

To: Damian O'Leary
Company: ICON
Email: Damian.Oleary@icon.co
Date: 20 July 2021
Subject: Fairvale Highschool, Fairfield West, NSW

Project: 137202.01

Version: G

Damian,

Holmes Fire has been requested to review the external wall system including all components and the system as a whole for Fairvale Highschool in order to assess against the compliance of the external wall cladding with the Building Code of Australia (BCA) Deemed-to-Satisfy Provisions.

1 EXTERNAL WALL SYSTEM

This letter is based on information from the client and architect regarding proposed wall system components including product specifications, test reports and architectural drawings prepared by Collard Maxwell Architects (CM+A) dated April 2020 (floor plans) and May 2021 (wall section details).

1.1 Aodeli Solid Aluminium Panels

Aodeli Solid Aluminium Panels (SAP) manufactured by Aodeli, is a 3 mm non-combustible solid aluminium cladding system. The product has been tested to AS 1530.1-1994 by Exova Warringtonfire (REPORT No 55828000.3) dated 26 November 2018. The test results demonstrate that the material is deemed non-combustible in accordance with this Australian Standard test. Based on this the product complies with BCA 2019 Clause C1.9 as a non-combustible material allowed to be used in external walls.

The product has also been tested to AS/NSZ 1530.3-1999 by CSIRO (Ref No FNE12387) dated 24 May 2019. The results showed that Ignitability Index of 0, Spread of Flame Index of 0, Heat Evolved Index of 0, and Smoke Developed Index of 0-1.

It is understood that the Aodeli SAP system is to be used as cladding to the external walls and top hats attached to a steel frame in accordance with the Manufacturers installation guide.

1.2 Equitone System

Equitone system manufactured by Fairview, is a pre-finished high-density fibre cement façade panel. It is proposed to use this system to the external walls including spandrel walls.

Based on supplier documentation, EQUITONE façade materials are manufactured in compliance with AS/NZS 2908.2:2000, Cellulose-cement products Part 2: Flat sheets, (ISO 8336:2009 Fibre-cement flat sheets), and are classified as fibre-reinforced cement sheeting in accordance with AS/NZS 2908.2 (ISO 8336:2009 Fibre-cement flat sheets).

BCA 2019 Clause C1.9(e)(iv) allows Fibre-reinforced cement sheeting to be used wherever a non-combustible material is required. Based on this, the Equitone panels comply with BCA 2019 to be used in external walls.

1.3 Sarking

Holmes Fire has been advised by the client that it is proposed to use non-combustible sarking, hence complies with BCA 2019 Clause C1.9 to be used in the external walls. Note that Holmes Fire has not been provided with an AS 1530.1 test report to verify that the material is non-combustible.

It is noted that BCA 2019 Clause C1.9 allows for sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5 to be used without being deemed non-combustible as per AS 1530.1. The proposed thickness of the sarking is not known however this is not applicable for sarking materials deemed non-combustible as it complies with the BCA regardless of thickness.

1.4 Insulation

It has been advised by the client that it is proposed to use non-combustible Fibretex 820 or approved equal Rockwool insulation.

Holmes Fire has not been provided with a test report for the specific product to be used. However Holmes Fire has reviewed general test reports for rockwool which confirms that rockwool is not deemed combustible in accordance with AS 1530.1-1994 (refer to test report by CSIRO dated 23 March 2017, ref CO4643). The test also shows that Rockwool achieves an Ignitability Index of 0, Spread of Flame Index of 0, Heat Evolved Index of 0, and Smoke Developed Index of 1 when tested to AS/NSZ 1530.3-1999.

1.5 Tenmat FF102/50 Ventilated Fire Barrier

It is proposed to use Tenmat FF102/50 Ventilated Fire Barrier to the ventilation cavity of spandrel walls. The location of this cavity barrier at the slab edge is illustrated in Figure 1-1. The cavity barrier is to be mechanically fixed directly to the slab edge or to rockwool insulation screwed into the slab edge. This is in line with Tenmat data sheet (Issue 09/10) which states that FF102/50 cavity barrier achieves 90 minutes vertical and horizontal integrity rating where fixed into mineral fibre insulation on concrete. This is based on testing completed by Chiltern International Fire.

For a number of locations, it is not possible to attach the cavity barrier to the slab edge due to the configuration with Aodeli boxing at the slab edge. In these instances, the cavity barrier shall be installed as close as possible to the slab and to the bottom of the cladding panel as shown in Figure 1-2. This is to minimise the risk of the cladding panel failing from fire exposure both on the inside and the outside face. The cavity barrier shall be installed in a continuous manner, and shall be mechanically fixed through the external fire rated plasterboard layer screwed into the steel studs. The gap between the Tenmat cavity barrier and the fire rated plasterboard shall not exceed 50 mm. This exact configuration has not been tested, however it has been demonstrated in the Holmes Fire FER (Issue 3) that it is expected to work as intended to provide protection of fire and smoke spread through the wall cavity.

The Tenmat FF102/50 Ventilated Fire Barrier is a high expansion intumescent seal, which has been tested to BS 476.20-1987. The use of this product has been addressed by a Performance Solution to address BCA 2019 Clause C2.6 and C3.16(a), in a Fire Engineering Report by Holmes Fire, (137202.01.FER001h, dated 16 July 2021). The FER has demonstrated that the provision of a -/60/60 spandrel with an intumescent cavity barrier to the ventilation cavity which has been tested to BS 476.20 to achieve a fire rating between 30 – 120 minutes will provide sufficient protection of vertical fire spread and addressed Performance

Requirement CP2 of BCA 2019. Based on this, the use of Tenmat FF102/50 Ventilated Fire Barrier complies with the BCA by a Performance Solution.

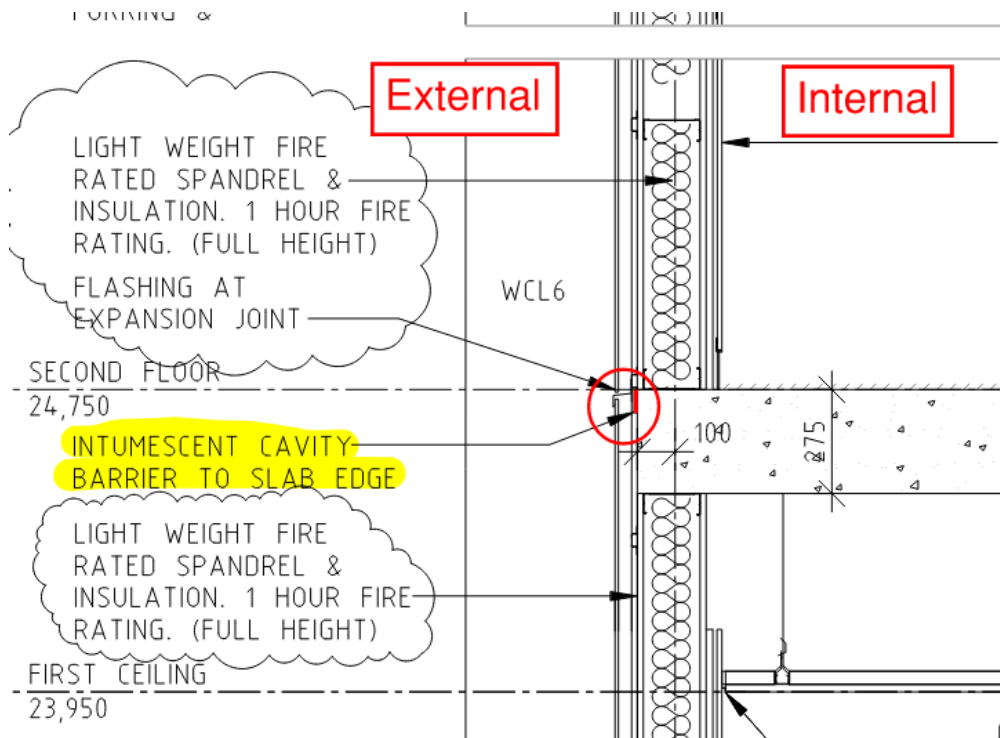


Figure 1-1: Location of Intumescent Cavity Barrier to slab edge

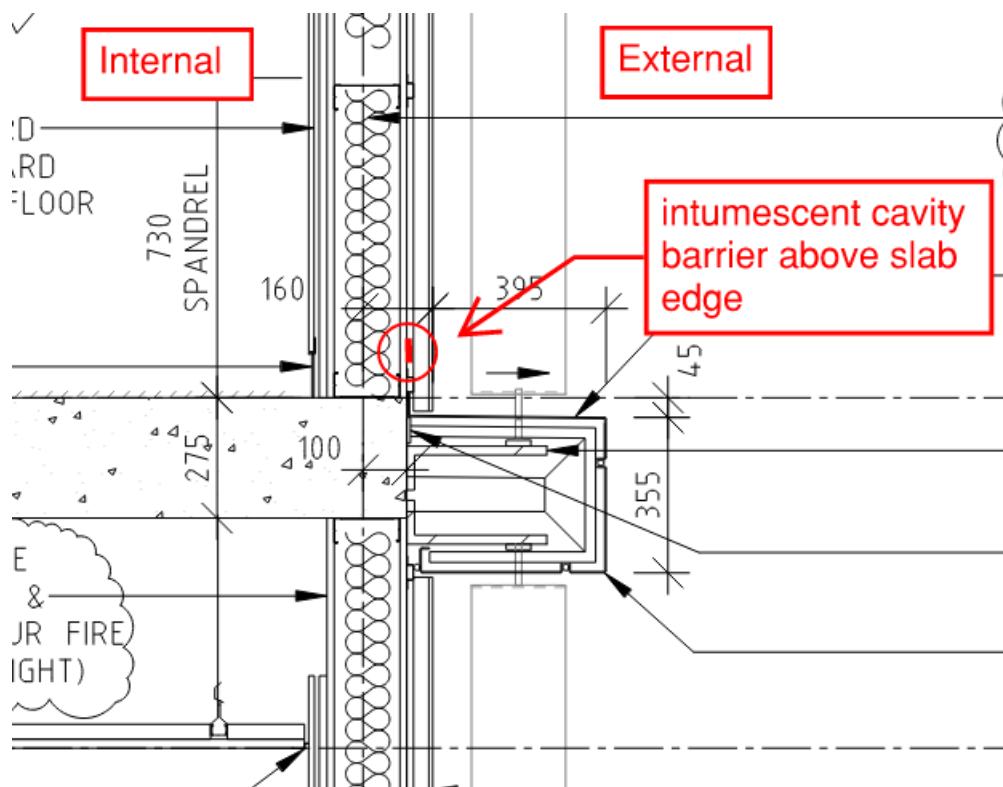


Figure 1-2: Location of Intumescent Cavity Barrier above slab edge

1.6 Promat Promaseal A

The use of Promat Promaseal A to the construction joint between fire rated plasterboard and steel columns sprayed with vermiculite spray in spandrel walls has been addressed by a Performance Solution to address BCA 2019 Clause C3.16(a), in a Fire Engineering Report by Holmes Fire, (137202.01.FER001h, dated 16 July 2021). The report has demonstrated that based on the test reports for the caulking product on vermiculite and on plasterboard, that the caulking is expected to protect from fire spread between building elements in construction joints.

Based on this, the use of Promat Promaseal A when applied in accordance with the requirements of the FER and manufacturer's specifications, complies with the BCA by a Performance Solution.

1.7 External Wall System as a whole

Based on the above review, all proposed components of the external walls are either deemed non-combustible or are exempted under BCA 2019 Clause C1.9(d) or (e), hence the external wall system as a whole complies with BCA Clause C1.9.

As stated above, the use of a cavity barrier to spandrel construction has been addressed by a Performance Solution to address BCA 2019 Clause C2.6 in a Fire Engineering Report by Holmes Fire, (137202.01.FER001h, dated 16 July 2021). The Fire Engineering Report also addressed BCA 2019 Clause C2.6 with regards to non-packing of cavity between internal fire rated spandrel and external window frame.

Based on the above, the external wall system complies with BCA 2019 by either the Deemed-to-Satisfy provisions or by a Performance Solution.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Josefin Nilsson', written in a cursive style.

Josefin Nilsson
Fire Engineer

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