

Date: 05/06/15
Ref: 6813R03V02_Newport.docx
To: Brenden Parker
Company: Urbanline Architectural
Email: brenden@urbanline.com.au
Author: Stephen Lyons/ML
Subject: Acoustic Laboratory Test Results - Newport Spotted Gum
Pages: 1 of 5

Dear Jeremy,

ASK Consulting Engineers Pty Ltd (ASK) was commissioned by Urbanline to undertake laboratory acoustic testing of an external wall system consisting of an external cladding layer, steel stud wall and internal plasterboard lining in the Acran Acoustical Laboratory. The details of the acoustic testing are summarised below as previously provided.

Relevant Standards AS1191.2002 - *Acoustics - Method for Laboratory measurement of airborne sound transmission insulation of building elements*
AS/NZS ISO 717.1:2004 - *Acoustics - Rating of sound insulation in buildings and of building elements Part 1: Airborne sound insulations*
AS ISO 354-2006 *Acoustics—Measurement of sound absorption in a reverberation room.*

Date / Time: 26/11/2014 Commencing at 3:45pm.

Testing Facility Acran Acoustic Testing Laboratory
127 Bandara St, Richlands, Queensland, Australia
The volumes, diffusion and construction characteristics of this testing facility comply with the requirements of AS1191-2002.



Details of Sample

The sample was constructed in accordance with the configuration construction shown in **Appendix A** as follows:

- External Cladding (Source room side).
- Newport Spotted Gum (19mm thick x 190mm wide) with no sealant.
- 90mm Steel Stud 0.55BMT at 600mm centres, with 100mm thick EarthWool insulation (R2.5).
- 2 x layers 13mm thick Plasterboard (Receiving room side).
- All materials attached with building screws.

The sample was fixed to an opening of 2400mm x 2500mm. The remaining area of the test aperture was filled with a plasterboard filler wall consisting of 3 layers of 16mm plasterboard both sides of timber studs and insulation previously tested to a performance of Rw 56.

Details of the test sample are included in **Appendix A**. Photo of the specimen is included in **Appendix B**.

Purpose of Tests:

The purpose of the tests was to determine the sound reduction index of the sample in octave bands.

Instrumentation:

The instrumentation used during the tests included the following:

- Powered speaker and 1 off Mackie 450 watt powered loudspeaker with recorded pink noise.
- Rion NA-27 Type 1 Sound Level Meter S/N 960118, Calibrated 9/12/13.
- Sinus Soundbook Samurai V2.4 software with built-in reverberation time software. S/N6LKCV75, Calibrated 18/02/14.
- Rion NC-73 Calibrator. S/N 1084267, Calibrated 12/02/2014.

Methodology:

The test methodology included the following:

- A series of two 1-minute measurements were taken by moving the Rion NA-27 microphone randomly throughout the source room while the speakers produced a high level of pink noise. Three measurements were made in the Receiving Room, then an additional single measurement in the Source Room to ensure the source levels did not change during the tests.
- The reverberation time in the receiving room was measured in the receiving rooms and then averaged. Three source locations and four points for each source location were used. The amount of absorption in the receiving room was calculated in accordance with methods contained in AS ISO 354—2006 Acoustics—Measurement of sound absorption in a reverberation room.
- Each of these measurements was used to calculate a sound reduction index (R) value according to Equation 5 of the Standard for each 1/3 octave frequency band from 100 to 3150 Hz. Sufficient signal to noise was measured in all frequencies and the measurements corrected for the presence of background noise in accordance with the code.
- Calculations of the performance accounting for the composite performance of the sample and filler wall were made in accordance with the Appendix D of the AS1191.

Results: The measured R values for each 1/3 octave band are shown in **Table 1**.

Table 1: Test Results

1/3 Octave Bands	Sound Reduction Indices (R)	Reference Curve	Single Figure Rating
100	25.7	31	
125	34.5	34	
160	35.0	37	
200	38.9	40	
250	39.9	43	
315	40.8	46	
400	45.3	49	
500	49.3	50	
630	51.8	51	
800	52.8	52	
1.0 k	51.7	53	
1.2 k	53.8	54	
1.6 k	55.9	54	
2.0 k	58.6	54	
2.5 k	59.2	54	
3.15 k	57.5	54	
R_w			50
C			-2
C_{tr}			-7

Yours faithfully

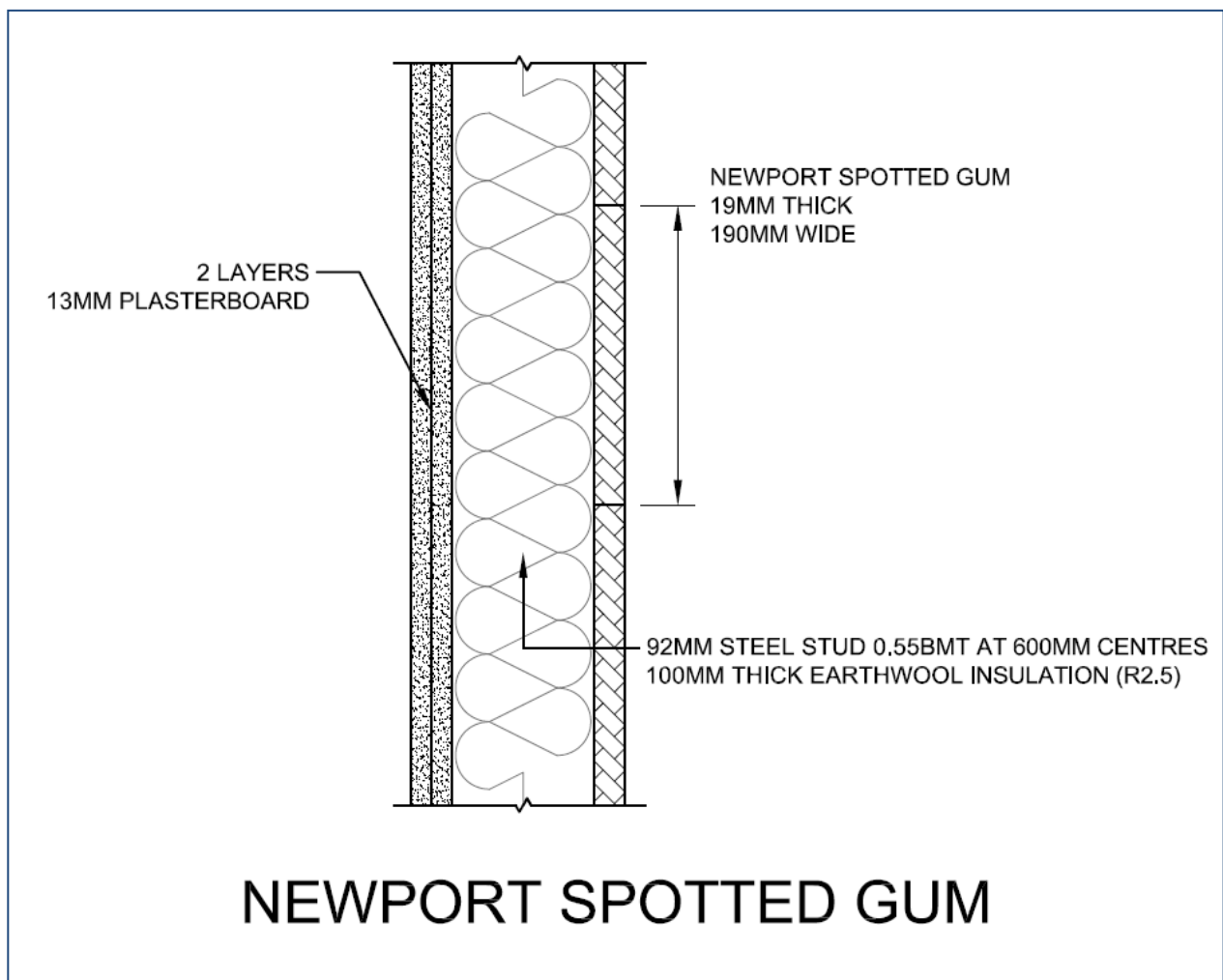
ASK Consulting Engineers



Stephen Lyons

Project Engineer

Appendix A



Appendix B - Photos

