SRL

UKAS TESTING
0444

Technical Report
82834-SRL-RP-XT-006-P1

Project

The Laboratory Measurement of The Airborne Sound Insulation of Various Acoustic Void Closures

Prepared for

Siderise (Special Products) Ltd

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Quality Assurance		
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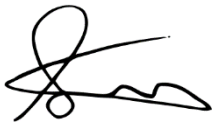
Checker	Allen Smalls Quality Manager	
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Version History

Version	Date	Comments
P1	26/11/2025	

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Contents

1.0 Description of Test

Tests have been done in SRL's Laboratory at Holbrook House, Sudbury, Suffolk, to determine the sound reduction index of various acoustic void closures in accordance with BS EN ISO 10140-2: 2021.

The results are given in 1/3rd octave bands over the frequency range 50Hz to 10kHz, which is beyond that required by the test standard. Measurements outside the standard frequency range are not UKAS accredited.

1.1 Description of Sample

Various acoustic void barriers were installed in our East laboratory and tested. See Section 2.0, Test Certificates 20091 & 20092 and Drawings 1 and 2 for details.

Sampling plan:	Enough for test only
Sample condition:	New
Details supplied by:	Siderise (Special Products) Ltd
Sample installed by:	Siderise (Special Products) Ltd

1.2 Sample Delivery Date

22 September 2025

1.3 Test Procedures

The sample was mounted/located and tested in accordance with the relevant standard. The details of measurements are given in Appendix A. The method and procedure are described in Appendix B. The measurement uncertainty is given in Appendix C.

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2.0 Results

The results of the measurements and subsequent analysis is given in Test Certificates 20091 & 20092 and summarised below.

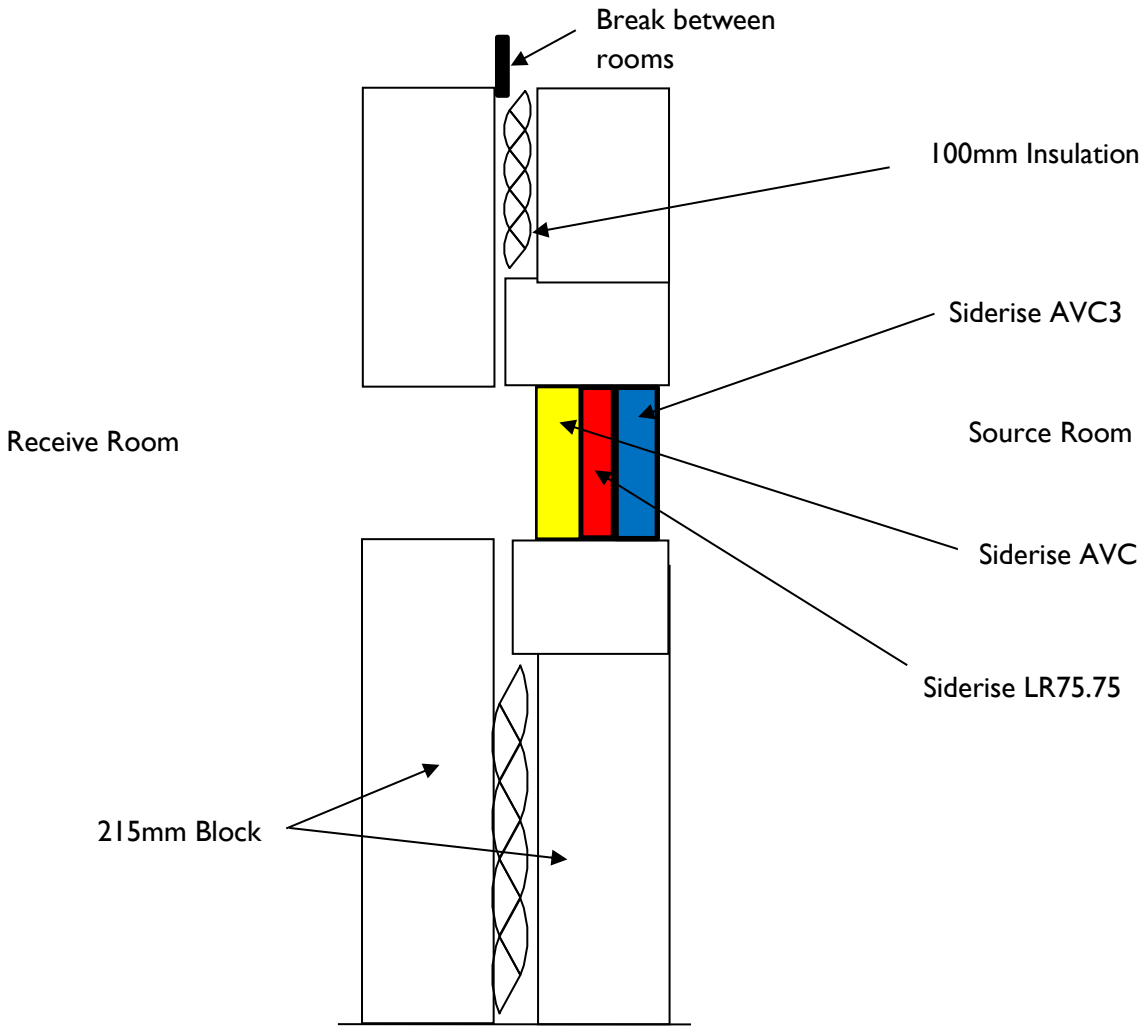
Results relate only to the items as received and tested.

SRL Test & Cert No.	Description in Brief	R_w ($C;C_{tr}$) dB	*STC
65^ 20091	Siderise AVC3 / Siderise LR75.75 / Siderise AVC	45 (-2;-8)	47
66^ 20092	Siderise AVC3	36 (-1;-4)	36

* Calculation of STC to ASTM E413-22 based on measurements to BS EN ISO 10140-2:2021 and are not covered by our UKAS accreditation.

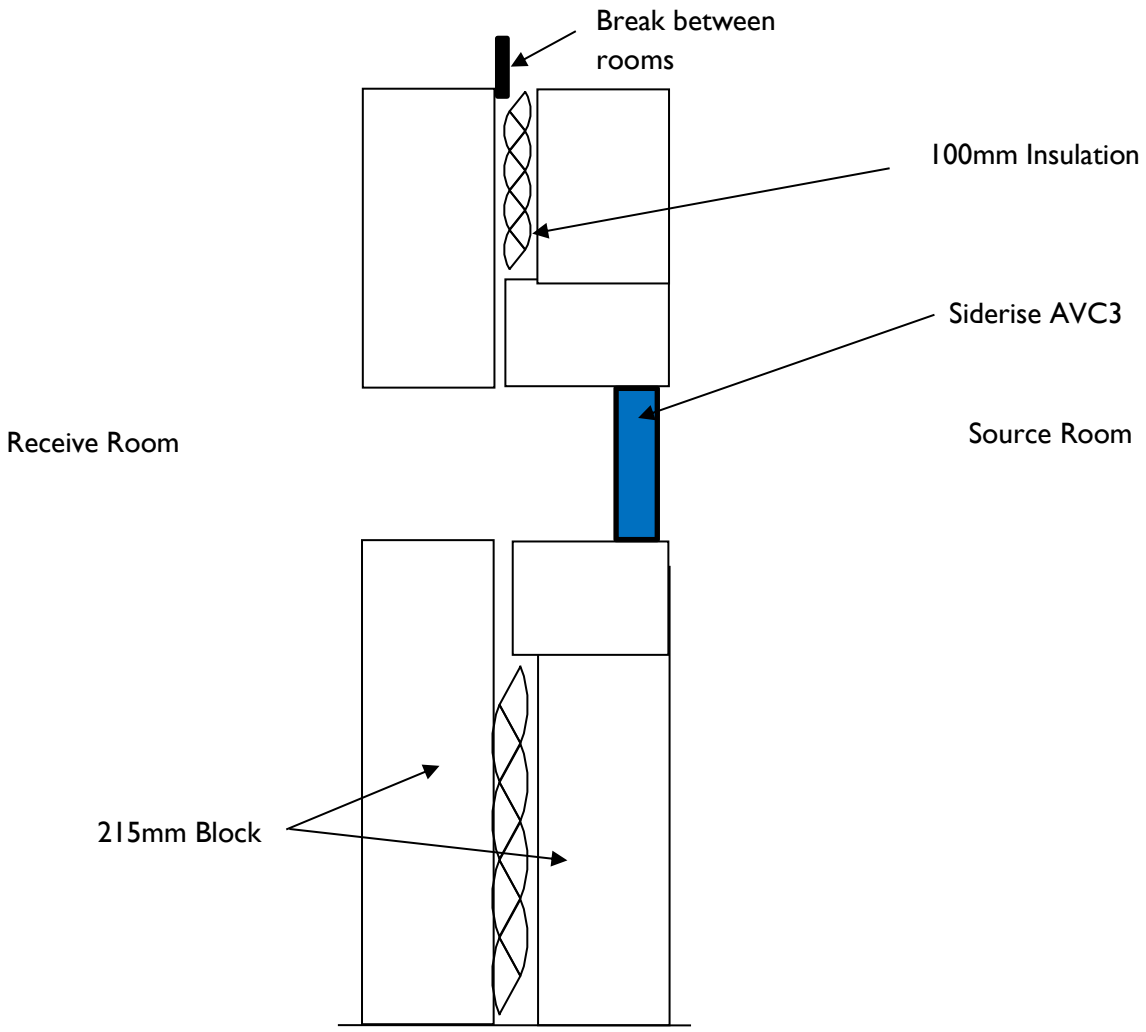
^ Please note that these tests were not in accordance with SRL procedure. The temporary floor between SRL's Upper North and Lower North rooms was removed making the receive room nominally 116m^3. This was at the request of the client.

Drawing 1 – Test Set Up (Test 65)



Not to scale

Drawing 2 – Test Set Up (Test 66)



Not to scale

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Appendix A - Details of Measurements

A1. Location

SRL Technical Services (Sound Research Laboratories)

Holbrook House

Little Waldingfield

Sudbury

Suffolk

CO10 0TF

Tel: 01787 247595

A2. Test Date

22 September 2025

A3. Tester

Kieron Farrow of SRL Technical Services Limited

A4. Instrumentation and Apparatus Used

Make	Description	Type
Norsonic	Multichannel Sound Level Meter	Nor850
Norsonic	Rotating microphone boom	Nor265-A
Ntek	Rotating microphone boom	MB-01
G.R.A.S	Microphone Pre-Amp	26AK
G.R.A.S	Calibrator	42AB

Make	Description	Type
G.R.A.S	Microphone	40AR
dbx	Graphic Equaliser	131s
Crown	Class D Amplifier	XLS 1502
Bruel & Kjaer	Omni directional loudspeaker	4296
QSC Audio	Power Amplifier	RMX 1450
Testo	Temperature and Humidity Probe	605-H1
Testo	Barometer	511

A5. References

BS EN ISO 717-1:2020 — Rating of sound insulation in buildings and of building elements. Airborne Sound Insulation.

BS EN ISO 10140-2:2021 — Laboratory measurement of sound insulation for building elements – Part 2: Measurement of airborne sound insulation.

ASTM E413-22 — Classification for rating sound insulation.

Appendix B – Test Procedure

TP33 - Measurement of Sound Transmission in accordance with BS EN ISO 10140-2

In the laboratory, airborne sound transmission is determined from the difference in sound pressure levels measured across a test sample installed between two reverberant rooms. The difference in measured sound pressure levels is corrected for the amount of absorption in the receiving room. The test is done under conditions which restrict the transmission of sound by paths other than directly through the sample. The source sound field is randomly incident on the sample.

The test sample is constructed in an aperture between the two rectangular reverberant (i.e. acoustically "live") rooms both of which are constructed from dense masonry blockwork with reinforced concrete floors and roofs.

One of the rooms is used as the receiving room and has a nominal volume of 116 cubic metres. It is isolated from the surrounding structure and the adjoining room by the use of resilient mountings and seals ensuring good acoustic isolation. The adjoining source room has a nominal volume of 61 cubic metres.

Broad band noise is produced in the source room from an electronic generator, power amplifier and loudspeaker. The resulting sound pressure levels in both rooms are sampled using a microphone mounted on an oscillating boom and connected to a real-time analyser. The signal is filtered into one third octave band widths, integrated and averaged. The value obtained at each frequency is known as the average sound pressure level for either the source or the receiving room. The change in level across the test sample is termed the sound pressure level difference, i.e.

$$D = L_1 - L_2$$

where

D is the equivalent Sound Pressure level difference in dB

L_1 is the equivalent Sound Pressure level in the source room in dB

L_2 is the equivalent Sound Pressure level in the receiving room in dB

The Sound Reduction Index (R), also known by the American terminology Sound Transmission Loss, is defined as the number of decibels by which sound energy randomly incident on the test sample is reduced in transmitting through it and is given by the formula:

$$R = D + 10\log 10 \frac{S}{A} \text{..... in decibels}$$

where

S is the area of the sample

A is the total absorption in the receiving room

both dimensions being in consistent units

The Sound Reduction Index is an expression of the laboratory sound transmission performance of a particular element or construction. It is a function of the mass, thickness, sealing method of mounting etc., and is independent of the overall area of the sample.

However, when an example of this construction is installed on site, the sound insulation obtained will depend upon its surface area, as well as the absorption in the receiving room. The larger the area the greater the sound energy transmitted. Also, the overall sound insulation is affected by the sound transmission through other building elements, some of which may have an inferior performance to the sample tested. In practice, therefore, the potential sound reduction index of a construction is not fully realised on site. Furthermore, the sound reduction index of a particular sample of that construction can only be measured accurately in a laboratory, because only under such controlled conditions can the sound transmission path be limited to the sample under test.

R_w, C and C_{tr} have been calculated in accordance with the relevant section of BS EN ISO 717-1 from the results of laboratory tests carried out in accordance with BS EN ISO 10140

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Appendix C – Measurement Uncertainty

The following values of uncertainty are derived from BS EN ISO 12999-1 and based on a standard deviation of reproducibility multiplied by a coverage factor of k = 2, which provides a level of confidence of approximately 95%.

Frequency, Hz	Uncertainty, ± dB
100	6.0
125	5.4
160	4.8
200	4.2
250	3.6
315	3.6
400	3.6
500	3.6
630	3.6
800	3.6
1000	3.6
1250	3.6
1600	3.6
2000	3.6
2500	3.8
3150	4.0
4000	4.8
5000	5.6
R_w, $D_{n,e,w}$	2.4
R_w, $D_{n,e,w} + C_{100\text{-}5000}$	2.6
R_w, $D_{n,e,w} + C_{tr\ 100\text{-}5000}$	3.0
D_{LR}	3.0

Acoustics
Air Quality
Carbon & Net Zero
Lab & Site Testing
Monitoring
Noise & Vibration
Odour & Dust
Sustainability

The services listed below are services which SRL can offer. They are not covered by our UKAS accreditation except for some of our Lab and site testing. For further details please contact us directly.

Acoustics

Since 1967, our team of acoustic consultants has played a key role in major projects where noise or vibration is an issue, in the UK and across the globe – whether it's planning, performance prediction, design, inspection, troubleshooting, measurement or commissioning.

Air Quality

We offer a comprehensive service to model, monitor and analyse air quality, delivering assessments for a broad range of projects and purposes, for both private and public sector clients.

Carbon & Net Zero

Top of the agenda is tackling energy and carbon reduction to limit the impact of climate change. Our team of consultants will help you to achieve your sustainability objectives.

Lab & Site Testing

Design based on test data will always achieve the best results – and that's why we offer a wide range of acoustic testing at our independently accredited laboratories, as well as on-site testing to support live projects.

Monitoring

Our specialist services to monitor and assess noise, vibration, dust, air quality and odour employ the latest technology to provide remote access to data, helping to address issues quickly and to protect our clients.

Noise & Vibration

Ensuring noise and vibration does not exceed agreed levels is an important part of our environmental management services, using state-of-the-art technology to access real-time data remotely, to enable swift remedial action if required.

Odour & Dust

As part of our portfolio of environmental monitoring services, we offer specialist advice on the adverse impact of dust and odour across a range of projects including construction, waste handling and mineral extraction.

Sustainability

Minimising the impact on the environment is at the centre of today's business objectives. Our specialist services help our clients to fulfil their obligations, whether it's a BREEAM assessment, Energy Carbon Reduction or Net Zero.