

Laboratory Sound Reduction Testing of 100mm NRG Greenboard Wall System

Document Ref:	140061-01-F03 (rev 0) Acoustic Laboratory Test Report								
Test Sample:	<ul style="list-style-type: none">a) External polymer modified render 3.5mm thick (1.8-2.0g/cm³).b) 100mm thick Greenboard (19kg/m³) 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/m³) between the studs.f) 10mm plasterboard (6.5kg/m²) with all joints finished and the perimeter acoustically sealed.								
Standards	<p>AS1191: 2002 <i>Acoustics – Method for Laboratory Measurement of Airborne Sound Insulation of Building Elements</i></p> <p>AS/NZS ISO 717: 2004 <i>Acoustics – Rating of Sound Insulation in Buildings and Building Elements – Part 1: Airborne Sound Insulation</i></p>								
Test Date & Time:	18 th August 2016 from 4:32pm								
Test Location:	Acran Acoustic Testing Facility Cnr. Fulcrum & Bundara Streets Richlands Q4077								
Test Facility:	<p>The test facility consists of a source room and receiver room designed in accordance with AS1191: 1985 <i>Acoustics – Method for Laboratory Measurement of Airborne Sound Insulation of Building Elements</i> as follows:</p> <table><tr><td>Room Construction:</td><td>Independent construction for the source and receiver room.</td></tr><tr><td>Room Shape:</td><td>Parallelepiped source and receiver rooms with rooms dimensions ratios of 1.6:1.3:1.</td></tr><tr><td>Room Volume:</td><td>95m³ and 170m³ for the source and receiver rooms respectively.</td></tr><tr><td>Test Aperture:</td><td>The aperture is lined with a timber reveal with the sample area being 3.095m and 3.085m.</td></tr></table>	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 ³ and 170m ³ 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.
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Test Conditions: 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 L_{eq} 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 Results: The sound reductions determined from testing have been used to calculate the Weighted Sound Reduction Index (R_w) and Spectrum Adaption Term (C_{tr}) 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.

Table 1: Summary of Results

Sound Reduction R (dB) in One Third Octave Bands (Hz)																R _w	C _{tr}
100	125	160	200	250	315	400	500	630	800	1k	1.2k	1.6k	2k	2.5k	3.15k		
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

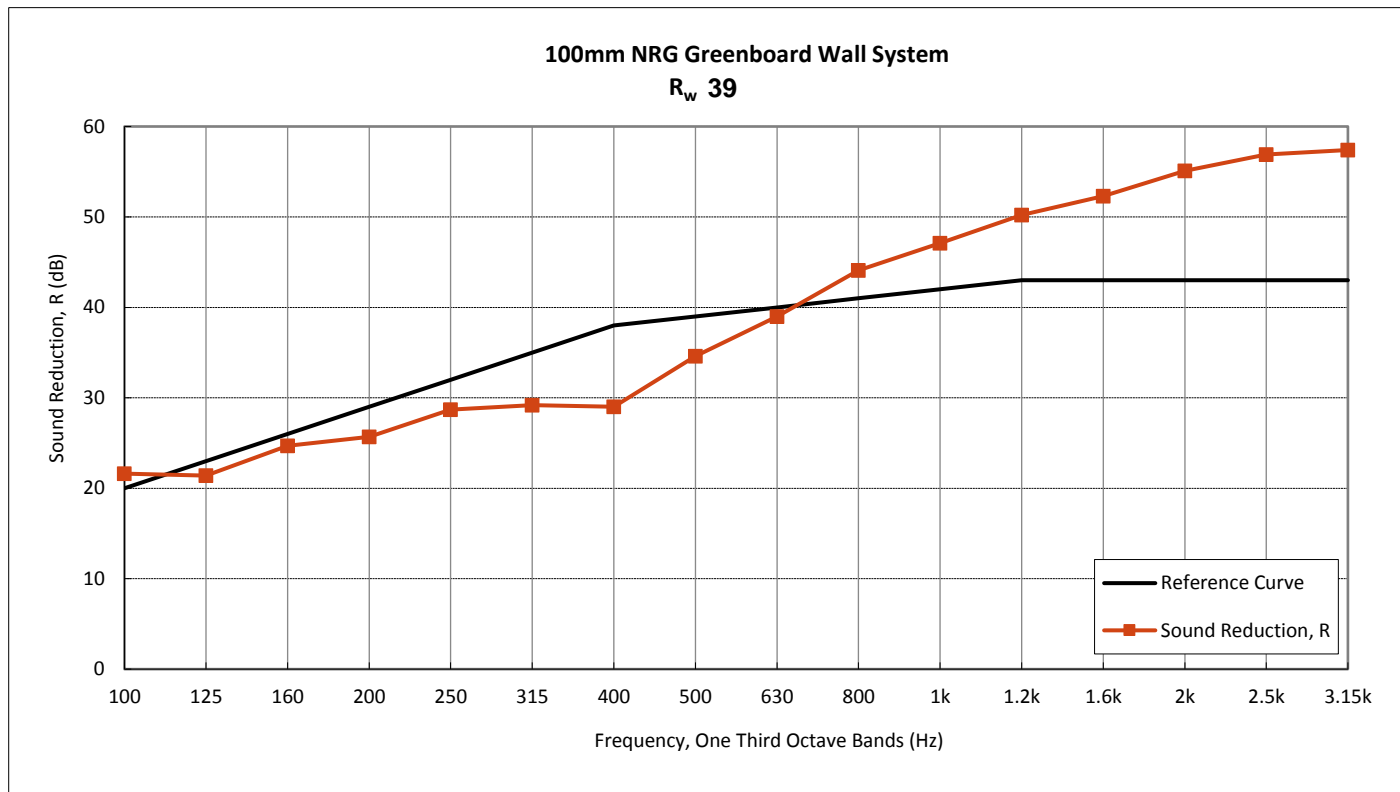


Figure 1: Results