

BUILDING CODE OF AUSTRALIA
SECTION F5.2 HEALTH AND AMENITY
WALL IMPACT ISOLATION EXPERT JUDGEMENT
ECO-BLOCK AUSTRALIA ECO-BLOCK WALL

CLIENT ECO-BLOCK AUSTRALIA Pty Ltd – ECO-Block “Cast-in-Place”
Monolithic Reinforced Concrete Wall System

DATE 22 November 2004

CERTIFICATION BY ROSS H. PALMER CPEng, RPEQ (3534)

ISSUE THE ISOLATION OF WALL IMPACT GENERATED SOUND.

BCA REQUIREMENTS Compliance Criteria and Assessment Methods

FP5.2

Walls separating sole-occupancy units or a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby, or the like, or parts of a different classification, must provide insulation against the transmission of—

(a) airborne sound; and

(b) impact generated sound, if the wall is separating a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit,

sufficient to prevent illness or loss of amenity to the occupants.

Section F5.3

A wall in a building required to have an impact sound insulation rating must:

- I. for a class 2 or 3 building be of dis-continuous construction; and*
- II. for a class 2 or 3 building, must-*
 - a. for other than masonry be of two separate leaves without rigid mechanical connection except at the periphery; or*
 - b. be of identical with a prototype that is no less resistant to the transmission of impact sound when tested in accordance with Specification F5.5 than a wall listed in Table 2 of Specification F5.2.*

for the purposes of this part, dis-continuous construction means a wall having a minimum 20mm cavity between 2 separate leaves and:

- I. for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and*
- II. for other than masonry, there is no mechanical linkage between the leaves except at the periphery.*

BCA Assessment Methods

The following Assessment Methods, or any combination of them can be used to determine that a Building Solution complies with the Performance Requirements:

- a) Evidence to support the use of a material, form of construction or design meets a Performance Requirement or a Deemed-to-Satisfy Provision as described in 1.2.2*
- b) Verification methods such as:*
 - i. The verification methods in the BCA; or*
 - ii. Such other verification Methods as the appropriate Authority accepts for determining compliance with the performance Requirements.*
- c) Comparison with the Deemed-to-Satisfy provisions*
- d) Expert Judgement*

THE PRODUCT

This expert judgment is concerned with the ECO-Block “Cast-in-Place” Monolithic Reinforced Concrete Wall System. The system consists of the following:

- 152mm thick reinforced concrete walls cast around a specially installed formwork system – concrete density 2400 kg/m³
- 65mm polystyrene panels mounted either side of the poured concrete wall as part of the formwork system;
- 10mm plasterboard bonded to each side of the polystyrene formwork.

This system is designed to incorporate water supply and electrical services and conduits within the polystyrene formwork.

JUDGMENT

Based upon our understanding of the system, experience with wall impact noise in many high rise residential buildings and as a practicing Acoustic Engineer (RPEQ, CPEng, NPER 3) I certify that the proposed system meets the BCA requirement to be sufficient to prevent illness or loss of amenity to the occupants, with regard to the isolation of impact noise.

In this application the two 65mm thick polystyrene formwork panels serve to act as impact isolation elements serving to sufficiently decouple impact noise across the wall.

PALMER ACOUSTICS (Australia) Pty Ltd



ROSS H. PALMER CPEng RPEQ
Principal

Palmer Acoustics (Australia) Pty Ltd
22 Burdekin Court Hillcrest QLD 4118
PO Box 165 Browns Plains QLD 4118
AUSTRALIA
ACN 058 751 349 ABN 48 058 751 349

P (61 7) 3802 8355
F (61 7) 3802 8399
M 04 11 88 3113
E rp.paa@bigpond.net.au