

AVSHOP AS

Acoustic measurement report

Lillevannsveien 33 · Holmenkollen, Oslo

Very good sound insulation between dwellings with ProSilence

Client: Vilhelm Dybwad

Contractor: Ringerikshus AS, Anders Hval

Measurement company: AVshop AS / centrally approved for acoustics

Report date: 14 October 2025

Prepared by: Eivind Lygren, MSc Civil Engineering, CEO / Gorm Sørensen, CTO

Revised technical presentation · September 2026



The residential project at Lillevannsveien 33, Holmenkollen.

Summary and main results

Field measurements at Lillevannsveien 33 show very good sound insulation between the rental dwelling and the main dwelling. ProSilence is used in walls and ceilings in a completed residential building with windows, doors and ventilation. The results therefore describe the overall transmission in the building, including possible flanking contributions.

Parameter	Reported value	Meaning
Airborne sound insulation, $R'w$	67 (-5; -13) dB	Higher values mean better insulation
Standardized level difference, DnT,w	72 (-5; -13) dB	Same airborne test, different normalization
Impact sound level, $L'n,w$	47 dB (CI = 0 dB)	Lower values mean better insulation

Impact sound: reported Class B level – only 1 dB from Class A

With $CI_{50-2500} = 0$ dB, the extended-frequency impact sound value is 47 dB. This is 3 dB better than the Class B limit of 50 dB, only 1 dB from the Class A limit of 46 dB and 7 dB better than the Class C limit of 54 dB in NS 8175:2019. The comparison applies to this impact sound criterion, with the methodological qualification on page 5.

The reported airborne value $R'w = 67$ dB is 12 dB above the Class C limit of 55 dB in NS 8175:2012, using the same metric. This is a strong field result. The Norsonic export does not state $C_{50-5000}$, which is required for comparison with the airborne criterion in NS 8175:2019. An airborne sound class is therefore not assigned on this basis.

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Construction and project

The sound insulation was designed by civil engineer Eivind Lygren and installed by Ringerikshus. The DreamScreen ProSilence system is used in walls and ceilings, combined with Fermacell gypsum fibreboard and GreenGlue damping compound between the boards.

The building has Daloc acoustic doors. The ventilation system was designed with particular attention to sound insulation. The measurements apply to the completed building solution; they do not isolate the performance of individual components.

The main-storey floor incorporates impact sound insulation boards, flooring-grade particleboard and one layer of gypsum fibreboard, with GreenGlue between the board layers. The ceiling below is decoupled with ProSilence clips. This combination of floor and ceiling is covered by the reported impact sound measurement.

The project demonstrates how carefully designed construction can provide very good sound insulation in a residential building. The field results should be read together with the room geometry, measurement limits and methodological basis described in this report.



The main dwelling's living room/kitchen with measurement equipment. This is the receiving room for the airborne test.

Airborne sound insulation

The measurement runs from the apartment bedroom to the living room/kitchen of the main dwelling. The Norsonic report identifies ISO 16283-1 as the measurement method and ISO 717-1 for the single-number rating.

Measurement input	Value
Source room · apartment bedroom	26 m ³
Receiving room · main living room/kitchen	128 m ³
Common partition area	13.20 m ²
Test date in airborne export	14 October 2025

Measurement input	Value
R'w (C; Ctr)	67 (-5; -13) dB
DnT,w (C; Ctr)	72 (-5; -13) dB
Dw (C; Ctr)	73 (-6; -14) dB

What do the different airborne ratings mean?

R'w is the weighted apparent sound reduction index of the construction, including transmission through other building elements. DnT,w is the weighted standardized level difference between the rooms. Both use measured reverberation time, but normalize differently. They are not alternative estimates of the same quantity.

With a receiving-room volume of 128 m³ and partition area of 13.20 m², the standard relationship $DnT - R' = 10 \log_{10}(0.32 V/S)$ gives approximately 4.9 dB. This closely explains the difference between the reported single-number values of 72 and 67 dB. A larger source room or subsequent furnishing does not justify increasing R'w without a new measurement.

The noise floor may conceal even better insulation

All stated R' bands from 63 to 5000 Hz are marked $\geq$ as measurement limits. With stable, representative background noise, the noise floor can mask weak transmitted sound. Limited background correction then leaves some background noise as apparent transmission: insulation can appear lower than it actually is. This does not artificially improve the rating. The complete background series is not attached, so any potential improvement cannot be quantified here.

The 50 Hz field and extended-frequency C values are blank in the original report. R'w = 67 dB is assessed over 100–3150 Hz and remains unchanged. The missing C50–5000 term prevents a direct airborne comparison with NS 8175:2019; the ordinary C = -5 dB cannot be substituted for it.

Impact sound and Norwegian sound classes

Impact sound was measured from the main dwelling's living room/kitchen to the bedroom below. The original report identifies ISO 16283-2 and rating according to ISO 717-2. The receiving-room volume is 24 m³.

The reported $L'_{n,w}$ is 47 dB. Both CI and $CI_{50-2500}$ are 0 dB, giving $L'_{n,w} + CI_{50-2500} = 47$ dB. For impact sound, lower values are better: less sound from standardized tapping reaches the room below.

NS 8175:2019 · between dwellings	Limit	47 dB compared with the limit
Class A	≤ 46 dB	1 dB above the limit
Class B	≤ 50 dB	3 dB better than the limit
Class C	≤ 54 dB	7 dB better than the limit

The result is at Class B level for the stated impact sound criterion and very close to the Class A limit. This is a good result for a residential floor/ceiling assembly.

Methodological qualification: The available documentation does not establish the special low-frequency procedure at 50–80 Hz for the 24 m³ receiving room. The extended-frequency value is therefore presented as a reported Class B level, rather than full confirmation of compliance with all method requirements. Assigning an overall sound class requires documentation of the relevant criteria.



The standardized tapping machine in the living room/kitchen during testing.

Assessment, method and conclusion

A strong result in an actual residential building

$R'w = 67$ dB, $DnT,w = 72$ dB and $L'n,w = 47$ dB demonstrate a successful overall sound insulation solution. The results were measured between rooms in two dwellings with the building's actual connections. They provide a more relevant picture of this completed home than an isolated laboratory value for a single building element.

Measurement basis and scope

This report reproduces the single-number ratings, frequency data and room volumes from the original Norsonic exports. No measured values have been increased. Background noise from construction work and outdoor music was described in the original report material, but its effect is not quantified here. The original measurement sheets are included as Appendices A–C.

The airborne sheet is dated 14 October 2025. The impact sound sheet is dated 4 April 2025, which differs from the original report date. Dates have been retained as shown in the exports; the available material does not explain the difference.

The impact sound limits in this revision are from NS 8175:2019 for sound between dwellings. The airborne Class C comparison uses NS 8175:2012 and $R'w$ without a C term; this differs in edition and metric from the 2019 airborne criterion. Limits must be used with the correct parameter and frequency range. This report does not assign an overall sound class to the entire home. The impact sound comparison is qualified on page 5, and the missing airborne C50–5000 value is explained on page 4.

Conclusion

The ProSilence solution at Holmenkollen demonstrates very good field-measured sound insulation. The reported impact sound value of 47 dB is 7 dB better than the Class C limit and only 1 dB from the Class A limit in NS 8175:2019, with the stated methodological qualification. The airborne values $R'w = 67$ dB and $DnT,w = 72$ dB stand as strong results without calculated uplifts or unsupported class claims.

If full documentation against class requirements is needed, the complete measurement record should be obtained, including low-frequency data and clarification of test dates. Further testing can resolve noise-floor-limited bands and C50–5000. There is no basis for promising a particular higher result.

Sources and references

Standards Norway · NS 8175:2019, scope and sound classes

Boligprodusentene · Lars Myhre, Nytt om teknisk, 30 October 2019, PDF page 4

ISO 16283-1 and ISO 16283-2 · field measurement of airborne and impact sound

Norsonic · Airborne sound insulation, background noise and measurement limits

Xella · Sound, NS 8175:2012, table on page 2

Photographic documentation

Original photographs of the project and measurement setup.



The main dwelling's living room/kitchen.



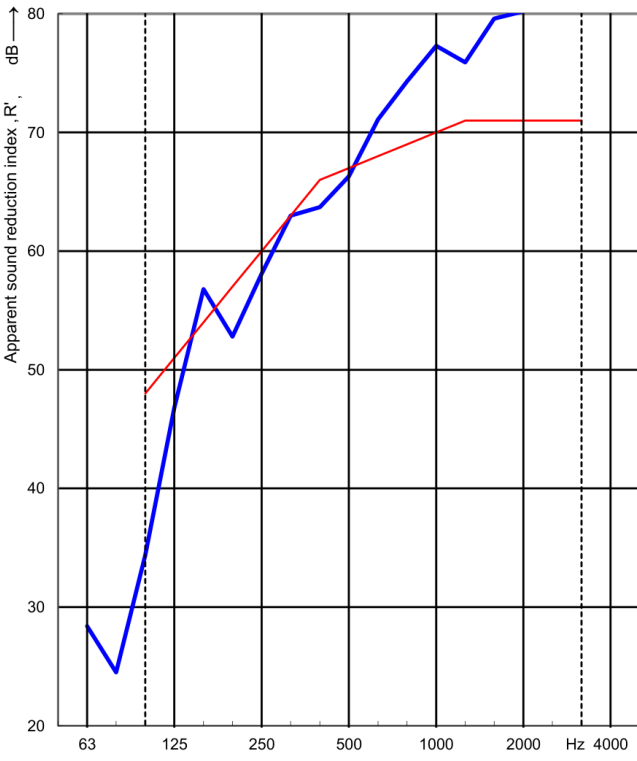
Apartment bedroom with loudspeaker and microphone.



Bedroom below the main storey, shown in the original report's impact sound section.

Appendix A • Norsonic Field Airborne

Original Norsonic Field Airborne report. Measured values and limit markings are preserved.

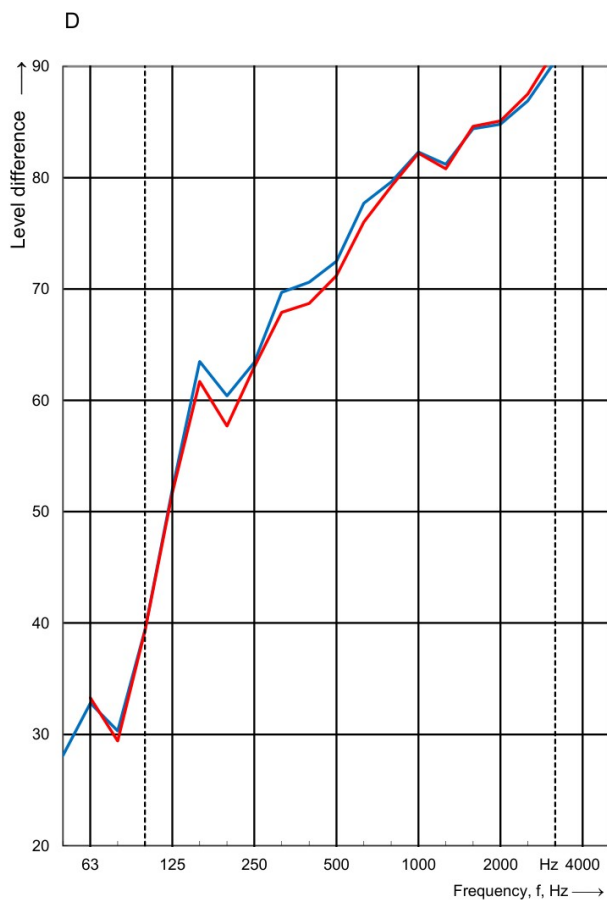
Apparent sound reduction index according to ISO 16283-1																																													
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Client: Lillevannsveien	Date of test: 14.10.2025																																												
Description: Måling fra leilighet til stue-kjøkken hovedenhet																																													
Object:																																													
Source room:	Receiving room:																																												
Condition:	Condition:																																												
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Date: 14.10.2025	Signature:																																												

Appendix B • Norsonic Multi Rating

Original Norsonic Multi Rating report showing level difference and standardized level difference.

Multi Rating Sound Insulation

	Test room id	Description	Manufacturer	No. of test report	Object	Remarks
		Måling fra leilighet til stue kjøkken hovedenhet				
		Måling fra leilighet til stue kjøkken hovedenhet				
						
						



f [Hz]	D [dB]	DnT [dB]		
50	28,1	#I/T		
63	32,8	33,3		
80	30,3	29,4		
100	39,4	39,3		
125	52,0	51,7		
160	63,5	61,7		
200	60,4	57,7		
250	63,4	63,0		
315	69,7	67,9		
400	70,6	68,7		
500	72,5	71,2		
630	77,7	76,0		
800	79,6	79,2		
1000	82,3	82,2		
1250	81,2	80,8		
1600	84,4	84,6		
2000	84,8	85,1		
2500	86,9	87,5		
3150	90,5	91,5		
4000	93,6	94,5		
5000	92,5	93,4		

¹ Limit of measurement

³ Correction

² Ftm Minimum values

	Dw(C;Ctr) = 73 (-6 ; -14) dB Soverom leilighet til stue-kjøkken hovedenhet (ISO 16283-1 Normal)
	DnT,w(C;Ctr) = 72 (-5 ; -13) dB Soverom leilighet til stue-kjøkken hovedenhet (ISO 16283-1 Normal)
	
	

Appendix C • Norsonic Field Impact

Original Norsonic Field Impact report. The date and measured values are preserved.

Normalized impact sound pressure levels according to ISO 16283-2																																													
Field measurements of impact sound insulation of floors																																													
Client: Lillevannsveien	Date of test: 04.04.2025																																												
Description: Måling bankemaskin/trinnlyd mellom stue/kjøkken og soverom i etasjen under																																													
Object:																																													
Source room:	Receiving room:																																												
Condition:	Condition:																																												
Type:	Type:																																												
Location:	Location:																																												
Source room volume: 24 m ³																																													
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