DOC22/271359

01 April 2022

Michael Cassel
Planning Secretary
Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta NSW 2124

Attention: Shiraz Ahmed

Dear Mr Ahmed

RE: New Public School in Mulgoa Rise, Glenmore Park (SSD 11070211): Confirmation of External Walls and Cladding BCA compliance – Certifier confirmed acceptance in accordance with Condition B4.

I refer to the New Public School in Mulgoa Rise, Glenmore Park approved on 18 March 2022

In accordance with the requirements of condition B4, the Department of Education provides notification that the specified External Walls and Cladding comply with the requirements of the BCA.

Furthermore, within seven days, the applicant provides the Planning Secretary with confirmation of the certifier's acceptance of the External Walls and Cladding.

Should you wish to discuss the above further please do not hesitate to contact the undersigned.

Yours sincerely,

Justin Barrett
Senior Project Director
Schools Infrastructure NSW

SCHOOL INFRASTRUCTURE NSW
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Performance Solution Report

New Primary School in Mulgoa Rise

Project:	New Primary School in Mulgoa Rise
Reference No:	113966B-FP1.4-r02
Date:	27 January 2022
Client:	Richard Crookes Constructions
Client Contact:	Amy Warton
Email:	wartona@richardcrookes.com.au
BCA Logic Contact:	Alex Newberry
Direct:	0466 811 720
Email:	anewberry@bcalogic.com.au

Suite 302, Level 3, 151 Castlereagh St, Sydney NSW 2000 | **Postal Address** PO Box Q1440, Queen Victoria Building NSW 1230

Document Control

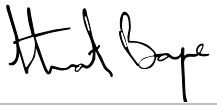
Revision	Date	Description	
113966B-FP1.4-r01	13.01.2022	FP1.4 Performance Report – Mulgoa Rise: Draft Issue for PBDB review and comment	
113966B-FP1.4-r02	27.01.2022	FP1.4 Performance Report – Mulgoa Rise: Issue for Crown Certificate	
		Prepared by	Verified by
		Alex Newberry	Stuart Boyce
		Senior Building Regulations Consultant	Registered Certifier A1 BDC 0044
			

Table of Contents

1 INTRODUCTION

1.1. The Project

Reference is made to BCA Logic Pty Ltd's engagement to prepare a FP1.4 Performance Solution Assessment Report, on behalf of Richard Crookes Constructions for New Primary School in Mulgoa Rise, which includes the development of includes two (2) x two-storey school buildings (Building B2 & B3), a two-storey Administration/Library building (Building A) and a single storey Hall (Building C).

This Performance Solution Report demonstrates that the relevant Performance Requirement FP1.4 of the Building Code of Australia 2019 Volume One Amendment 1, pertaining to the weatherproofing of the external walls have been satisfied.

1.2. Building Code of Australia

The Building Code of Australia currently applicable to this project is the National Construction Code Series Volume 1 - Building Code of Australia 2019, Amendment 1 herein referred to as the BCA2019.

1.3. Report Scope

BCA Logic Pty Ltd has been engaged by Richard Crookes Constructions to carry out Performance Solutions for the development. This report presents an assessment of the proposed Performance Solutions as listed below:

No.	Performance Solution Reference	Relevant DtS Provision(s)
1.	Weatherproofing of external walls for building A, B & C	No DTS Provisions - FP1.4 Performance Provision only

1.4. Third Party Performance Solutions

The report is limited to the Performance Solutions identified in Part 1.3 above and must not be construed as an assessment of the entire building against the BCA. In this Performance Report assessment, it has assumed that the remainder of the building satisfies the Deemed-to-Satisfy Provisions of the BCA, except whereby Performance Solutions may have been proposed for other specific matters in the design. The following Performance Solution Reports are related to the subject development however have no bearing on the assessment within this Report.

- Fire Engineering Report: SGA Fire, 113966-FER-r03, dated 15.11.2021

2 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia (BCA) the development may be described as follows.

2.1. Rise in Storeys (Clause C1.2)

The main building consists of Building A, B2 & B3 as a united building with a rise in storeys of two (2). Building C Hall is a separate building with a rise in storey of one.

2.2. Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification(s)

Class	Level	Description
5	Building A – Part Ground & Level 1	Admin & Staff Areas
9b	Building A – Part Ground & Level 1 Building B2&B3	Library School Classrooms
9b	Building C	Hall / Assembly Building

2.3. Effective Height Clause (A1.0)

The Main Building A & B2/3 has an *effective height* of less than 12 metres.

2.4. Type of Construction Required (Table C1.1)

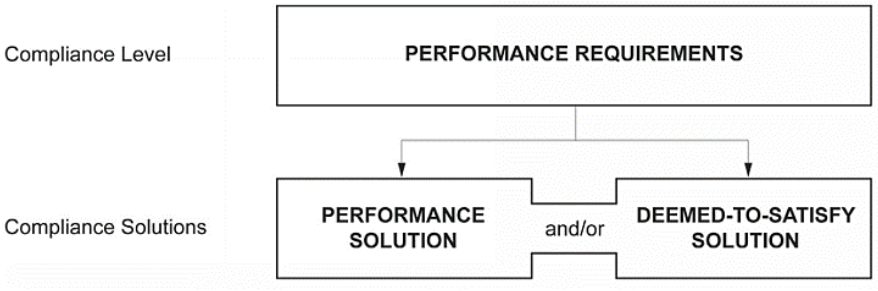
The main building (A & B2/3) is required to be of Type B Construction.

Building C Hall is required to be of Type C Construction.

3 COMPLIANCE WITH THE BCA

3.1. Performance Methodology

Clause A2.0 of the BCA2019 requires compliance with the Governing Requirements and Performance Requirements (PR) of the BCA. Clause A2.1 states that the PR may be satisfied by a Deemed-to-Satisfy (DtS) Solution, a Performance Solution (PS), or a combination of both. The compliance option structure of the BCA is identified below to reflect this.



Clause A2.2 of the BCA2019 prescribes that a Performance Solution must comply with all relevant Performance Requirements, or at least demonstrate equivalence to the DtS Provisions which are 'deemed to satisfy' the relevant Performance Requirements of the BCA.

A Performance Solution must demonstrate compliance through one or a combination of the Assessment Methods prescribed by Clause A2.2(2) of the BCA and must identify all relevant Performance Requirements from all Sections or Parts of the BCA. To satisfy this prerequisite, all relevant Assessment Methods and Performance Requirements have been identified within the Performance Solution assessments in the following sections of this report.

Additionally, Clause A2.2(4) requires:

(a) A performance-based design brief in consultation with relevant stakeholders;

(b) Analysis using one or more assessment methods;

(c) Evaluate the results of the analysis to the acceptance criteria of the design brief;

(d) Prepare a final report that includes:

  (i) All relevant Performance Requirements of the BCA; and

  (ii) Identification of all assessment methods used; and

  (iii) Details of the steps in (a) to (c) above; and

  (iv) Confirmation that the relevant Performance Requirements have been met; and

  (v) Details of conditions or limitations, if any exist, regarding the Performance Solution.

This report has been prepared in accordance with the requirements of A2.2(4) of the BCA, noting that compliance with FP1.4 can only be achieved via preparation of a Performance Solution Report. However, a Draft FP1.4 Report was issued to relevant stakeholders as a PBDB for review & consultation. Return comments have been received and included in the final report.

4 STAKEHOLDERS

The key stakeholders in the Performance Solution process for this project are identified below.

Role	Company	Contact(s)
Builder	Richard Crookes Constructions	Amy Warton
Operator/Client	Schools Infrastructure NSW	Matthew Metledge
Architect	NBRS	Johnsen Lim
Crown Certifier	BCA Logic	Stuart Boyce
Building Regulations Consultant	BCA Logic	Alex Newberry

5 PERFORMANCE SOLUTION 1 – WEATHER PROOFING OF EXTERNAL WALLS

5.1. Introduction

Table 2. Performance Solution Summary

Performance Solution –	
BCA DtS Clause:	Not Applicable
Description of the DtS Non-conformance:	Weatherproofing of external walls for Building A/B2 & B3/C
Applicable BCA PRs:	FP1.4
Assessment Method:	A2.2(2)(a) Evidence of suitability in accordance with A5.2(1)(e) in the form of a report from an *appropriately qualified person* that demonstrates that the form of construction fulfils the performance Requirements of the BCA and A5.2(1)(a) in the form of a current CodeMark Australia certificate.
Acceptance Criteria – The Performance Solution will be considered acceptable if:	The external walls exposed to the outside weather shall be constructed with suitable materials, including windows and doors, which prevent the penetration of water, to the degree necessary, through the external wall construction. The construction methods utilised for the external walls may, where appropriate for junctions and openings, rely on best practice design methodologies to provide membranes, flashings or sills to prevent the penetration of water as described in suitable Australian Standards and Manufacturer's Installation documentation and CodeMark Certificates as applicable.

5.2. BCA Deemed-to-Satisfy Provisions

There are no deemed-to-satisfy provisions in BCA Part F1 for this Performance Requirement FP1.4. Clause F1.0(a) states *"Performance Requirement FP1.4, for the prevention of the penetration of water through external walls must be complied with".*

5.3. BCA Performance Requirements

The relevant Performance Requirement applicable to this Performance Solution is FP1.4 which states:

FP1.4

A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause-

(a) unhealthy or dangerous conditions, or loss of amenity for occupants; and

(b) undue dampness or deterioration of building elements.

Limitation: FP1.4 does not apply to-
a) a Class 7 or 8 building where in the particular case there is no necessity for compliance

5.4. Assessment Methods

The Assessment Methods utilised for this Performance Solution Assessment report are in accordance with A2.2(2)(a) Evidence of suitability in accordance with A5.2(1)(e) in the form of a report from an appropriately qualified person that demonstrates that the form of construction fulfils the Performance Requirements of the BCA, and A5.2(1)(a) in the form of a current CodeMark Australia certificate.

5.5. Design Assessment

The building development, the subject of this report, is for the New Primary School in Mulgoa Rise. The new Building A/B (herein reference to Building B includes reference to Building B2 & B3) is a double storey building with concrete slab on Ground and First Floor, steel frame external wall construction and a steel frame roof with metal roof sheeting.

External Walls:

There are two main types of external wall construction:

- Steel stud walls with 9mm CFC cladding which includes the cladding types: CD03 Barestone Graphite and CD04 Barestone Original.
- Steel stud walls with metal wall cladding which includes CD01 Stratco HiLand Tray with snap lock fixing.

The typical 9mm CFC external wall is shown in Wall Type WS981/S for CD03 Barestone Graphite and Wall Type WS991/S for CD04 Barestone Original as shown in Figure 1 & 2 below. They are identical construction with steel stud 92mm framing with vapour permeable barrier, 15mm horizontal top hat and 35mm vertical top hat with 9mm CFC cladding. Internal linings will be appropriate plasterboard linings as required for the internal environment. Cemintel Barestone CFC panels are a pre-finished product and do not require painting or finishing on site.

The typical metal wall cladding external wall is shown in Wall Type WS971 for CD01 Stratco HiLand Tray with snap lock fixing. This wall is identical construction methodology with steel stud 92mm framing with vapour permeable barrier, 15mm horizontal top hat and 35mm vertical top hat with metal cladding as shown in Figure 3 below.

A review of the Elevation drawings for Building A/B/C indicates the common configuration of cladding products is shown in Figure 4 & 5 below for external walls and cladding configurations. Generally, metal cladding CD01 is used on the first floor levels (Figure 4) and CFC Barestone cladding (CD03/04) is used as the main cladding system across all buildings (Figure 5).

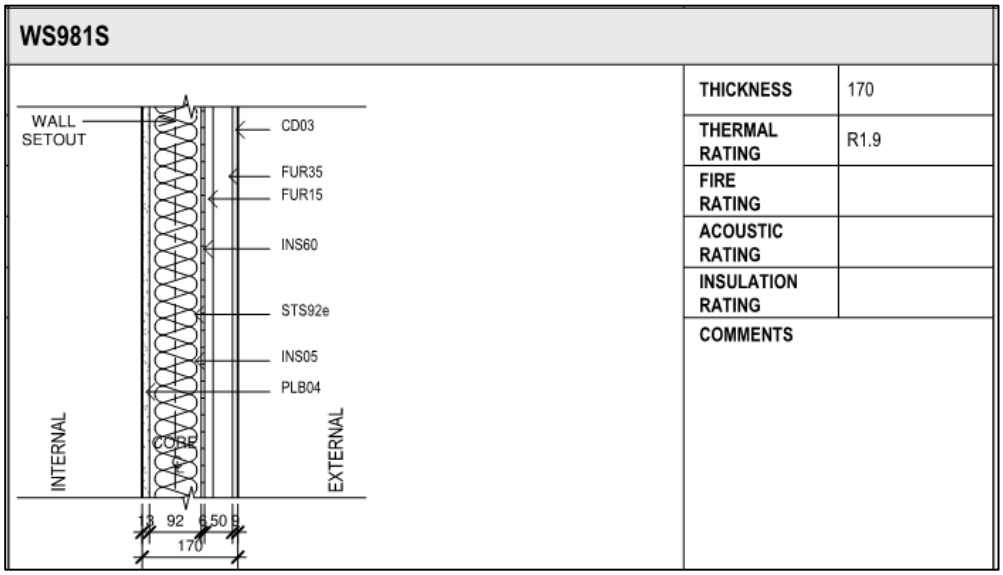


Figure 1: CFC Barestone CD03 : Source – Wall Type Plan M-AR-DW-8301 – Rev 6

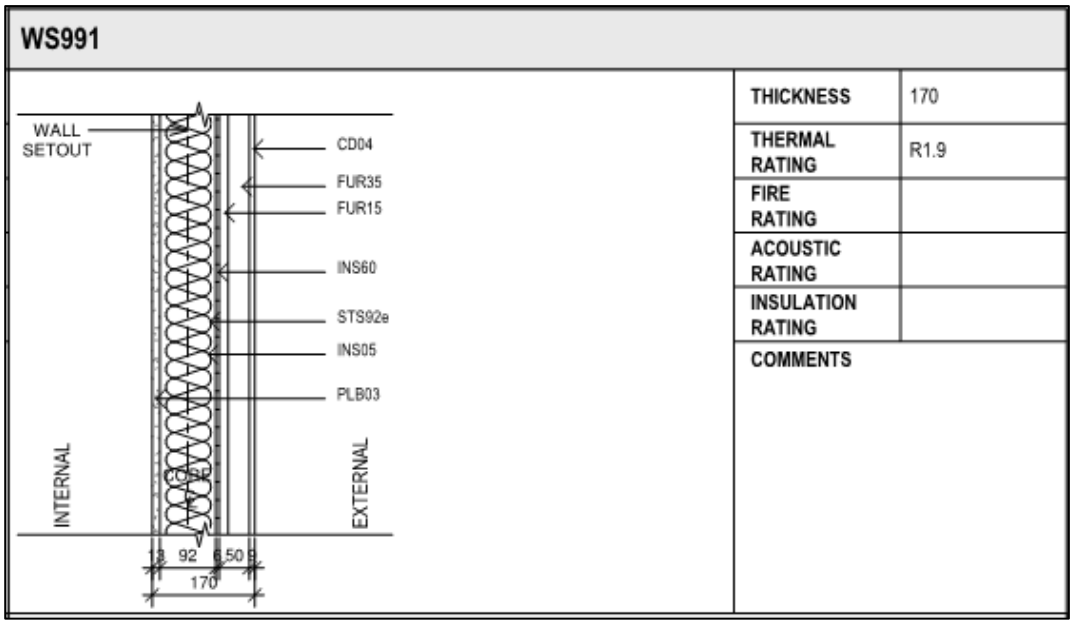


Figure 2: CFC Barestone CD04 : Source – Wall Type Plan M-AR-DW-8301 – Rev 6.

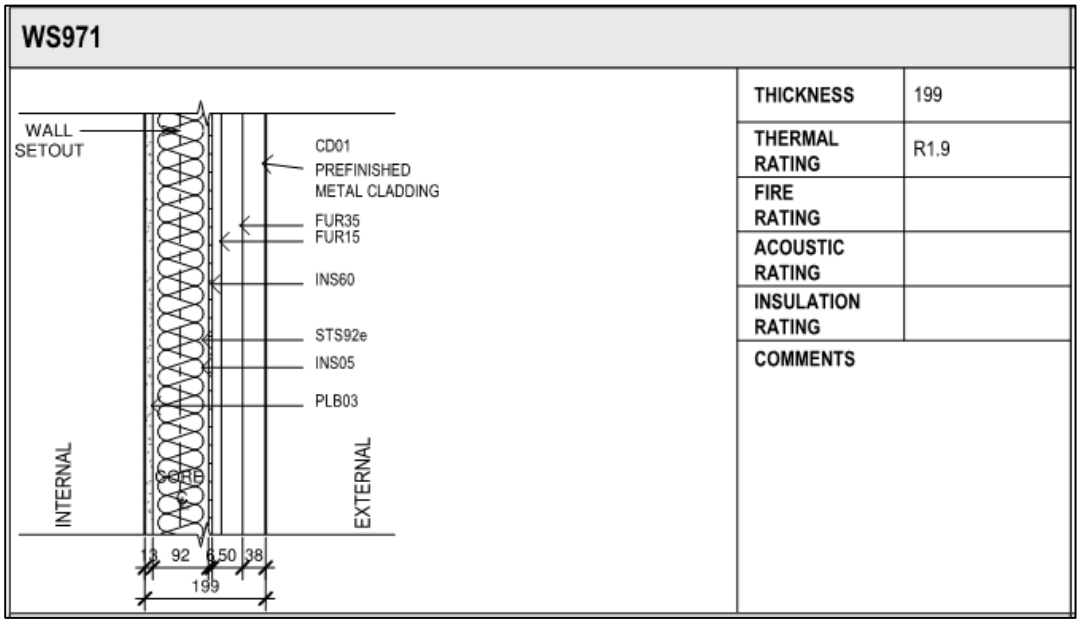


Figure 3: Stratco HiLand Tray CD01 : Source – Wall Type Plan M-AR-DW-8301 – Rev 6.

Figure 4: Metal wall cladding CD01 is generally used on First Floor level – as shown on Building A West Elevation. This is replicated on Building B2/B3 North Elevation. CD01 is also used in parts on the Hall Building C.

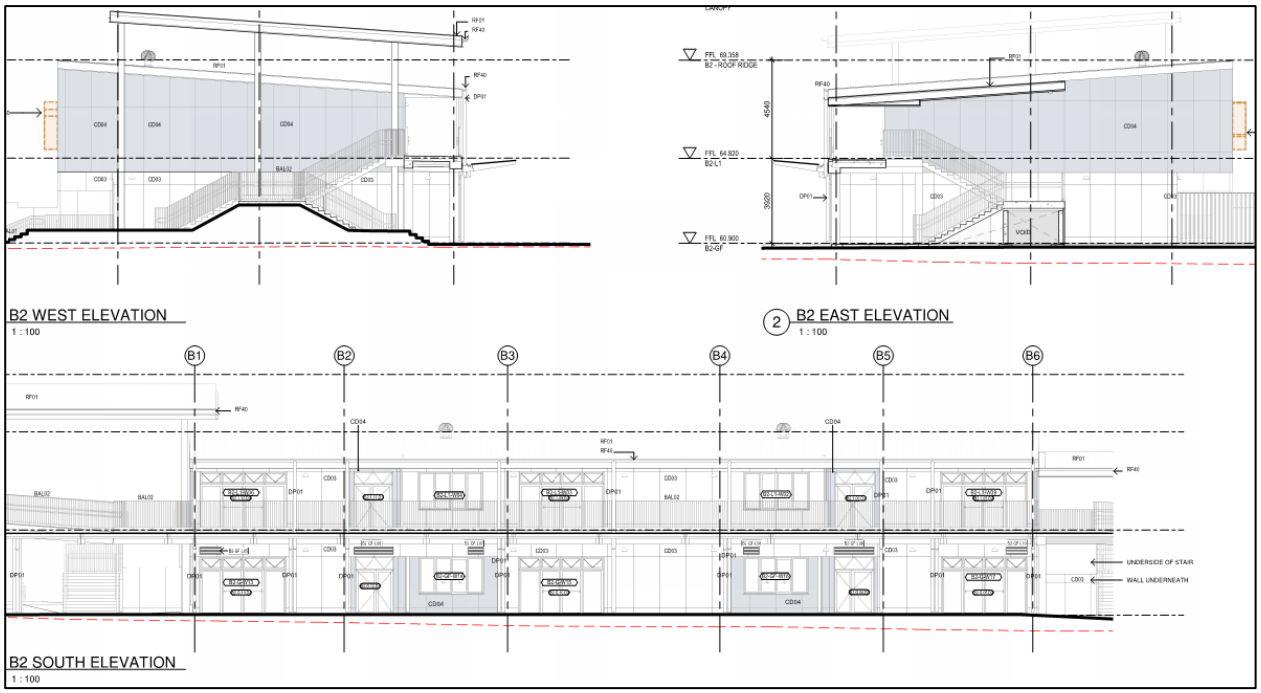


Figure 5: Building B2 shows the typical use of CFC Barestone cladding used as the main wall cladding across all the elevations for the buildings. CD03/04 are the identical Barestone product with different colours.

Cemintel Barestone CFC panels:

The typical 9mm CFC external wall is shown in Wall Type WS981/S for CD03 Barestone Graphite and Wall Type WS991/S for CD04 Barestone Original as shown in Figure 1 & 2 above. They are identical 9mm CFC cladding products with different colours. CD04 Barestone Original is currently marketed by CSR Cemintel as suitable for external wall cladding according to their website. As advised by CSR Cemintel, the Barestone products which have a pre-finished colour (i.e. Graphite) are manufactured with a new colour system and are currently undergoing new testing requirements. As such, CSR Cemintel are currently marketing the coloured Barestone products for internal use only.

The architect has contacted CSR directly in relation to the Graphite colour and CSR have advised, the CodeMark Certificate covers the assembly of external wall irrespective of the finish colours. CSR have advised Graphite is being tested and due to be relaunched for external use (April/May 2022).

It is acknowledged that the CodeMark Certificate indicates on the first page that the certificate covers the assembly of external wall irrespective of the finish colours, as it refers to the product being available in a range of colours. As a result, the Barestone Graphite product has always been included under the CodeMark Certificate, however it is currently undergoing testing by CSR to ensure the product is up to the highest standards for coloured finish in an external environment and suitable for CSR warranty requirements. It is important to note the CFC panel composition has not changed which will maintain the weather proofing properties of the product covered under the CodeMark Certificate.

<u>Weatherproofing Assessment:</u>

The design intent of the design team is to comply with the Cemintel Design & Installation Guide - Barestone Series - External Installation brochure dated March 2020. This brochure is nominated in the CodeMark Certificate for Cemintel Barestone as the primary document which shall be complied with to comply with FP1.4 of BCA2019 Amendment 1.

Cemintel Barestone Façade System is CodeMark Certified to BCA2019 – CM20198, Dated 17/03/2020 – which covers many different Performance Requirements and deemed-to-satisfy provisions of BCA2019. Of particular importance for this Report is the CodeMark Certificate confirms the Cemintel Barestone Façade System when installed in accordance with the Cemintel Design & Installation Guide - Barestone Series -

External Installation brochure dated March 2020 complies with Performance Requirement FP1.4 of BCA2019. Refer Annexure B for CodeMark Certificate.

It is noted the CodeMark Certificate references BCA 2019 however it is also suitable for compliance with BCA2019 Amendment One as the method of compliance with FP1.4 Performance Requirement is equivalent between the two versions of the BCA.

For the design of external walls, all typical details for joints, junctions and openings will be designed and detailed generally in accordance with the Cemintel Design & Installation Guide - Barestone Series -External Installation brochure dated March 2020. Whilst the current architectural drawings have detailed many specific slab edge details and other wall/openings & junction details, the typical details for joints, junctions and openings will be the responsibility of the façade contractor to be in accordance with the Cemintel Design & Installation Guide - Barestone Series - External Installation brochure dated March 2020.

As shown in Figure 6 & 7 below, these typical details are showing general compliance intent with the Cemintel Design & Installation Guide - Barestone Series - External Installation brochure however every minor detail cannot be included on such a drawing. Horizontal joints will require the ExpressWall Backing Strip as noted in Figure 6 and compliance with Figure 7.12 to 7.16 within the Cemintel Design & Installation Guide specify all the installation detailing required. Base of the wall detail is Figure 7 is accordance with the Cemintel Design & Installation Guide and Figures 8.29 & 8.31 specify all the installation detailing required. Part 7 & 8 of the Cemintel Design & Installation Guide - Barestone Series - External Installation brochure represent all the detailing and installation requirements to satisfy installation to the CodeMark Certificate.

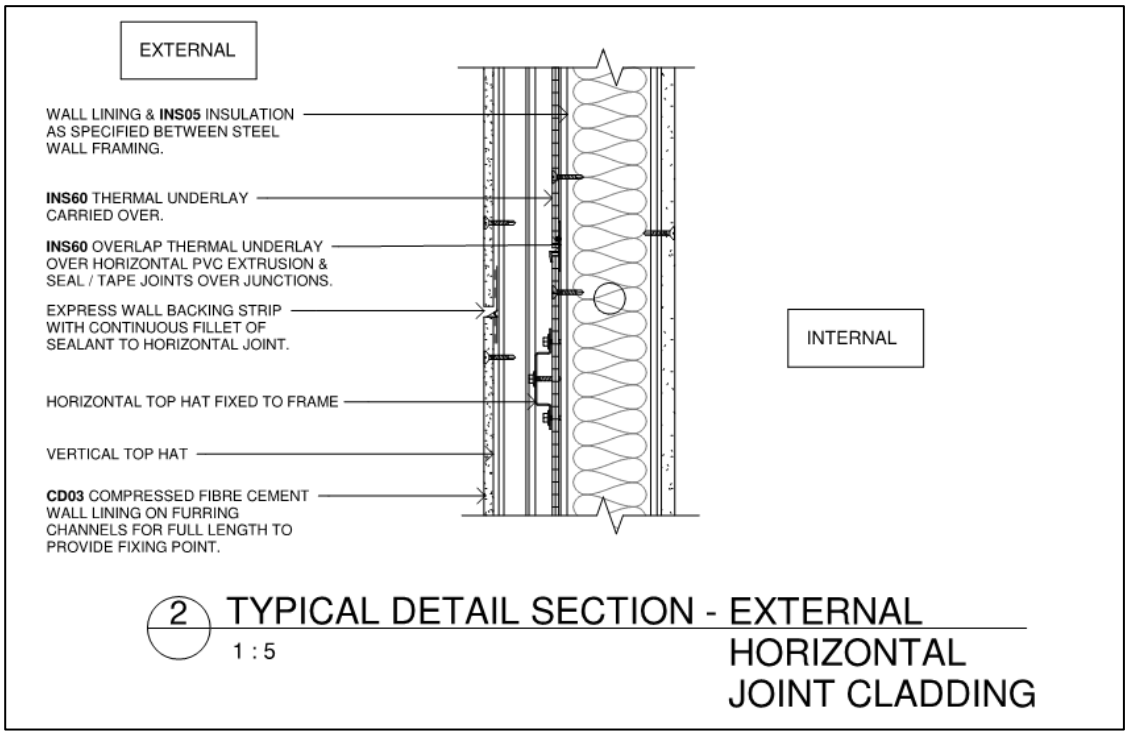


Figure 6: Source – Plan M-AR-DW-5103 Typical Details – Sheet 3

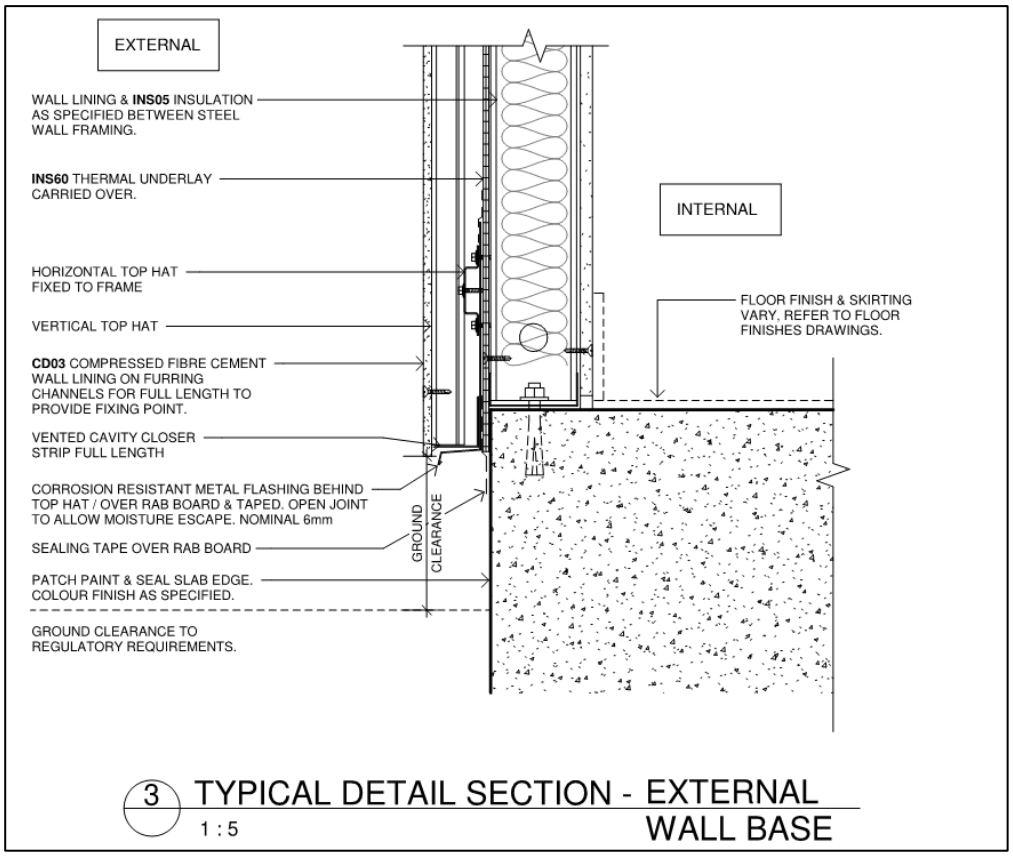


Figure 7: Source – Plan M-AR-DW-5103 Typical Details – Sheet 3

As noted in the Structural Engineering Detailed Design Report – Annexure D, the building will be within the nominated wind pressures noted within the CodeMark Certificate which requires the installation of a flexible vapour permeable building wrap (sarking) as an air barrier and water control layer. The CodeMark certificate notes under Condition 8 that for weatherproofing requirements the serviceability pressures up to +/- 2.5kPa with a rigid air barrier (typically 6mm fc sheet). However, the Code Mark Certificate requires compliance with Cemintel Design & Installation Guide - Barestone Series -External Installation brochure which notes on Page 15 under 'Weatherproofing':

> *Select wall wraps can provide a water resistant and air tight barrier when installed properly. Wraps have been assessed as suitable as an air barrier for serviceability pressures up to 1.2 kPa. It is recommended that wall wraps used as an air barrier have an air resistance greater than 0.1 MNs/m^3 when tested to ISO 5636-5. Wall wraps in Table 4.03 meet this requirement.*

Therefore, the proposed external walls have a wall wrap (sarking) and the building is below the serviceability pressures up to 1.2kPa, as confirmed by the Structural Engineer and Structural Design Report to be 0.76kPa.

The chosen sarking will be one of the Bradford products nominated in Table 4.03 and Table 4.01 of the Cemintel Design & Installation Guide - Barestone Series - External Installation brochure being Bradford Enviroseal Proctor Wrap Commercial Wall (PM02 code in Specification). Bradford Enviroseal membranes are suitable for BCA Zone 6 for moisture management in external walls as nominated by Table 4.01 of the Cemintel Design & Installation Guide. The sarking will be a compliant material and installed in accordance with BCA2019 Clause F1.6 and AS/NZS 4200.1 & AS/NZS 4200.2. As shown in Figure 1-3 above, the vapour permeable barrier (sarking) will be installed between the studs and the top hats in accordance with Cemintel Design & Installation Guide - Barestone Series - External Installation brochure (refer page 46 & 47) and AS/NZS 4200.2.

Whilst it is documented in the CodeMark certificate that the Cemintel products shall be used for steel top hats, screws and washers and the like, it is considered these generic products, where appropriate, can be replaced with similar generic products which have the same material composition, without a detrimental impact on the weather proofing of the external walls. Where required as assessed by the façade contractor, the use of Cemintel certified products will be used to ensure compliance with the CodeMark certificate and Cemintel Design & Installation Guide - Barestone Series -External Installation brochure.

As shown in Figure 4 above, metal wall cladding is used on the first floor of Building A&B such that the junction between metal cladding and the CFC cladding is shown in Figure 8 below. As shown in the Stratco HiLand Tray assessment below, both cladding products have very similar installation methodology. As such, the combination of cladding materials with similar installation methodology can be installed together without a detrimental impact on the weather proofing of the external walls.

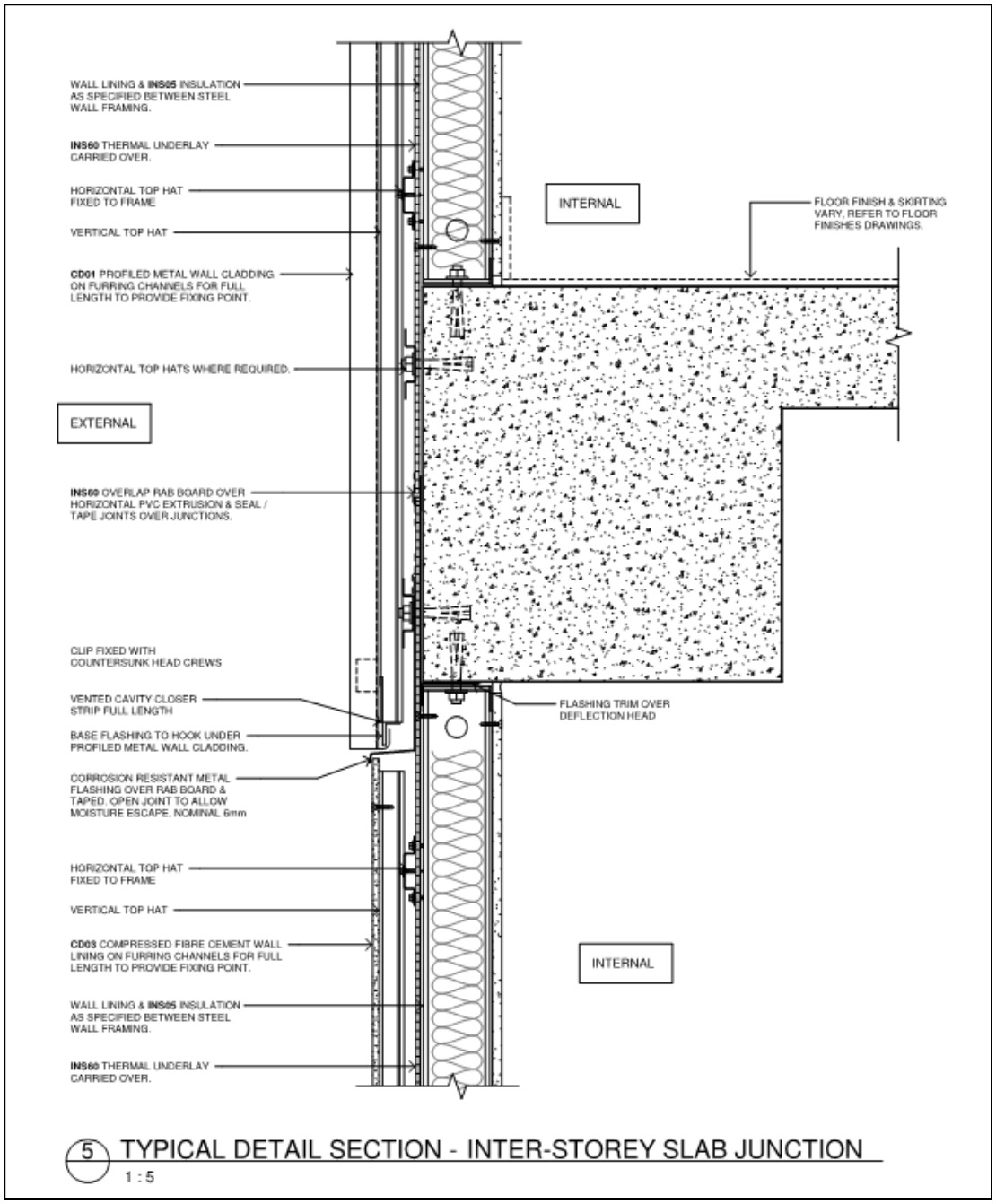


Figure 8: Source – Plan M-AR-DW-5103 Typical Details – Sheet 3

Metal Cladding Stratco HiLand Tray:

The design intent of the design team is to comply with the Stratco HiLand Tray Design Guide: Stratco Snaplock HiLand Tray dated May 2018 (herein known as Stratco HiLand Tray Design Guide). This design guide provides the appropriate design recommendations for the architectural design documentation and shall be complied with to comply with FP1.4 of BCA2019 Amendment 1. In addition, the construction methodology utilised for the external walls may, where appropriate for junctions and openings, rely on best practice design methodologies to provide membranes, flashings or sills to prevent the penetration of water as described in the architectural design documentation, suitable Australian Standards and Manufacturers Installation documentation.

As shown in Figure 5 above Stratco HiLand Tray is used on parts of the first floor façade for Building A&B and parts of Building C (refer Figure 9 below).

For the design of external walls, all typical details for joints, junctions and openings will be designed and detailed generally in accordance with the architectural design drawings and and installation and flashing details of AS 2047. The current architectural drawings have detailed many specific base and top edge details and other wall/openings & junction details, noting the typical details for joints, junctions and openings will be the responsibility of the façade contractor to be in accordance with the architectural design drawings, installation and flashing details of AS 2047 and Stratco HiLand Tray Design Guide.

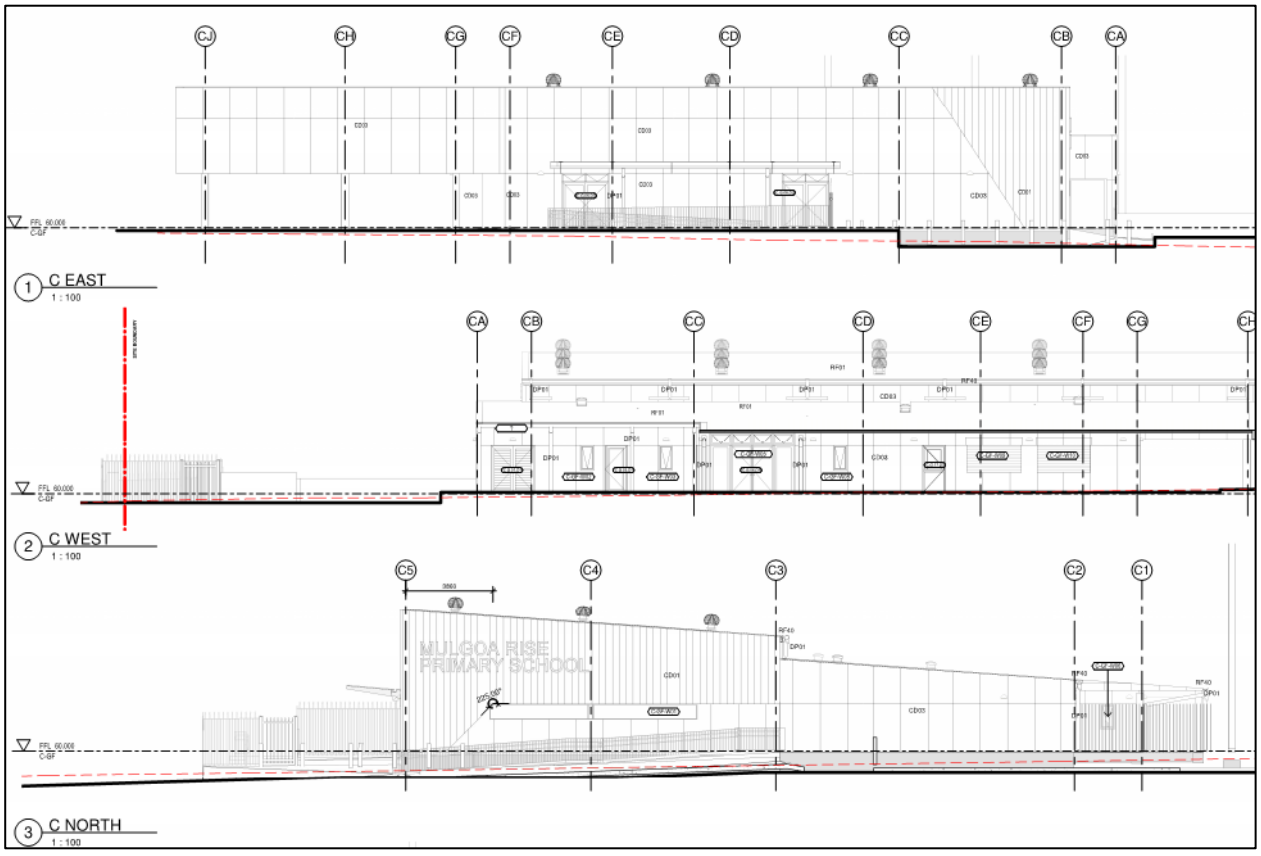


Figure 9: Building C Hall with vertical HiLand wall cladding to upper parts and corner.

As shown in Figure 10-12 below, these typical details are showing general compliance intent for weatherproofing, however every minor detail cannot be included on such a drawing. In addition, the construction methodology utilised for the external walls may, where appropriate for junctions and openings, rely on best practice design methodologies to provide membranes, flashings or sills to prevent the penetration of water as determined by the relevant parties including the architect, contractor and builder.

Reference to architectural design drawings, including but not limited to, Typical Detail sheets (M-AR-DW-5101/5104 Sheet 1-5) provide the relevant design compliance intent to satisfy weatherproofing to FP1.4.

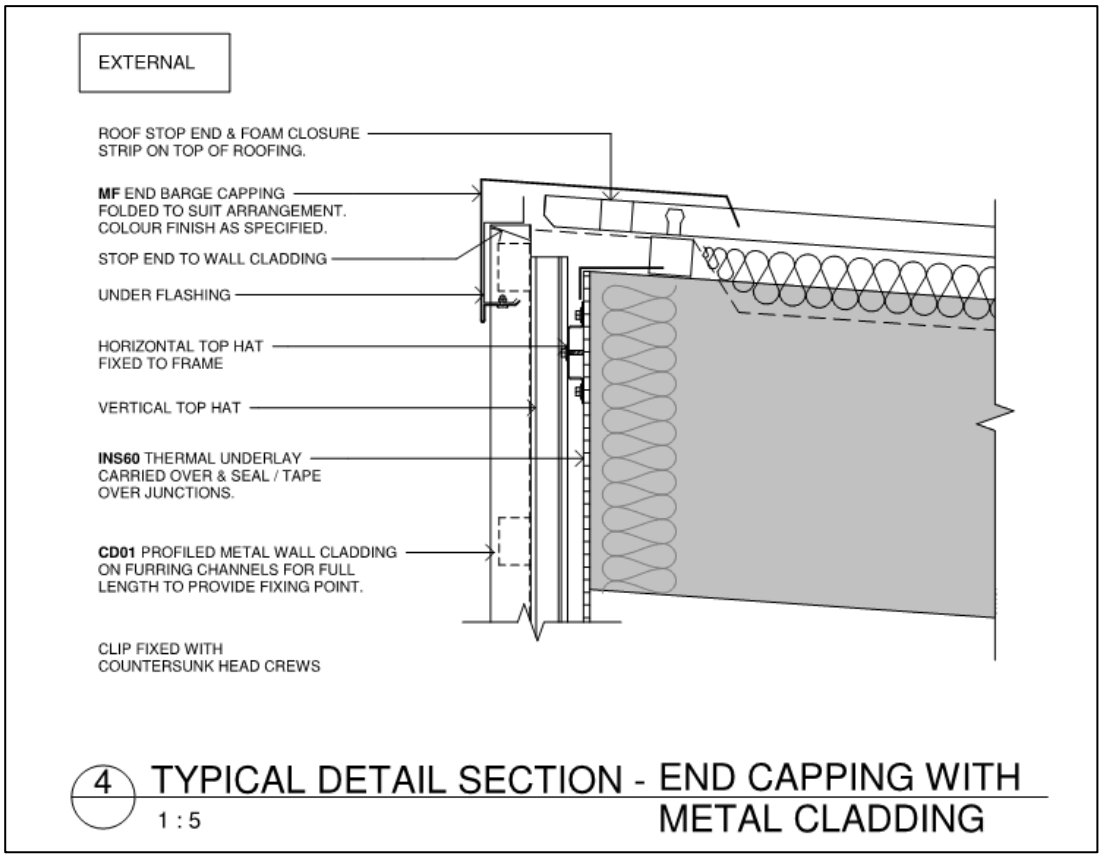


Figure 10: Typical end capping detail : Source – Plan M-AR-DW-5103 Typical Details – Sheet 3

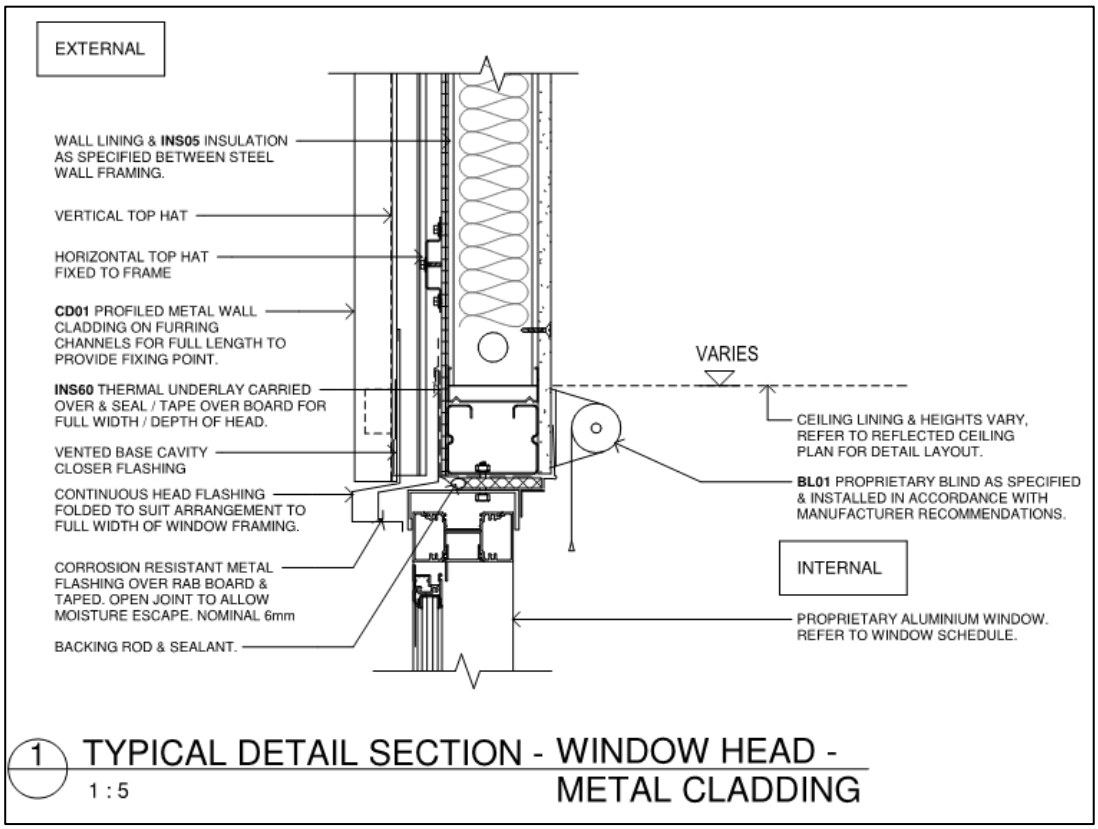


Figure 11: Typical window head details : Source – Plan M-AR-DW-5104 Typical Details – Sheet 4

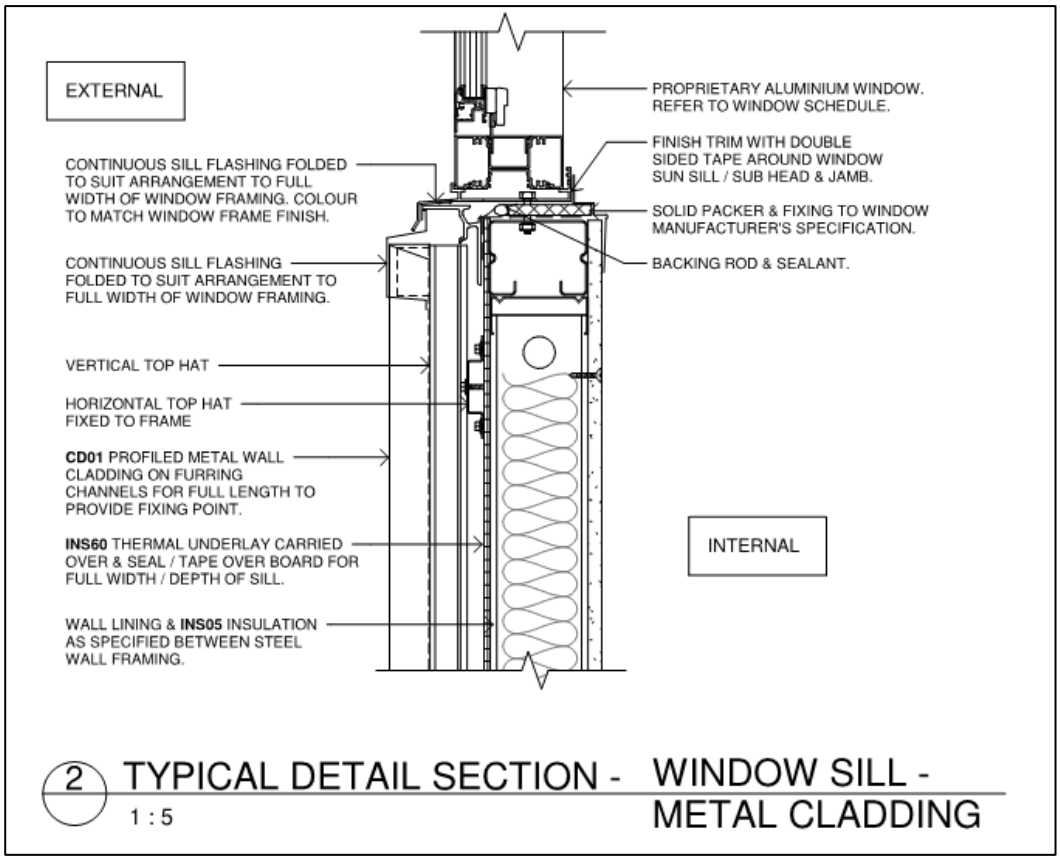


Figure 12: Typical window sill detail : Source – Plan M-AR-DW-5104 Typical Details – Sheet 4

Window and Door openings:

The window and door openings in the façades will be designed, constructed and installed in accordance with BCA2019 Amendment 1 Clause F1.13 and AS 2047-2014 Amdt 1 & 2. The windows will be installed with appropriate flashing and junction to wall framing members in accordance with AS 2047 and Manufacture's installation guides for the appropriate CFC cladding system and metal wall cladding system.

With the construction and installation of the glazed windows and doors being in accordance with AS 2047-2014 Amdt 1 & 2 and the added protection of the roofs/overhangs in some instances, the glazed windows and doors are deemed too readily satisfy Performance Requirement FP1.4 of BCA2019 Amendment 1.

5.6. Conclusion

As detailed in the assessment under Part 5 of this Report, the proposed external wall systems and windows/doors for the school buildings A/B/C are considered to satisfy the Performance Requirement FP1.4 of BCA2019 Amendment 1.

6 ASSUMPTIONS AND LIMITIATIONS

6.1. Assumptions

For the purpose of this report, the following are assumed:

- Other than the proposed Performance Solution(s), and those third-party Performance Solution(s) identified in Part 1.4 of this Report, the building satisfies the DtS provisions of the BCA.

6.2. Limitations

This report does not include nor imply any design or assessment of compliance or upgrading for:

- the structural adequacy or design of the proposed building;
- the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to);
- the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services (other than any specifically referred to);
- compliance with BASIX or Section J of the BCA;
- balustrade construction outside the ambit of the proposed Performance Solution(s);
- inspections of the completed building, nor general BCA compliance of the building, outside the ambit of the proposed Performance Solution(s);

This report also does not include, nor imply compliance with:

- the National Construction Code – Plumbing Code of Australia Volume 3;
- the Disability Discrimination Act 1992, including the Disability (Access to Premises – Buildings) Standards 2010 – unless specifically referred to;
- Demolition Standards not referred to by the BCA;
- Work Health and Safety Act 2011;
- Construction Safety Act
- Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electrical Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, Department of Planning and the like; and
- Conditions of any Development Consent issued by the Local Consent Authority;
- Any other Performance Solutions prepared by other parties.

Note: This report is not a Specification Document to be used for tendering purposes.

Annexure A – Information Sources

This report has been based on the following information tabled below.

Table 3. Information Sources

Reference	Title	Produced By	Revision	Date
M-AR-DW-5101	Typical Details – Sheet 1	NBRS	4	24.12.2021
M-AR-DW-5102	Typical Details – Sheet 2	NBRS	4	24.12.2021
M-AR-DW-5103	Typical Details – Sheet 3	NBRS	4	24.12.2021
M-AR-DW-5104	Typical Details – Sheet 4	NBRS	5	24.12.2021
M-AR-DW-5105	Typical Details – Sheet 5	NBRS	2	24.12.2021
M-AR-DW-5801	Window, Door, Louvre Threshold Details	NBRS	4	24.12.2021
M-AR-DW-8301	External Wall Types Schedule	NBRS	7	09.12.2021
M-AR-DW-3011	Block A Elevations	NBRS	7	24.12.2021
M-AR-DW-3012	Block B2 Elevations	NBRS	7	24.12.2021
M-AR-DW-3013	Block B3S Elevations	NBRS	7	24.12.2021
M-AR-DW-3014	Block C Elevations	NBRS	6	24.12.2021
M-AR-SPEC-0002	Technical Reference Sheet	NBRS	13	24.12.2021
20-306	Structural Engineering Detailed Design Report	Woolacotts Consulting Engineers	B	14.01.2022
CM20197	Cemintel Barestone CodeMark Certificate	CodeMark Australia	-	17.03.2020
-	Cemintel Design & Installation Guide - Barestone Series - External Installation	Cemintel - CSR	-	June 2020
-	Stratco Hiland Tray Design Guide: Stratco Snaplock Highland Tray	Stratco	-	May 2018
-	Stratco Selection, Use & Maintenance Guide	Stratco	-	June 2013

Annexure B – CodeMark Certificates

CodeMark Australia

Certificate of Conformity

Certification Body:

SAI GLOBAL

SAI Global Certification Services Pty Limited

(ACN 108 716 669) Trading as "SAI Global"

JAS-ANZ Accreditation No. Z1440295AS

Address: 680 George St, Sydney, NSW 2000

Website: www.saiglobal.com

Certificate Holder:

CSR Building Products Limited
(Trading as CSR Cemintel)
Triniti 3, 39 Delhi Road,
North Ryde, NSW, 2113, Australia
Phone: 1800 633 826
Website:
https://www.csr.com.au/About-Us/Contact-Us

Certificate number: CM20198

THIS TO CERTIFY THAT

CEMINTEL® BARESTONE Walling System

Type and/or use of product:

CEMINTEL® Barestone is an external walling system for residential and commercial buildings. Suitable for use on all building classes where metal top hats can be fixed either to steel stud framing, timber stud framing, or to masonry and concrete substrates.

For Class 2 to Class 9 buildings, CEMINTEL® Barestone walling system is suitable for only Type C Fire-Resisting Construction when fixed to timber stud framing.

CEMINTEL® Barestone panels are also used as internal wall lining.

Description of product:

CEMINTEL® Barestone panels are prefinished, square edged, compressed fibre cement panels trimmed and sealed in a standard 1200mm x 2400mm x 9mm or 1200mm x 3000mm x 9mm size. The panels are available in a range of colours featuring a sanded textured finish.

The wall system components & accessories are detailed in the Cemintel Design and Installation Guide – Barestone Series – External Installation dated 03/2020 and for internal applications Internal Design and Installation Guide dated 03/2020.

COMPLIES WITH THE FOLLOWING BCA PROVISIONS AND STATE OR TERRITORY VARIATION(S) **BCA 2019**

	Volume One		Volume Two	
Performance Requirement(s)	**BP1.1(a) limited to (b)(i)(ii) & (iii)**	**Structural reliability**	**P2.1.1(a) limited to (b)(i), (ii), & (iii)**	**Structural stability and resistance**
	FP1.4	**Weatherproofing**	**P2.2.2**	**Weatherproofing**
Deemed-to-Satisfy Provision(s):	**C1.1(b) & Spec C1.1 Clause 3**	**Fire Resistance –** Type A Fire-Resisting Construction (120/120/120, or -/180/180 when used in a system with Fyrchek MR	**3.7.1.1(d)**	**General concession — non-combustible materials**
			3.7.2.4(b)(i)	**Fire separation of external walls – Construction of external walls (FRL 60/60/60)**

SAI Global Certification Services

Heather Mahon
Global Head of Technical Services
SAI Global Assurance

Quintin Kleyn – Unrestricted Building Certifier

Date of issue: 17 March 2020

Date of expiry: 16 March 2023

ABCB JAS-ANZ

Certificate number: CM20198 This certificate is only valid when reproduced in its entirety. Page 1 of 9

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		plasterboard, refer to the Design and Installation Guide)	3.10.5.0(c)	Construction in bushfire prone areas
	C1.9(e)(iv)	General concession — Materials deemed to be non-combustible		
	C1.10(a)(ii) & Spec C1.10 Clause 4	Fire hazard properties – Wall and ceiling linings		
	G5.1 & G5.2	Construction in bushfire prone areas – (up to and including BAL 40)		
State or territory variation(s):	NSW G5.2	Construction in Bushfire Prone Areas – Protection.	NSW 3.10.5.0	Construction in bushfire prone areas
	QLD G5.1	Construction in Bushfire Prone Areas – Construction Requirements	QLD 3.10.5.0	Construction in bushfire prone areas

SUBJECT TO THE FOLLOWING LIMITATIONS AND CONDITIONS AND THE PRODUCT TECHNICAL DATA IN APPENDIX A AND EVALUATION STATEMENTS IN APPENDIX B

Limitations and conditions:

1. Barestone Walling System with Fyrchek MR Plasterboard can be used where the required Fire Resistance Levels (FRLs) does not exceed 120/120/120, or -/180/180 as specified in the NCC 2019 BCA Volume One specification C1.1. The installation must be in accordance with the relevant details contained within the System Engineering section of Cemintel Design and Installation Guide – Barestone Series – External Installation dated 03/2020 for system No. CSR5874 (FRL 120/120/120) and system No. CSR5349 (120/120/120, or -/180/180)
2. For Class 2 to Class 9 buildings, CEMINTEL® Barestone walling system is suitable for only Type C Fire-Resisting Construction when fixed to timber stud framing.
3. For type C Fire-Resisting Construction, Barestone Walling System has not been assessed against the requirements of Specification C1.1 Clause 5.1(c) of a fire wall or an internal wall bounding a sole-occupancy unit or separating adjoining units.
4. Barestone Walling System achieves a Group Number 1 and Smoke Growth Rate Index ($SMOGRA_{RC}$ 0.2 m^2s^2x1000) as determined in accordance with AS 5637.1:2015
5. The following were the only wall wraps assessed against the requirements of C1.9(e)(vi) for sarking-type material:
   a) Bradford Thermoseal™ Wall Wrap
   b) Enviroseal ProctorWrap Commercial Wall (CW)
   c) Enviroseal ProctorWrap Residential Wall (RW)

Building classification/s:

Volume 1 – Class 2 to Class 9 buildings

Volume 2 – Class 1 and Class 10(a) buildings

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6. The following were the only insulations assessed against the requirements of C1.9(a) for non-combustible building elements:
    a) 75 Gold Batts R1.5 at 8.76kg/m³ density
    b) 75 Gold Batts R2.0 at 6.3kg/m³ density
    c) 90 Gold Batts R2.0 at 10.5kg/m³ density
    d) 90 Gold Batts R2.5 at 21.2kg/m³ density
    e) 75 Acoustigard R1.7 at 11.0kg/m³ density
    f) 90 Acoustigard R2.2 at 14.0kg/m³ density
    g) 90 Acoustigard R2.5 at 20.0kg/m³ density
7. Barestone Walling System shall be used for its intended purpose. For further information on limited applications of the product, refer to Cemintel Design and Installation Guide – Barestone Series as relevant:
    a) External Installation dated 03/2020
    b) Internal Installation dated 03/2020
8. Barestone Walling System has been tested for weatherproofing requirements and achieved serviceability limit state wind pressures up to ±2.5kPa water penetration for the cavity system using Cemintel rigid air barrier (typically 6mm thick fibre cement sheet). Construction details and fixing must follow the relevant details contained within the System Engineering section of Cemintel Design and Installation Guide – Barestone Series – External Installation dated 03/2020.
9. Barestone Walling System has been evaluated for use in all Australian wind zones up to and including N6 and Cyclonic C4 in accordance with AS 4055 and for ultimate wind pressures up to 7.0 kPa under AS 1170.2 including cyclonic zones when fixed to steel framing with Cemintel Rigid Air Barrier.
10. The Barestone Walling System is not certified for either energy efficiency or acoustic performance.
11. Site environmental factors such as wind and corrosivity zones need to be considered to determine its suitability for a particular environment.
12. Barestone Walling System is suitable for use on buildings constructed in accordance with AS 3959:2018 that are have a Bushfire Fire Attack Level up to and including BAL 40
13. All flashing including inter-storey junction must be metal flashing.

Scope of certification: The CodeMark Scheme is a building product certification scheme. The rules of the Scheme are available at the ABCB website www.abcb.gov.au. This Certificate of Conformity is to confirm that the relevant requirements of the Building Code of Australia (BCA) as claimed against have been met. The responsibility for the product performance and its fitness for the intended use remain with the certificate holder. The certification is not transferrable to a manufacturer not listed on Appendix A of this certificate.

Disclaimer: The Scheme Owner, Scheme Administrator and Scheme Accreditation Body do not make any representations, warranties or guarantees, and accept no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any material contained within this certificate; and the Scheme Owner, Scheme Administrator and Scheme Accreditation Body disclaim to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in this certificate.

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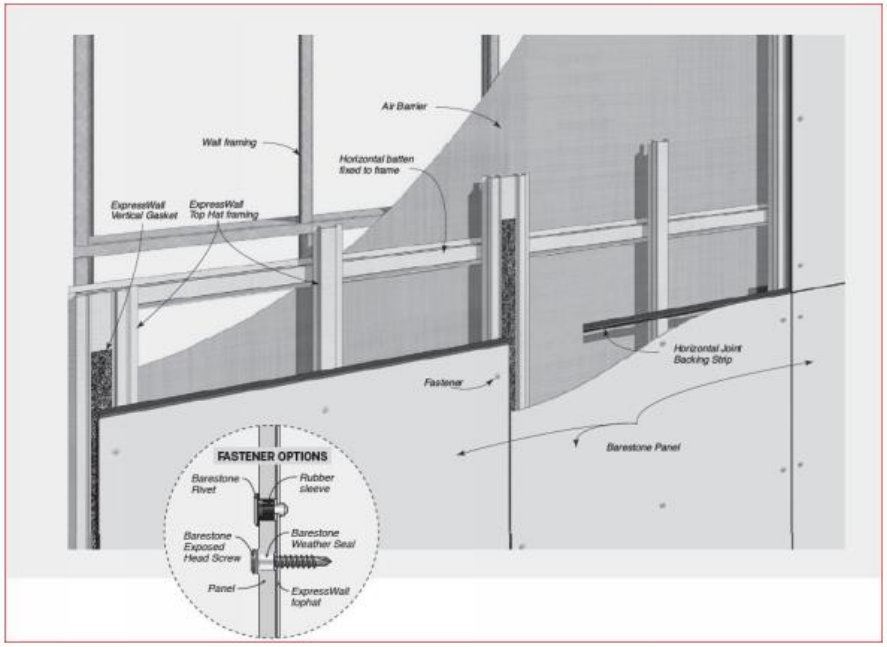
APPENDIX A – PRODUCT TECHNICAL DATA

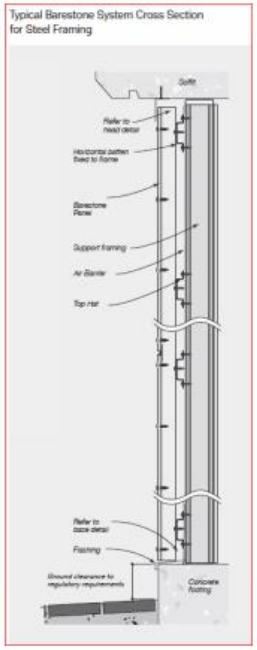
A1 Type and intended use of product

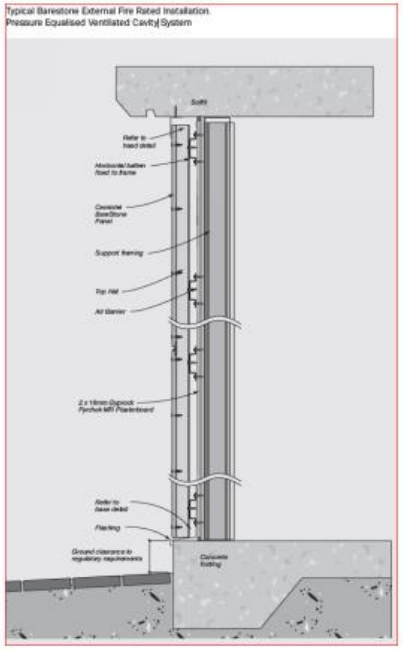
Refer to Page 1 of this certificate.

A2 Description of product

Refer to Page 1 of this certificate and the below diagrams.







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A3 Product specification

Below are some physical properties of fibre cement and system specifications

Product Specifications

Property	Specification	Manufacturing Tolerance	Relevant Standard
Panel Width	1200mm	+ 0 / - 2.0mm	AS 2908.2
Panel Length	2400 and 3000mm	+ 0 / - 2.0mm	AS 2908.2
Panel Thickness	9mm	+ 0.45 / - 0mm	AS 2908.2
Panel Weight (EMC)	17.8kg/m²		AS 2908.2

System Solutions

Fire Resistance Level (FRL)	Up to 120/120/120, -/180/180 when used in a system with Gyprock fire grade plasterboard	Refer to System Engineering section or the "The Red Book™
Bushfire Construction	BAL 40 (Construction for Bushfire Attack Level 40 for an external wall)	AS 3959 – 8
Weatherproofing	Suitable for a serviceability wind pressure of +2.50 kPa when installed as a pressure equalised system.	AS 4284
Wind actions (including Cyclonic)	Suitable for ultimate wind loads up to 7.0 kPa with Cemintel Rigid Air Barrier, including cyclonic conditions, and up to 2.5 kPa with Enviroseal ProctorWrap CW-IT	AS 4040.3

A4 Manufacturer and manufacturing plant(s)

A5 Installation requirements

Refer to Page 3 of this certificate and the following:

1. Cemintel Design and Installation Guide – Barestone Series – External Installation dated 03/2020
2. Cemintel Design and Installation Guide – Barestone Series – Internal Installation dated 03/2020

A6 Other relevant technical data

- Technical Datasheets for Bradford Thermoseal™ Wall Wrap, Enviroseal ProctorWrap (CW) Wall Wrap, and Enviroseal ProctorWrap (RW) Wall Wrap with nominal thickness <1.0mm for all three products.
- Technical Datasheet for Bradford Acoustigard partition rolls

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APPENDIX B – EVALUATION STATEMENTS

B1 Evaluation methods

The system has been assessed as complying with the identified Performance Requirements of the NCC 2019 BCA Volumes 1 and 2. This involved a review of product specifications, test reports, installation manuals, and associated documentation.

1. **Structural assessment:**
   - Volumes 1 & 2 – A2.2(2) / A5.2(1)(d) & (e) – A report issued by an Accredited testing Laboratory – Cyclone Testing Station, James Cook University (NATA accreditation No. 14937) and a report from a professional engineer
2. **Weatherproofing assessment:**
   - Volumes 1 & 2 – A2.2(2) / A5.2(1)(d) & (e) – A report issued by an Accredited testing Laboratory – Ian Bennie and Associates (NATA accreditation No. 2371) and a report from an appropriately qualified person
3. **Fire Resistance assessment:**
   - Volumes 1 & 2 – A2.3(2) / A5.2(1)(d) – An assessment report issued by an Accredited testing Laboratory – BRANZ Ltd (IANZ accreditation No. 37)
4. **Non-Combustibility (General Concessions):**

   A. Sarking-type material
   - Volumes 1 & 2 – A2.3(2) / A5.2(1)(d) – A report issued by an Accredited testing Laboratory – Insulation Research Laboratory (NATA accreditation No. 993)
   - Volumes 1 & 2 – A2.3(2) / A5.2(1)(d) – A report issued by an Accredited testing Laboratory – AWTA Product Testing (NATA accreditation No. 1356)

   B. Insulation material
   - Volumes 1 & 2 – A2.3(2) / A5.2(1)(e) – An assessment report from an appropriately qualified person – CSIRO
   - Volumes 1 & 2 – A2.2(2) / A5.2(1)(d) – A report issued by an Accredited testing Laboratory – Insulation Research Laboratory (NATA accreditation No. 993)
5. **Fire Hazard Properties assessment:**
   - Volume 1 – A2.3(2) / A5.2(1)(e) – An assessment report from an appropriately qualified person – Warrington Australia Pty Ltd
   - Volume 1 – A2.3(2) / A5.2(1)(d) – A report issued by an Accredited testing Laboratory – Insulation Research Laboratory (NATA accreditation No. 993)
   - Volume 1 – A2.3(2) / A5.2(1)(d) – A report issued by an Accredited testing Laboratory – AWTA Product Testing (NATA accreditation No. 1356)
6. **Resistance to Bushfire Attack assessment:**
   - Volumes 1 & 2 – A2.3(2) / A5.2(1)(f) – Another form of documentary evidence (assessment against specifications in referenced document – AS 3959:2018)

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B2 Reports

Evaluation methods	Related Supporting Evidence as listed below
Structural Assessment	Numbers 1, 2, 3, 4, & 5
Weatherproofing Assessment	Numbers 6 & 7
Fire Resistance assessment	Numbers 8 & 9
Non-Combustibility (General Concession)	Numbers 10, 11, 12, 13, & 14
Fire Hazard Properties assessment	Numbers 10, 11, 12, & 15
Resistance to Bushfire Construction assessment	Number 16

Structure

1. **Test Report from a NATA accredited testing laboratory (Accreditation No: 14937) for Connection Testing Cyclic Simulated Wind Load Strength Testing and Assessment of the Cyclic Wind Load Capacity of CSR Cemintel Creative Façade System from James Cook University, Report No. TS1055 Revision A (dated: 26 April 2017)**
   This document contains the test results of a Cemintel Creative Façade (8mm & 9mm nominal thickness) sample for resistance to simulated cyclic wind load, carried out in accordance with AS 4040.3.
2. **Test Report from a NATA accredited testing laboratory (Accreditation No: 14937) for Assessment of the Cyclonic Wind Load Capacity of CSR ExpressWall Façade System from James Cook University, Report No. TS584 (dated 4 August 2003)**
   This document contains the test results of a Cemintel Creative Façade (9mm nominal thickness) sample for resistance to simulated cyclic wind load, carried out in accordance with AS 4040.3. Reappraisal Test Report Summary from a NATA accredited testing laboratory (Accreditation No: 14937) for Assessment of the Cyclonic Wind Load Capacity of CSR Express Wall Façade System from James Cook University, Report No. TS584 (dated 31 December 2016). This document contains the re appraisal test results of a CSR ExpressWall Façade (9mm nominal thickness) sample for resistance to simulated cyclic wind load, carried out in accordance with AS 4040.3.
3. **Certification of CSR ExpressWall Façade System by David Beneke Consulting, Report 2013-28-LO-1001 Revision 9 (dated 28 June 2019)**
   This document certifies the maximum top hat spans and spacings of ExpressWall façade system (with either ExpressWall panels or Barestone pre-coated panels) in accordance with normal engineering practice and principals, test methods and the relevant Australian Standards.
4. **Durability opinion of CSR ExpressWall Metal Components from Branz, Report No. DZ0073 (dated 20 September 2004)**
   This document contains the opinion of the likely resistance of the ExpressWall system components in relation to durability and Category 4 (Severe Marine) or less, for a minimum service life of 15 years.

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5. **Test Report for Simulated Wind Load Component Testing of Screws used in CSR ExpressWall Façade System from James Cook University, Report No. TS923 (dated 9 October 2013)**
   This report provides an assessment for the capacity of the screw connections used in the CSR ExpressWall Façade system by undertaking cyclic pull-out load testing on the exposed head screw connections between the fibre cement cladding and the supporting battens.

Weatherproofing

6. **Test Report for Air Infiltration, Water Penetration and Structural ULS of Cemintel Creative Façade System, Report No. 2016-108-S1 (dated 24 February 2017 amended 28 March 2017)**
   This document contains the test results of the Cemintel Creative Façade System for Water Penetration, carried out in accordance with AS 4284:2008.
7. **Report from AECOM consultancy advice pertaining to the Cemintel Creative Facade System (for various rain screen materials including Barestone) (dated 07 June 2019).**
   This advice confirms the compliance of this product with AS 4284:2008, based on the test results of Report No. 2016-108-S1, by Ian Bennie and Associates.

Fire Resistance

8. **Test Report for Fire Resistance of CSR Steel Framed Wall Systems from Branz, Report No. FAR 2357 Issue 12 (dated: 06 July 2017)**
   This document contains the test results of the CSR steel framed system for resistance to fire, carried out in accordance with AS 1530.4:2014.
9. **Test Report for Fire Resistance of CSR Timber Framed Walls from Branz, Report No. FAR 2303 Issue 3 (dated: 24 December 2015)**
   This document contains the test results of the CSR timber framed system for resistance to fire, carried out in accordance with AS 1530.4:1997.

Non-Combustibility (General Concession)

A. Sarking-type material

10. **Test Report for Flammability Index of Bradford Thermoseal™ Wall Wrap from Insulation Research Laboratory, Report No. NR-17201 (dated: 1 May 2017)**
    The report provides the results to testing to AS1530.2:1993 and returns a result of Flammability index 1 for the Bradford Thermoseal wall wrap.
11. **Test Report for Flammability Index of Enviroseal ProctorWrap (CW) Wall Wrap from AWTA, test No. 16-006359 (dated: 12 December 2016)**
    The report provides the results to testing of Proctorwrap commercial wall (CW) for AS1530.2:1993 and returns a result of flammability index of 1.
12. **Test Report for Flammability Index of Enviroseal ProctorWrap (RW) Wall Wrap from AWTA, test No. 17-000553 (dated: 17 February 2017)**
    The report provides the results to testing of Proctorwrap residential wall (RW) for AS1530.2:1993 and returns a result of flammability index of 1.

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B. Insulation

13. **Assessment Report for combustibility of Bradford Glasswool insulation batts from CSIRO, Report No. FCO-2812a (dated: 19 November 2015)**
    This document provides an assessment of Bradford Glasswool insulation batts and were not deemed combustible when tested to the requirements of AS 1530.1:1994.
14. **Test Report for combustibility of Bradford Acoustigard from Insulation Research Laboratory, Report No. NR-17002 (dated: 22 March 2017)**
    This report contains the results of Bradford Acoustigard insulation batts carried out in accordance with AS 1530.1:1994 and were not deemed combustible.

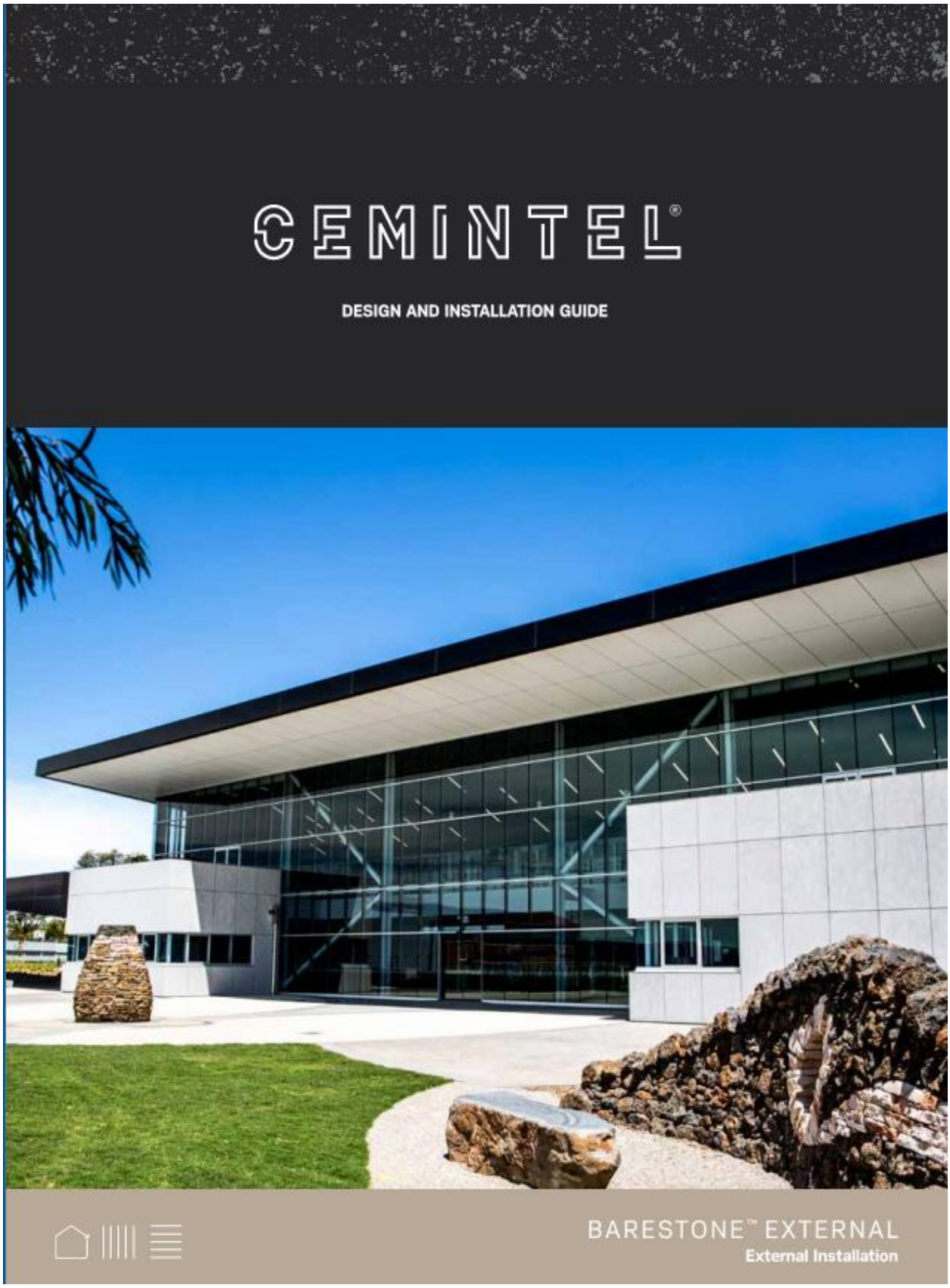
Fire Hazard Properties

10. **Test Report for Flammability Index of Bradford Thermoseal™ Wall Wrap from Insulation Research Laboratory, Report No. NR-17201 (dated: 1 May 2017)**
    The report provides the results to testing to AS1530.2:1993 and returns a result of Flammability index 1 for the Bradford Thermoseal wall wrap.
11. **Test Report for Flammability Index of Enviroseal ProctorWrap (CW) Wall Wrap from AWTA, test No. 16-006359 (dated: 12 December 2016)**
    The report provides the results to testing of Proctorwrap commercial wall (CW) for AS1530.2:1993 and returns a result of flammability index of 1.
12. **Test Report for Flammability Index of Enviroseal ProctorWrap (RW) Wall Wrap from AWTA, test No. 17-000553 (dated: 17 February 2017)**
    The report provides the results to testing of Proctorwrap residential wall (RW) for AS1530.2:1993 and returns a result of flammability index of 1.
15. **Assessment Report for Group Number and Smoke Growth Rate Index (SMOGRARC) from Exova Warrington, Report No. 45759 Revision 10.1 (dated 15 November 2019)**
    This report shows the assessment undertaken to determine the likely fire hazard properties of the CSR wall and ceiling lining products if tested in accordance with AS ISO 9705:2003 (R2016) and AS5637.1:2015

Resistance to Bushfire Attack

16. **Cemintel® Construction Guide for Bushire Areas (dated October 2019)**
    This guide provides information on Cemintel® wall cladding products and systems to meet the requirements of each BAL when assessed against specifications in AS 3959:2018

Annexure C – Design & Installation Guides



FORM & FUNCTION

Stratco Snaplock Hiland Tray™ is a modern architectural roofing and walling profile with concealed clips providing a clean finish with smooth, uncluttered lines.

The Snaplock profile spans over timber or steel supports.

TABLE 1.0 - SNAPLOCK PROFILE COVERAGE OPTIONS

Rib Height (mm)	Sheet Cover (mm)	BMT (mm)
25	225	0.55
25	325	0.55
38	185	0.55
38	285	0.55
38	340	0.60

25mm SNAPLOCK HILAND TRAY

38mm SNAPLOCK HILAND TRAY

STRATCO HILAND TRAY™

DESIGN GUIDE: STRATCO SNAPLOCK HILAND TRAY™

Annexure D – Structural Engineering Detailed Design Report

Woolacotts.
CONSULTING ENGINEERS

Schools Infrastructure NSW
Mulgoa Rise Public School (MRPS)

Structural Engineering
Detailed Design Report

20-306 / 14 January 2022 / Revision B