



Timbercrete Pty Ltd  
2628 Bells Line of Road  
Bilpin NSW 2758

Refer: R \ 4546-R3

Attention: Mr Peter Collier  
Telephone: 4567 1149 Facsimile: 4567 1150 (1 sheet)

4 March, 2011

Dear Sir,

## TIMBERCRETE WALL SYSTEMS ACOUSTIC OPINIONS

Day Design tested a bare 100 mm Timbercrete wall in February 2011. The test report (Number 4546 dated 3 March 2011) found the wall achieved  $R_w(C;C_{tr})$  41 (-1;-3).

As requested, we are pleased to provide acoustic opinions for the following Timbercrete wall systems as detailed below.

The Acoustic Opinions expressed in this report are based firstly on calculations made using the Acousti-Max software and secondly by comparison with Sound Transmission Loss tests for similar masonry wall constructions. Acoustic Opinions are then provided in the light of our general acoustic experience. Factors taken into account in our calculations include: the surface mass of the plasterboard, Young's Modulus, the critical frequency and speed of sound in the various materials, the effect of air cavities and acoustic insulation between studs.

We are of the opinion that using the Acousti-Max software and making corrections based on comparison with test results, that our prediction accuracy is in the order of  $\pm 2$  dB.

- 100 mm Timbercrete wall (approx density  $1000 \text{ kg/m}^3$ ) with 64 mm steel studs spaced 20 mm from the wall and R1.5 (65 mm) glasswool insulation ( $12 \text{ kg/m}^3$ ) between the studs and 13 mm fire-rated plasterboard (surface density  $10.5 \text{ kg/m}^2$ ) fixed to the studs.

### Acoustic Opinion - $R_w(R_w+C_{tr})$ 59 (51)

- 120 mm Timbercrete wall (approx density  $1000 \text{ kg/m}^3$ ) with 64 mm steel studs spaced 20 mm from the wall and R1.5 (65 mm) glasswool insulation ( $12 \text{ kg/m}^3$ ) between the studs and 13 mm fire-rated plasterboard (surface density  $10.5 \text{ kg/m}^2$ ) fixed to the studs.

### Acoustic Opinion - $R_w(R_w+C_{tr})$ 59 (52)

- 100 mm Timbercrete wall (approx density 1000 kg/m<sup>3</sup>) spaced 50 mm from a 90 mm Timbercrete wall (approx density 1800 kg/m<sup>3</sup>). In the 50 mm cavity is R1.5 (50 mm) glasswool insulation (12 kg/m<sup>3</sup>).

**Acoustic Opinion -  $R_w (R_w + C_{tr})$  58 (50)**

- 100 mm Timbercrete wall (approx density 1000 kg/m<sup>3</sup>) spaced 50 mm from a second 100 mm Timbercrete wall (approx density 1000 kg/m<sup>3</sup>).

**Acoustic Opinion -  $R_w (R_w + C_{tr})$  51 (46)**

- 200 mm Timbercrete wall (approx density 1000 kg/m<sup>3</sup>) with 13 mm thick cement render on both sides.

**Acoustic Opinion -  $R_w (R_w + C_{tr})$  50 (47)**



**Stephen Gauld**, BE (Mech), MEngSc (Noise and Vibration), MIEAust., MAAS

Senior Acoustical Engineer

for and on behalf of Day Design Pty Ltd.



The undersigned hereby certifies that this Report has been checked and approved in accordance with our Quality Management System.

