

IGNIS LABORATORY ASSESSMENT

Evaluation No. IGNE-25023-01R Issue 02 Revision 03

GoClad – SmartStone Systems External Wall Cladding System

1 Introduction

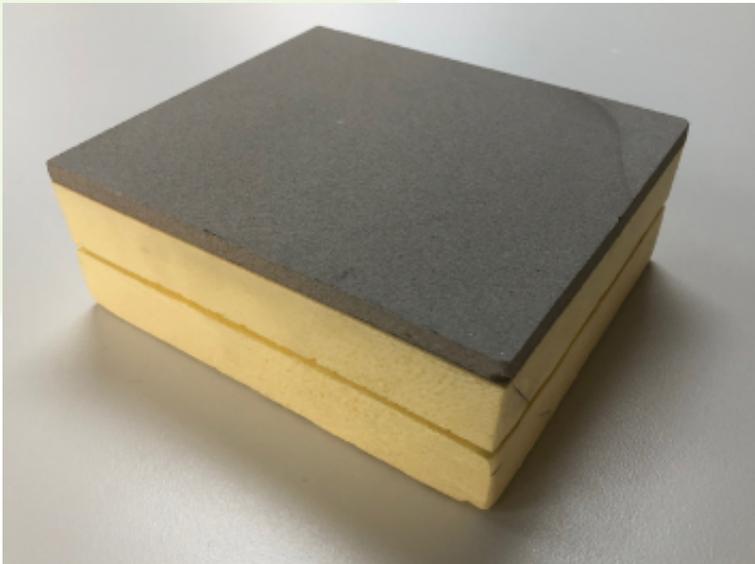
Ignis Labs has been engaged to evaluate the compliance of the GoClad external wall cladding system with the National Construction Code - Volume 1 and 2 Building Code of Australia 2022 (BCA) for use in bushfire prone areas.

This report is issued by Benjamin Hughes-Brown, Accredited Laboratory Signatory and Chartered Professional Engineer of Ignis Labs Pty Ltd, 3 Cooper Place, Queanbeyan, NSW 2620 for use under the Deemed-to-Satisfy requirements of the Building Code of Australia. This report is by a professional engineer and serves as a certificate demonstrating evidence of suitability in accordance with BCA Clause A5G3 (1)(e).

2 Description of Material

The GoClad material comprises of a natural stone, reconstituted stone or porcelain veneer bonded to a backing panel of 50 mm thick Foamular XPS Thermoplastic Extruded Insulation sheeting. The stone facing has a number of variations, with different stone types.

FIGURE 1:
GOCLAD PANEL



The joints between the panels are to include a 3-5 mm gap and sealed with a 10 mm backing rod and appropriate silicon sealant. Where a 10 mm gap is provided for the egress of any water, an appropriate bushfire weephole protection or equivalent is to be installed.



3 Building Code and AS 3959 Compliance

Ignis Labs has evaluated the general aspect of the GoClad panel in compliance with the National Construction Code – Volume 1 and 2 - Building Code of Australia 2022 (NCC).

NCC Volume 1 Clause G5D3 states that Class 2 and 3 buildings in designated bushfire prone areas must comply with AS 3959.

NCC Volume 2 Clause H7D4 (1)(a) states Class 1 or Class 10a buildings in designated bushfire prone areas must comply with AS 3959.

AS 3959 permits the external wall to be a masonry veneer, concrete or natural stone or non-combustible material. The external element of the GoClad being non-combustible satisfies this requirement.

All joints in the external surface material of the wall are to be covered, sealed, overlapped, backed or butt-jointed.

Vents and weepholes in external walls shall be screened with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium, except where the vents and weepholes have an aperture less than 3mm.

The above requirements apply to BAL 12.5, 19, 29, 40, and FZ. It is important to note that both the BCA and AS 3959 do not require the wall insulation to be tested to fire hazard properties. The requirements of walls in designated bushfire prone areas applies only to the exposed components.

Under a BAL 29 classification, the radiant heat applied is expected to be in the order of 600 °C. The stone component has been tested to AS 1530.1 requirements where temperatures between 700-750 °C. In addition, the mortar adhesive mix between the panels is considered to increase the bonding strength. It is noted that under bushfire conditions the peak fire front can be expected to last in the order of 12 minutes whilst ember attack can continue before and long after the fire front depending on wind conditions. Due to the uncertainty of a fire bushfire event, no guarantee that the stone will not delaminate can be provided. Should the stone delaminate The XPS insulation material has been tested to a number of full-scale tests including internal room tests and external full scale fire tests. In these situations, the XPS insulation panel has undergone a charring process when in direct contact with flame. It is expected that a similar situation will occur in an ember attack.

It is considered that the subject product is unlikely to lose its bushfire integrity when subjected to BAL 29 conditions.

4 Installation

The GoClad panels are installed as per the image below where the panel is fixed to the buildings frame via the angle to the XPS Board. The stone is adhered to the XPS board via Sika Boom FR high yield fire-retardant polyurethane foam adhesive.

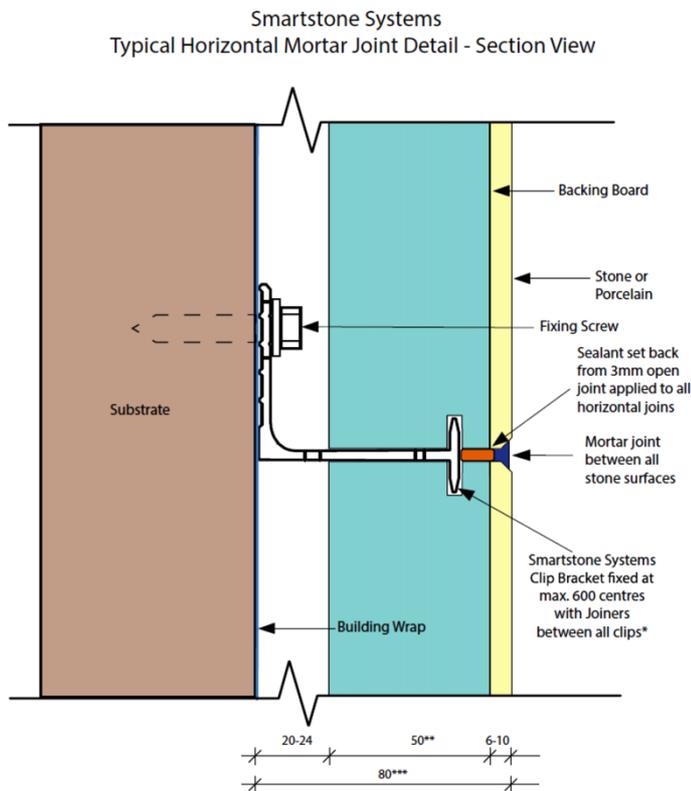
The joint is initially sealed with Sika Firerate being a fire resistant intumescent joint sealant. The remaining joint is sealed with a non-combustible mortar-based material to finalise the stone finish. A number of images are provided below to detail the joint seal. It is important to note that the stone finish will be different. The images are provided to represent the final joint detail not the stone finish.



FIGURE 2:
GOCLAD PANEL – INSTALLATION AND FACING VARIATIONS



FIGURE 3:
GOCLAD PANEL – SECTION VIEW



NOTES:
* Maximum space between joiners or joiners & clips to be 20mm. Care must be taken to ensure sealant is applied along all extrusions and clips, and that particular care is taken to ensure adequate sealant applied to ensure spaces are filled.
** Thickness of backing may vary between 20 and 50mm.
*** Overall thickness of systems using Smartstone Systems Commercial extrusions is 50mm

Not to Scale



5 Conclusion

Based on the above detail the following compliance is achieved

Volume One– Building Code of Australia

[Clause A2G1 \(2\)](#) evidence to support the use of a material meets the nominated Performance Requirements and Deemed-to-Satisfy Provisions complying with a combination of Performance Solutions and Deemed-to-Satisfy Solutions.

[Performance Requirement C1P2 – Spread of Fire](#) – The GoClad external cladding system does not contribute to the spread of fire.

[G5D3 Protection – Residential Buildings](#), construction in bushfire prone areas

1. AS 3959:2018 – Construction of buildings in bushfire-prone areas, section 4 BAL – Low to Section 9 BAL FZ.

Volume Two– Building Code of Australia

[Clause A2G1 \(2\)](#) evidence to support the use of a material meets the nominated Performance Requirements and Deemed-to-Satisfy Provisions complying with a combination of Performance Solutions and Deemed-to-Satisfy Solutions.

[Performance Requirement H3P1 – Protection from the Spread of Fire](#) – The GoClad external cladding system does not contribute to the spread of fire.

[H3P1 Resistance to the Spread of Fire](#)

1. H7D4 Bushfire areas up to a Bushfire Attack Level (BAL) of FZ.
 - a. AS 3959:2018 – Construction of buildings in bushfire-prone areas, section 4 BAL – Low to Section 9 BAL FZ.

The GoClad external wall cladding system is deemed consistent with the requirements of as 3959 for use in applications up to BAL FZ.

A handwritten signature in black ink, appearing to read "Benjamin Hughes-Brown".

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