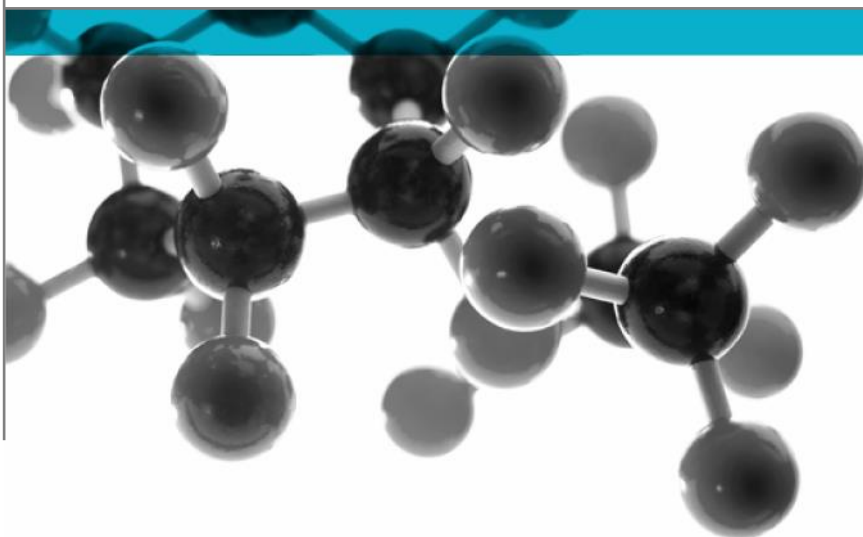


BS EN ISO 10140-2:2010 with reference to BS EN ISO 10140:- 1:2010 Annex B



Test of: Single leaf Access Panel 51/120s/MD/PF/3WL/40A

**Acoustics - Laboratory measurement of sound insulation of
building elements. Measurement of airborne sound
insulation**

A Report To:
Panel Technologies Limited
49-61 Jodwell Street
Nuneaton
Warwickshire
CV11 5EG

Document Reference:
WYC538749/03

Date: 23/06/2025

Copy: 1

Version No.: 1

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1 Summary of Performance

Single number ratings of airborne sound insulation R_w (C;C_{tr}) were determined in accordance with BS EN ISO 717-1:2013 from laboratory measurements in accordance with BS EN ISO 10140-2:2010 and BS EN ISO 10140-1:2010 Annex B – Doors

The following performance was achieved from the specimens tested. Full details of the testing and specimen construction are described in the report.

Product Name	51/120s/MD/PF/3WL/40A
Product Type	Access Panel

Test No.	Certificate	Test Date	Test Rating R_w (C;C _{tr})
01	WYC538749/01/P001	30/11/2023	40 (-1;-4) dB

2 Introduction

The test specimen was supplied by the sponsor and delivered to WARRINGTONFIRE on 30th November 2023. The specimen was installed into a timber stud partition within the test chamber by the sponsor.

Test Details

The specimen was tested to BS EN ISO 10140-2:2010 Acoustics - Laboratory measurement of sound insulation of building elements. Measurement of airborne sound insulation. With reference to BS EN ISO 10140-1:2010 Acoustics - Laboratory measurement of sound insulation of building elements. Application Rules for Specific Products: Annex B – Doors. The testing methodology is described in Section 3.

Testing was conducted at Warringtonfire, Chiltern House, Stocking Lane, Hughenden Valley, Buckinghamshire. HP14 4ND. Test dates and results are given in Appendix 1. Test Certificates are attached as Appendix 2.

3 Sampling

Warringtonfire was not involved in factory sampling of the products and Materials used for the test specimen described in this report, and as such the results apply to the sample as received.

Supporting Construction Description

The partition consisted of two wall leaves separated by a 400mm air gap. Each wall leaf was constructed of nominal 45mm x 90mm softwood studs at 600mm centres with three layers of 15mm plasterboard on each face. The stud wall cavities were filled with 100mm thick mineral wool insulation.

The specimen was fixed with 6mm x 120mm multi-purpose screws at 3300mm centres on vertical and 250mm on horizontal.

Laboratory Construction Details

The laboratory consists of a source room and a receiving room that are completely separated by a 50mm gap filled with mineral wool. Intersections of the floor, wall and ceiling planes are all perpendicular. The rooms have opposite openings for the installation of the test specimen formed by masonry piers and lintels. The depth of the piers is greater in the source room than the receiving room.

The walls are of timber frame construction, approx. 190mm thick, symmetrical through the thickness. Studs are 90mm deep at 600mm centres with mineral wool insulation between them. Resilient bars approx. 20mm deep are fixed to the studwork. Two layers of 15mm gypsum board are fixed to the bars on both the inner and outer face.

The ceilings consist of 150mm deep timber joists with mineral wool insulation installed between joists. Resilient bars approx. 20mm deep are fixed to the lower edge of the joists. Two layers of 15mm gypsum board are fixed to the bars on the inner face only.

The floors are assembled from sound absorbing boards on a rubber underlay.

Laboratory dimensions are:

	Volume (m³)	Width (m)	Length (m)	Height (m)
Source room	82.4	5.49	6.03	2.49
Receiving room	69.6	5.49	5.09	2.49

4 Test Specimen Details

Product Name	51/120s/MD/PF/3WL/40A
Product Manufacturer	Panel Technologies Limited
Product Type	Access Panel
Material Type	Steel
Overall Dimensions	949mm wide × 2250mm high × 75mm deep
Panel Leaf Dimensions	895mm wide × 2195mm high × 44mm thick

Panel

	Material/type	Dimensions (mm)	Density (kg/m³)
Door Tray	Folded Zintec Steel*	1.2 thick*	-
Core	Acoustic matting self-adhered to door tray Custom Audio Designs IsoBase R50 Under Floor Resilient Layer*	5 thick*	32*
	Rockwool RW3 Semi Rigid Slab*	40 thick*	80*
	Siniat GTEC dB board fixed to door tray using 3.5 x 25mm Bright Zinc Plated (BZP) Countersunk Pozi Bugle Head Cross Recess Self Drilling Drywall Screws Fixed into Top hats*	12.5 thick*	880*
Core Retainer	None present	-	-
Joints	Welded	-	-

* As stated by sponsor, not checked by laboratory

Frame

	Material/type	Dimensions (mm)
Stiles and rails	1.5mm folded Zintec steel*	75 x 25*
Rebate	Single type	26 x 20*
Joints	Mitred and welded	-

* As stated by sponsor, not checked by laboratory

Hardware

	Make/type	Size (mm)	Fixing details (dimensions in mm)
Hinges	Bagshaw Engineering (Ref. HINGE-RF-R51) electroplated Rapid Fit Spring Hinge*	19.1 x 19.1 x 40	Welded
Locking mechanism	C.R.A International (Ref. 18732) Bright Zinc Plated Mild Steel 3 Point Locking Mechanism	162 x 16 with 18 stroke	Bolted on by 2No. M5 x 25 Bright Zinc Plated 8.8 High Tensile Steel Hexagon head Bolts
Bung & Collar	C.R.A International (Ref. 18820-WHT)*	19Ø	Push fit
Keeps	All keeps are cut outs in frame/leaf	-	-

* As stated by sponsor, not checked by laboratory

Perimeter Sealing Details

	Make/type	Size (mm)	Location
Door edges	1No. Envirograph G10/10 grey self-adhesive EPDM seal*	10 x 2*	Rebate platform
	1No. C.R.A International White 'P' Profile Compression Self Adhesive EDPM seal*	9 x 5.5*	Rebate platform
Frame reveal	None Present	-	-
Seal continuity	Uninterrupted by hardware	-	-

* As stated by sponsor, not checked by laboratory

5 Methodology

Laboratory Test Procedure

The output of each combination of microphone and sound level meter channel was checked against a calibrated reference prior to testing.

The following measurements were recorded at each third octave frequency between 50Hz and 5000Hz.

- The background noise level in the receiving room was recorded.
- Reverberation measurements were recorded in the receiving room in accordance with BS EN ISO 3382-2:2008 (interrupted noise, engineering method). Two source and 3 microphone positions were used to provide 6 independent measurements.
- The sound pressure level was recorded in the source room and in the receiving room. For each room, 10 independent measurements were recorded as follows:
 - The noise source was a single fixed loudspeaker in two positions in the source room in accordance with BS EN ISO 10140-5:2010 Annex D.
 - For each loudspeaker position, the microphones were in 5 fixed positions in both the source room and the receiving room in accordance with BS EN ISO:2010 10140-4.

Calculations

Frequency-dependent values of airborne sound insulation were calculated and converted to the single number rating $R_w(C;C_{tr})$ in accordance with BS EN ISO 717-1:2013 as follows.

- The sound reduction index R was calculated at each frequency using the following formula from BS EN ISO 10140-2:2010:

$$R = L1 - L2 + 10 \log\left(\frac{S}{A}\right) \text{ dB}$$

Where:

$L1$ is the logarithmic average of the source room measurements

$L2$ is the logarithmic average of the receiving room measurements, corrected for background noise in accordance with BS EN ISO 10140-4

S is the area of the test specimen

A is the equivalent sound absorption area in accordance with BS EN ISO 10140-4

$$A = \frac{0.16V}{T}$$

Where:

V is the volume of the receiving room in cubic metres

T is the reverberation time in seconds

- The weighted sound reduction index R_w was calculated from values of R (rounded to one decimal place) within the required frequency range 100Hz to 3150Hz by comparison with the reference values in BS EN ISO 717-1:2013.
- Sound spectra C (pink noise e.g. from living activities such as talking or music) and C_{tr} (low frequency noise e.g. from urban traffic) were calculated for the required frequency range as well as wider ranges between 50Hz and 5000Hz in accordance with BS EN ISO 717-1:2013.

Test Equipment

Equipment	Equipment reference number
Bruel & Kjaer Sound Level Meter (Type 2270)	ACT-009
Bruel & Kjaer Microphones (Type 4189)	ACT-002 & ACT-016
Bruel & Kjaer Calibrator (Type 4231)	ACT-011
Amplifiers	ACT-007 & ACT-049
Noise Generators	ACT-008 & ACT-009
Loudspeakers (EV ZX1-90PA)	ACT-006, ACT-021, ACT-022
Graphic Equaliser (DBX Dual Channel)	ACT-023

6 Parameters & Limitations

Parameters

The test fulfilled the criteria stipulated in BS EN ISO 10140-2, including:

- Sound level meter (microphone) was located as required.
- Sound sources (loudspeakers) were located as required.
- Reverberation time readings were greater than 20dB but not so large that the observed decay cannot be represented by a straight line.
- Background noise levels met the requirements of BS EN ISO 10140-4.
- Temperature was reported to within $\pm 0.1^{\circ}\text{C}$.
- Barometric pressure was reported to within ± 0.01 mbar (± 1 Pa).
- Relative humidity was reported to within $\pm 1\%$.
- Frequencies 50Hz, 63Hz and 80Hz are outside of our UKAS accreditation, and are for reference only. These frequencies do not contribute to the single number rating R_w .
- The maximum measurable sound reduction index R'_{max} of the test chambers was measured as 65dB.
- The test chambers are two cuboid rooms 5.49m wide with a ceiling height of 2.58m. Volumes of test chambers are reported in each test certificate.

Limitations

- The results only relate to the behaviour of the specimen submitted for test, as described in the Technical Specification (Section 4), and under the particular conditions of test.
- The results are not intended to be the sole criteria for assessing the acoustic performance of the element in use nor do they necessarily reflect the actual behaviour once installed on site.
- The specification and interpretation of test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over 5 years old should be considered by the user. WARRINGTONFIRE will be able to offer a review of the procedures adopted for a particular test to ensure that they are consistent with current practices.
- The results are solely for use by the sponsor and the stated purpose.
- The sponsor cannot rely on information provided without consent from WARRINGTONFIRE.
- Any recommendations are specific to the assignment and the sponsor.
- Extracts from the report are not permitted.

7 Authorisation

	Issued By	Authorised by:
Signature:		
Name:	Lee Grant-Riach	Martin Durham
Title:	Advanced Technical Officer	Lab Manager
Date of Issue	23 rd June 2025	

Appendix 1 – Results

Product Name	51/120s/MD/PF/3WL/40A
Product Type	Access Panel

Data Sheet Ref.	Variations
Test No: 01 Certificate: WYC538749/03/P001 Test Date: 01 Sep 23 $R_w(C;C_{tr}) = 40 (-1;-4) \text{ dB}$	None

Appendix 2 – Test Certificate

(1 Page)

Document No.: WYC538749/03
Author: Lee Grant-Riach
Sponsor: Panel Technologies
Limited

Page No.: 13 of 14
Issue Date: 23/06/2025
Version No.: 1



Sponsor: Panel Technologies Limited

Product Name/Desc: 51/120s/MD/PF/3WL/40A

Product Type: Access Panel

Material Type: Steel

Variations: None

For detailed technical specification, refer to Section 2 of the report

Ref No: WYC538749/03/P001

Date of test: 30/11/2023

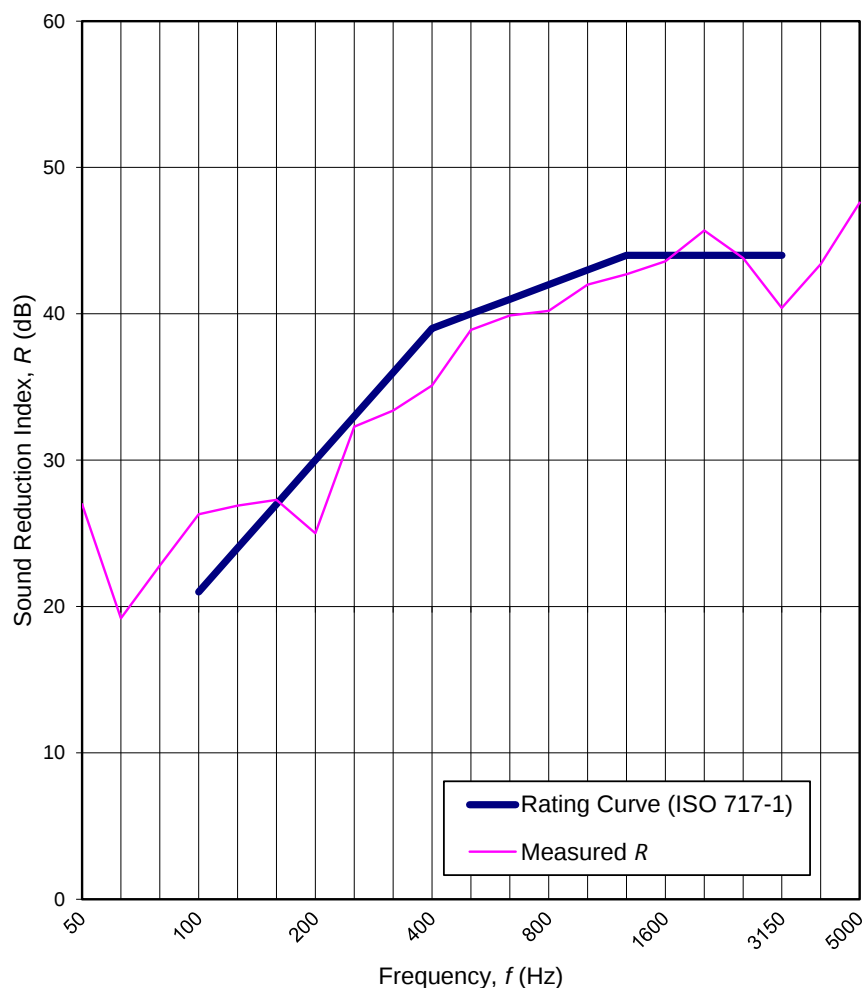
Specimen Installed by: Client

Area of Specimen (S): 2.1 m²

	Source Room	Receiving Room
Room Volume:	82.4 m ³	69.6 m ³
Temperature:	18.5 °C	18.4 °C
Static Pressure:	99650 Pa	99660 Pa
Relative Humidity:	65 %	64 %

f, Hz	R dB
50	27.0
63	19.2
80	22.8
100	26.3
125	26.9
160	27.3
200	25.0
250	32.3
315	33.4
400	35.1
500	38.9
630	39.9
800	40.2
1000	42.0
1250	42.7
1600	43.6
2000	45.7
2500	43.8
3150	40.4
4000	43.4
5000	47.6
AAD	22.7

Frequency range for rating in accordance with ISO 717-1



Rating to BS EN ISO 717-1 : 2013

Frequencies 50, 63, 80, 4000 & 5000 Hz are for reference only and do not form part of the R_w calculation

$R_w (C; C_{tr}) = 40 (-1; -4) \text{ dB}$

$R_w + C = 39 \text{ dB}$

$R_w + C_{tr} = 36 \text{ dB}$

$C_{(50-3150)} = -1 \text{ dB}$

$C_{(50-5000)} = -1 \text{ dB}$

$C_{(100-5000)} = 0 \text{ dB}$

$C_{tr (50-3150)} = -6 \text{ dB}$

$C_{tr (50-5000)} = -6 \text{ dB}$

$C_{tr (100-5000)} = -4 \text{ dB}$

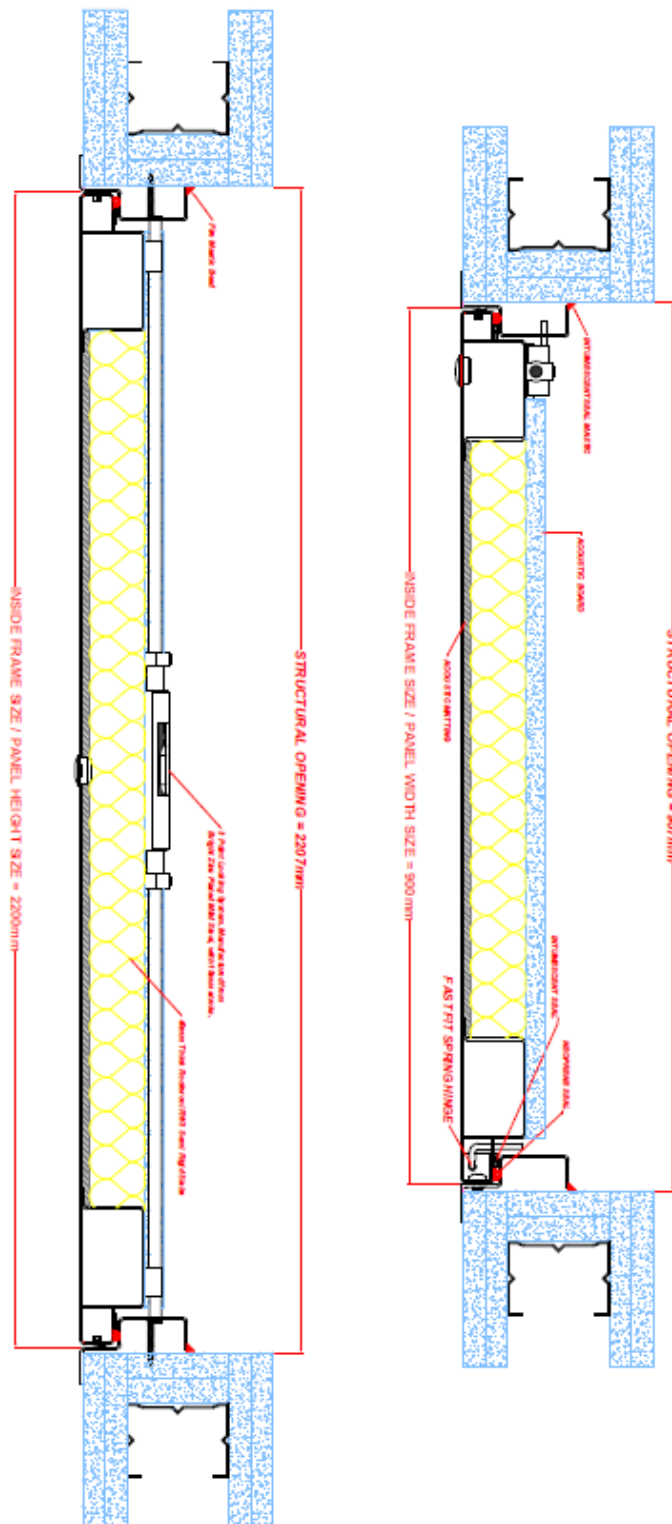
L. Grant-Riach

Lee Grant-Riach
Lead Technical Officer

The legal validity of this report can only be claimed on presentation of the complete report

Appendix 3 – Client Drawing

ISSUE No:	CHANGE DETAIL'S:



Title	Date Recd	Order No.	Project	Specified Finish	Per Drawing	Description of Work or Item
Do Not Scale	30/11/23	RC	ZINT EC	1.2mm/1.5mm	AS PER ORDER	(Description of Work or Item)
(Description of Work or Item)						
SINGLE DOOR RISER DOOR						
Quantity	UOM	Unit Price	Total Price			
1	51 - RFI 205 - MD-PF-3WV-40A	+/-0.5 DEGREES	ALPINE RS WILLIAM HOUSE, 49-61 JODRELL STREET, MUNNATON WARWICKSHIRE, CV11 5EG	ASSEMBLY		
(Description of Work or Item)						

This drawing is confidential and the copyright therein is owned by Panel Technologies. This Drawing must not be copied, loaned or the information otherwise disclosed without the written permission of Panel Technologies Company Limited.