



Our ref: FCO-2545/CO4021

Machdev Pty Ltd  
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ACACIA RIDGE QLD 4110

Attention: Mr Wayne Borg  
Director

COMBUSTIBILITY OF CONPOLCRETE  
Assessment Report FCO-2545  
Your e-mail of 5 July.

INTRODUCTION

We have re-examined the information referenced by you on the likely performance of your Conpolcrete material to comply with the requirements of the BCA. The information included

- our various test reports on Conpolcrete when tested in accordance with AS 1530.1, AS 1530.4, AS 1530.3 and AS/NZS 3837; and
- the Building Code of Australia.

You have requested this Division to determine as to whether your Conpolcrete material meets the intent of the Australian Building Code in its requirements for materials to be non-combustible.

ANALYSIS

Under Deem-to-satisfy provisions, the BCA defines combustibility as determined by AS1530.1. The BCA also admits that there are some materials that, although combustible when tested in accordance with AS 1530.1, meet the intent of the code in that do not represent a risk to the spread of flame. Thus the BCA also exempts materials from AS 1530.1 because they are predominantly non-combustible but contain organic fibres or veneers that would automatically cause them to fail due to heat rise thresholds set in AS 1530.1. examples of these material are plasterboards that would not pass the required AS 1530.1 combustibility test because of the rising in temperature due the organic materials (paper backing and fibres) incinerating yet the core, Gypsum, is considered non combustible by the BCA.

Your Conpolcrete may be considered in this same material category, although the concrete acts as a fire barrier, the homogenous dispersion of polystyrene beads throughout the material will also cause it to fail under AS1530.1 (due to heat rise and not due sustained flaming) but yet will resist fires for in excess of 90 minutes without flaming in a full-scale fire test.

The results of various tests are listed below and as you can see the Conpolcrete will perform in excess of most of the exempt materials listed under BCA Volume 1 Clause C1.12.

THIS ASSESSMENT SUPERSEDES ASSESSMENT NUMBERED FCO-2545 DATED 20 OCTOBER 2006.

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- Under a full-scale fire test carried out by the CSIRO under AS1530 Part 4, typical EcoSeries Wall System, 50mm thick Conpolcrete<sup>®</sup> with 5-8mm of render, mounted on a 90mm timber stud frame with a standard 10mm plasterboard internal lining achieved the following results:
  - Structural = in excess of 90 minutes (analysis of test data)
  - Integrity = 113 minutes
  - Insulation = 115 minutes
- Conpolcrete<sup>®</sup> has been tested under Australia Standards AS1530 Part 3 to determine its ignitability, flame propagation, heat release and smoke release and achieved the following results:
  - Ignitability (0-20) = 0
  - Spread of Flame (0-10) = 0
  - Heat Evolved Index (0-10) = 0
  - Smoke Developed Index (0-10) = 0-1
- Conpolcrete<sup>®</sup> (not rendered) has been tested under Australia Standards AS 3837 to determine heat and smoke release using a cone calorimeter and achieved the following results:
  - Group 1 (Aus) or Group A (NZ)
  - Average Specific Extinction area 11.7m<sup>2</sup>/kg
  - Peak Heat Release 18kW/m<sup>2</sup>
  - Total Heat Release 7.8MJ/m<sup>2</sup>
- Conpolcrete<sup>®</sup> (not rendered) has been tested under Australia Standards AS 1530.1 to determine combustibility and achieved the following results:
  - Mean Furnace thermocouple temperature rise = 8.1°C
  - Mean Specimen surface thermocouple temperature rise = 31.1°C
  - Mean duration of sustained flaming = 0 seconds
  - Mean Mass Loss = 14.4%

Particularly of note is that in the AS 1530.1 test the non-combustibility requirement is only exceeded by 1.1°C and this is less than most of the materials 'deemed' non-combustible by the BCA.

#### CONCLUSION/OPINION

Based on the tested fire performance of the Conpolcrete material it is the opinion of this Division that this material may be considered to be non-combustible in terms of the Building Code of Australia in order to satisfy the intent of this regulation.

#### TERM OF VALIDITY

This opinion will lapse on 31 August 2016. Should you wish us to re-examine this opinion with a view to the possible extension of its term of validity, would you please apply to us three to four months before the date of expiry. This Division reserves the right at any time to amend or withdraw this opinion in the light of new knowledge.

Yours faithfully,



Garry E Collins  
Manager, Fire Testing and Assessment

19 August 2011