

# Sound Reduction Testing

## Laboratory Sound Reduction Testing of 100mm NRG Greenboard Wall System

### Document Ref

140061-01-F03 (rev 0) Acoustic Laboratory Test Report

### Test Sample

- a. External polymer modified render 3.5mm thick (1.8-2.0g/cm<sup>3</sup>).
- b. 100mm thick Greenboard (19kg/m<sup>3</sup>) screw fixed to frame. Sheets adhered together with Soudal Strong as Nails with all joints and the perimeter acoustically sealed.
- c. Sisalation between the Greenboard and frame.
- d. Frame consisting of 75mm x 35mm timber studs at 450mm centres.
- e. 75mm thick glass wool insulation (14kg/m<sup>3</sup>) between the studs.
- f. 10mm plasterboard (6.5kg/m<sup>2</sup>) with all joints finished and the perimeter acoustically sealed.

### Standards

AS1191: 2002 Acoustics – Method for Laboratory Measurement of Airborne Sound Insulation of Building Elements

AS/NZS ISO 717: 2004 Acoustics – Rating of Sound Insulation in Buildings and Building Elements – Part 1: Airborne Sound Insulation

### Test Date & Time

18th August 2016 from 4:32pm

### Test Location

Acran Acoustic Testing Facility Cnr. Fulcrum & Bundara Streets Richlands Q4077

### Test Facility

The test facility consists of a source room and receiver room designed in accordance with AS1191: 1985 Acoustics – Method for Laboratory Measurement of Airborne Sound Insulation of Building Elements as follows:

### Room Construction

Independent construction for the source and receiver room.

### Room Shape

Parallelepiped source and receiver rooms with rooms dimensions ratios of 1.6:1.3:1.

### Room Volume

95m<sup>3</sup> and 170m<sup>3</sup> for the source and receiver rooms respectively.

### Test Aperture

The aperture is lined with a timber reveal with the sample area being 3.095m and 3.085m.

### Test Condition

Temperature - 20 °C, Humidity - 63%

### Test Instrumentation

- Precision Sound Level Meter: NTI XL2 TA, S/N: A2A-06756-E0
- Acoustical Calibrator: Pulsar 105, S/N: 63710
- ASD Cable
- Sound Sources: JBL powered speakers/pink noise

## Test Method

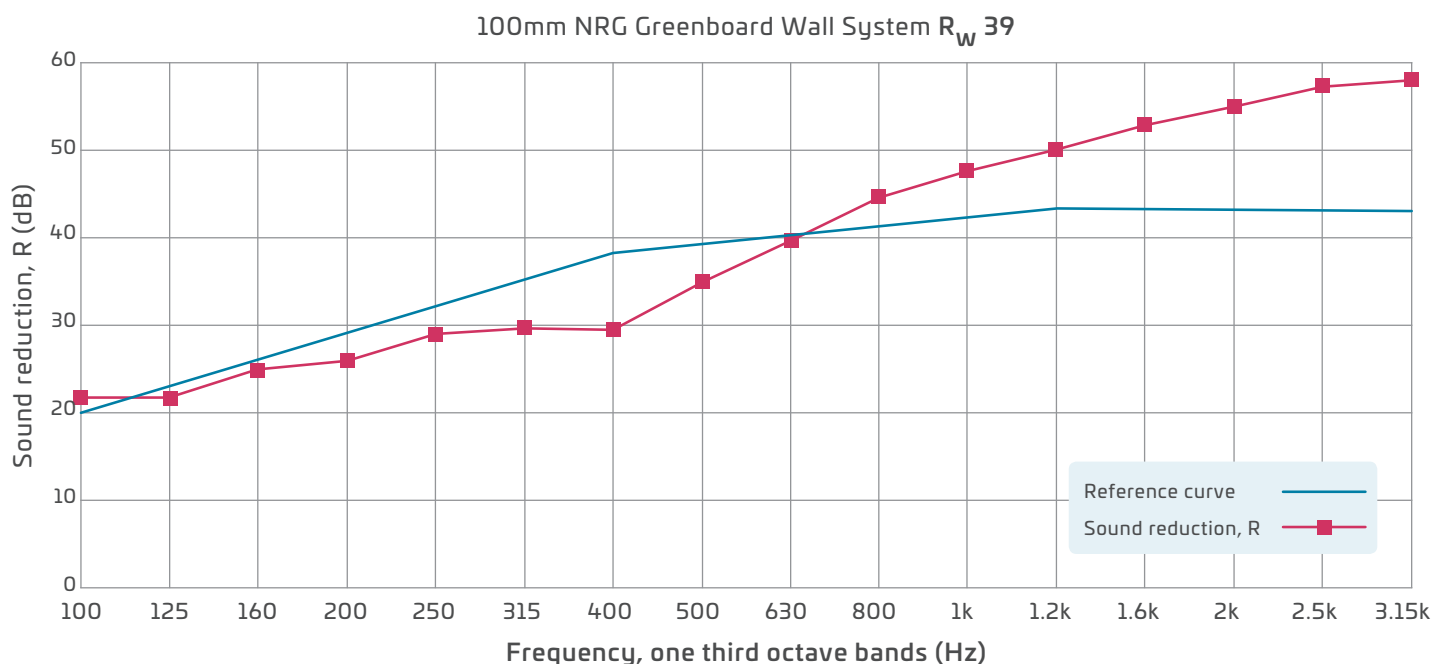
- The sound sources were located in and facing the rear trihedral corners of the source room.
- The source and receiver noise levels were measured using a continuously moving microphone over a duration of 3 x 60 seconds. The moving path was greater than 15m. The one third octave band noise levels were recorded using the Leq parameter for the frequency range between 100Hz and 3.15kHz.
- The equivalent acoustic absorption was measured in the receiver room using 12 noise decays, consisting of 3 microphone positions for each of the 4 source locations. The sound source was broad band pink noise.
- Background noise measurements were conducted using a continuously moving microphone.

## Test Result

The sound reductions determined from testing have been used to calculate the Weighted Sound Reduction Index (R<sub>w</sub>) and Spectrum Adaption Term (Ctr) in accordance with AS/NZS ISO 717:2004 Acoustics – Rating of Sound Insulation in Buildings and Building Elements – Part 1: Airborne Sound Insulation.

The test results are presented graphically in Figure 1 and summarised in Table 1.

Sound Reduction R (dB) in One Third Octave Bands (Hz)																	
100	125	160	200	250	315	400	500	630	800	1k	1.2k	1.6k	2k	2.5k	3.15k	R <sub>w</sub>	Ctr
21.6	21.4	24.7	25.7	28.7	29.2	29.0	34.6	39.0	44.1	47.1	50.2	52.3	55.1	56.9	57.4	39	-6



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