CSIRO ACOUSTIC MEASUREMENT REPORT

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Research Way, Clayton, Vic 3168 Australia

Report No: **TL833-07-1**

Client: Doric Products Pty Ltd
38 Redfern St, Wetherill Park, NSW 2164

Measurement Type: Airborne Sound Insulation

AS 1191-2002 (R2016): *Acoustics – Method for laboratory measurement of airborne sound insulation of building elements*.
AS ISO 717.1:2024: *Acoustics – Rating of sound insulation in buildings and of building elements. Part 1: Airborne Sound Insulation*.

Test Specimen

[Specimen area[4]: 0.902 x 2.102 m = 1.896 m^2]

Description:
- Doric Paraflow louvre window system
- 14 blade gallery comprising 2 sets of parallel blades
- 6.5 mm ComfortHush outer blades, 6.5 mm ComfortHush inner blades

Materials[1]
a] Glazing: 6.5 mm ComfortHush outer blades – approx. 35 mm gap – 6.5 mm ComfortHush inner blades.
b] Framing: proprietary aluminium extrusions.
c] Mechanical components: the gallery was operated via 2 independent mechanisms. One lever operated the upper 60% of louvres and a second lever operated the lower 40% of louvres.
d] Operable seal system: weather seals were fitted between the glazing and the head/sill extrusions. When closed, glass-glass contact was the only sealing method for the overlapping blades.

As per client drawing (see following page).

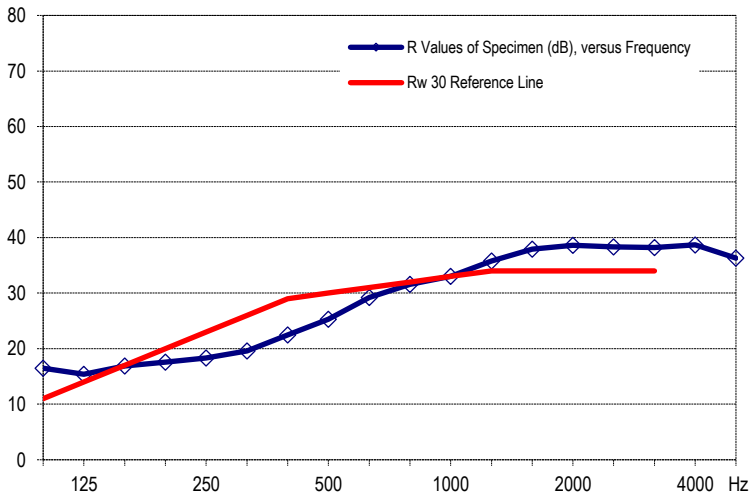
Installation[5]
- A filler wall[3] was built to create a test aperture, sized to suit the test specimen.
- The window system was installed in the filler wall and screw-fixed to the faces of the aperture.
- Frame/aperture junctions were all caulked, front and back with aluminium angle screwed to the left and right aperture faces, front and back to cover the installation gap.
- The test specimen was installed with the inside facing the 200 m^3 reverberation chamber set back approximately 115 mm from the face of the filler wall.
- The louvre gallery was operated 10 times, closed and immediately tested.



Test specimen installed in laboratory: louvres closed

Measurement Details & Results[2]

Frequency (Hz)	Specimen R Value (dB) 1/3 Octave	Whole Octave	95 % Conf δ (dB)
100	16.5		2.4
125	15.4	16.2	1.8
160	16.9		1.2
200	17.6		1.2
250	18.3	18.4	0.6
315	19.6		0.8
400	22.5		0.5
500	25.3	24.9	0.5
630	29.2		0.2
800	31.6		0.4
1000	33.0	33.1	0.3
1250	35.8		0.2
1600	37.9		0.2
2000	38.6	38.3	0.3
2500	38.3		0.2
3150	38.2		0.3
4000	38.7	37.6	0.3
5000	36.3		0.3



Performance Index Numbers
R_w (C; C_{tr}) = 30 (-1; -5) dB
STC = 30
(STC as per ASTM E413-16)

Confidence Intervals (AS 1191, App B, 95 % Confidence)
Measurement was carried out in both directions through the test specimen, using 3 loudspeaker positions in each chamber; giving 6 spatially independent sets of R values, from which average R values and confidence intervals have been calculated (confidence intervals rounded up to 1 decimal place).

Measurement Conditions
Date of measurement: 8 July 2025
200 m^3 chamber (north): 17 °C, 49 % R.H.
100 m^3 chamber (south): 16 °C, 55 % R.H.
Atmospheric pressure: 987 mbar

Notes, Deviations etc

1. Material details stated are as per client advice; unless identified as (meas), indicating measured by CSIRO.
2. ≥ indicates R values, if any, where measurability was limited by proximity to background level.
3. The filler wall constructed to create the test aperture to suit the specimen, was of discontinuous timber frame construction, clad with 2 layers of 16 mm thick fire rated plasterboard, with high density glass wool in the cavity. R_w 75 has previously been measured for a similar wall.
4. Specimen area used in calculations was the full area of the aperture in the filler wall (902 x 2102 mm, w x h).
5. The filler wall was constructed by the laboratory's contractor; the client installed the test specimen.

Issuing Authority

Signed: .....
Jim Payne
Date: 22 August 2025

Instrumentation

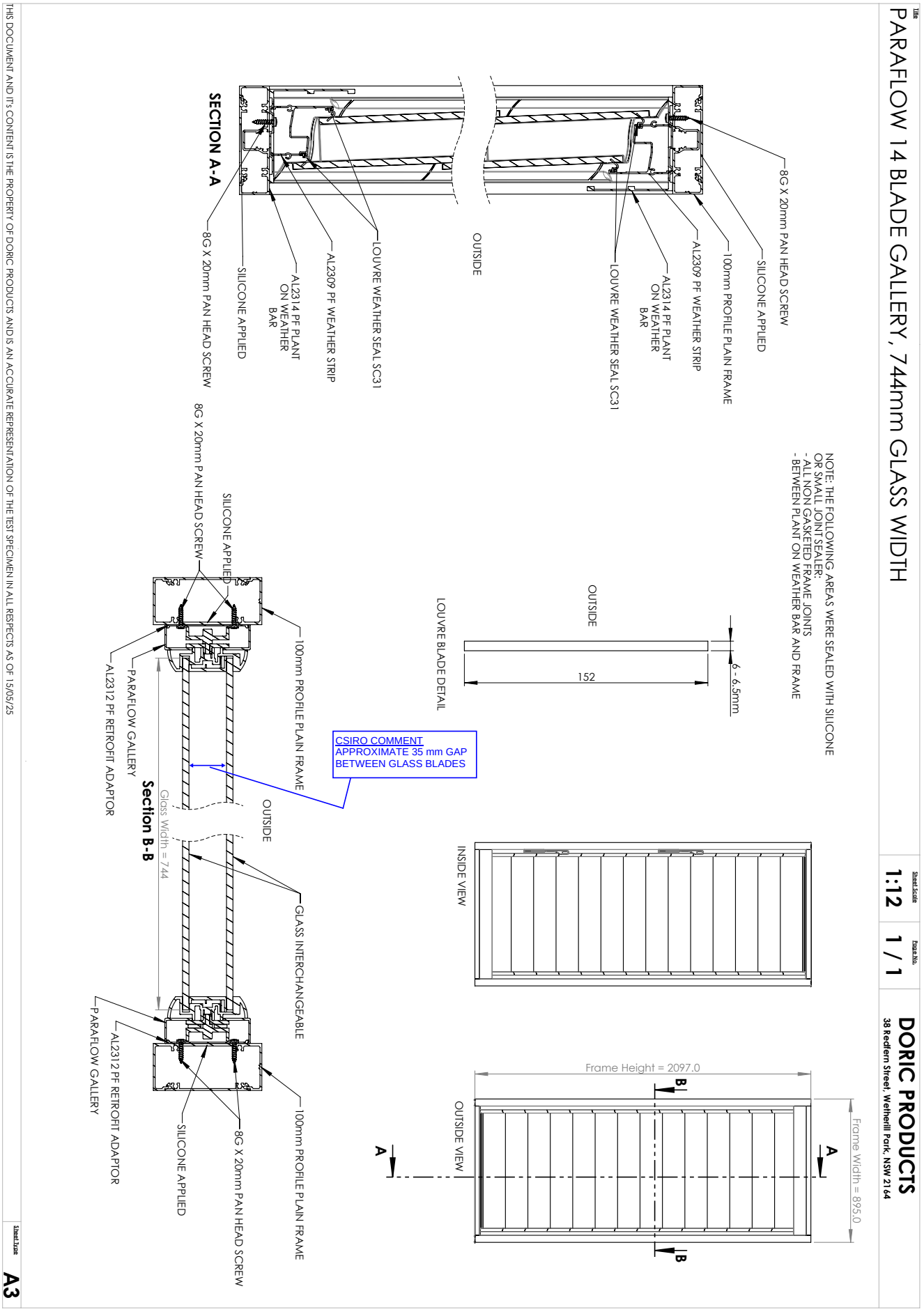
Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-042
Microphones/preamps: • GRAS type 40AQ microphones on GRAS preamps, rotating simultaneously in both rooms with 32 sec period, 1.32 m radius
Noise source: • Norsonic NOR276 and Brüel & Kjær type 4296 dodecahedron loudspeakers, driven by a Norsonic NOR280 power amplifier
Calibration: • Brüel & Kjær type 4231 acoustic calibrator: Sep 2024 (NATA cal)
• Analyser: Jan 2025 (DANAK cal, ilac-MRA recognised)

Laboratory Construction

Chambers: • 300 mm thick concrete • rectangular prism with dimensional proportions 1:1.3:1.6 for spectral distribution and overlap of room modes • northern room approx. 200 m^3 vol (212 m^2 area); southern room 100 m^3 vol (133 m^2 area).
Diffusers: • 200 m^3 room: 20 diffusers (approx 40 m^2) • 100 m^3 room: none.
Isolation: • ≥ R_w 78; structurally separate (60 mm air gap), vibration isolated (11 Hz).
Specimen aperture: • 3.60 m wide x 3.00 m high, each chamber having 25 mm thick steel plate lining its 300 mm deep portion of the test aperture, creating a total aperture depth of 660 mm, resilient foam sealing the 60 mm air gap.

Legal Information and Disclaimer Copyright © 2025 CSIRO. To the extent permitted by law, CSIRO (including its employees and consultants) excludes all liability to any person for any consequences, including but not limited to all losses, damages, costs, expenses and any other compensation, arising directly or indirectly from using any information or material contained in this document. Results relate only to items tested. No alterations permitted. This report may be distributed only in its entirety.

Additional Test Specimen Details (drawing provided by client)



Legal Information and Disclaimer Copyright © 2025 CSIRO. To the extent permitted by law, CSIRO (including its employees and consultants) excludes all liability to any person for any consequences, including but not limited to all losses, damages, costs, expenses and any other compensation, arising directly or indirectly from using any information or material contained in this document. Results relate only to items tested. No alterations permitted. This report may be distributed only in its entirety.