site and in the laboratory. Clearly, ideal conditions exist in the laboratory for the effects of lateral transmission to be neglected, as the laboratory itself is constructed so that the walls are decoupled from the ceiling.

TAPPING MACHINE method



The TAPPING MACHINE is used to simulate "light" and "hard" impacts, such as walking with heeled shoes or the impact caused by falling objects.

RUBBER BALL method

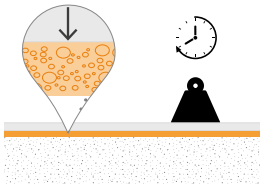


The RUBBER BALL is used to simulate "soft" and "heavy" impacts, such as a barefoot walk or a child jumping.

HOW TO CHOOSE THE BEST PRODUCT

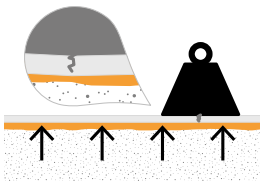
DYNAMIC STIFFNESS – **s'**

Expressed in MN/m³, it is measured according to EN 29052-1 and expresses the deformation capacity of a material that is subjected to a dynamic stress. Consequently, it indicates the ability to dampen the vibrations generated by an impact noise.
The measurement method involves, first, measuring the *apparent dynamic stiffness* s'_t of the material and then correcting it, if necessary, to obtain the *real dynamic stiffness* s'. Dynamic stiffness depends in fact on the *flow resistivity r*, which is measured in the lateral direction of the sample. If the material has specific flow resistivity values, the apparent dynamic stiffness must be corrected by adding the contribution of the gas contained within the material: air.



VISCOUS SLIDING UNDER COMPRESSION – **CREEP**

Expressed as a percentage, it is measured according to EN 1606 and represents the long-term deformation of a material under constant load to be simulated. The measurement in the laboratory must be carried out over a period of at least 90 days.

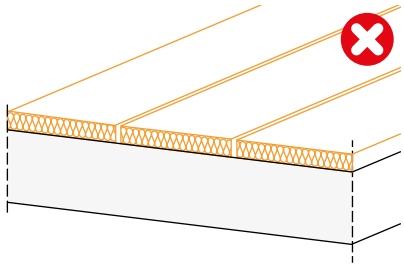


COMPRESSIBILITY - **c**

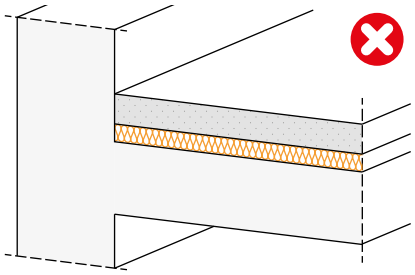
The compressibility class expresses the behaviour of a material while subjected to screed loading. During measurement, the product is subjected to different loads and its thickness is measured. The compressibility measurement is carried out to understand what loads the underscreed product can withstand, in order to avoid cracking and splitting of screeds.

CORRECT INSTALLATION

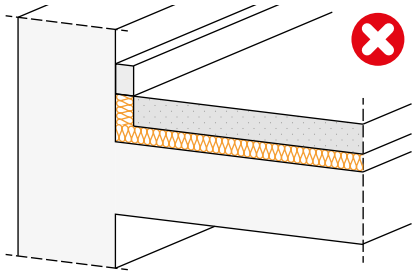
The technological solution of the floating screed is one of the most widely used and one of the most effective, but in order to achieve satisfactory results it is important that the system is designed and implemented correctly.



The resilient layer must be continuous because any gap would represent an acoustic bridge. When installing underscreed mats, care must be taken not to create discontinuities.



It is important to use the SILENT EDGE perimeter strip to ensure that the resilient layer is continuous around the entire perimeter of the room. The SILENT EDGE should only be trimmed after the floor has been installed and grouted.



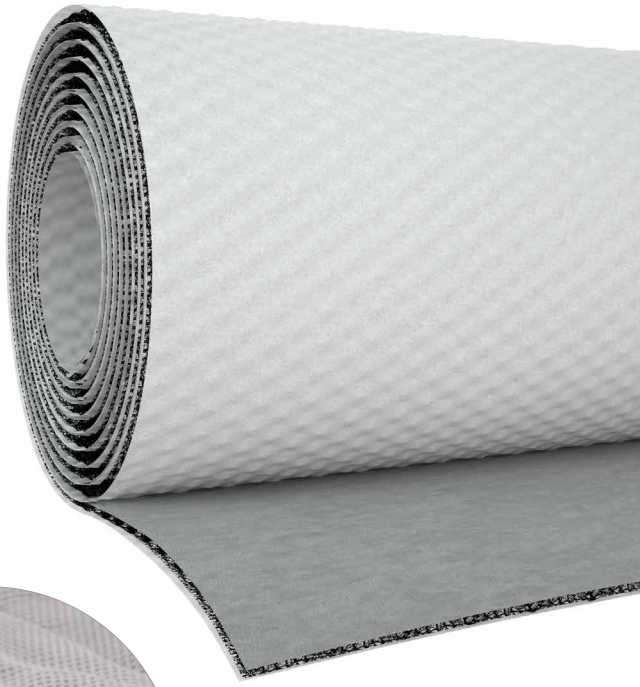
The skirting board must be installed after the SILENT EDGE has been cut, ensuring that it is always suitably raised from the floor.

IIC vs L_w

IIC stands for **Impact Insulation Class** and is the value obtained by subtracting the noise level measured in the receiving room from the noise level measured in the source room. Impact Insulation Class, sometimes referred to as Impact Isolation Class, measures the resistance of the floor construction assembly against the propagation of impact-generated noise.

SILENT FLOOR NET 3D

BREATHABLE MEMBRANE WITH THREE-DIMENSIONAL RESILIENT MAT



SOUNDPROOFING

The special structure of the three-dimensional mat ensures a reduction in impact noise by acting as a resilient layer.

BREATHABILITY AND PROTECTION

The fabric protects the three-dimensional mesh from impurities and debris, while the breathable membrane ensures drying in the event of water accumulation during construction.

HIGH DENSITY 3D MESH

The three-dimensional mat has a high mechanical resistance while maintaining the functionality of the product even after the installation and construction phase.

COMPOSITION

breathable three-layer polypropylene membrane

resilient 3-dimensional polypropylene mat

protective non-woven polypropylene fabric

CODES AND DIMENSIONS

CODE	H [m]	L [m]	thickness [mm]	A [m^2]	
SILTNET10*	1,0	20	10	20	2
SILTNET20	1,0	16	20	16	3

*Product available on request.

BREATHABLE

The product consists of a three-layer membrane that ensures breathability, air and water impermeability even during installation.

VERSATILE

It can also be used as a micro-ventilation layer in both wall and roof, keeping adjacent layers dry and improving thermo-acoustic performance.

PRODUCT STRATIGRAPHY COMPARISON

integrated adhesive strip	thickness	dynamic stiffness (1)	load	estimate ΔL_w according to formula C.4 of EN ISO 12354-2
				10 15 20 25 30 35 40
✔	**10** mm	**19,8** MN/m³	125 kg/m²	**29,6** dB
			200 kg/m²	**32,3** dB
			250 kg/m²	**33,6** dB
✔	**20** mm	**21,1** MN/m³	125 kg/m²	**29,3** dB
			200 kg/m²	**31,9** dB
			250 kg/m²	**33,2** dB

(1) Dynamic stiffness value applicable for the construction of sand-cement screeds.

TRASPIR METAL

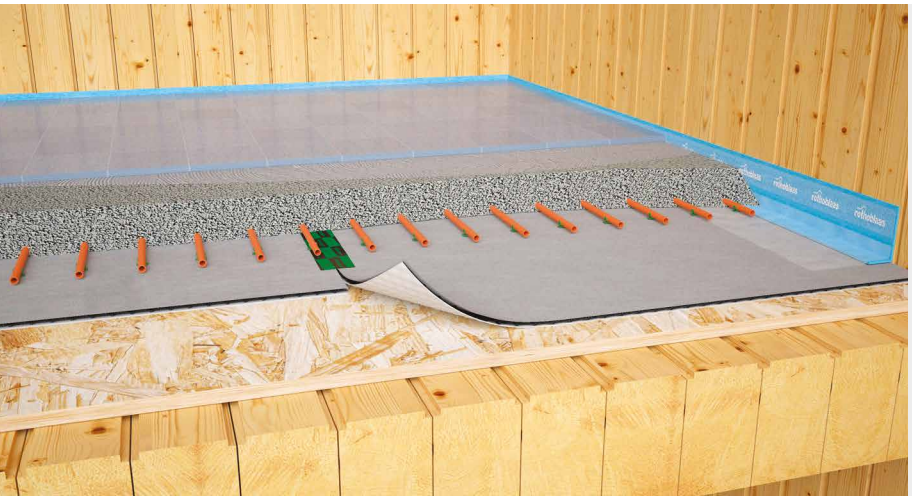
3D MATS FOR METAL ROOFS

- The 3D mats guarantee reduction of airborne and heavy rain noises. Values tested and certified.
- The breathable membrane with 3D mesh includes a fifth layer that blocks impurities and improves ventilation.

CODES AND DIMENSIONS

CODE	description	tape
TTMET610	TRASPIR 3D COAT TT	TT

For further information please see the "**TAPES, MEMBRANES, SEALANTS AND FIRE PROTECTION**" catalogue; visit the "Catalogues" section of www.rothoblaas.com.



PERFORMANCE

Theoretical estimate of impact sound pressure level reduction

ΔL_w : **29,6** dB

SILTNET10

TECHNICAL DATA

Properties	standard	value
Surface mass m	-	0,7 kg/m^2
Density ρ	-	70 kg/m^3
Apparent dynamic stiffness s'$_t$ (1)	EN 29052-1	20,1 MN/m^3
Dynamic stiffness s' (1)	EN 29052-1	20,1 MN/m^3
Apparent dynamic stiffness s'$_t$ (2)	EN 29052-1	19,8 MN/m^3
Dynamic stiffness s' (2)	EN 29052-1	19,8 MN/m^3
Compressibility class	EN 12431	CP2
CREEP Viscous sliding under compression X_{ct} (1,5 kPa)	EN 1606	13,44%
Theoretical estimate of the impact sound pressure level attenuation ΔL_w (3)	ISO 12354-2	29,6 dB
System resonance frequency f_0 (4)	ISO 12354-2	63,7 Hz
Impact sound pressure level attenuation ΔL_w (5)	ISO 10140-3	20 dB
Thermal conductivity λ	-	0,3 W/(m·K)
Specific heat c	-	1800 J/kg·K
Watertightness	EN 1928	class W1
Water vapour transmission Sd	-	0,03 m
Reaction to fire	EN 13501-1	class E

(1) Dynamic stiffness value applicable for the construction of dry floating screeds (e.g. gypsum fibre boards)
(2) Dynamic stiffness value applicable for the construction of sand-cement screeds.
(3) ΔL_w= (13 lg(m'))-(14,2 lg(s'))+20,8 [dB] with m'= 125 kg/m^2.
(4) f_0= 160 √(s'/m') with m'= 125 kg/m^2.
(5) Measured in the laboratory on 160 mm CLT floor. See the manual for more information on configuration.

EN ISO 12354-2 ANNEX C | ESTIMATE ΔL_W (FORMULA C.4) E ΔL (FORMULA C.1)

The following tables show how the attenuation in dB (ΔL_W and ΔL) of our materials varies as a function of the load m' (i.e., the surface mass of the layer applied on SILTNET10)

SILTNET10

	s't or s'	19,8	19,8	19,8	19,8	19,8	19,8	19,8	19,8	19,8	19,8	19,8	[MN/m^3]
	load m'	50	75	100	125	150	175	200	225	250	275	300	[kg/m^2]
	ΔL_w	24,5	26,8	28,4	29,6	30,7	31,5	32,3	33,0	33,6	34,1	34,6	[dB]
	f_0	100,7	82,2	71,2	63,7	58,1	53,8	50,3	47,5	45,0	42,9	41,1	[Hz]
						ΔL in frequency							
[Hz]	**100**	-0,1	2,6	4,4	5,9	7,1	8,1	8,9	9,7	10,4	11,0	11,6	[dB]
[Hz]	**125**	2,8	5,5	7,3	8,8	10,0	11,0	11,8	12,6	13,3	13,9	14,5	[dB]
[Hz]	**160**	6,0	8,7	10,6	12,0	13,2	14,2	15,1	15,8	16,5	17,1	17,7	[dB]
[Hz]	**200**	8,9	11,6	13,5	14,9	16,1	17,1	18,0	18,7	19,4	20,0	20,6	[dB]
[Hz]	**250**	11,8	14,5	16,4	17,8	19,0	20,0	20,9	21,6	22,3	23,0	23,5	[dB]
[Hz]	**315**	14,9	17,5	19,4	20,8	22,0	23,0	23,9	24,7	25,3	26,0	26,5	[dB]
[Hz]	**400**	18,0	20,6	22,5	23,9	25,1	26,1	27,0	27,8	28,5	29,1	29,6	[dB]
[Hz]	**500**	20,9	23,5	25,4	26,8	28,0	29,0	29,9	30,7	31,4	32,0	32,6	[dB]
[Hz]	**630**	23,9	26,5	28,4	29,9	31,0	32,1	32,9	33,7	34,4	35,0	35,6	[dB]
[Hz]	**800**	27,0	29,6	31,5	33,0	34,2	35,2	36,0	36,8	37,5	38,1	38,7	[dB]
[Hz]	**1000**	29,9	32,6	34,4	35,9	37,1	38,1	38,9	39,7	40,4	41,0	41,6	[dB]
[Hz]	**1250**	32,8	35,5	37,3	38,8	40,0	41,0	41,8	42,6	43,3	43,9	44,5	[dB]
[Hz]	**1600**	36,0	38,7	40,6	42,0	43.2	44,2	45,1	45,8	46,5	47,1	47,7	[dB]
[Hz]	**2000**	38,9	41,6	43,5	44,9	46,1	47,1	48,0	48,7	49,4	50,0	50,6	[dB]
[Hz]	**2500**	41,8	44,5	46,4	47,8	49,0	50,0	50,9	51,6	52,3	53,0	53,5	[dB]
[Hz]	**3150**	44,9	47,5	49,4	50,8	52,0	53,0	53,9	54,7	55,3	56,0	56,5	[dB]

EN ISO 12354-2 Annex C - formula C.4

$$\Delta L_w = \left(13 \lg\left(m'\right)\right) - \left(14{,}2 \lg\left(s'\right)\right) + 20{,}8 \text{ dB}$$

EN ISO 12354-2 Annex C - formula C.1

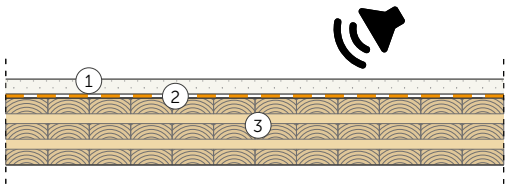
$$\Delta L = \left(30 \lg \frac{f}{f_0}\right) \text{dB}$$

EN ISO 12354-2 Annex C - formula C.2

$$f_0 = 160 \sqrt{\frac{s'}{m'}}$$

LABORATORY MEASUREMENT | CLT FLOOR 1

AIRBORNE SOUND INSULATION
REFERENCE STANDARD: ISO 10140-2 AND EN ISO 717-1

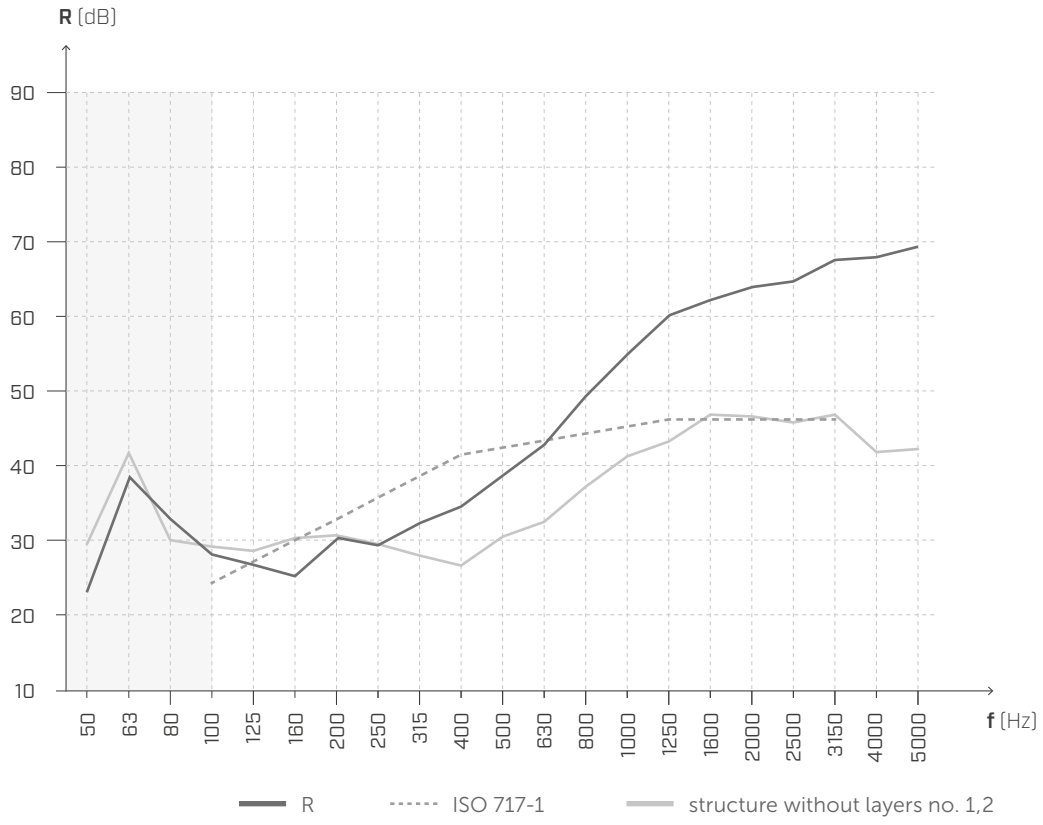


FLOOR

Receiving room volume = 56,2 m^3

1. Gypsum fibre board (28,6 kg/m^2) (t: 23 mm)
2. **SILENT FLOOR NET 3D** (t: 10 mm)*
3. CLT (t: 160 mm)

AIRBORNE SOUND INSULATION



f [Hz]	R [dB]
50	23,7
63	38,2
80	32,9
100	28,6
125	28,0
160	27,5
200	30,2
250	29,6
315	32,7
400	34,9
500	38,8
630	43,8
800	49,3
1000	55,9
1250	60,7
1600	63,4
2000	64,9
2500	65,4
3150	67,0
4000	67,4
5000	69,3

R_w = **43 dB**

ΔR_w = 6 dB

STC = **43**

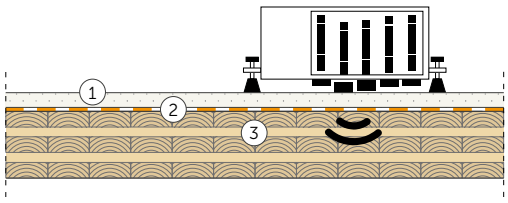
ΔSTC = 8 db

Testing laboratory: University of Bologna
Measurement date: 19/03/2025

Test protocol: R06_2025/Rothoblaas
(*) Test carried out using an 8 mm product.

LABORATORY MEASUREMENT | CLT FLOOR 1

IMPACT SOUND INSULATION
REFERENCE STANDARD ISO 10140-3 AND EN ISO 717-2

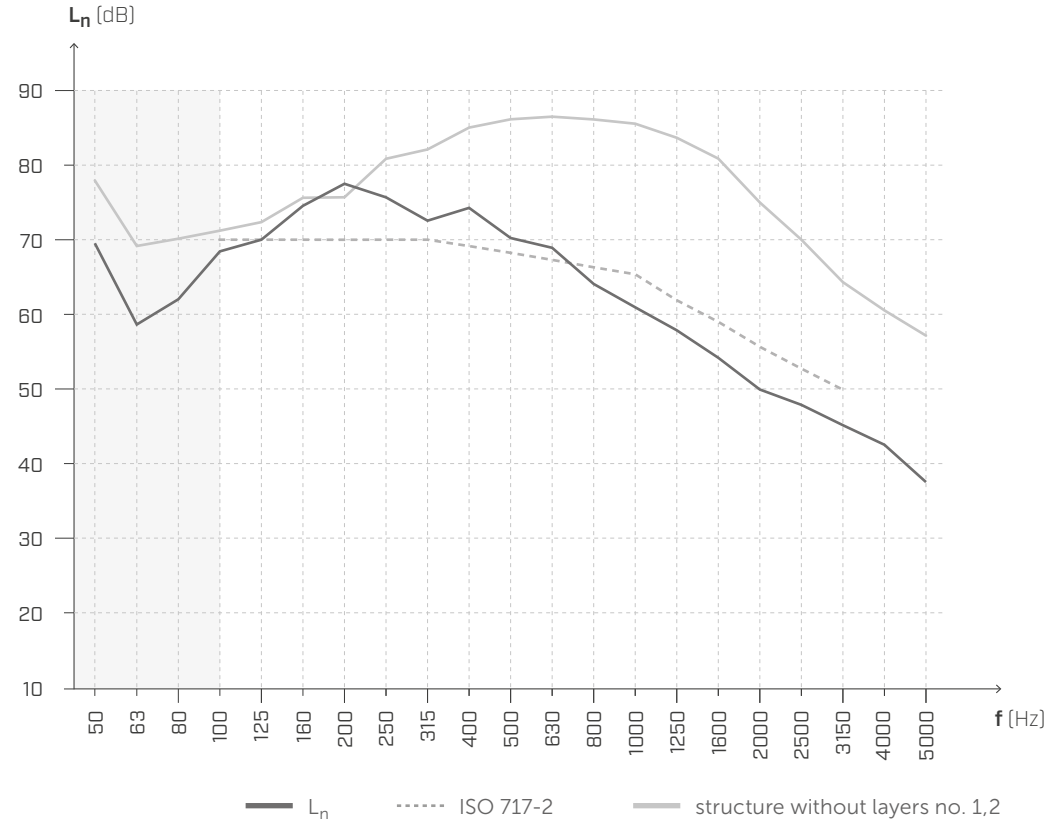


FLOOR

Receiving room volume = 56,2 m^3

1. Gypsum fibre board (28,6 kg/m^2) (t: 23 mm)
2. **SILENT FLOOR NET 3D** (t: 10 mm)*
3. CLT (t: 160 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	L_n [dB]
50	68,9
63	59,2
80	62,2
100	68,8
125	69,2
160	74,9
200	77,4
250	76,1
315	73,7
400	74,4
500	70,9
630	68,6
800	64,7
1000	61,6
1250	57,5
1600	54,2
2000	50,1
2500	48,0
3150	45,3
4000	43,5
5000	37,5

$L_{n,w}$ = **68 dB**

$\Delta L_{n,w}$ = -17 dB

IIC = **42**

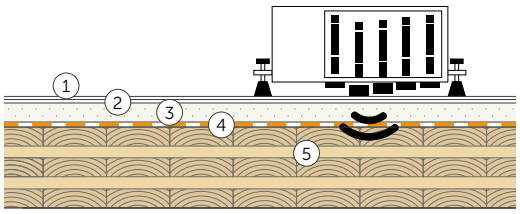
ΔIIC = +17

Testing laboratory: University of Bologna
Measurement date: 19/03/2025

Test protocol: L03_2025/Rothoblaas
(*) Test carried out using an 8 mm product.

LABORATORY MEASUREMENT | CLT FLOOR 2

IMPACT SOUND INSULATION
REFERENCE STANDARD ASTM E 1007 AND ISO 717-2

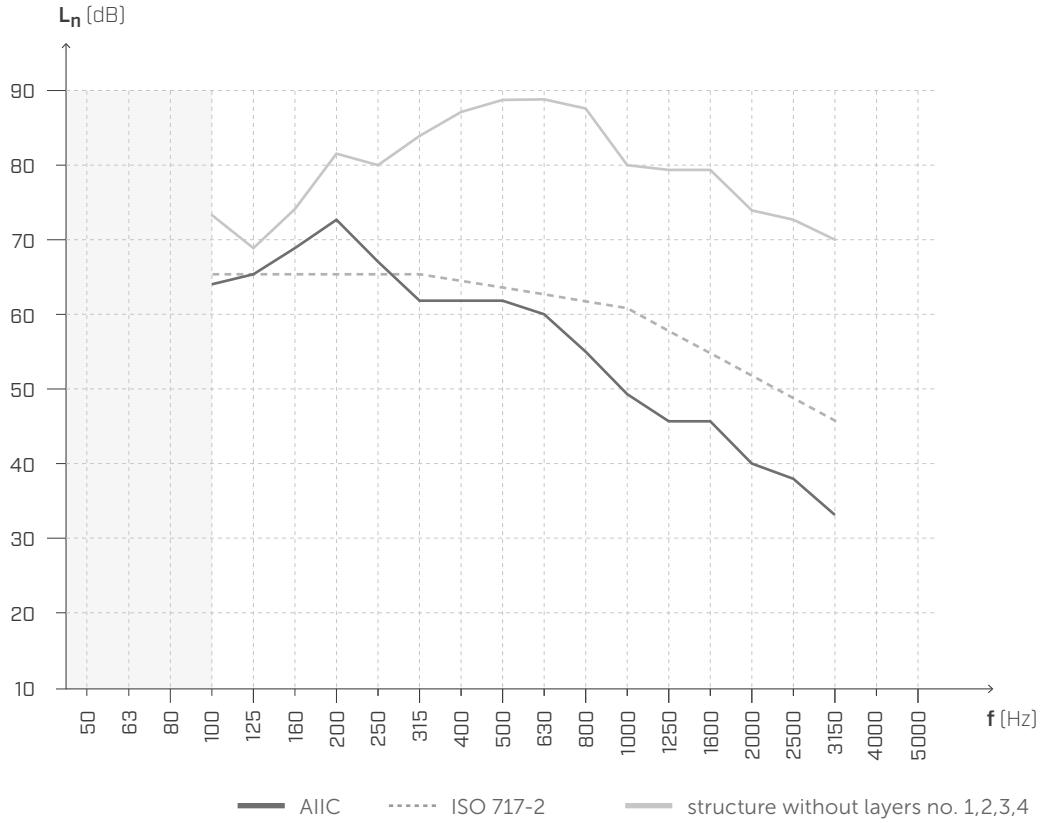


FLOOR

Receiving room volume = 45 m^3

1. LV vinyl flooring
2. Underfloor (t: 35 mm)
3. Gypsum fibre board (28,6 kg/m^2) (t: 25 mm)
4. **SILENT FLOOR NET 3D** (t: 10 mm)*
5. CLT (t: 172 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	ANISPL [dB]
50	-
63	-
80	-
100	64
125	65
160	69
200	73
250	67
315	61
400	61
500	61
630	60
800	55
1000	49
1250	46
1600	46
2000	40
2500	38
3150	34
4000	-
5000	-

$L_{n,w}$ = **63 dB**

$\Delta L_{n,w}$ = -21 dB

AIIC = **47**

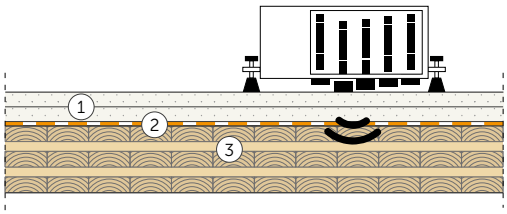
ΔAIIC = 21

Test laboratory: Québec testing facility
Measurement date: 22/05/2025

Test protocol: T11_2025
(*) Test carried out using an 8 mm product.

LABORATORY MEASUREMENT | CLT FLOOR 3

IMPACT SOUND INSULATION
REFERENCE STANDARD ISO 10140-3 AND EN ISO 717-2

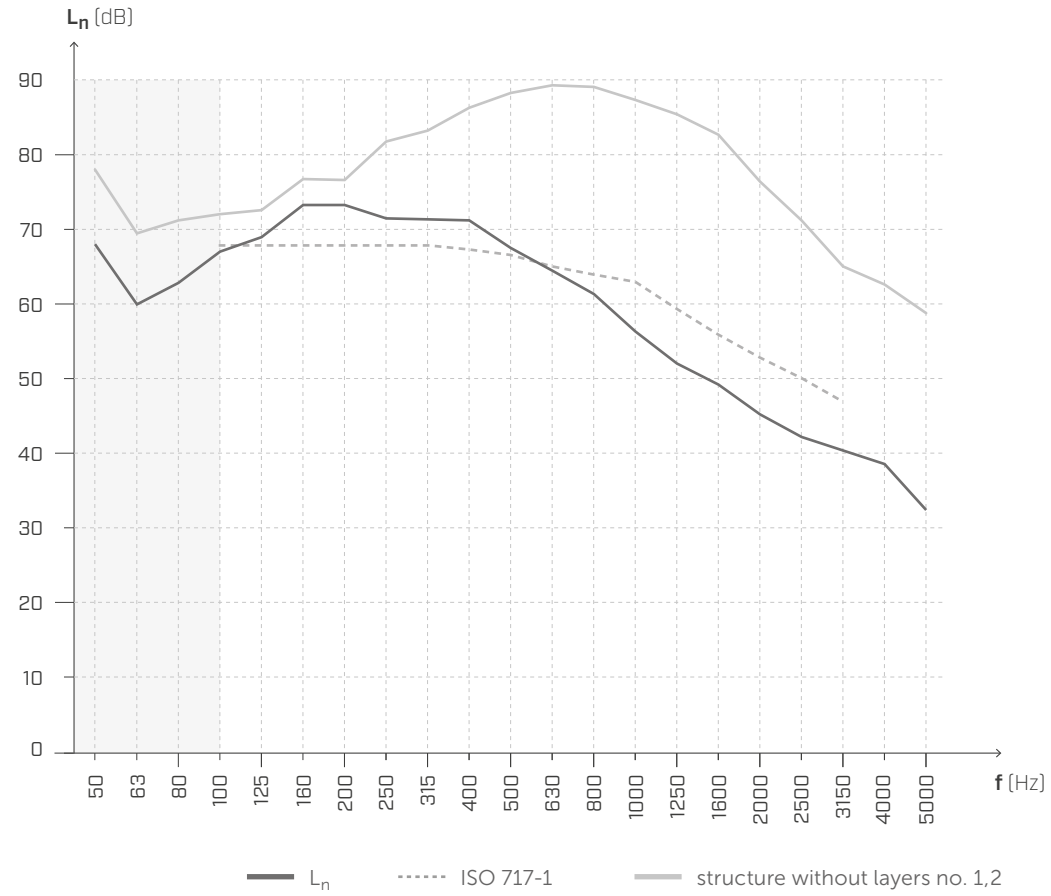


FLOOR

Receiving room volume = 56,2 m^3

1. 2 Gypsum fibre boards (28,6 kg/m^2) (t: 23 mm)
2. **SILENT FLOOR NET 3D** (t: 10 mm)*
3. CLT (t: 160 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	L_n [dB]
50	67,5
63	59,1
80	61,5
100	66,0
125	67,6
160	72,4
200	72,4
250	70,8
315	70,3
400	70,1
500	66,8
630	64,6
800	60,5
1000	55,9
1250	51,4
1600	48,1
2000	44,4
2500	41,6
3150	39,8
4000	37,9
5000	31,3

$L_{n,w}$ = **65 dB**

$\Delta L_{n,w}$ = -20 dB

IIC = **45**

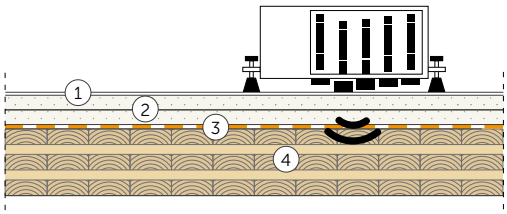
ΔIIC = 20

Testing laboratory: University of Bologna
Measurement date: 08/04/2025

Test protocol: L04_2025/Rothoblaas
(*) Test carried out using an 8 mm product.

LABORATORY MEASUREMENT | CLT FLOOR 3 WITH FLOORING [1]

IMPACT SOUND INSULATION
REFERENCE STANDARD ISO 10140-3 AND EN ISO 717-2

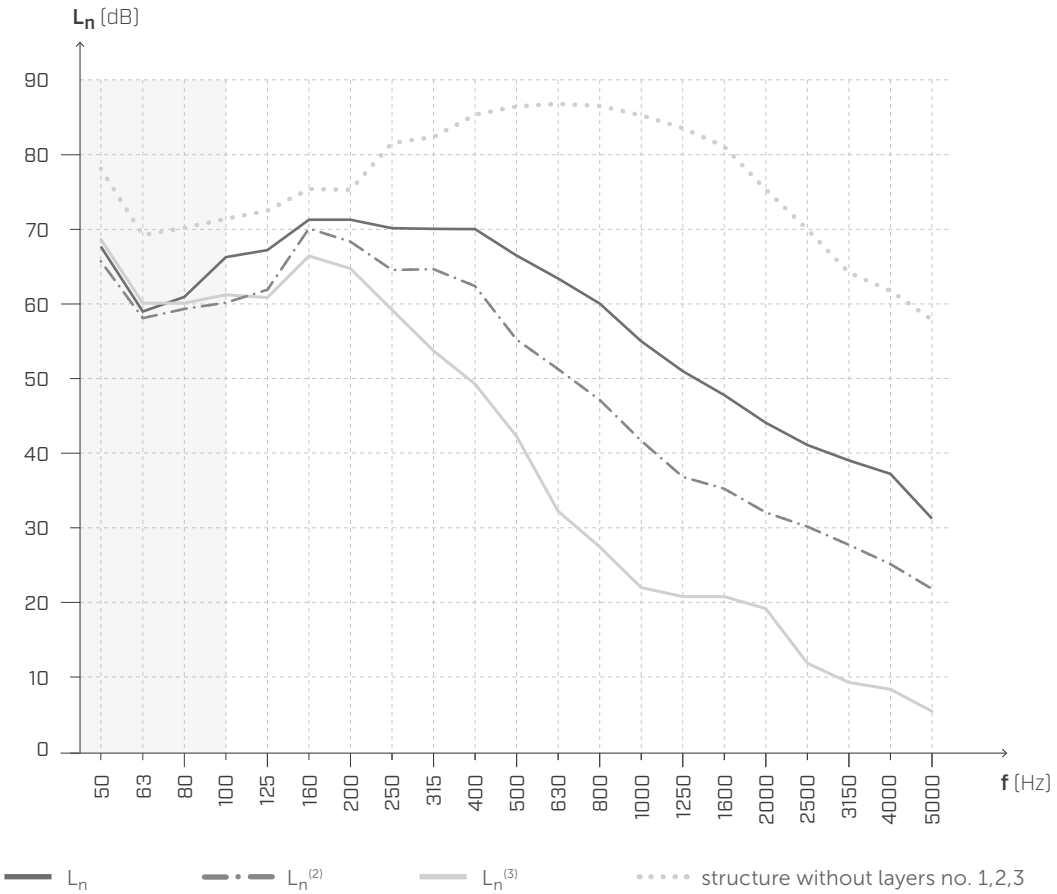


FLOOR

Receiving room volume = 56,2 m^3

1. Tile flooring[2] / Carpet flooring[3]
2. 2 Gypsum fibre boards (28,6 kg/m^2) (t: 23 + 23 mm)
3. **SILENT FLOOR NET 3D** (t: 10 mm)*
4. CLT (t: 160 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	Ln [dB]	Ln(2) [dB]	Ln(3) [dB]
50	67,5	64,9	68,8
63	59,1	58,3	60,8
80	61,5	59,2	60,8
100	66,0	60,8	63,9
125	67,6	63,6	62,9
160	72,4	70,5	66,7
200	72,4	68,1	64,2
250	70,8	64,4	59,0
315	70,3	64,5	54,3
400	70,1	63,0	49,5
500	66,8	55,1	42,7
630	64,6	53,8	33,9
800	60,5	47,4	27,3
1000	55,9	42,6	22,9
1250	51,4	36,1	21,8
1600	48,1	35,8	21,8
2000	44,4	32,6	19,1
2500	41,6	30,8	11,9
3150	39,8	27,4	9,3
4000	37,9	25,9	9,2
5000	31,3	23,1	6,0

$L_{n,w}$ = **65 dB**
IIC = **45**

$L_{n,w}^{(2)}$ = **59 dB**
IIC = **51**

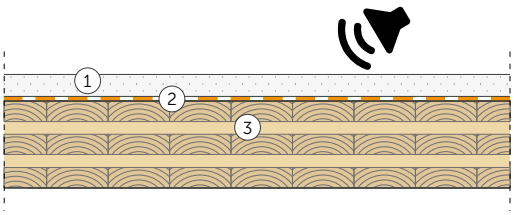
$L_{n,w}^{(3)}$ = **55 dB**
IIC = **55**

Testing laboratory: University of Bologna
Measurement date: 08/04/2025
(*) Test carried out using an 8 mm product.

NOTES:
(1) The presence of the floor covering influences the measurement method and the results may not fully reflect the actual perception under real-use conditions.
(2) Increase due to the addition of the tile layer.
(3) Increase due to the addition of the carpet layer.

LABORATORY MEASUREMENT | CLT FLOOR 4

AIRBORNE SOUND INSULATION
REFERENCE STANDARDS ASTM E413 AND ISO 717-1

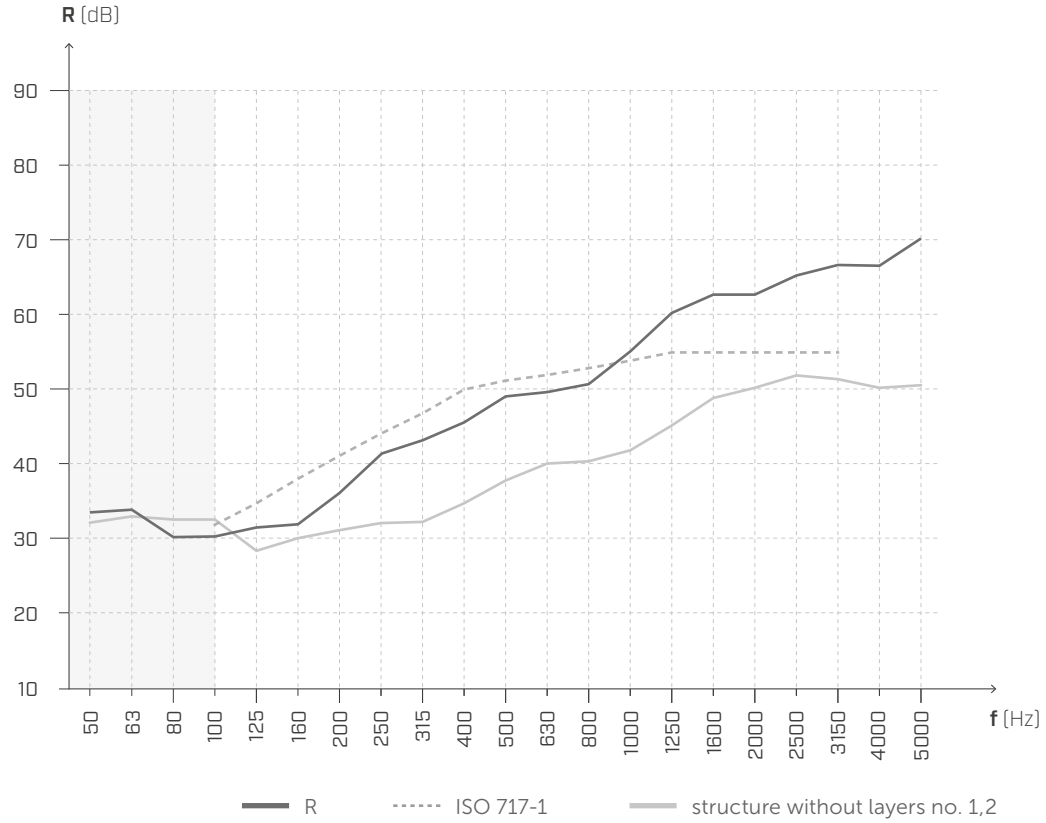


FLOOR

Surface = 10,98 m^2
Mass = 164,17kg/m^2
Receiving room volume = 158,63 m^3

1. Sand and cement screed (t: 38,1 mm)
2. **SILENT FLOOR NET 3D** (t: 10 mm)
3. CLT (t: 175 mm)

AIRBORNE SOUND INSULATION



f [Hz]	R [dB]
50	34,2
63	34,9
80	30,1
100	30,5
125	33,0
160	33,8
200	36,9
250	42,0
315	43,4
400	46,3
500	49,0
630	49,2
800	51,8
1000	55,4
1250	60,4
1600	63,7
2000	63,7
2500	65,7
3150	66,1
4000	66,0
5000	70,2

R_w = **51 dB**
ΔR_w = +9 dB

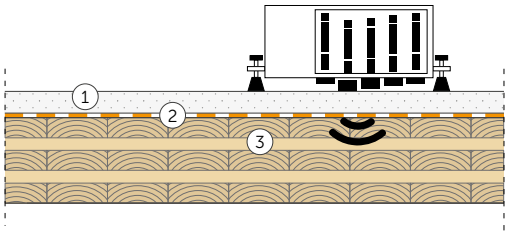
STC = **51**
ΔSTC = +9

Test laboratory: Intertek-ATI
Measurement date: 29/11/2023

Test protocol: Q3804.01-113-11-R1

LABORATORY MEASUREMENT | CLT FLOOR 4

IMPACT SOUND INSULATION
REFERENCE STANDARDS ASTM E989 AND ISO 717-2

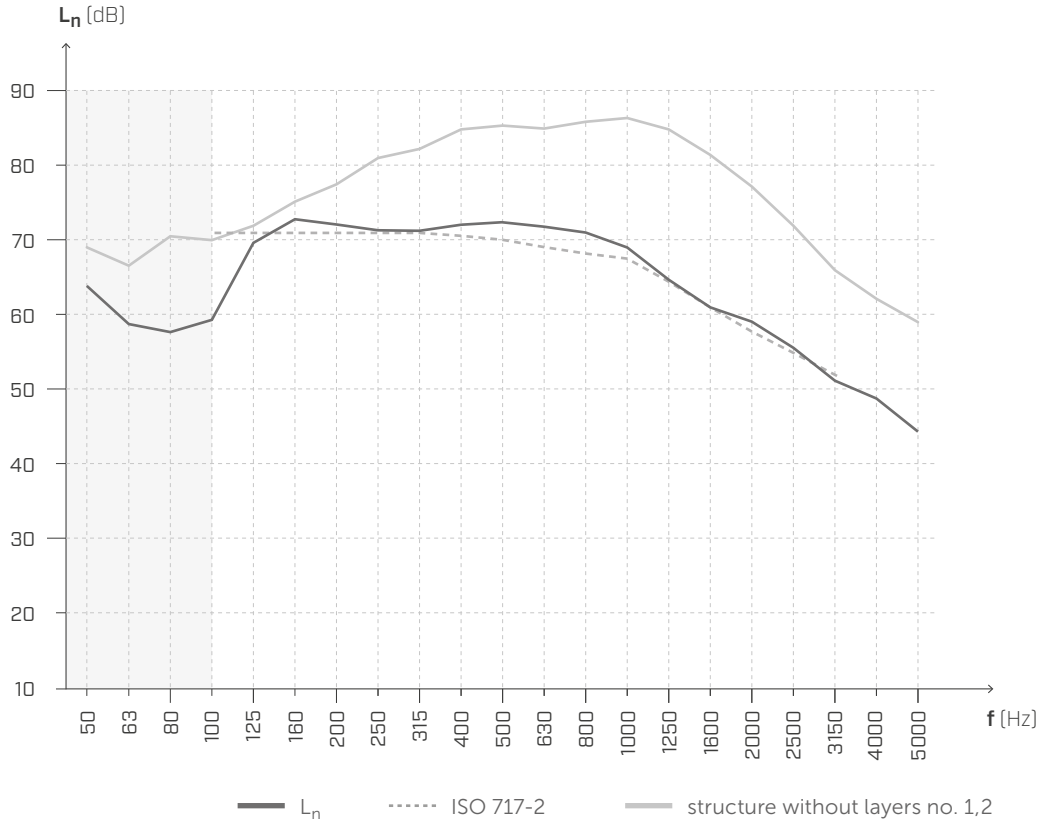


FLOOR

Surface = 10,98 m^2
Mass = 164,17kg/m^2
Receiving room volume = 158,63 m^3

1. Sand and cement screed (t: 38,1 mm)
2. **SILENT FLOOR NET 3D** (t: 10 mm)
3. CLT (t: 175 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	L_n [dB]
50	64,3
63	58,1
80	57,5
100	59,6
125	69,9
160	73,8
200	73,3
250	72,5
315	72,7
400	73,6
500	73,7
630	72,9
800	71,4
1000	69,2
1250	64,9
1600	61,1
2000	59,8
2500	56,0
3150	51,1
4000	49,0
5000	44,4

L_n = **70 dB**
$\Delta L_{n,w}$ = -15 dB

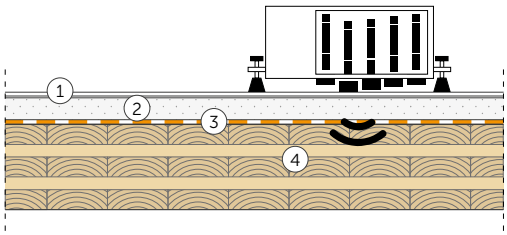
IIC = **40**
ΔIIC = +15

Test laboratory: Intertek-ATI
Measurement date: 29/11/2023

Test protocol: Q3804.01-113-11-R1

LABORATORY MEASUREMENT | CLT FLOOR 4 WITH FLOORING [1]

IMPACT SOUND INSULATION
REFERENCE STANDARDS ASTM E989 AND ISO 717-2

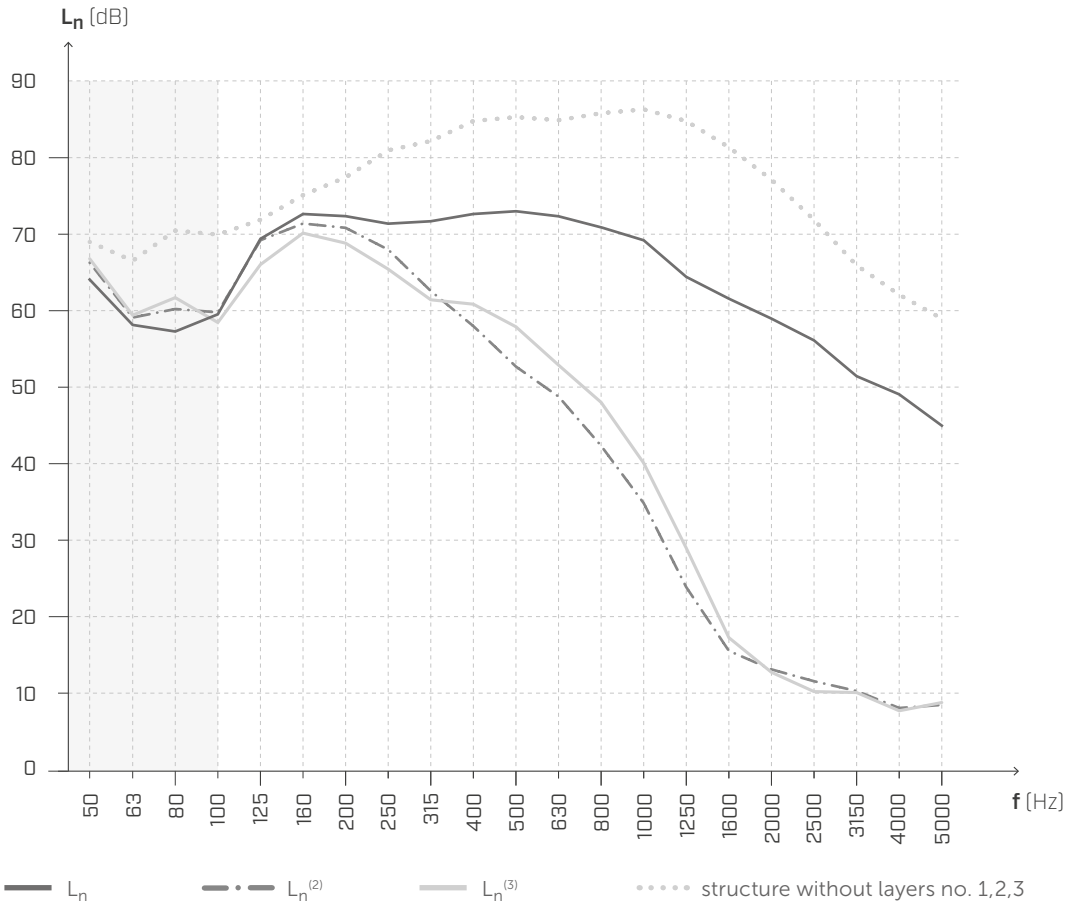


FLOOR

Surface = 10,98 m^2
Mass = 171,47kg/m^2
Receiving room volume = 158,63 m^3

1. Vinyl flooring + **SILENT STEP** (t: 2 mm)[2] / Carpet flooring[3]
2. Sand and cement screed (t: 38,1 mm)
3. **SILENT FLOOR NET 3D** (t: 10 mm)
4. CLT (t: 175 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	Ln [dB]	Ln(2) [dB]	Ln(3) [dB]
50	64,3	66,8	66,9
63	58,1	59,2	59,8
80	57,5	60,4	61,0
100	59,6	59,9	58,1
125	69,9	69,3	66,6
160	73,8	72,9	70,5
200	73,3	71,0	68,8
250	72,5	67,7	65,4
315	72,7	63,9	62,7
400	73,6	58,1	61,2
500	73,7	52,4	58,3
630	72,9	49,0	53,9
800	71,4	42,4	48,4
1000	69,2	35,9	40,2
1250	64,9	24,9	29,0
1600	61,1	16,8	17,9
2000	59,8	13,5	13,2
2500	56	11,3	10,4
3150	51,1	10,1	10,1
4000	49,0	7,7	7,5
5000	44,4	7,8	7,9

$L_{n,w}$ = **70 dB**
IIC = **40**

$L_{n,w}^{(2)}$ = **63 dB**
IIC = **47**

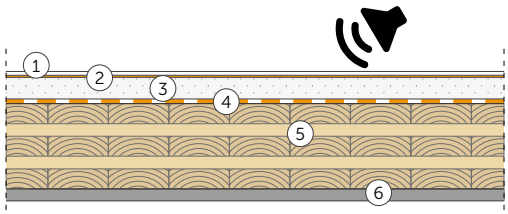
$L_{n,w}^{(3)}$ = **60 dB**
IIC = **50**

Test laboratory: Intertek-ATI
Measurement date: 29/11/2023
Test protocol: Q3804.02-113-11-R1
(*) Test carried out using an 8 mm product.

NOTES:
(1) The presence of the floor covering influences the measurement method and the results may not fully reflect the actual perception under real-use conditions.
(2) Increase due to the addition of the vinyl layer + SILENT STEP.
(3) Increase due to the addition of the carpet layer.

LABORATORY MEASUREMENT | CLT FLOOR 5

AIRBORNE SOUND INSULATION
REFERENCE STANDARDS ASTM E413 AND ISO 717-1

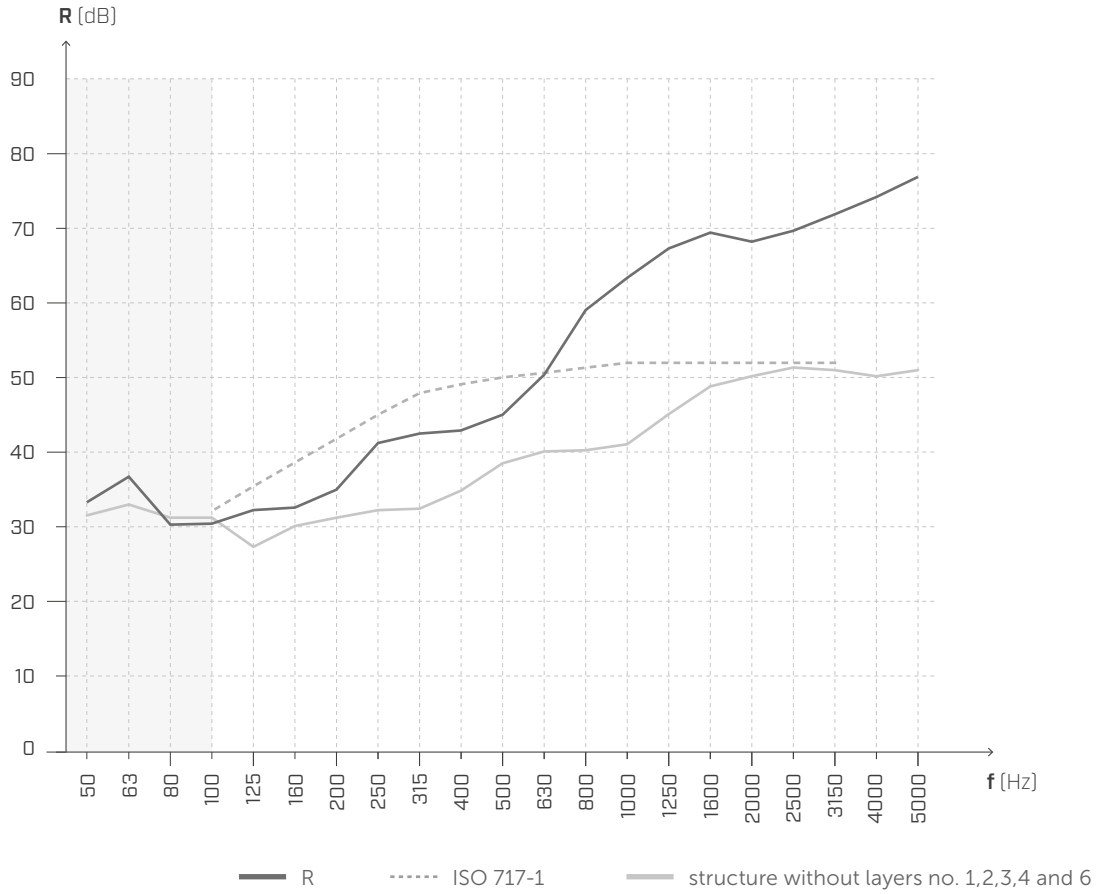


FLOOR

Surface = 10,98 m^2
Mass = 182,7 kg/m^2
Receiving room volume = 158,63 m^3

1. LVT vinyl flooring (t: 5,5 mm)
2. **SILENT STEP** (t: 2 mm)
3. Sand and cement screed (t: 38,1 mm)
4. **SILENT FLOOR NET 3D** (t: 10 mm)
5. CLT (t: 175 mm)
6. Plasterboard panel (t: 15,9 mm)

AIRBORNE SOUND INSULATION



f [Hz]	R [dB]
50	34,8
63	37,0
80	30,6
100	30,8
125	33,0
160	33,6
200	35,8
250	41,1
315	42,6
400	42,9
500	45,7
630	50,2
800	59,0
1000	64,6
1250	67,3
1600	69,1
2000	68,9
2500	69,5
3150	72,0
4000	74,4
5000	77,3

R_w = **50 dB**
ΔR_w = +9 dB

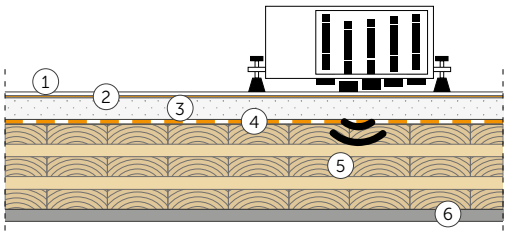
STC = **51**
ΔSTC = +9

Test laboratory: Intertek-ATI
Measurement date: 12/07/2023

Test protocol: Q3804.03-113-11-R1

LABORATORY MEASUREMENT | CLT FLOOR 5

IMPACT SOUND INSULATION
REFERENCE STANDARDS ASTM E989 AND ISO 717- 2

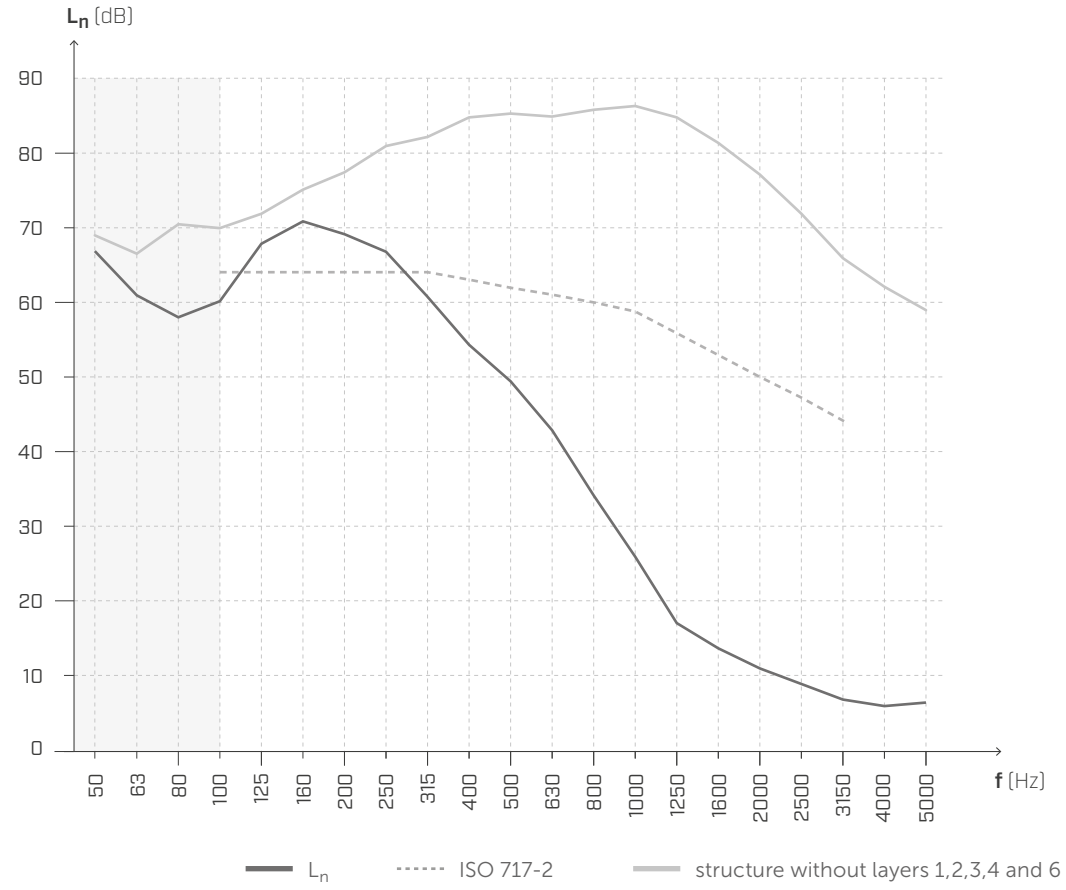


FLOOR

Surface = 10,98 m^2
Mass = 182,7 kg/m^2
Receiving room volume = 158,63 m^3

1. LVT vinyl flooring (t: 5,5 mm)
2. **SILENT STEP** (t: 2 mm)
3. Sand and cement screed (t: 38,1 mm)
4. **SILENT FLOOR NET 3D** (t: 10 mm)
5. CLT (t: 175 mm)
6. Plasterboard panel (t: 15,9 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	L_n [dB]
50	66,5
63	61,7
80	59,4
100	61,4
125	68,9
160	72,1
200	70,9
250	67,5
315	61,7
400	55,8
500	50,8
630	44,7
800	35,0
1000	25,8
1250	18,8
1600	14,2
2000	11,4
2500	9,3
3150	7,9
4000	7,3
5000	7,8

L_n = **62 dB**
$\Delta Ln_{,w}$ = -23 dB

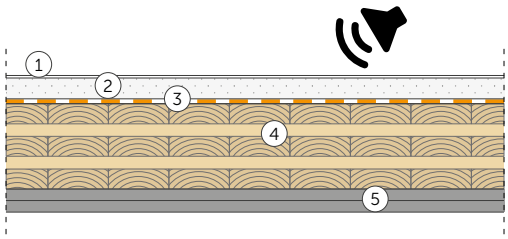
IIC = **48**
ΔIIC = +23

Test laboratory: Intertek-ATI
Measurement date: 29/11/2023

Test protocol: Q3804.03-113-11-R1

LABORATORY MEASUREMENT | CLT FLOOR 6

AIRBORNE SOUND INSULATION
REFERENCE STANDARDS ASTM E413 AND ISO 717-1

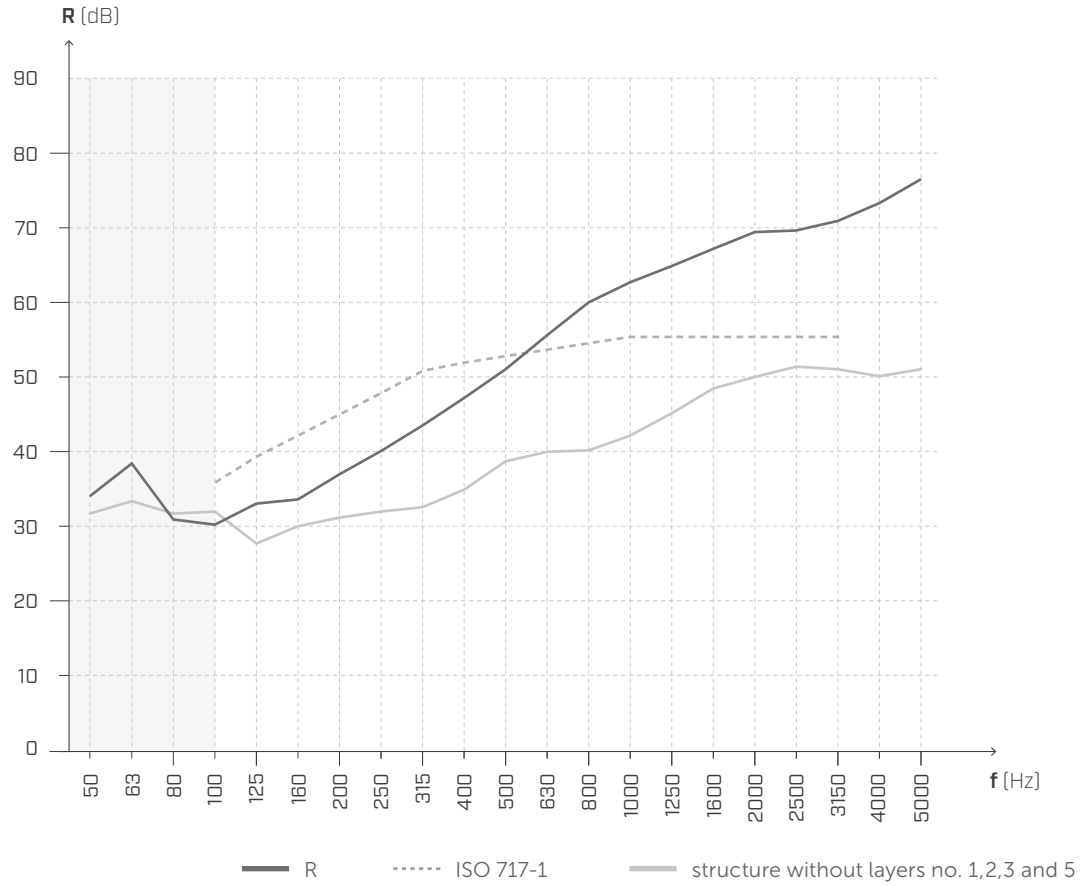


FLOOR

Surface = 10,98 m^2
Mass = 193,83 kg/m^2
Receiving room volume = 158,63 m^3

1. Carpet flooring[1] (t: 5,5 mm)
2. Sand and cement screed (t: 38,1 mm)
3. **SILENT FLOOR NET 3D** (t: 10 mm)
4. CLT (t: 175 mm)
5. 2 Plasterboard panels (t: 15,9 mm)

AIRBORNE SOUND INSULATION



f [Hz]	R [dB]
50	34,4
63	38,7
80	31,1
100	30,5
125	34,1
160	34,4
200	37,1
250	40,9
315	44,2
400	48,1
500	52,5
630	56,0
800	60,0
1000	63,0
1250	65,9
1600	67,4
2000	69,1
2500	69,3
3150	71,4
4000	74,0
5000	77,2

R_w = **50 dB**

ΔR_w = +8 dB

STC = **53**

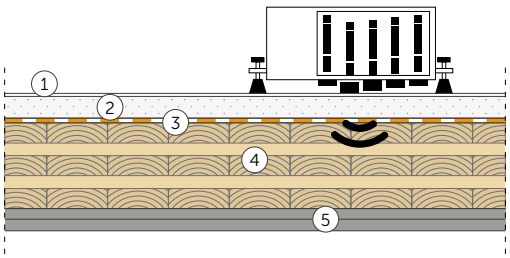
ΔSTC = +11

Test laboratory: Intertek-ATI
Measurement date: 23/08/2023

NOTES:
[1] The presence of the floor covering influences the measurement method and the results may not fully reflect the actual perception under real-use conditions.

LABORATORY MEASUREMENT | CLT FLOOR 6

IMPACT SOUND INSULATION
REFERENCE STANDARDS ASTM E989 AND ISO 717- 2

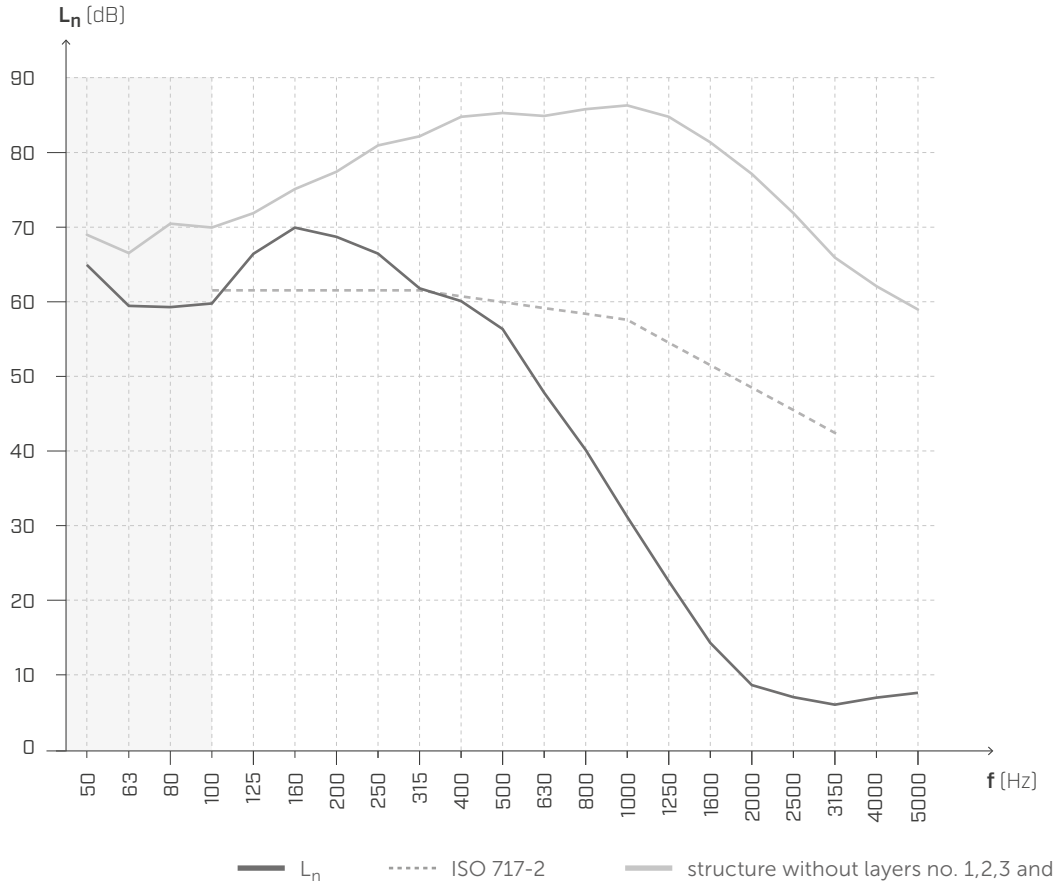


FLOOR

Surface = 10,98 m^2
Mass = 193,83 kg/m^2
Receiving room volume = 158,63 m^3

1. Carpet flooring[1] (t: 5,5 mm)
2. Sand and cement screed (t: 38,1 mm)
3. **SILENT FLOOR NET 3D** (t: 10 mm)
4. CLT (t: 175 mm)
5. 2 Plasterboard panels (t: 15,9 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	L_n [dB]
50	65,3
63	59,7
80	59,2
100	59,9
125	66,9
160	70,0
200	68,4
250	66,3
315	62,9
400	60,8
500	56,5
630	48,8
800	40,8
1000	32,5
1250	23,3
1600	13,1
2000	8,1
2500	7,1
3150	6,3
4000	7,4
5000	7,8

L_n = **60 dB**

$\Delta L_{n,w}$ = -25 dB

IIC = **50**

ΔIIC = +25

Test laboratory: Intertek-ATI
Measurement date: 23/08/2023

NOTES:
[1] The presence of the floor covering influences the measurement method and the results may not fully reflect the actual perception under real-use conditions.

SILTNET20

TECHNICAL DATA

Properties	standard	value
Surface mass m	-	1,15 kg/m^2
Density ρ	-	58 kg/m^3
Apparent dynamic stiffness s'$_t$ (1)	EN 29052-1	29,9 MN/m^3
Dynamic stiffness s' (1)	EN 29052-1	29,9 MN/m^3
Apparent dynamic stiffness s'$_t$ (2)	EN 29052-1	21,1 MN/m^3
Dynamic stiffness s' (2)	EN 29052-1	21,1 MN/m^3
Compressibility class	EN 12431	CP2
CREEP Viscous sliding under compression X_{ct} (1,5 kPa)	EN 1606	2,60%
Theoretical estimate of the impact sound pressure level attenuation ΔL_w (3)	ISO 12354-2	29,3 dB
System resonance frequency f_0 (4)	ISO 12354-2	65,7 Hz
Impact sound pressure level attenuation ΔL_w (5)	ISO 10140-3	19 dB
Thermal conductivity λ	-	0,3 W/(m·K)
Specific heat c	-	1800 J/kg·K
Watertightness	EN 1928	class W1
Water vapour transmission Sd	-	0,03 m
Reaction to fire	EN 13501-1	class E

(1) Dynamic stiffness value applicable for the construction of dry floating screeds (e.g. gypsum fibre boards)
(2) Dynamic stiffness value applicable for the construction of sand-cement screeds.
(3) ΔL_w= (13 lg(m'))-(14,2 lg(s'))+20,8 [dB] with m'= 125 kg/m^2.
(4) f_0= 160 √(s'/m') with m'= 125 kg/m^2.
(5) Measured in the laboratory on 160 mm CLT floor. See the manual for more information on configuration.

EN ISO 12354-2 ANNEX C | ESTIMATE ΔL_W (FORMULA C.4) E ΔL (FORMULA C.1)

The following tables show how the attenuation in dB (ΔL_W and ΔL) of our materials varies as a function of the load m' (i.e., the surface mass of the layer applied on SILTNET20)

SILTNET20

	s't or s'	21,1	21,1	21,1	21,1	21,1	21,1	21,1	21,1	21,1	21,1	21,1	[MN/m^3]
	load m'	50	75	100	125	150	175	200	225	250	275	300	[kg/m^2]
	ΔL_w	24,1	26,4	28,0	29,3	30,3	31,2	31,9	32,6	33,2	33,7	34,2	[dB]
	f_0	103,9	84,9	73,5	65,7	60,0	55,6	52,0	49,0	46,5	44,3	42,4	[Hz]
						ΔL in frequency							
[Hz]	**100**	-0,5	2,1	4,0	5,5	6,7	7,7	8,5	9,3	10,0	10,6	11,2	[dB]
[Hz]	**125**	2,4	5,0	6,9	8,4	9,6	10,6	11,4	12,2	12,9	13,5	14,1	[dB]
[Hz]	**160**	5,6	8,3	10,1	11,6	12,8	13,8	14,7	15,4	16,1	16,7	17,3	[dB]
[Hz]	**200**	8,5	11,2	13,0	14,5	15,7	16,7	17,6	18,3	19,0	19,6	20,2	[dB]
[Hz]	**250**	11,4	14,1	16,0	17,4	18,6	19,6	20,5	21,2	21,9	22,5	23,1	[dB]
[Hz]	**315**	14,4	17,1	19,0	20,4	21,6	22,6	23,5	24,2	24,9	25,6	26,1	[dB]
[Hz]	**400**	17,6	20,2	22,1	23,5	24,7	25,7	26,6	27,4	28,0	28,7	29,2	[dB]
[Hz]	**500**	20,5	23,1	25,0	26,4	27,6	28,6	29,5	30,3	31,0	31,6	32,1	[dB]
[Hz]	**630**	23,5	26,1	28,0	29,4	30,6	31,6	32,5	33,3	34,0	34,6	35,1	[dB]
[Hz]	**800**	26,6	29,2	31,1	32,6	33,7	34,8	35,6	36,4	37,1	37,7	38,3	[dB]
[Hz]	**1000**	29,5	32,1	34,0	35,5	36,7	37,7	38,5	39,3	40,0	40,6	41,2	[dB]
[Hz]	**1250**	32,4	35,0	36,9	38,4	39,6	40,6	41,4	42,2	42,9	43,5	44,1	[dB]
[Hz]	**1600**	35,6	38,3	40,1	41,6	42,8	43,8	44,7	45,4	46,1	46,7	47,3	[dB]
[Hz]	**2000**	38,5	41,2	43,0	44,5	45,7	46,7	47,6	48,3	49,0	49.6	50,2	[dB]
[Hz]	**2500**	41,4	44,1	46,0	47,4	48,6	49.6	50,5	51,2	51,9	52,5	53,1	[dB]
[Hz]	**3150**	44,4	47,1	49,0	50,4	51,6	52,6	53,5	54,2	54,9	55,6	56,1	[dB]

EN ISO 12354-2 Annex C - formula C.4

$$\Delta L_w = \left(13 \lg\left(m'\right)\right) - \left(14{,}2 \lg\left(s'\right)\right) + 20{,}8 \text{ dB}$$

EN ISO 12354-2 Annex C - formula C.1

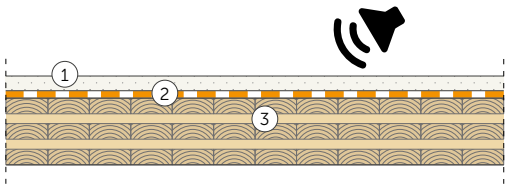
$$\Delta L = \left(30 \lg \frac{f}{f_0}\right) \text{dB}$$

EN ISO 12354-2 Annex C - formula C.2

$$f_0 = 160 \sqrt{\frac{s'}{m'}}$$

LABORATORY MEASUREMENT | CLT FLOOR 1

AIRBORNE SOUND INSULATION
REFERENCE STANDARD: ISO 10140-2 AND EN ISO 717-1

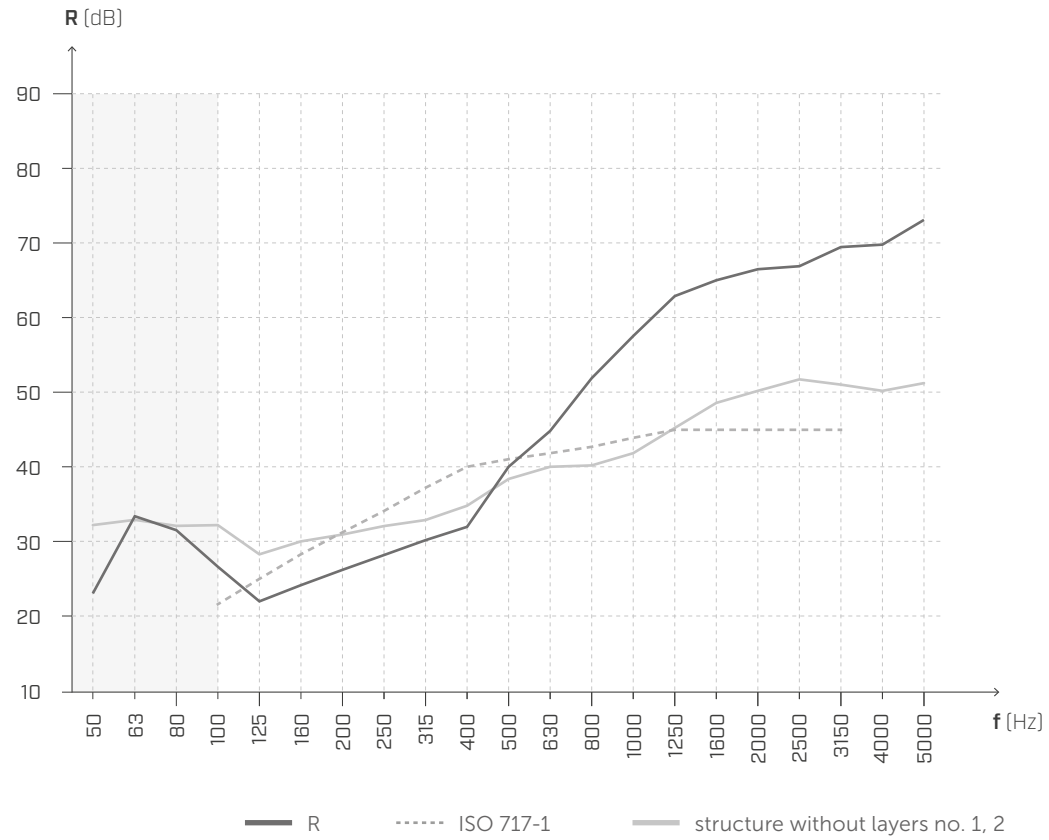


FLOOR

Receiving room volume = 54,7 m^3

1. Gypsum fibre board (28,6 kg/m^2) (t: 23 mm)
2. **SILENT FLOOR NET 3D** (t: 20 mm)
3. CLT (t: 160 mm)

AIRBORNE SOUND INSULATION



f [Hz]	R [dB]
50	24,1
63	34,0
80	31,7
100	26,5
125	23,3
160	24,5
200	26,6
250	28,6
315	30,4
400	31,6
500	40,9
630	45,6
800	51,4
1000	57,9
1250	63,3
1600	64,9
2000	66,3
2500	66,4
3150	69,1
4000	69,5
5000	72,2

R_w = **41 dB**

ΔR_w = +4 dB

STC = **40**

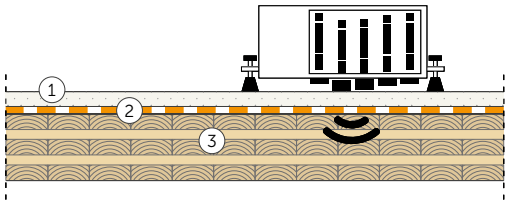
ΔSTC = +5

Testing laboratory: University of Bologna
Measurement date: 17/ 03/2025

Test protocol: R07_2025/Rothoblaas

LABORATORY MEASUREMENT | CLT FLOOR 1

IMPACT SOUND INSULATION
REFERENCE STANDARD ISO 10140-3 AND EN ISO 717-2

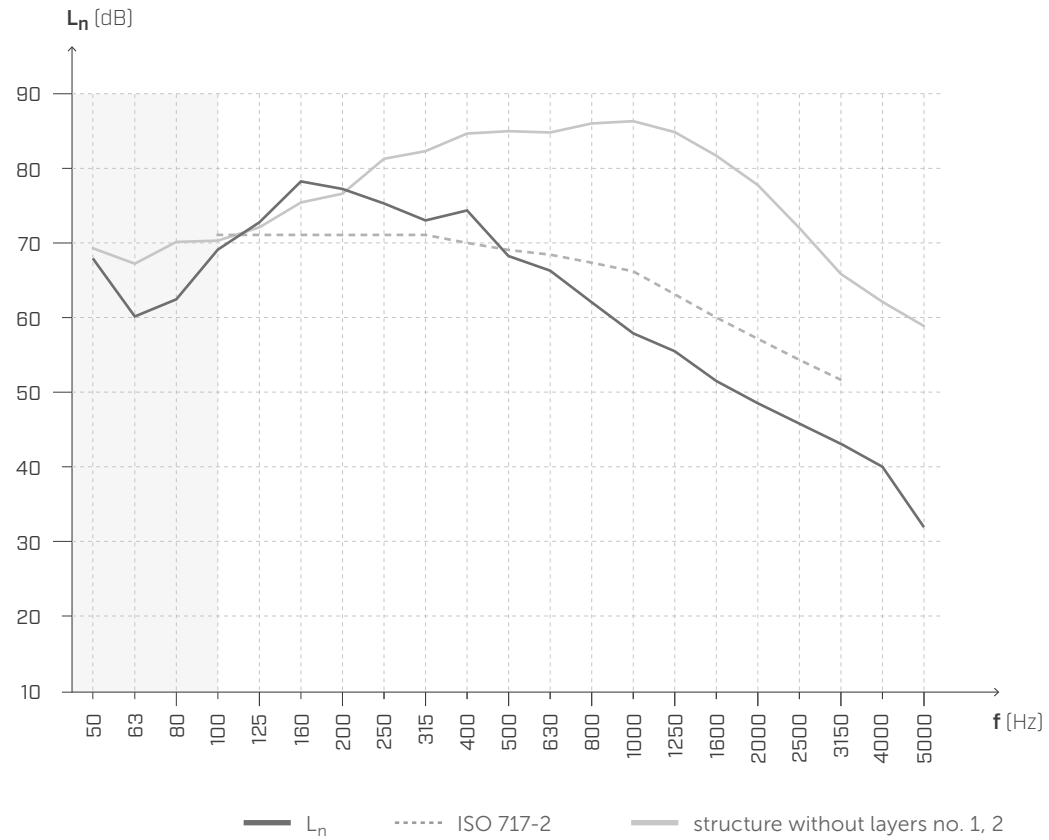


FLOOR

Receiving room volume = 54,7 m^3

1. Gypsum fibre board (28,6 kg/m^2) (t: 23 mm)
2. **SILENT FLOOR NET 3D** (t: 20 mm)
3. CLT (t: 160 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	L_n [dB]
50	68,9
63	60,3
80	63,5
100	69,8
125	72,5
160	78,0
200	77,0
250	75,9
315	73,8
400	74,0
500	68,9
630	66,3
800	62,6
1000	58,5
1250	55,1
1600	51,9
2000	48,5
2500	46,0
3150	43,2
4000	40,2
5000	32,6

$L_{n,w}$ = **69 dB**

$\Delta L_{n,w}$ = -16 dB

IIC = **41**

ΔIIC = +16

Testing laboratory: University of Bologna
Measurement date: 17/ 03/2025

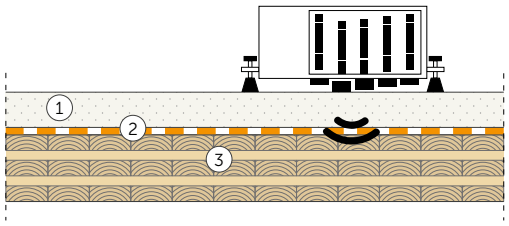
Test protocol: L02_2025/Rothoblaas

LABORATORY MEASUREMENT | CLT FLOOR 2

IMPACT SOUND INSULATION
REFERENCE STANDARD ISO 10140-3 AND EN ISO 717-2

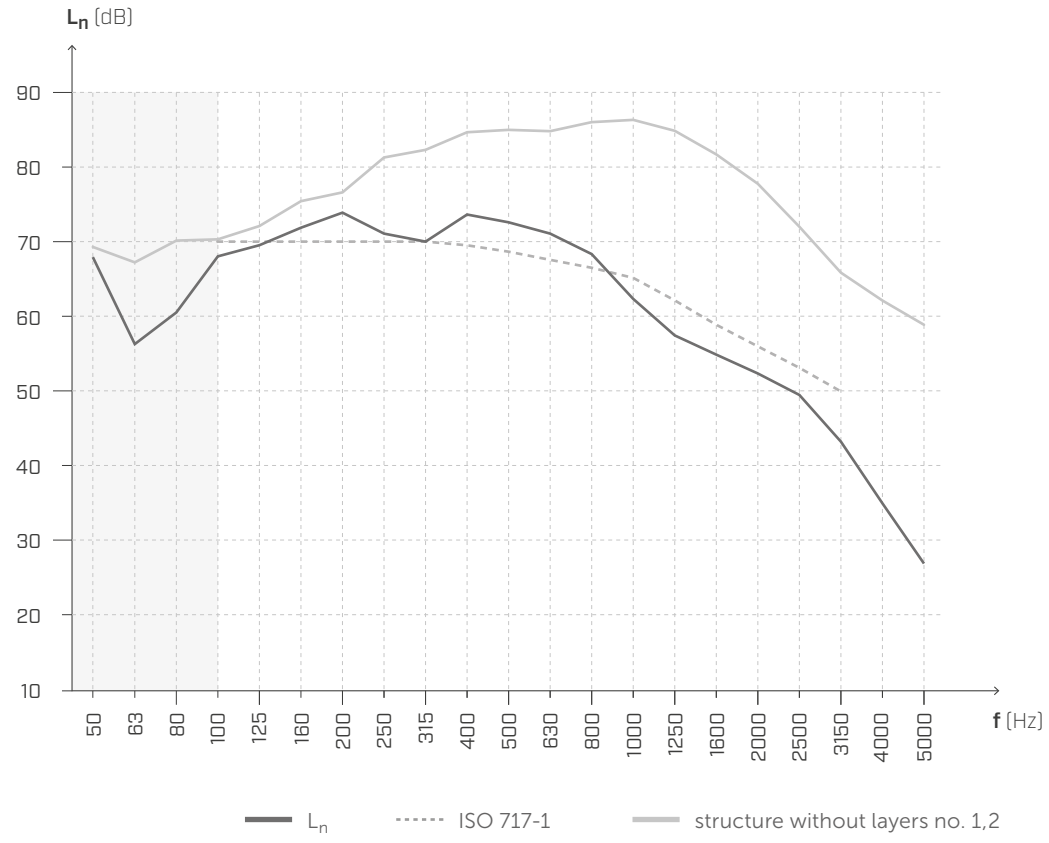
FLOOR

Receiving room volume = 54,7 m^3



1. Sand and cement screed (102 kg/m^2) (t: 60 mm)
2. **SILENT FLOOR NET 3D** (t: 20 mm)
3. CLT (t: 160 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	L_n [dB]
50	68,0
63	56,2
80	60,3
100	68,9
125	69,2
160	72,6
200	74,3
250	71,4
315	70,2
400	74,1
500	72,9
630	71,2
800	68,1
1000	63,8
1250	58,9
1600	55,0
2000	52,4
2500	49,9
3150	43,6
4000	35,8
5000	27,0

$L_{n,w}$ = **68 dB**

$\Delta L_{n,w}$ = -17 dB

IIC = **42**

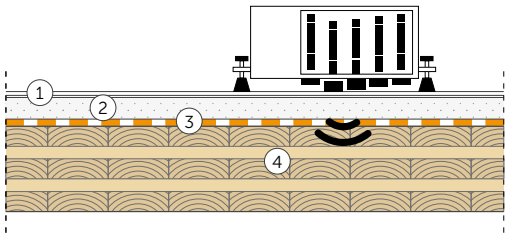
ΔIIC = +17

Testing laboratory: University of Bologna
Measurement date: 03/08/2025

Test protocol: L01_2025/Rothoblaas

LABORATORY MEASUREMENT | CLT FLOOR 3

IMPACT SOUND INSULATION
REFERENCE STANDARDS ASTM E989 AND ISO 717- 2

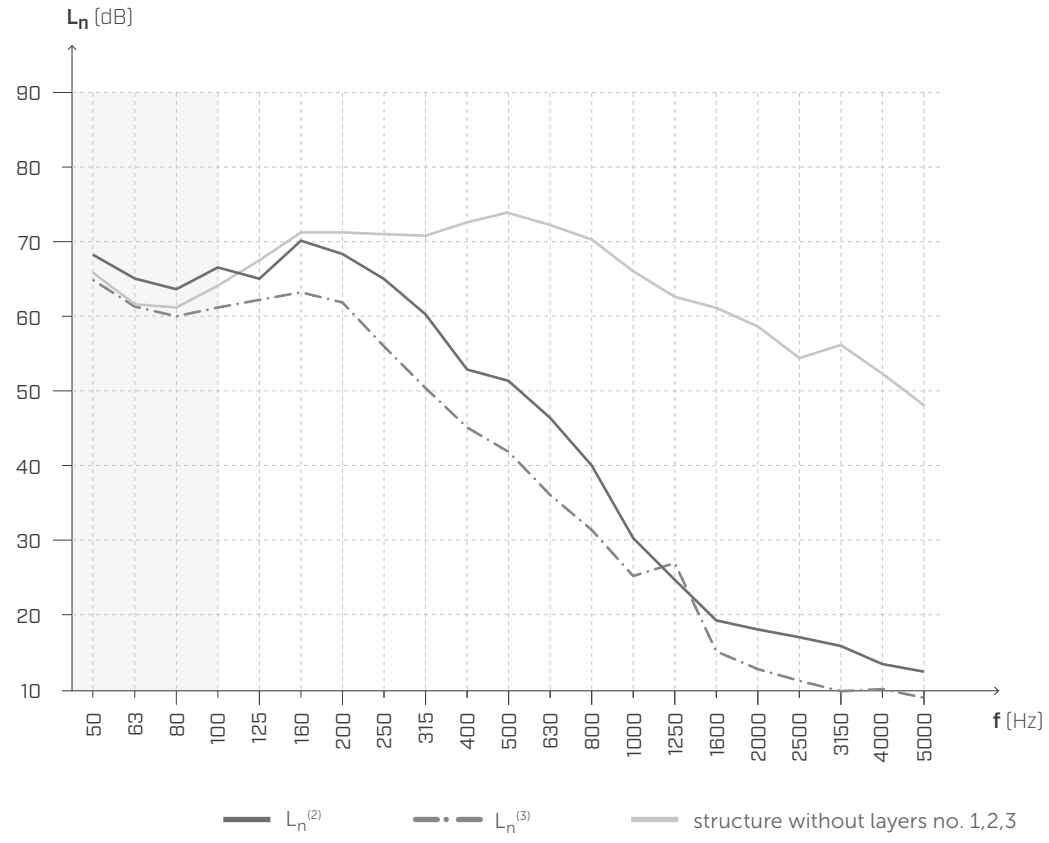


FLOOR

Surface = 10,98 m^2
Mass = 171,66 kg/m^2
Receiving room volume = 158,63 m^3

1. Vinyl flooring + **SILENT STEP** (t: 2 mm)[2] / Carpet flooring[3]
2. Sand and cement screed (t: 38,1 mm)
3. **SILENT FLOOR NET 3D** (t: 20 mm)
4. CLT (t: 175 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	$L_n^{(2)}$ [dB]	$L_n^{(3)}$ [dB]
50	68,9	65
63	65,7	61,9
80	64,2	60,8
100	66,1	61
125	65,1	62,1
160	70,3	64,6
200	68,5	63,6
250	65,4	56,5
315	60,6	50,1
400	53,5	45,1
500	51,8	42,6
630	46,5	36,6
800	40	31,8
1000	30,8	25,9
1250	24,9	27,8
1600	19,4	16,6
2000	18,5	13,5
2500	17,2	11,8
3150	16,4	10,5
4000	13,3	10,9
5000	12,4	8,1

$L_{n,w}^{(2)}$ = **60 dB**
IIC = **50**

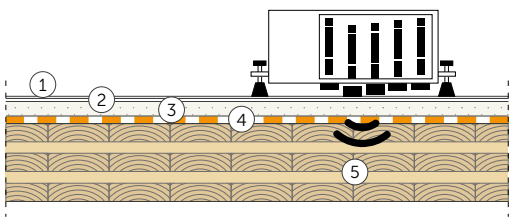
$L_{n,w}^{(3)}$ = **55 dB**
IIC = **55**

Test laboratory: Intertek-ATI
Measurement date: 29/11/2023
Test protocol: Q3804.01-113-11-R1

NOTES:
The presence of the floor covering influences the measurement method and the results may not fully reflect the actual perception under real-use conditions.
(2) Increase due to the addition of the vinyl layer + SILENT STEP.
(3) Increase due to the addition of the carpet layer.

LABORATORY MEASUREMENT | CLT FLOOR 4

IMPACT SOUND INSULATION
REFERENCE STANDARD ASTM E 1007 AND ISO 717-2

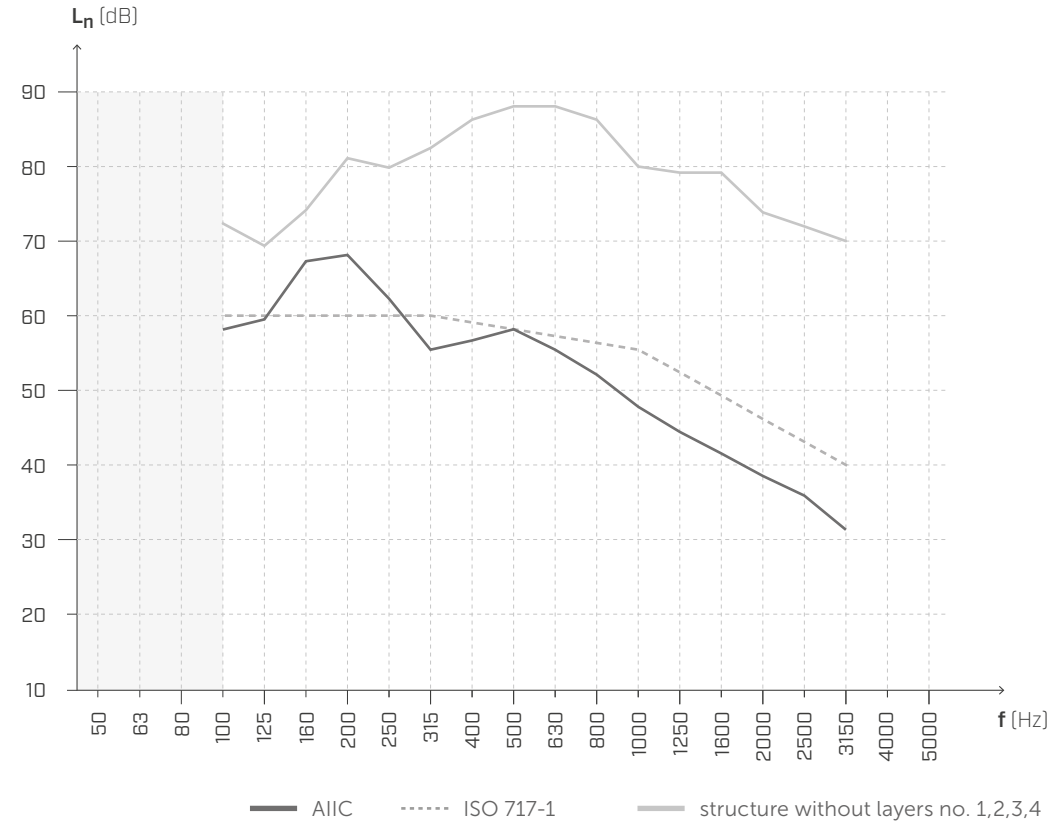


FLOOR

Receiving room volume = 45 m^3

1. Vinyl flooring (t: 5,5 mm)
2. Underfloor (t: 3,5 mm)
3. Gypsum fibre board (28,75 kg/m^2) (t: 25 mm)
4. **SILENT FLOOR NET 3D** (t: 20 mm)
5. CLT (t: 172 mm)

IMPACT SOUND NOISE INSULATION



f [Hz]	ANISPL [dB]
50	-
63	-
80	-
100	58,0
125	59,0
160	67,0
200	68,0
250	62,0
315	55,0
400	56,0
500	58,0
630	55,0
800	52,0
1000	47,0
1250	44,0
1600	42,0
2000	38,0
2500	36,0
3150	32,0
4000	-
5000	-

$L_{n,w}$ = **58 dB**

$\Delta L_{n,w}$ = -26 dB

AIIC = **52**

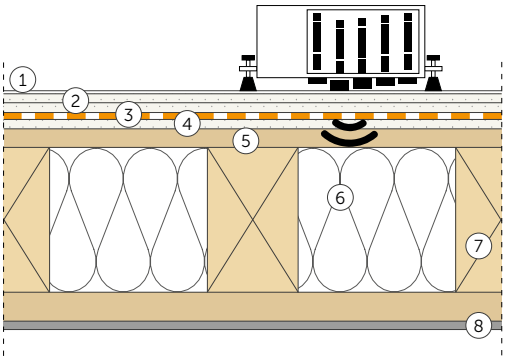
ΔIIC = +26

Test laboratory: Québec testing facility
Measurement date: 22/05/2025

Test protocol: T12_2025

LABORATORY MEASUREMENT | FRAME FLOOR 1

IMPACT SOUND INSULATION
REFERENCE STANDARD EN ISO 10140-3 AND EN ISO 717-2



FLOOR

Surface = 11,5 m^2
Receiving room volume = 86 m^3

1. Carpet flooring[1] (t: 5,5 mm)
2. 2 Gypsum fibre boards (t: 15 + 15 mm) (1200 kg/m^3)
3. **SILENT FLOOR NET 3D** (t: 20 mm)
4. Gypsum fibre board (t: 15 mm) (1200 kg/m^3)
5. OSB panel (t: 18 mm)
6. Timber frame (t: 180 mm)
   timber uprights 120 x 180 mm
   1 x mineral wool (t: 120 mm) (60 kg/m^3)
   1 x mineral wool (t: 60 mm) (40 kg/m^3)
7. Timber battens 24 x 48 mm
8. Plasterboard panel (t: 12,5 mm) (1024 kg/m^3)

IMPACT SOUND NOISE INSULATION

f [Hz]	L_n [dB]	$L_n^{(2)}$ [dB]
50	-	-
63	-	-
80	-	-
100	43,4	44,7
125	48,9	47,9
160	50	45,3
200	50	44,2
250	49,7	41,9
315	48,1	36,4
400	46,7	31,4
500	45,7	29,1
630	42,9	27,2
800	38,8	23,7
1000	34,9	25,9
1250	30,9	26,2
1600	27,6	23,1
2000	28,3	19,9
2500	33,2	18,9
3150	29,8	20,7
4000	-	-
5000	-	-

$L_{n,w}$ = **44 dB**

IIC = **66**

$L_{n,w}^{(2)}$ = **37 dB**

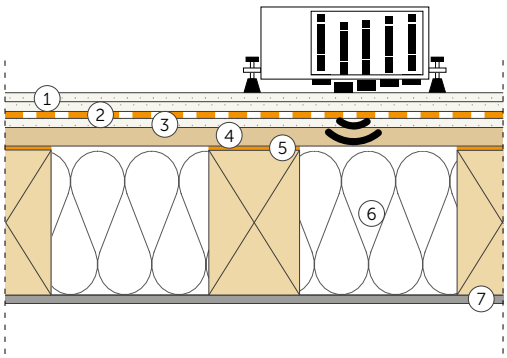
IIC = **73**

Test laboratory: CSI Milano
Measurement date: 01/09/2025
Test protocol: M2_2025 and M3_2025

NOTES:
[1] The presence of the floor covering influences the measurement method and the results may not fully reflect the actual perception under real-use conditions.
[2] Increase due to the addition of the carpet layer.

LABORATORY MEASUREMENT | FRAME FLOOR 2

IMPACT SOUND INSULATION
REFERENCE STANDARD EN ISO 10140-3 AND EN ISO 717-2



FLOOR

Surface = 11,5 m^2
Receiving room volume = 86 m^3

1. 2 Gypsum fibre boards (t: 15 + 15 mm) (1200 kg/m^3)
2. **SILENT FLOOR NET 3D** (t: 20 mm)
3. Gypsum fibre board (t: 15 mm) (1200 kg/m^3)
4. OSB panel (t: 18 mm)
5. **PIANO A**
6. Timber frame (t: 180 mm)
   timber uprights 120 x 180 mm
   1 x mineral wool (t: 120 mm) (60 kg/m^3)
   1 x mineral wool (t: 60 mm) (40 kg/m^3)
7. Plasterboard panel (t: 12,5 mm) (1024 kg/m^3)

IMPACT SOUND NOISE INSULATION

f [Hz]	L_n [dB]
50	-
63	-
80	-
100	48,1
125	49,3
160	51,9
200	50,3
250	49,9
315	48,7
400	47,3
500	43,8
630	39,9
800	36,2
1000	34,0
1250	30,7
1600	28,8
2000	31,5
2500	35,5
3150	30,5
4000	-
5000	-

$L_{n,w}(Cl)$ = **45 dB**

$\Delta L_{n,w}$ = -23 dB

IIC = **65**

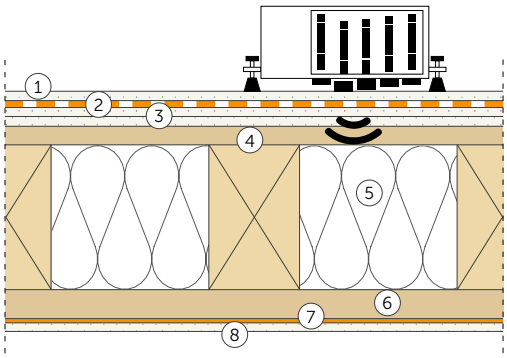
ΔIIC = 23

Test laboratory: CSI
Measurement date: 01/09/2025

Test protocol: M10_2025

LABORATORY MEASUREMENT | FRAME FLOOR 3

IMPACT SOUND INSULATION
REFERENCE STANDARD EN ISO 10140-3 AND EN ISO 717-2

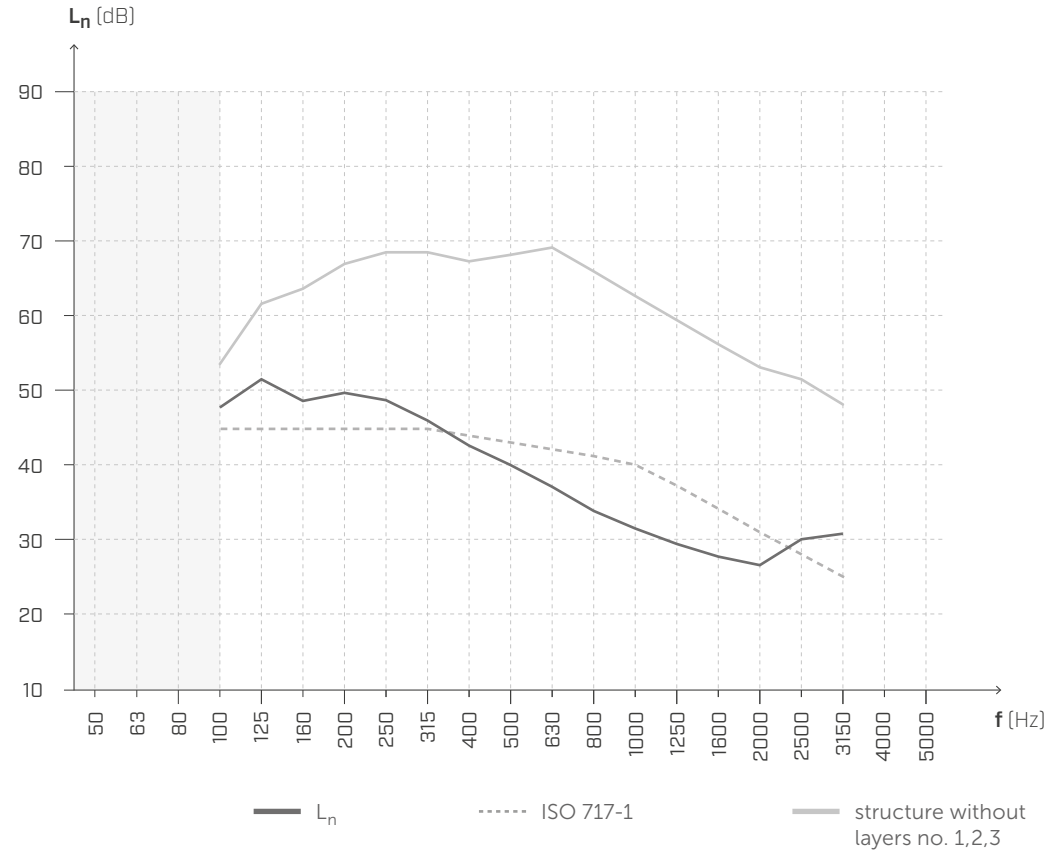


FLOOR

Surface = 11,5 m^2
Receiving room volume = 86 m^3

1. Gypsum fibre board (t: 15 mm) (1200 kg/m^3)
2. **SILENT FLOOR NET 3D** (t: 20 mm)
3. 2 Gypsum fibre boards (t: 15 + 15 mm) (1200 kg/m^3)
4. OSB panel (t: 18 mm)
5. Timber frame (t: 180 mm)
   timber uprights 120 x 180 mm
   1 x mineral wool (t: 120 mm) (60 kg/m^3)
   1 x mineral wool (t: 60 mm) (40 kg/m^3)
6. Timber battens 24 x 48 mm
7. **SILENT WALL BYTUM SA** (t: 4 mm) (1050 kg/m^3)
8. Gypsum fibre board (t: 12,5 mm) (1024 kg/m^3)

IMPACT SOUND NOISE INSULATION



f [Hz]	L_n [dB]
50	-
63	-
80	-
100	47,6
125	51,1
160	48,2
200	49,4
250	48,5
315	46,1
400	43,1
500	40,3
630	37,0
800	33,7
1000	31,3
1250	29,5
1600	27,3
2000	26,6
2500	30,2
3150	30,7
4000	-
5000	-

$L_{n,w}(Cl)$ = **43 dB**

$\Delta L_{n,w}$ = -21dB

IIC = **67**

ΔIIC = 21

Test laboratory: CSI
Measurement date: 01/09/2025

Test protocol: M16_2025

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