



# Certificate of Conformity

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Certificate number: CM30125 Rev 1

THIS TO CERTIFY THAT

## VITRACORE G2

**Type and/or use of product:**

VITRACORE G2 panels are used in external cladding applications, in all building types (BCA Volumes 1 & 2)

**Description of product:**

VITRACORE G2 panels are 4mm thick laminated Aluminium panels installed with metal fixing system. Standard panel sizes include width of 1,250mm & 1,500mm and length of 2,500mm, 3,200mm & 4,000mm. Custom panel sizes up to 1,500mm x 4,000mm. Refer to Product Technical Manual & Installation Guide (refer appendix A3).

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

BCA 2019 + A1

Performance Requirement(s)	Volume One including Amendment 1		Volume Two including Amendment 1	
		BP1.1	Structural Provisions	P2.1.1
	BP1.2	Structural Provisions		
	FP1.4	Damp and Weatherproofing	P2.2.2	Weatherproofing
<b>Deemed-to-Satisfy Provision(s):</b>	<b>A5.7</b>	Labelling of Aluminium Composite Panels	<b>A5.7</b>	Labelling of Aluminium Composite Panels
	<b>B1.4 (e)</b>	Structural Resistance	<b>3.0.4 (j)</b>	Structural Resistance
	<b>C1.9 (e)(vii)</b>	Non-Combustible Material		
	<b>G5.2</b>	Construction in Bushfire Prone Areas	<b>3.10.5.0 (c)</b>	Construction in Bushfire Prone Areas

**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](http://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.

The purpose of Global-Mark **construction site audits** is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In placing the **CodeMark mark** on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein. In issuing this Certificate of Approval Global-Mark has relied on the **expertise of external bodies** (laboratories, and technical experts).

Herve Michoux  
Global-Mark Managing Director

Peter Gardner  
Unrestricted Building Certifier

Date of issue: 21/06/2022

Date of expiry: 12/10/2023



<b>State or territory variation(s):</b>	<b>NSW G5.2</b>	Construction in Bushfire Prone Areas	<b>NSW 3.10.5.0 (c)</b>	Construction in Bushfire Prone Areas
			<b>QLD 3.10.5.0</b>	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**

<b>Limitations and conditions:</b>	<b>Building classification/s:</b>
<p><b>Vol 1 – BP1.1 &amp; Vol 2 – P2.1.1</b></p> <p>Vitracore G2 panel system as described has maximum design wind load limits documented within the Vitracore G2 Technical Manual, version 2.2. Wind load limits, construction detail and fixing must follow the relevant details contained within the Vitracore G2 Technical Manual, version 2.2 and the Vitracore G2 Cassette Fix Installation Guide version 2.1.</p>	<b>1, 2, 3, 4, 5, 6, 7, 8, 9 &amp; 10</b>
<p><b>Vol 1 – BP1.1 (b) (v) (vi) and (ix) &amp; Vol 2 – P2.1.1 (b) (v) (vi) and (ix)</b></p> <p>Snow, liquid pressure and earth pressure actions are excluded.</p>	<b>1, 2, 3, 4, 5, 6, 7, 8, 9 &amp; 10</b>
<p><b>Vol 1 – BP1.4 &amp; Vol 2 – P2.1.2</b></p> <p>Compliance for flood hazard areas is excluded.</p>	<b>1, 2, 3, 4, 5, 6, 7, 8, 9 &amp; 10</b>
<p><b>Vol 1 – FP1.4 &amp; Vol 2 – P2.2.2</b></p> <p>A wall membrane / barrier must be installed to provide Weather proof construction, where required. When a Flexible wall membrane (Water Barrier) is used, the system remains weatherproof up to Serviceability wind loads of +2.0 kPa &amp; - 3.0 kPa, and when a Rigid Air Barrier is used, the system remains weatherproof up to Serviceability wind loads of + 3.0 kPa &amp; - 3.5 kPa, when:</p> <ol style="list-style-type: none"> <li>Design &amp; installation complies fully with Vitracore G2 Technical Manual version 2.2 &amp; Vitracore G2 Cassette Fix Installation Guide version 2.1, and.</li> <li>Design accommodates deflection movements due to all design loads &amp; temperature variations, and</li> <li>Installation Contractor complies with manufacturer’s instructions for sealants, shop drawings &amp; project specifications, and</li> <li>Fixings are installed in accordance with manufacturer’s instructions &amp; procedures, fixings to be weathertight and not restrict thermal or wind movements of the façade, and</li> </ol> <p>Perforated “Breather” wall wrap membranes must not be used.</p>	<b>1, 2, 3, 4, 5, 6 &amp; 9</b>
<p><b>Vol 1 – C1.9</b></p> <p>This Certification is based upon the system being installed using components &amp; accessories specified in the “System Components” section of the Vitracore G2 Technical Manual version 2.2 &amp; the Vitrafix Accessories Brochure dated March 2020 (refer Appendix B2). Substitution of such components &amp; / or accessories may be permitted; however the general performance specifications of components &amp; / or accessories must be maintained for this certificate to remain valid.</p>	<b>2, 3, 4, 5, 6, 7, 8 &amp; 9</b>





# Certificate of Conformity

## 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.

### A3 Product specification

Refer to items 1 & 2 listed in Appendix B2:

- VITRACORE G2 Technical Manual, version 2.2.
- VITRACORE G2 Cassette Fix Installation Guide, version 2.1.

### A4 Manufacturer and manufacturing plant(s)

#### FVA Group Pty Ltd

18-20 Donald Street

Lithgow NSW 2790

Ph: + 61 2 6352 2355

[www.fv.com.au](http://www.fv.com.au)

### A5 Installation requirements

Refer to items 1 & 2 listed in Appendix B2:

- VITRACORE G2 Technical Manual, version 2.2.
- VITRACORE G2 Cassette Fix Installation Guide, version 2.1.

### A6 Other relevant technical data

Refer to items 1 & 2 listed in Appendix B2:

- VITRACORE G2 Technical Manual, version 2.2.
- VITRACORE G2 Cassette Fix Installation Guide, version 2.1.

And any referenced documents within the technical literature identified in Appendices A3 & A5.

## APPENDIX B – EVALUATION STATEMENTS

### B1 Evaluation methods

The following assessment methods have been used to determine compliance with BCA 2019 inc Amdt 1:

Code Clause	Assessment Method(s)	Evidence of suitability	Evidence reference in B2
BCA Volume One BP1.1	Combination of A2.2 (2) (a), (b) & (c)	Combination of A5.2 (1) (d), (e) & (f) – Test Report, Expert judgement & Other documentary evidence	Items 1, 2, 3, 5, 6 & 7
BCA Volume Two P2.1.1	Combination of A2.2 (2) (a), (b) & (c)	Combination of A5.2 (1) (d), (e) & (f) – Test Report, Expert judgement & Other documentary evidence	Items 1, 2, 3, 5, 6 & 7
BCA Volume One BP1.2	Combination of A2.2 (2) (a), (b) & (c)	Combination of A5.2 (1) (d), (e) & (f) – Test Report, Expert judgement & Other documentary evidence	Items 1, 2, 3, 5, 6 & 7
BCA Volume One FP1.4	Combination of A2.2 (2) (a), (b) & (c)	Combination of A5.2 (1) (d) & (e) – Test Report & Expert judgement	Items 27, 28, 29 & 30
BCA Volume Two P2.2.2	Combination of A2.2 (2) (a), (b) & (c)	Combination of A5.2 (1) (d) & (e) – Test Report & Expert judgement	Items 27, 28, 29 & 30
BCA Volume One A5.7	A2.3 (2) (a)	A5.2 (1) (f) - Other documentary evidence	Item 31
BCA Volume Two A5.7	A2.3 (2) (a)	A5.2 (1) (f) - Other documentary evidence	Item 31
BCA Volume One B1.4 (e)	Combination of A2.3 (2) (a) & (b)	Combination of A5.2 (1) (e) & (f) – Expert judgement & Other documentary evidence	Items 1, 2, 3, 5, 6 & 7
BCA Volume Two 3.0.4 (j)	Combination of A2.3 (2) (a) & (b)	Combination of A5.2 (1) (e) & (f) – Expert judgement & Other documentary evidence	Items 1, 2, 3, 5, 6 & 7
BCA Volume One C1.9	Combination of A2.3 (2) (a) & (b)	Combination of A5.2 (1) (d) & (e) – Test Report & Expert judgement	Items 4, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26
BCA Volume One G5.2	Combination of A2.3 (2) (a) & (b)	Combination of A5.2 (1) (d) & (e) – Test report & Expert judgement	Items 9, 10 & 16
BCA Volume Two 3.10.5.0 (c)	Combination of A2.3 (2) (a) & (b)	Combination of A5.2 (1) (d) & (e) – Test report & Expert judgement	Items 9, 10 & 16

### B2 Reports

The following reports have been used as evidence to determine compliance with NCC 2019 inc Amdt 1:

Ref	Author	Reference	Date / Rev	Description	NATA Registration
1	Fairview Architectural	Vitracore G2 Cassette Fix Install Guide	Version 2.1	Client published installation manual	-
2	Fairview Architectural	Vitracore G2 Technical Manual	Version 2.2	Client published technical manual	-
3	Fairview Architectural	Vitracore G2 Specification	Nov 2018	Client published technical specification	-
4	Fairview Architectural	Vitracore approval Timeline	Oct 2019	Client published approval record	-
5	Building Products Certification	0320B-R1B	24 Jan 2018	Structural Design Report	-
6	Intertek Testing Services	181015007SHF-001-R1	8 Nov 2018	Component Testing Report	CNAS – L11949
7	Health & Safety Laboratories	ES/2018/35	28 Sep 2018	Component Analysis Report	UKAS – 1751
8	UL International NZ Ltd	4788967555 AU	26 Sep 2019	Fire assessment report	-
9	CSIRO	FNC11476B	4 Nov 2015	Fire test report	165
10	CSIRO	FNC12446	18 Sep 2019	Fire test report	165
11	CSIRO	FNE11459C	19 Oct 2015	Fire test report	165
12	CSIRO	FNE12445	19 Sep 2019	Fire test report	165
13	CSIRO	FCO3166 Rev D	7 May 2019	Fire assessment report	165

14	IGNIS Solutions	IGNIS-6081	5 May 2019	Fire compliance report	-
15	RED Fire Consultants	JV19-00103-1.0	3 Jun 2019	Fire compliance report	-
16	IGNIS Solutions	IGNIS-5200.02_Rev0	5 May 2019	Fire compliance report	-
17	WarringtonFire UK	418244	4 Sep 2019	Fire classification report	UKAS – 0249
18	WarringtonFire UK	418243	4 Sep 2019	Fire classification report	UKAS – 0249
19	WarringtonFire UK	417795	4 Sep 2019	Fire test report	UKAS – 0249
20	WarringtonFire UK	417796	4 Sep 2019	Fire test report	UKAS – 0249
21	WarringtonFire UK	417798	4 Sep 2019	Fire test report	UKAS – 0249
22	WarringtonFire UK	417747	4 Sep 2019	Fire test report	UKAS – 0249
23	WarringtonFire UK	417750	4 Sep 2019	Fire test report	UKAS – 0249
24	WarringtonFire UK	417748	4 Sep 2019	Fire test report	UKAS – 0249
25	WarringtonFire UK	417749	4 Sep 2019	Fire test report	UKAS – 0249
26	WarringtonFire UK	418236	4 Sep 2019	Fire test report	UKAS – 0249
27	AWTA	22-001585	24-05-2022	Fire test report	298, 985 ANS 1356
28	AWTA	22-001591	10-06-2022	Fire test report	298, 985 ANS 1356
29	AWTA	22-001592	27-05-2022	Fire test report	298, 985 ANS 1356
30	BG&E Facades	Fairview Cladding Products – Vitracore G2 (Install Manual Version 2)	27 Aug 2018	Weathertightness assessment report	-
31	FacadeLab	18-02	20 Apr 2018	Weathertightness test report	IANZ – 1091
32	VIPAC	30B-19-0059-TRP-6774694-0	2 Apr 2020	Weathertightness test report	676
33	VIPAC	30B-19-0059-TRP-6774696-0	2 Apr 2020	Weathertightness test report	676
34	Global-Mark	Vitracore G2 Review Findings - Closed	25 Jul 2020	SA TS 5344 Labelling compliance	-

The Certificate Holder has chosen not to make the above identified evidence of compliance publicly available, due to the documents being considered commercial in confidence.

**End of Certificate.**



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## **Vipac Engineers & Scientists**

FVA Group Pty Ltd

**Fairview - AS 4284 testing on facades**


**Test Report - Vitracore G2 with Rigid Membrane**


30B-19-0059-TRP-6774696-1

11 November 2020

<b>Job Title:</b>	Fairview - AS 4284 testing on facades
<b>Report Title:</b>	Test Report - Vitracore G2 with Rigid Membrane
<b>Document Reference:</b>	30B-19-0059-TRP-6774696-1

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<b>AUTHORED BY:</b>    Robert Dyck <i>Facades Team Leader</i>	Date: 11 November 2020
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<b>REVIEWED BY:</b>    Sophie Lamande <i>Wind Group Leader</i>	Date: 11 November 2020
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<b>REVISION HISTORY:</b>			
Rev. #	Comments / Details of change(s) made	Date	Revised by:
Rev. 00	Original issue	02/04/2020	R.Dyck
Rev. 01	Updated company name and pipe penetration detail	11/11/2020	R.Dyck
Rev. 02			

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**EXECUTIVE SUMMARY**

Vipac Engineers and Scientists were commissioned by Fairview Pty Ltd / FVA Group Pty Ltd (the client) to perform AS/NZS 4284:2008 and NZBC E2/VM1 testing for their cladding system.

The sample was installed by the client at the Vipac test laboratory in Port Melbourne, and the sample was tested by Vipac Engineers and Scientists during February of 2020.

The test sample was found to have the below results for AS/NZS 4284:2008 compliance:

Test Date	AS/NZS4284:2008 Test	Result
04/02/2020	Clause 8.2 Preliminary tests	Complies +3500Pa, -4000Pa SLS Preload
04/02/2020	Clause 8.3 Structural test at serviceability limit state	Complies with Span deflection requirements at +3000Pa, -3500Pa
05/02/2020	Clause 8.5 Static water test	Complies 1050Pa
05/02/2020	Clause 8.6 Cyclic water test	Complies Stage 1: 525Pa – 1050Pa Stage 2: 700Pa – 1400Pa Stage 3: 1050Pa – 2100Pa
05/02/2020	Clause 8.8 Structural test at ultimate limit state	Complies +5000, -6000

*Table 1: Test results summary*

The test sample complied with test conditions of E2/VM1.

Full details are contained within this report.

**TABLE OF CONTENTS**

<b>1</b>	<b>INTRODUCTION .....</b>	<b>5</b>
<b>2</b>	<b>TEST REFERENCE &amp; APPLICATION STANDARD .....</b>	<b>5</b>
<b>3</b>	<b>TEST SPECIMEN .....</b>	<b>5</b>
<b>4</b>	<b>TEST EQUIPMENT .....</b>	<b>6</b>
<b>5</b>	<b>TEST RESULTS AS/NZS 4284.....</b>	<b>7</b>
5.1	Clause 8.2 – Preliminary Tests.....	7
5.1.1	Criteria: Static pressure .....	7
5.1.2	Criteria: Static and cyclic water tests.....	7
5.2	Clause 8.3 – Structural test at serviceability limit state (sls) .....	8
5.3	Clause 8.5 – Static water test .....	10
5.4	Clause 8.6 – Cyclic water test .....	11
5.5	Clause 8.8 – Structural test at the Ultimate Limit State .....	12
<b>6</b>	<b>TEST RESULTS NZBC E2/VM1 .....</b>	<b>13</b>
	Appendix A E2/VM1 water management holes .....	14
	Appendix B Test Sample structure .....	15
	Appendix C Test sample Details.....	18

## 1 INTRODUCTION

<b>Document Type:</b>	Test Report
<b>Company:</b>	Fairview Pty Ltd / FVA Group Pty Ltd
<b>Product:</b>	Vitracore G2 with Siniat Board membrane
<b>Test Date:</b>	February 2020
<b>Testing Authority:</b>	Vipac Engineers & Scientists

## 2 TEST REFERENCE & APPLICATION STANDARD

<b>AS/NZS 4284:2008</b>	Testing of Building Facades
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## 3 TEST SPECIMEN



*Figure 1: Test sample prior to testing*

Details of the test sample can be found in Appendix B and C of this report.

#### 4 TEST EQUIPMENT

Measurement	Instrument Type/Make	Model	Vipac Serial Number
Deflection	Dial gauges/ Mitutoyo	3058S-19	000034597
			000033756
			000034596
			000033758
			000034598
Distance	Tape Measure / Stanley	8m	000033666
Pressure	Digital Manometer / PCE	PCE-PDA-10L	000033540
Water flow rate	Flow meter/ Siemens	Mag 6000	000031229
Time	Stopwatch/ Dick Smith	Y1299	000033567

*Table 2: Instruments used throughout testing*

## 5 TEST RESULTS AS/NZS 4284

### 5.1 CLAUSE 8.2 – PRELIMINARY TESTS

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 04/02/2020

#### 5.1.1 CRITERIA: STATIC PRESSURE

Test sample shall withstand the Serviceability Limit State pressure with no structural damage or distortion.

**Applied Load:** Nominated Serviceability Pressure: +3.5 kPa, -4.0 kPa

Duration: 10 seconds

#### 5.1.2 CRITERIA: STATIC AND CYCLIC WATER TESTS

Under static and cyclic water tests there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- Water appears on any inside surface of the façade, visible from an occupied space.
- Uncontrolled water appears on any inside surface of the façade (uncontrolled water is defined as any leakage not contained and drained away after 5 minutes).
- Water appears that is likely to wet insulation, fixtures and finishes.
- Water appears in other locations specified as unacceptable by the Specifier

**Static water test:** **Applied Load:** Nominated pressure: +1.050 kPa

Duration: water spray operated for 5 minutes at 0 kPa chamber pressure, followed by water spray and pressure at the test pressure for 15 minutes. Observe for 5 minutes after removal of both water and air pressure.

**Cyclic water test:** **Applied Load:** Nominated pressures:

Stage	Lower pressure	Upper pressure	Cycle Duration
Stage 1	0.525 kPa	1.050 kPa	5 minutes
	0 kPa		2 minutes
Stage 2	0.700 kPa	1.400 kPa	5 minutes
	0 kPa		2 minutes
Stage 3	1.050 kPa	2.100 kPa	5 minutes
Observation	0 kPa		5 minutes

Table 3: Cyclic pressure lower and upper limits, cycle time of 3 seconds to 5 seconds

**Applied Water:** Water spray rate: 3.0 L/m<sup>2</sup>min

Measured spray area: 8.6 m<sup>2</sup>

Resulting spray flow rate: 25.9 l/min

**Results:** The preliminary static and cyclic water tests were completed successfully.

**Conclusion:** The preliminary test of the façade complies with the requirements of AS/NZS 4284:2008

**5.2 CAUSE 8.3 – STRUCTURAL TEST AT SERVICEABILITY LIMIT STATE (SLS)**

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 04/02/2020

**Formulae:** The net mid-span deflection ( $d$ ) of each member is given by the following:

$$d = D_m - D_e$$

where:

$D_m$  = Mid span displacement

$D_e$  = Average of end displacements

**Criteria:** According to AS/NZS4284:2008 no framing member shall deflect by an amount greater than span/250mm. Successive member displacement shall not exceed 3.0mm. The maximum displacement of a framing member shall not exceed 20mm. All components of the sample are required to remain structurally intact as detailed on test sample drawings with no signs of visible damage or distortion.

**Applied Load:** +3.0kPa, -3.5kPa

**Results:**

Span Detail	Span [mm]	Pressure direction	Measured pressure [Pa]	Measured Span Deflection [mm]	Span deflection Ratio
<b>Span 1</b> (Node 1,2,3)	1150	Positive	3021	1.19	966
		Negative	-3518	-1.58	730
<b>Span 2</b> (Node 3,4,5)	1150	Positive	3021	1.07	1080
		Negative	-3518	2.39	481
<b>Span 3</b> (Node 1,3,5)	2300	Positive	3021	7.30	315
		Negative	-3518	6.25	368

Table 4: Span deflection results - +3.0kPa, -3.5kPa

Zero Stage	Node 1 [mm]	Node 2 [mm]	Node 3 [mm]	Node 4 [mm]	Node 5 [mm]
<b>Z1</b>	0.00	0.00	0.00	0.00	0.00
<b>Z2</b>	0.13	0.21	0.21	0.17	0.06
<b>Z4</b>	-1.22	-1.89	-2.12	-1.81	-0.71
<b>Z5</b>	-1.37	-2.05	-2.29	-1.95	-0.76
<b>Z7</b>	0.01	0.01	-0.03	-0.05	-0.02

Table 5: Residual deflection result - +3.0kPa, -3.5kPa



*Figure 2: Node locations (1-5 from bottom to top)*

**Conclusion:** The test sampled complied with the structural span deflections limits of  $\text{Span}/250$ .

### 5.3 CLAUSE 8.5 – STATIC WATER TEST

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 05/02/2020

**Criteria:** Under static water test there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- a) Water appears on any inside surface of the façade and is visible from an occupied space.
- b) Uncontrolled water appears on any inside surface of the façade.
- c) Water appears that is likely to wet insulation, fixtures and finishes.
- d) Water appears in other locations specified as unacceptable by the Specifier

**Applied Load:** Nominated Pressure: +1.050 kPa

Duration: water spray operated for 5 minutes at 0 kPa chamber pressure, followed by water spray and pressure at the test pressure for 15 minutes. Observe for 5 minutes after removal of both water and air pressure.

**Applied Water:** Water spray rate: 3.0 L/m<sup>2</sup>min

Measured spray area (inside pressure chamber): 8.64 m<sup>2</sup>

Resulting spray flow rate: 25.9 l/min

**Results:** The Static water test was completed with no uncontrolled water penetration occurring.

**Conclusion:** The Static water results of the test sample comply with the specified limits set out in AS/NZS 4284:2008.



**5.4 CLAUSE 8.6 – CYCLIC WATER TEST**

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 05/02/2020

**Criteria:** Under cyclic water test there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- a) Water appears on any inside surface of the façade and is visible from an occupied space.
- b) Uncontrolled water appears on any inside surface of the façade.
- c) Water appears that is likely to wet insulation, fixtures and finishes.
- d) Water appears in other locations specified as unacceptable by the Specifier

**Applied Load:** Nominated Pressures:

Stage	Lower pressure	Upper pressure	Cycle Duration
Stage 1	0.525 kPa	1.050 kPa	5 minutes
	0 kPa		2 minutes
Stage 2	0.700 kPa	1.400 kPa	5 minutes
	0 kPa		2 minutes
Stage 3	1.050 kPa	2.100 kPa	5 minutes
Observation	0 kPa		5 minutes

*Table 8: Cyclic pressure lower and upper limits, cycle time of 3 seconds to 5 seconds*

**Applied Water:** Water spray rate: 3.0 L/m<sup>2</sup>min  
 Measured spray area (inside pressure chamber): 8.64 m<sup>2</sup>  
 Resulting spray flow rate: 25.9 l/min

**Results:** The Cyclic water test was completed with the test was completed with no uncontrolled water penetration occurring.

**Conclusion:** The Cyclic water results of the test sample comply with the specified limits set out in AS/NZS 4284:2008.

**5.5 CLAUSE 8.8 – STRUCTURAL TEST AT THE ULTIMATE LIMIT STATE**

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 05/02/2020

**Criteria:** There shall be no disengagement or partial disengagement of any framing member or panel, no failure of fixings, stops or locking devices. No repeated glass breakage or cracking of glass.

**Applied Load:** Ultimate Limit State Pressures: +5.0 kPa, -6.0kPa  
Apply the pressure from zero to ultimate limit state in 50-60 seconds, apply ultimate limit state for 10 seconds.

**Results:**

Test Pressure [kPa]	Results
+ 5.1	All criteria met
- 6.1	All criteria met

*Table 9: Results, Ultimate Limit State*

**Conclusion:** The Ultimate limit state results of the test sample comply with the requirements of AS/NZS 4284:2008.

## 6 TEST RESULTS NZBC E2/VM1

Test	Result
<b>Series 1: Static Water Penetration</b> Test pressure 455 Pa Duration 15 minutes	<b>Compliant</b>
<b>Series 1: Cyclic Water Penetration</b> Test pressure 455 – 910 Pa Duration 5 minutes	<b>Compliant</b>
<b>Series 2: Water Management Tests</b> <b>Static Water Penetration</b> Test pressure 455 Pa Duration 15 minutes	<b>Compliant</b> *Appendix A has images of the locations of the water management holes introduced to the sample
<b>Series 2: Water Management Tests</b> <b>Cyclic Water Penetration</b> Test pressure 455 – 910 Pa Duration 5 minutes	<b>Compliant</b> *Appendix A has images of the locations of the water management holes introduced to the sample
<b>Series 3: Wetwall Test</b> <b>Static Water Penetration</b> Test pressure 50 Pa Duration 15 minutes	<b>Compliant</b>
<b>Additional water penetration requirements</b>	<b>N/A</b>
<b>Comments</b>	A leak was observed in the top left corner of the test sample during testing. This leak was observed to be between the perimeter of the sample and the test rig. As this was not representative of a typical install, this leak did not affect the compliance of the sample.

Table 10: E2/VM1 Results

## Appendix A E2/VM1 WATER MANAGEMENT HOLES



*Figure 3: 8mm hole at 3/4 window height*



*Figure 4: 8mm hole above horizontal control joint*



*Figure 5: 8mm hole above parapet feature*



*Figure 6: 8mm hole in panel joint caulking*

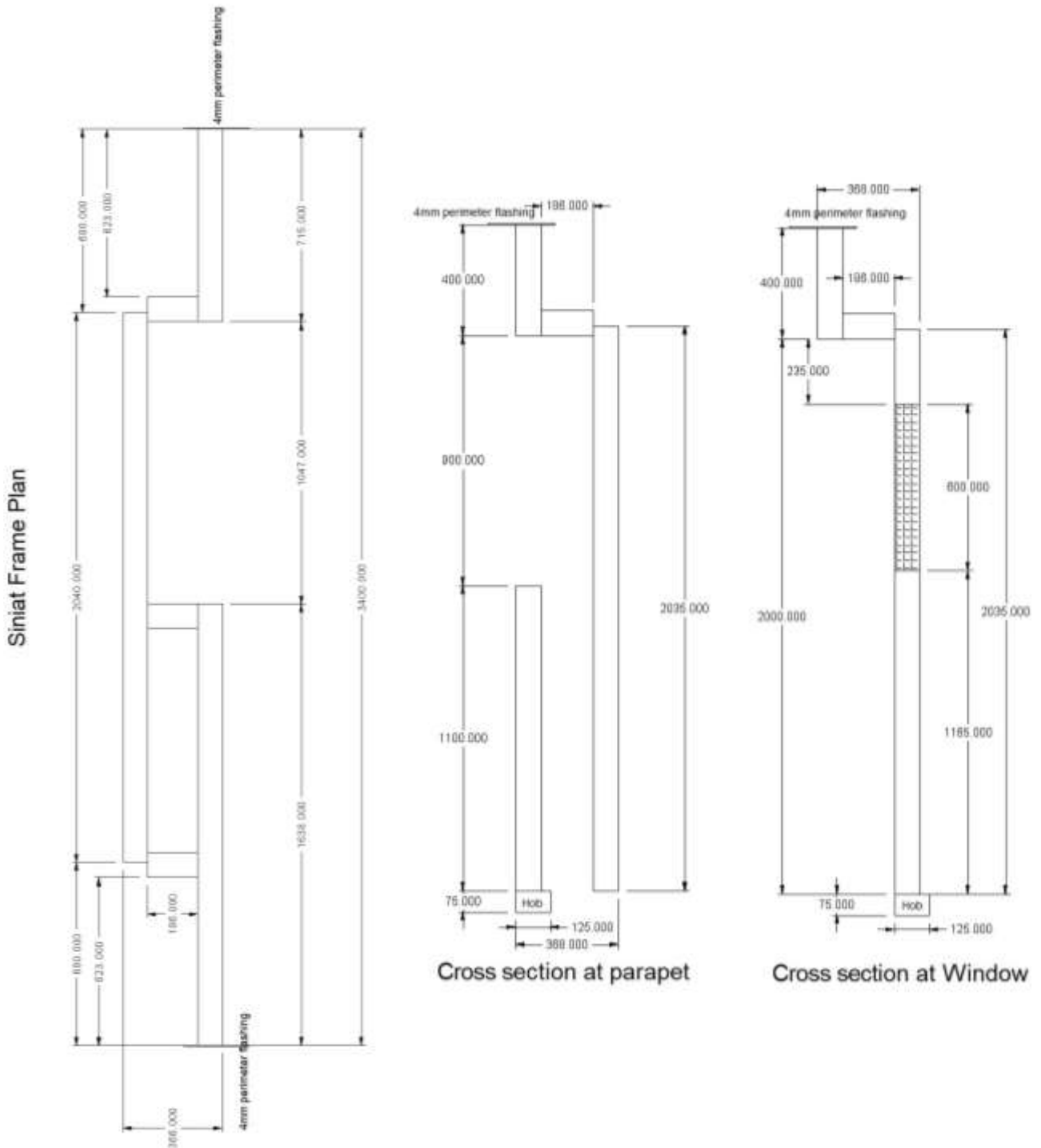


*Figure 7: 8mm hole above pipe penetration*

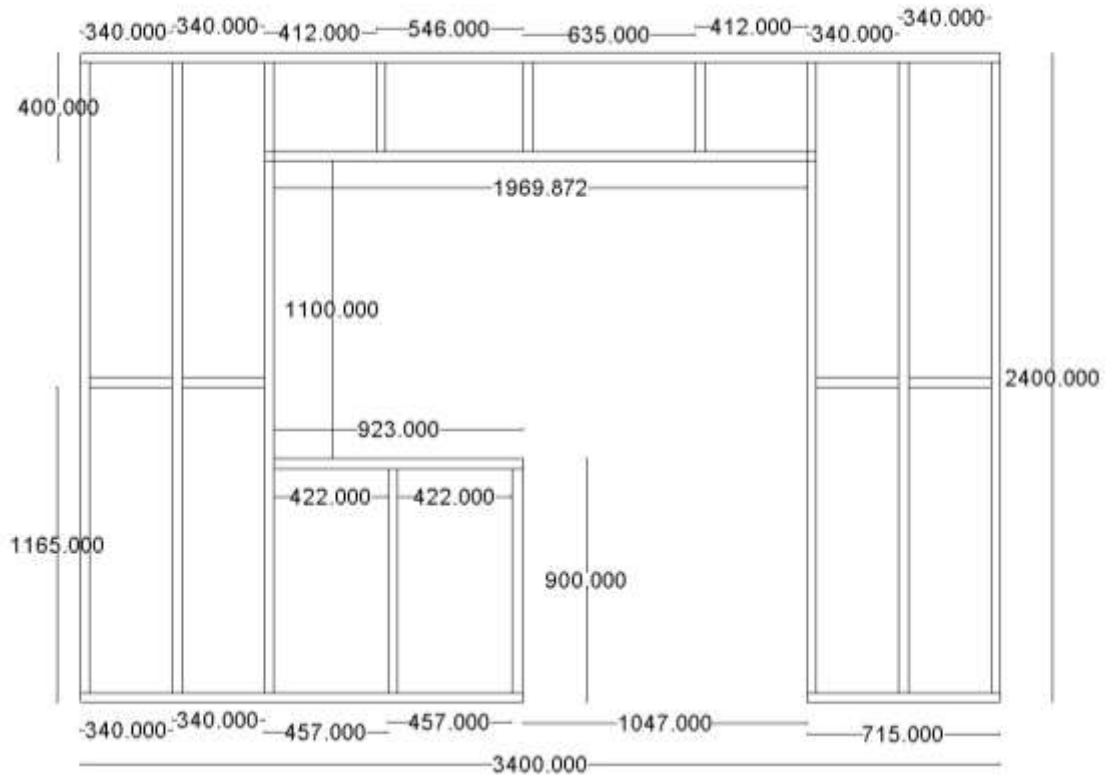


*Figure 8: 8mm hole at 3/4 window height in caulking*

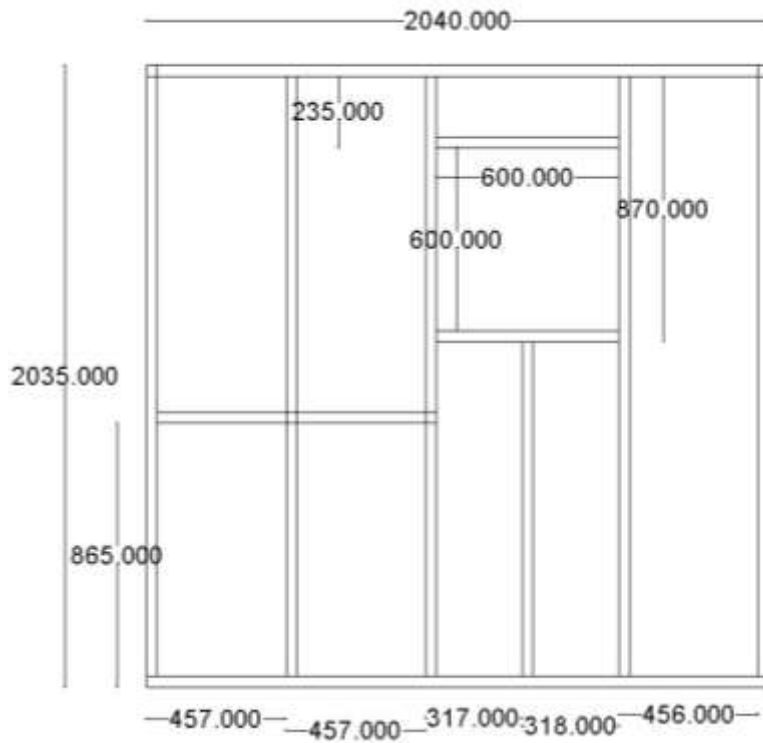
## Appendix B TEST SAMPLE STRUCTURE



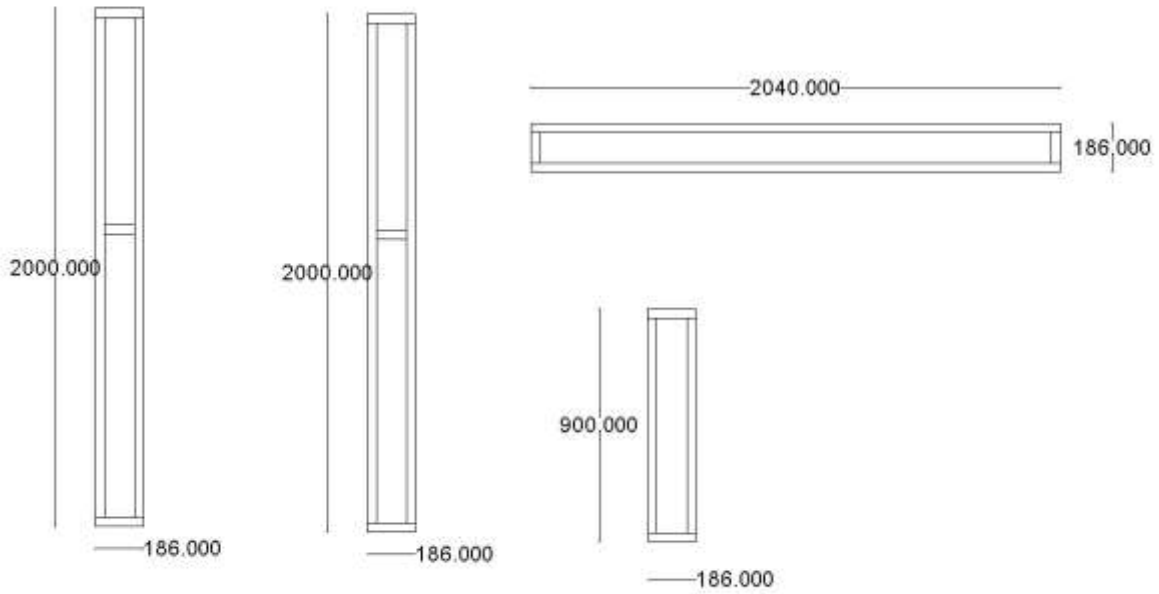
Face Frame Siniat



Back Frame Siniat



Infills Siniat



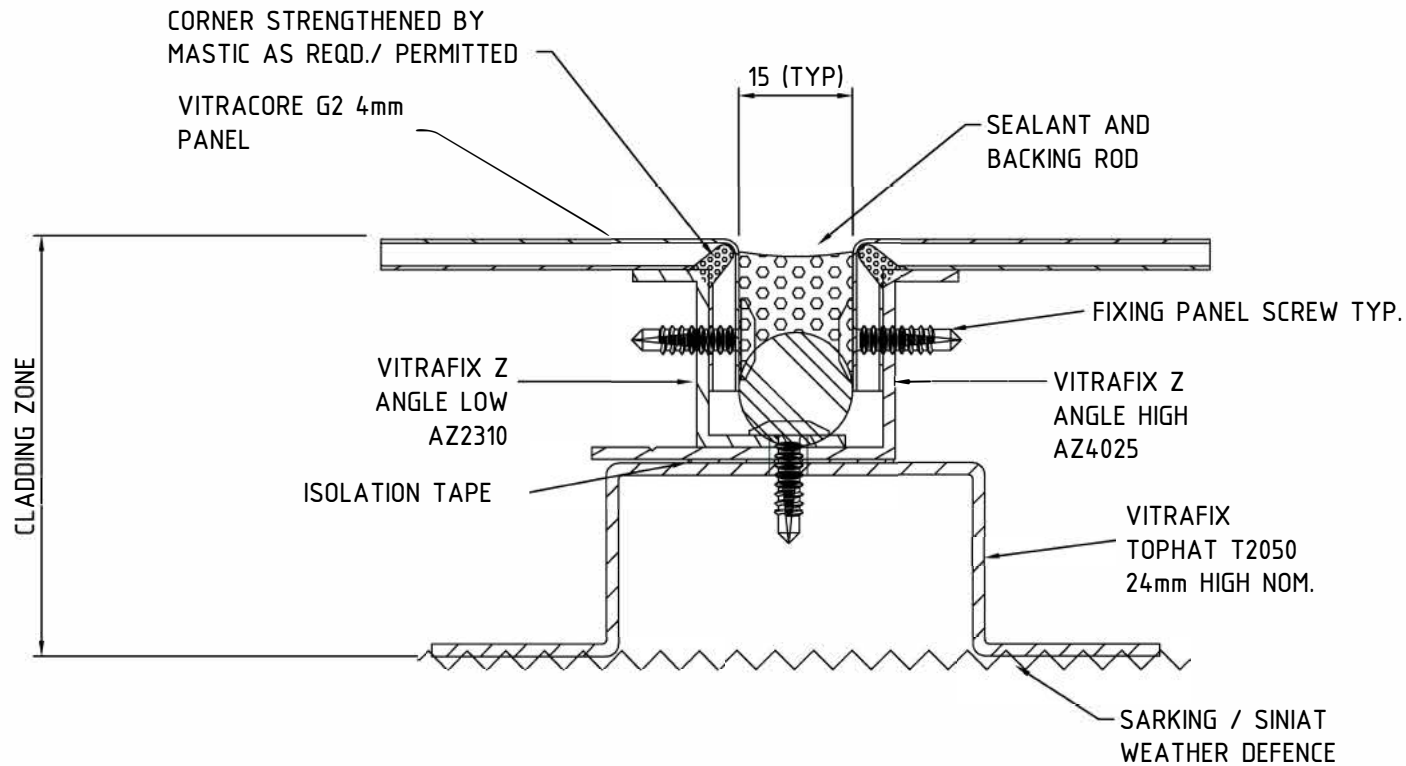


## **Appendix C TEST SAMPLE DETAILS**

This page is blank and the details are attached in the following pages.



# **VITRACORE G2 AS4284 INSTALLATION DETAILS**



## 1. TYPICAL VERTICAL PANEL JOINT DETAIL



**vitracore G2**

NON-COMBUSTIBLE COMPOSITE PANEL / MANUFACTURED BY FAIRVIEW  
as deemed by the BCA

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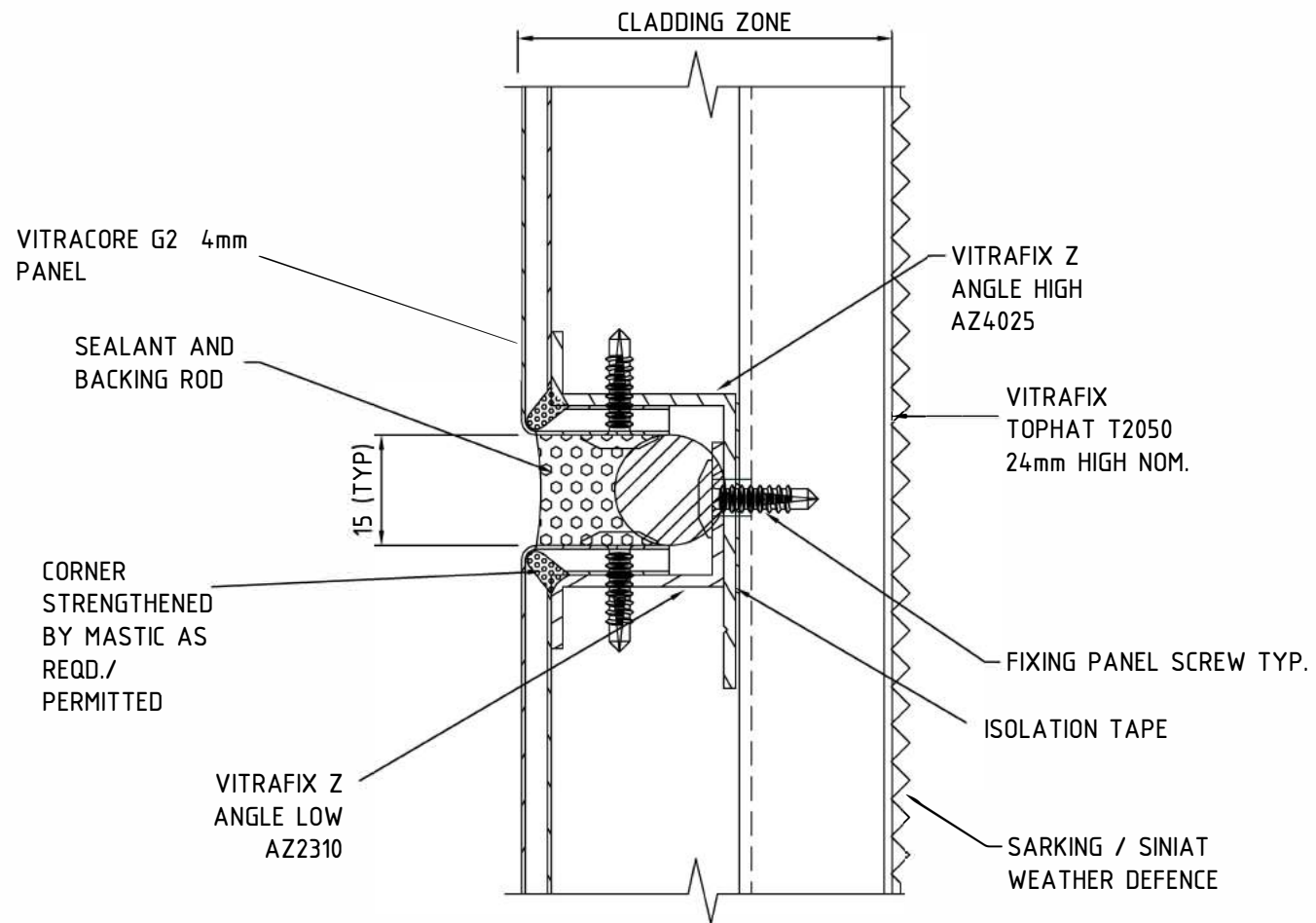
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## 2. HORIZONTAL JOINT DETAIL



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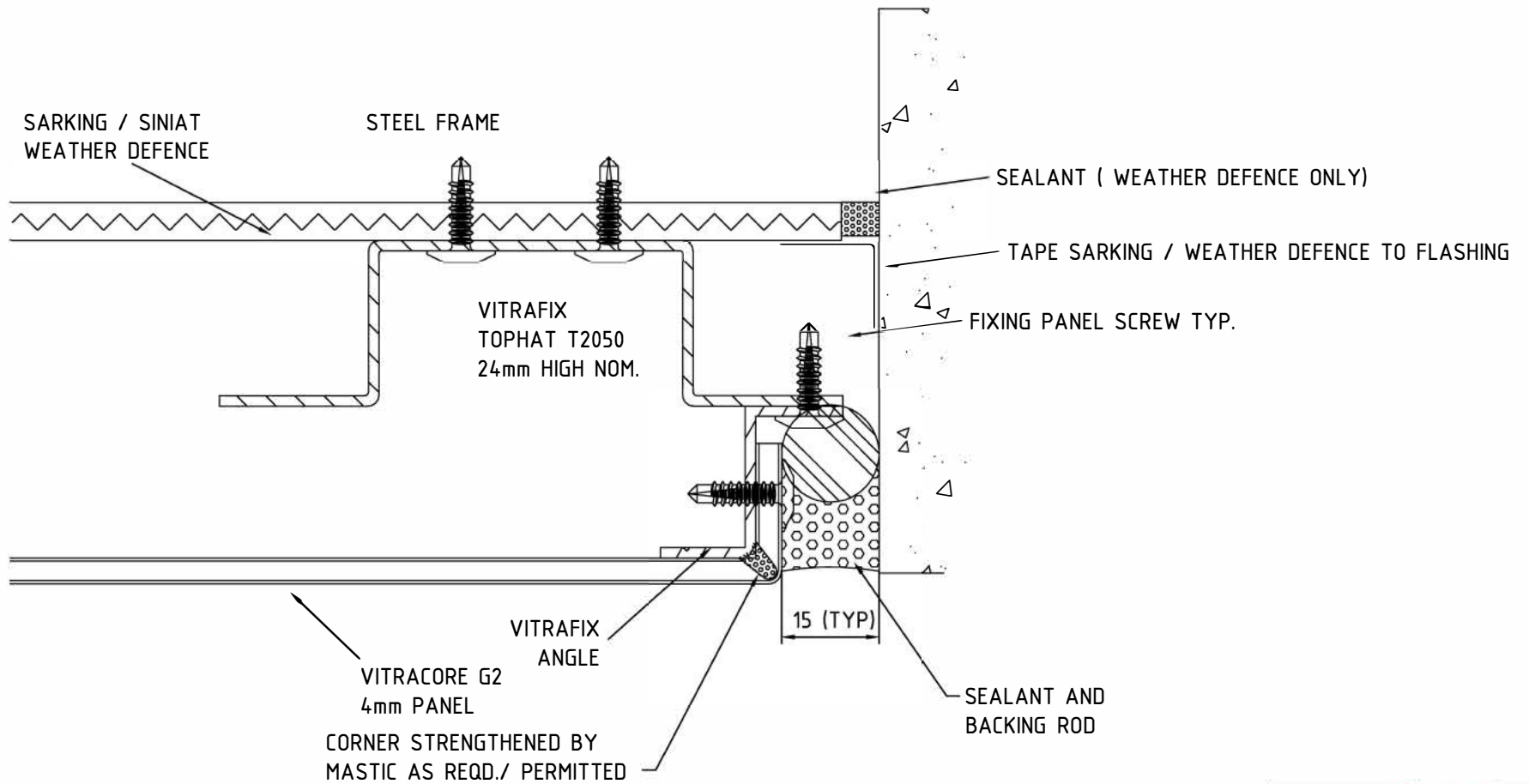


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### 3. WALL JUNCTION DETAIL



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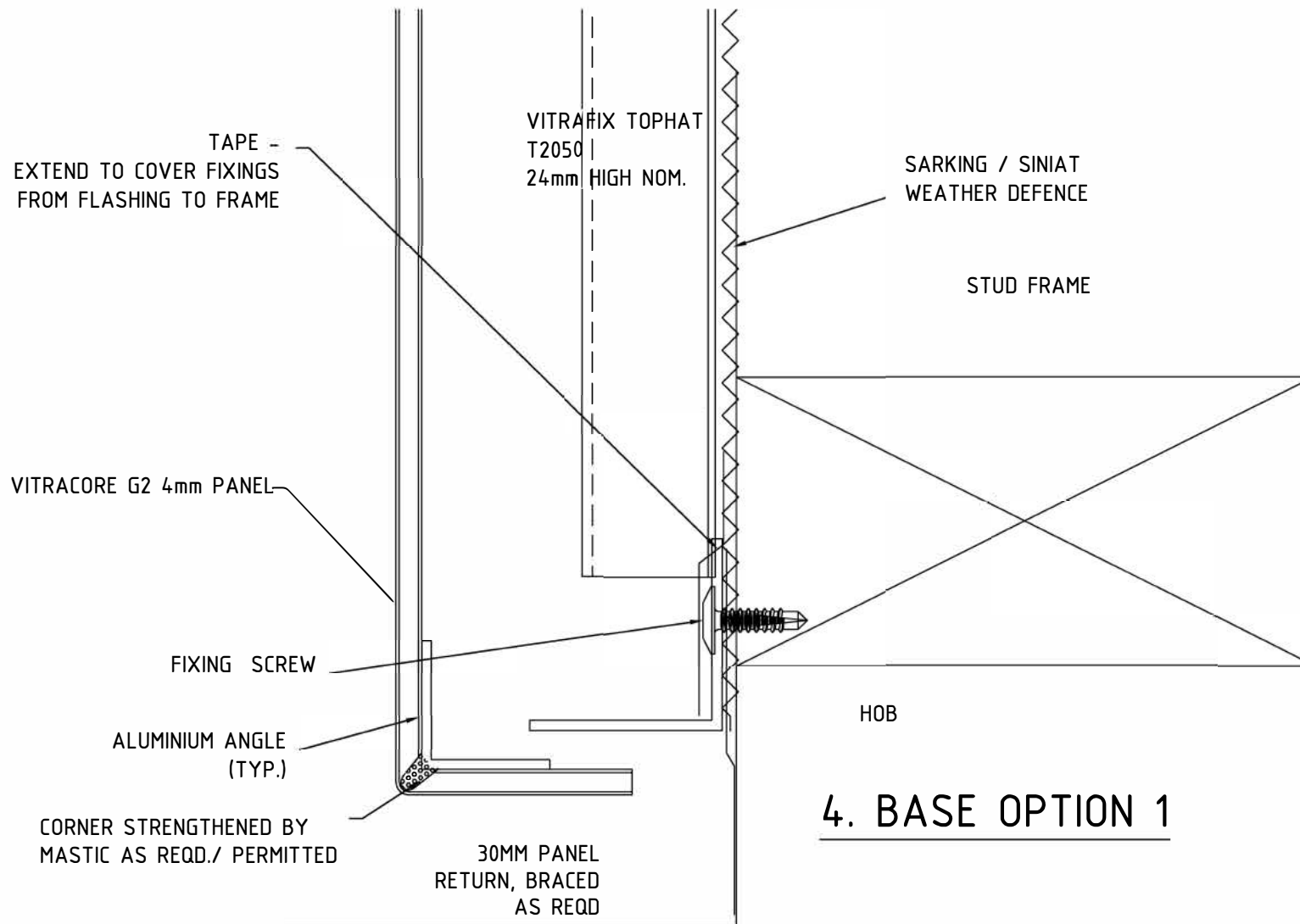
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FIXING SCREW TYP.

VITRACORE G2 4mm  
PANEL

LINE OF CASSETTE  
SYSTEM BELOW

BRACING ANGLE  
ADHERED AS REQD./  
PERMITTED

CORNER STRENGTHENED BY  
MASTIC AS REQD./ PERMITTED

FIXING TO  
STRUCTURE  
TO ENGINEERS  
DETAIL

SARKING / SINIAT  
WEATHER DEFENCE

STEEL STRUCTURE

PACKING AS REQD

VITRAFIX  
TOPHAT T2050  
24mm HIGH NOM.

ISOLATION  
TAPE

## 5. EXTERNAL CORNER DETAIL

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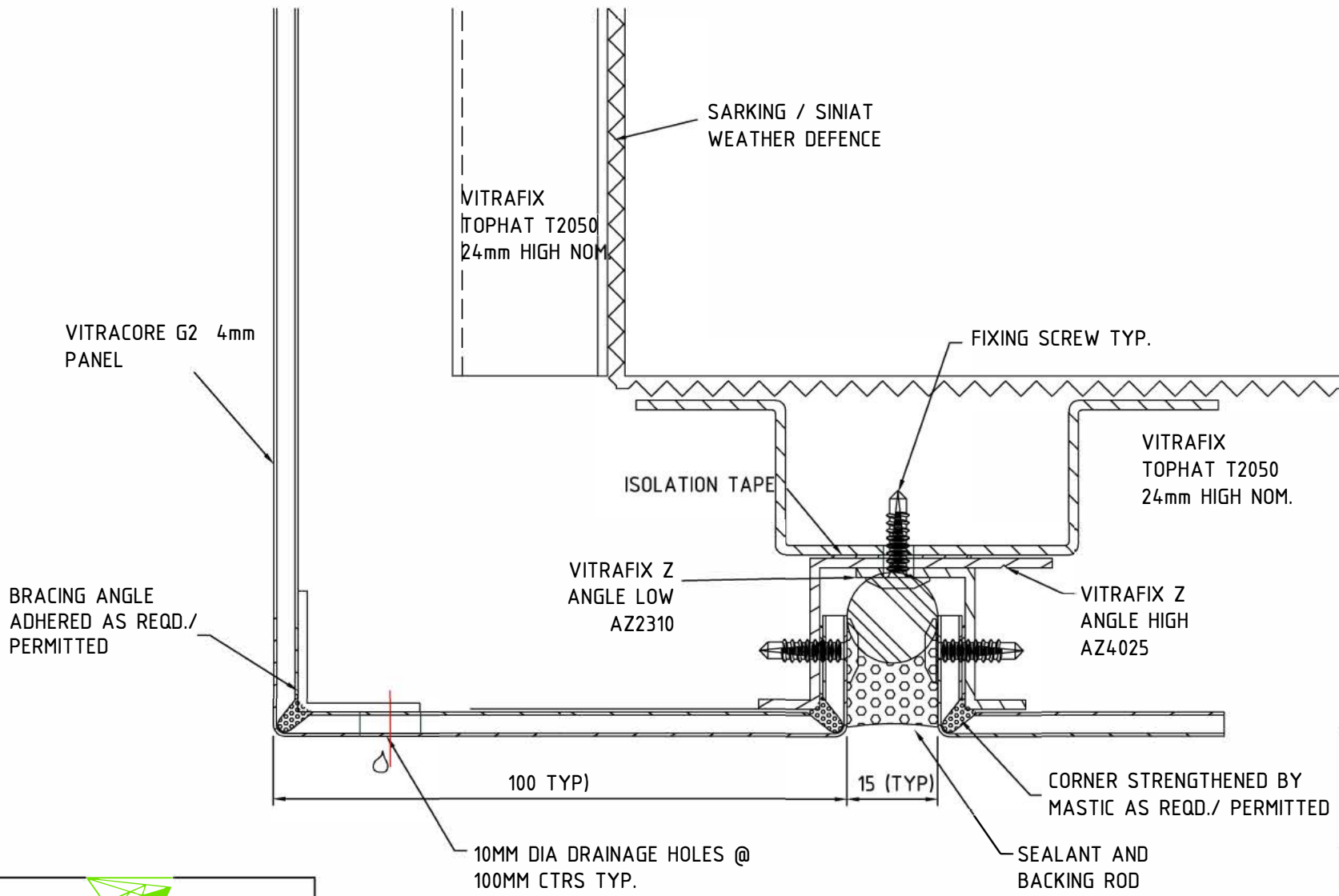
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# vitracore G2

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## 6. DETAIL AT SOFFIT JUNCTION

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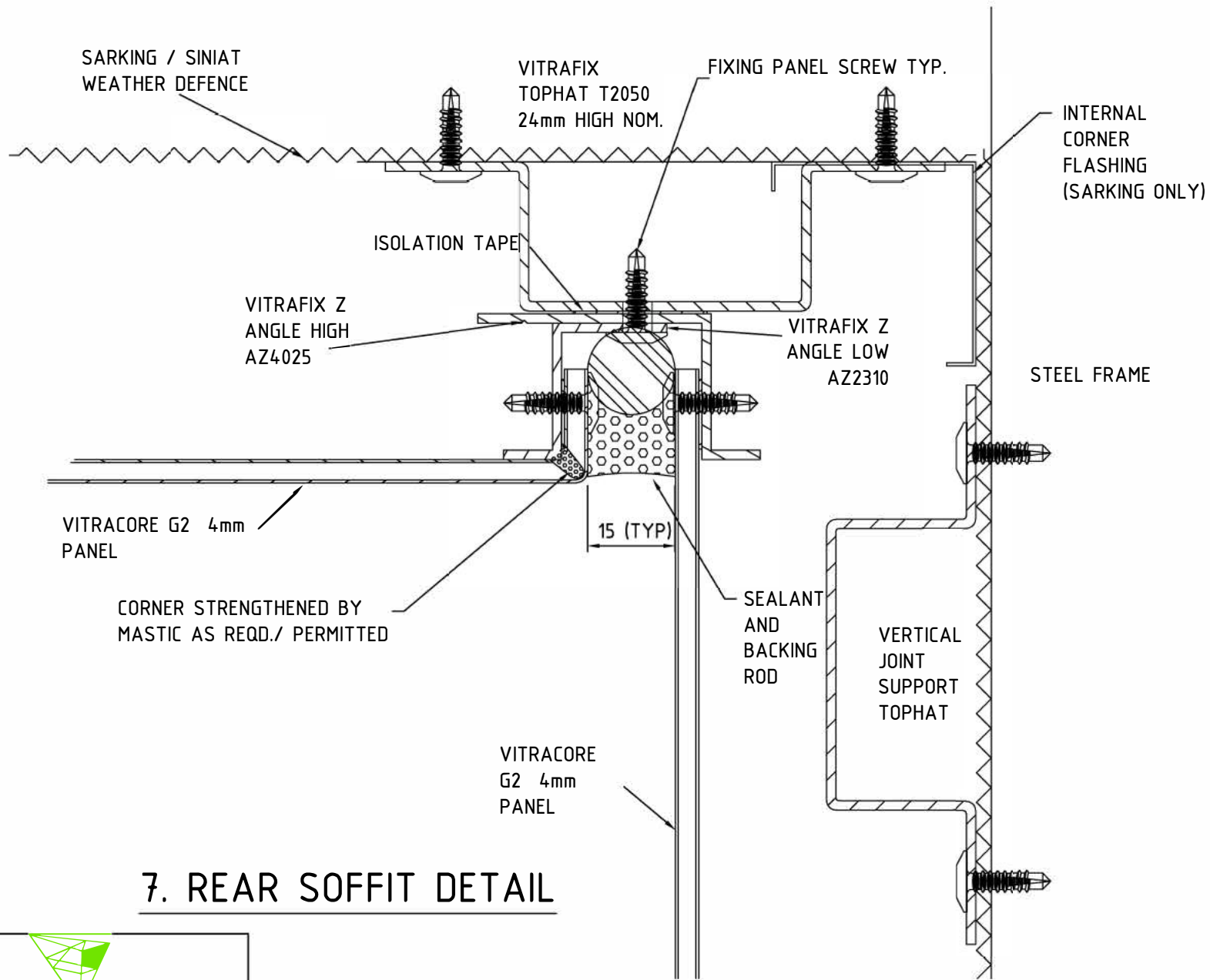
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## 7. REAR SOFFIT DETAIL



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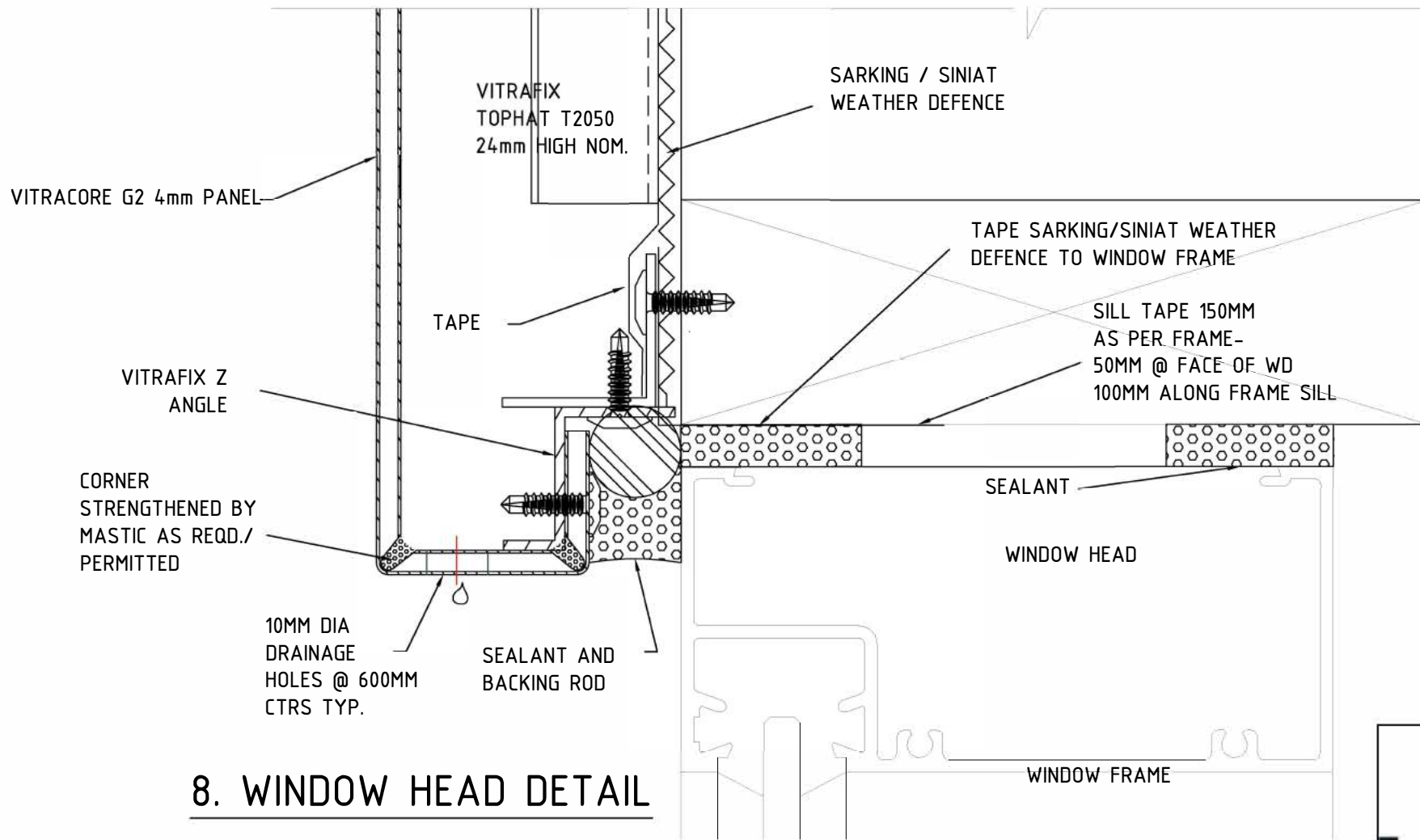


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## 8. WINDOW HEAD DETAIL



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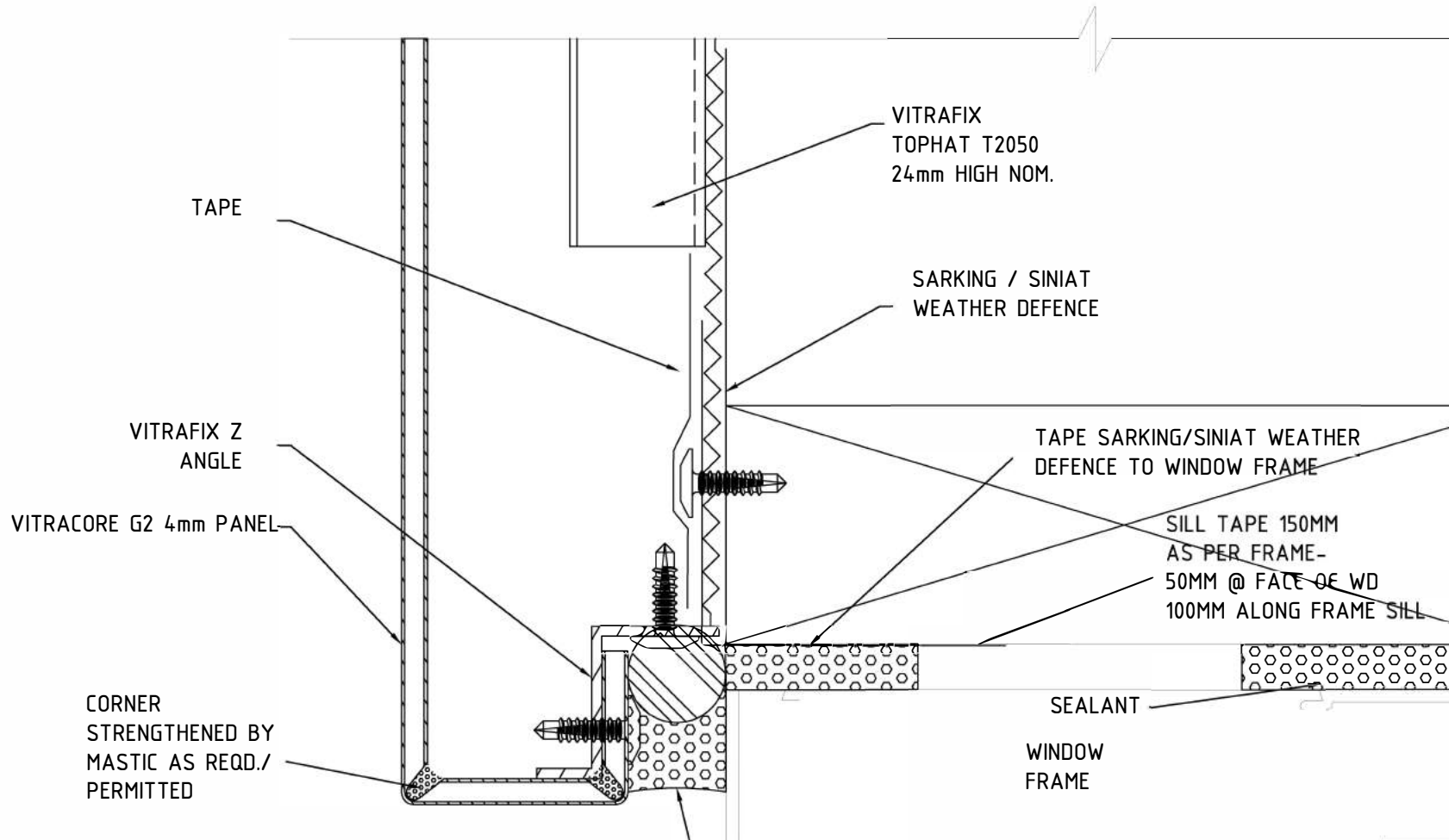
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## 9. WINDOW JAMB DETAIL



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FULL SEAL AT LHS AND  
RHS OF SILL TO PREVENT  
WATER TRACKING  
LATERALLY INTO CAVITY

WINDOW SILL

SILL TAPE 150MM  
AS PER FRAME-  
50MM @ FACE OF WD  
100MM ALONG FRAME SILL

TAPE

FIXING PANEL SCREW TYP.  
SEALANT

STEEL FRAME

CORNER  
STRENGTHENED BY  
MASTIC AS REQD./  
PERMITTED

SARKING / SINIAT  
WEATHER DEFENCE

VITRACORE G2 4mm PANEL

VITRAFIX TOPHAT T2050  
24mm HIGH NOM.

## 10. WINDOW SILL DETAIL

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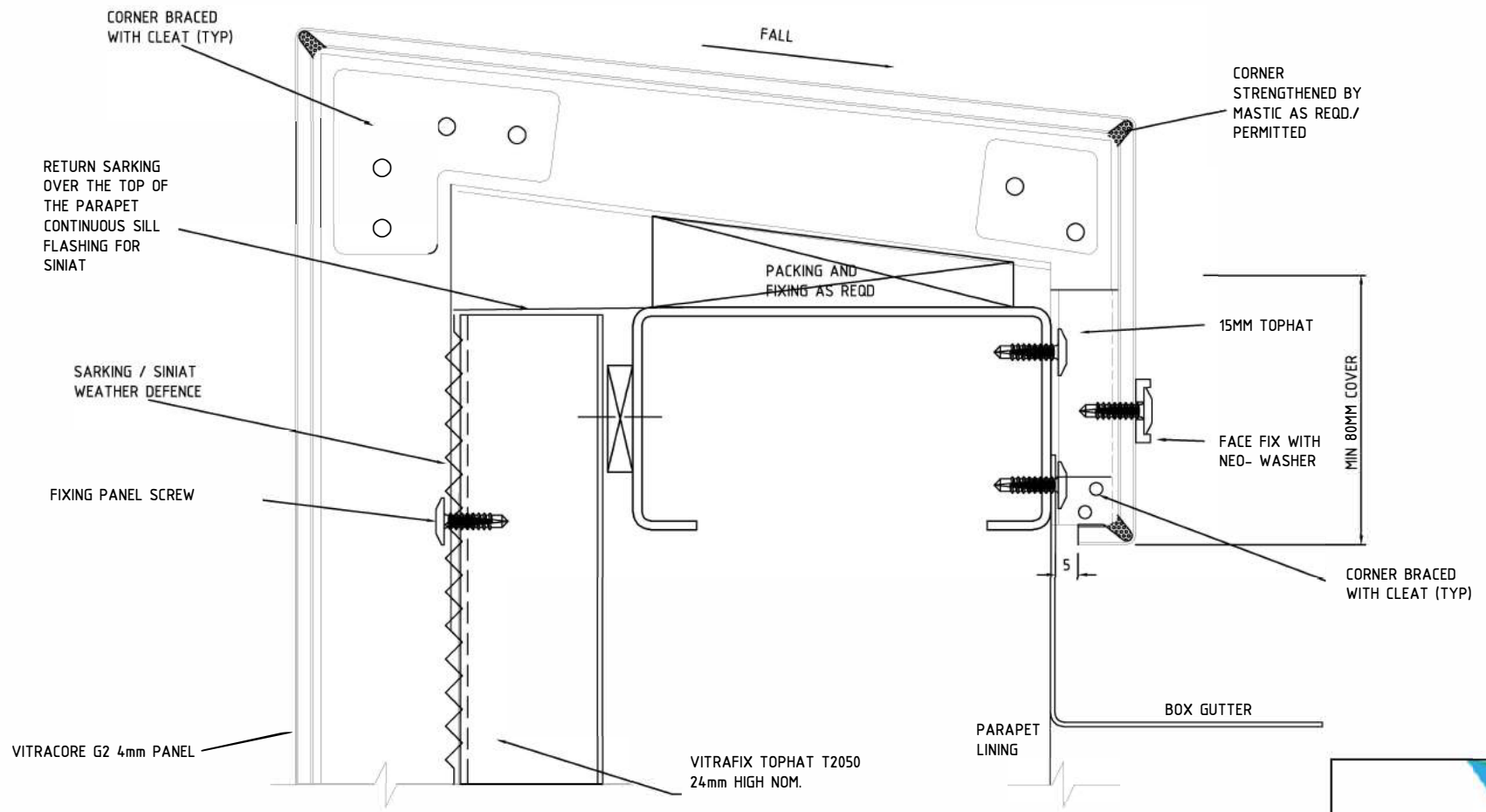
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### 11. PARAPET CAPPING DETAIL



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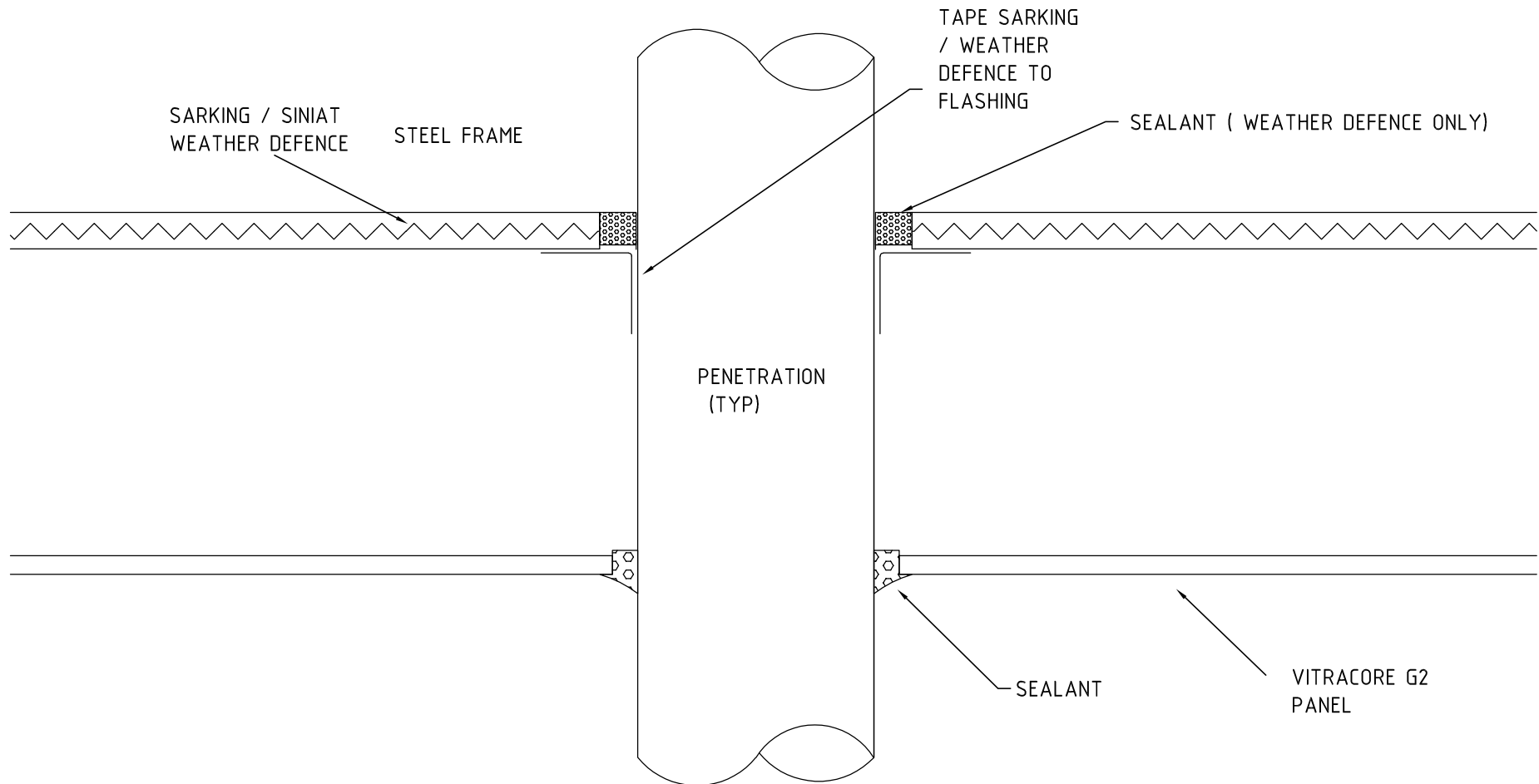
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## 12. TYPICAL PENETRATION DETAIL



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**END OF REPORT**



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## **Vipac Engineers & Scientists**

FVA Group Pty Ltd

### **Fairview - AS 4284 testing on facades**


## **Test Report - Vitracore G2 with Flexible Membrane**


30B-19-0059-TRP-6774694-1

11 November 2020

<b>Job Title:</b>	Fairview - AS 4284 testing on facades
<b>Report Title:</b>	Test Report - Vitracore G2 with Flexible Membrane
<b>Document Reference:</b>	30B-19-0059-TRP-6774694-

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<b>AUTHORED BY:</b>    Robert Dyck <i>Facades Team Leader</i>	Date: 11 November 2020
---	------------------------

<b>REVIEWED BY:</b>    Sophie Lamande <i>Wind Group Leader</i>	Date: 11 November 2020
--	------------------------

<b>REVISION HISTORY:</b>			
Rev. #	Comments / Details of change(s) made	Date	Revised by:
Rev. 00	Original issue	02/04/2020	R.Dyck
Rev. 01	Updated company name, pipe penetration detail, membrane	11/11/2020	R.Dyck
Rev. 02			

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**EXECUTIVE SUMMARY**

Vipac Engineers and Scientists were commissioned by Fairview Pty Ltd / FVA Group Pty Ltd (the client) to perform AS/NZS 4284:2008 testing for their cladding system.

The sample was installed by the client at the Vipac test laboratory in Port Melbourne, and the sample was tested by Vipac Engineers and Scientists during January 2020.

The test sample was found to have the below results for AS/NZS 4284:2008 compliance:

AS/NZS4284:2008 Test	Result
Clause 8.2 Preliminary tests	Complies +2000Pa, -2400Pa SLS Preload
Clause 8.3 Structural test at serviceability limit state	Complies with Span deflection requirements at +2000Pa, -3000Pa Does not comply with residual deflections
Clause 8.5 Static water test	Complies 600Pa
Clause 8.6 Cyclic water test	Complies Stage 1: 300Pa – 600Pa Stage 2: 400Pa – 800Pa Stage 3: 600Pa – 1200Pa
Clause 8.8 Structural test at ultimate limit state	Complies +4000, -4000

*Table 1: Test results summary*

Full details are contained within this report.

**TABLE OF CONTENTS**

<b>1</b>	<b>INTRODUCTION .....</b>	<b>5</b>
<b>2</b>	<b>TEST REFERENCE &amp; APPLICATION STANDARD .....</b>	<b>5</b>
<b>3</b>	<b>TEST SPECIMEN .....</b>	<b>5</b>
<b>4</b>	<b>TEST EQUIPMENT .....</b>	<b>6</b>
<b>5</b>	<b>TEST RESULTS .....</b>	<b>7</b>
5.1	Clause 8.2 – Preliminary Tests .....	7
5.1.1	Criteria: Static pressure .....	7
5.1.2	Criteria: Static and cyclic water tests .....	7
5.2	Clause 8.3 – Structural test at serviceability limit state (sls) .....	8
5.3	Clause 8.5 – Static water test .....	10
5.4	Clause 8.6 – Cyclic water test .....	11
5.5	Clause 8.8 – Structural test at the Ultimate Limit State .....	12
	Appendix A Test Sample structure .....	13
	Appendix B Test sample details .....	16

## 1 INTRODUCTION

**Document Type:** Test Report  
**Company:** Fairview Pty Ltd / FVA Group Pty Ltd  
**Product:** Vitracore G2 with Proclima Extasana membrane  
**Test Date:** January 2020  
**Testing Authority:** Vipac Engineers & Scientists

## 2 TEST REFERENCE & APPLICATION STANDARD

**AS/NZS 4284:2008** Testing of Building Facades

## 3 TEST SPECIMEN



*Figure 1: Cladding sample after removal*

Details of the test sample sections can be found in Appendix A and B of this report.

#### 4 TEST EQUIPMENT

Measurement	Instrument Type/Make	Model	Vipac Serial Number
Deflection	Dial gauges/ Mitutoyo	3058S-19	000034597
			000033756
			000034596
			000033758
			000034598
Distance	Tape Measure / Stanley	8m	000033666
Pressure	Digital Manometer / PCE	PCE-PDA-10L	000033540
Water flow rate	Flow meter/ Siemens	Mag 6000	000031229
Time	Stopwatch/ Dick Smith	Y1299	000033567

*Table 2: Instruments used throughout testing*

## 5 TEST RESULTS

### 5.1 CLAUSE 8.2 – PRELIMINARY TESTS

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 09/01/2020

#### 5.1.1 CRITERIA: STATIC PRESSURE

Test sample shall withstand the Serviceability Limit State pressure with no structural damage or distortion.

**Applied Load:** Nominated Serviceability Pressure: +2.0 kPa, -2.4 kPa

Duration: 10 seconds

#### 5.1.2 CRITERIA: STATIC AND CYCLIC WATER TESTS

Under static and cyclic water tests there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- Water appears on any inside surface of the façade, visible from an occupied space.
- Uncontrolled water appears on any inside surface of the façade (uncontrolled water is defined as any leakage not contained and drained away after 5 minutes).
- Water appears that is likely to wet insulation, fixtures and finishes.
- Water appears in other locations specified as unacceptable by the Specifier

**Static water test:** **Applied Load:** Nominated pressure: +0.600 kPa

Duration: water spray operated for 5 minutes at 0 kPa chamber pressure, followed by water spray and pressure at the test pressure for 15 minutes. Observe for 5 minutes after removal of both water and air pressure.

**Cyclic water test:** **Applied Load:** Nominated pressures:

Stage	Lower pressure	Upper pressure	Cycle Duration
Stage 1	0.300 kPa	0.600 kPa	5 minutes
	0 kPa		2 minutes
Stage 2	0.400 kPa	0.800 kPa	5 minutes
	0 kPa		2 minutes
Stage 3	0.600 kPa	1.200 kPa	5 minutes
Observation	0 kPa		5 minutes

Table 3: Cyclic pressure lower and upper limits, cycle time of 3 seconds to 5 seconds

**Applied Water:** Water spray rate: 3.0 L/m<sup>2</sup>min

Measured spray area: 8.6 m<sup>2</sup>

Resulting spray flow rate: 25.9 l/min

**Results:** The preliminary static and cyclic water tests were completed successfully.

**Conclusion:** The preliminary test of the façade complies with the requirements of AS/NZS 4284:2008

**5.2 CAUSE 8.3 – STRUCTURAL TEST AT SERVICEABILITY LIMIT STATE (SLS)**

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 13/01/2020

**Formulae:** The net mid-span deflection ( $d$ ) of each member is given by the following:

$$d = D_m - D_e$$

where:

$D_m$  = Mid span displacement

$D_e$  = Average of end displacements

**Criteria:** According to AS/NZS4284:2008 no framing member shall deflect by an amount greater than span/250mm. Successive member displacement shall not exceed 3.0mm. The maximum displacement of a framing member shall not exceed 20mm. All components of the sample are required to remain structurally intact as detailed on test sample drawings with no signs of visible damage or distortion.

**Applied Load:** +1.5kPa, -1.8kPa and +2.0, -3.0kPa

**Results:**

Span Detail	Span [mm]	Pressure direction	Measured pressure [Pa]	Measured Span Deflection [mm]	Span deflection Ratio
<b>Span 1</b> (Node 1,2,3)	1150	Positive	1508	1.26	913
		Negative	-1809	-1.52	757
<b>Span 2</b> (Node 3,4,5)	1150	Positive	1508	1.38	833
		Negative	-1809	-1.47	782
<b>Span 3</b> (Node 1,3,5)	2300	Positive	1508	3.52	653
		Negative	-1809	-4.23	544

Table 4: Span deflection results - +1.5kPa, -1.8kPa

Zero Stage	Node 1 [mm]	Node 2 [mm]	Node 3 [mm]	Node 4 [mm]	Node 5 [mm]
<b>Z1</b>	0	0	0	0	0
<b>Z2</b>	0.12	0.15	0.13	0.14	0.08
<b>Z4</b>	-1.12	-1.87	-2.49	-2.69	-3.03
<b>Z5</b>	-1.17	-1.91	-2.56	-1.72	-3.16
<b>Z7</b>	0.13	0.14	0.98	-0.05	-0.25

Table 5: Residual deflection result - +1.5kPa, -1.8kPa

Span Detail	Span [mm]	Pressure direction	Measured pressure [Pa]	Measured Span Deflection [mm]	Span deflection Ratio
<b>Span 1</b> (Node 1,2,3)	1150	Positive	2007	1.36	846
		Negative	-3003	-1.69	680
<b>Span 2</b> (Node 3,4,5)	1150	Positive	2007	1.35	852
		Negative	-3003	-1.78	646
<b>Span 3</b> (Node 1,3,5)	2300	Positive	3007	3.97	579
		Negative	-3003	-5.20	442

Table 6: Span deflection results - +2kPa, -3.0kPa

Zero Stage	Node 1 [mm]	Node 2 [mm]	Node 3 [mm]	Node 4 [mm]	Node 5 [mm]
Z1	0	0	0	0	0
Z2	0.10	0.14	0.07	0.17	0.19
Z4	-0.17	-2.30	-3.08	-3.60	-4.04
Z5	-1.22	-2.41	-3.30	-3.89	-4.44
Z7	0.05	-0.06	-0.22	-0.24	-0.29

Table 7: Residual deflection result - +2kPa, -3.0kPa



Figure 2: Node locations (1-5 from bottom to top)

**Conclusion:** The test sampled complied with the structural span deflections limits of Span/250. The sample did not comply with the residual deflection limit of 3mm

### 5.3 CLAUSE 8.5 – STATIC WATER TEST

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 13/01/2020

**Criteria:** Under static water test there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- a) Water appears on any inside surface of the façade and is visible from an occupied space.
- b) Uncontrolled water appears on any inside surface of the façade.
- c) Water appears that is likely to wet insulation, fixtures and finishes.
- d) Water appears in other locations specified as unacceptable by the Specifier

**Applied Load:** Nominated Pressure: +0.600 kPa

Duration: water spray operated for 5 minutes at 0 kPa chamber pressure, followed by water spray and pressure at the test pressure for 15 minutes. Observe for 5 minutes after removal of both water and air pressure.

**Applied Water:** Water spray rate: 3.0 L/m<sup>2</sup>min

Measured spray area (inside pressure chamber): 8.64 m<sup>2</sup>

Resulting spray flow rate: 25.9 l/min

**Results:** The Static water test was completed with no uncontrolled water penetration occurring.

**Conclusion:** The Static water results of the test sample comply with the specified limits set out in AS/NZS 4284:2008.



**5.4 CLAUSE 8.6 – CYCLIC WATER TEST**

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 13/01/2020

**Criteria:** Under cyclic water test there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- a) Water appears on any inside surface of the façade and is visible from an occupied space.
- b) Uncontrolled water appears on any inside surface of the façade.
- c) Water appears that is likely to wet insulation, fixtures and finishes.
- d) Water appears in other locations specified as unacceptable by the Specifier

**Applied Load:** Nominated Pressures:

Stage	Lower pressure	Upper pressure	Cycle Duration
Stage 1	0.300 kPa	0.600 kPa	5 minutes
	0 kPa		2 minutes
Stage 2	0.400 kPa	0.800 kPa	5 minutes
	0 kPa		2 minutes
Stage 3	0.600 kPa	1.200 kPa	5 minutes
Observation	0 kPa		5 minutes

*Table 8: Cyclic pressure lower and upper limits, cycle time of 3 seconds to 5 seconds*

**Applied Water:** Water spray rate: 3.0 L/m<sup>2</sup>min

Measured spray area (inside pressure chamber): 8.64 m<sup>2</sup>

Resulting spray flow rate: 25.9 l/min

**Results:** The Cyclic water test was completed with the test was completed with no uncontrolled water penetration occurring.

**Conclusion:** The Cyclic water results of the test sample comply with the specified limits set out in AS/NZS 4284:2008.

**5.5 CLAUSE 8.8 – STRUCTURAL TEST AT THE ULTIMATE LIMIT STATE**

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 13/01/2020

**Criteria:** There shall be no disengagement or partial disengagement of any framing member or panel, no failure of fixings, stops or locking devices. No repeated glass breakage or cracking of glass.

**Applied Load:** Ultimate Limit State Pressures: + 4.0 kPa, - 4.0 kPa

Apply the pressure from zero to ultimate limit state in 50-60 seconds, apply ultimate limit state for 10 seconds.

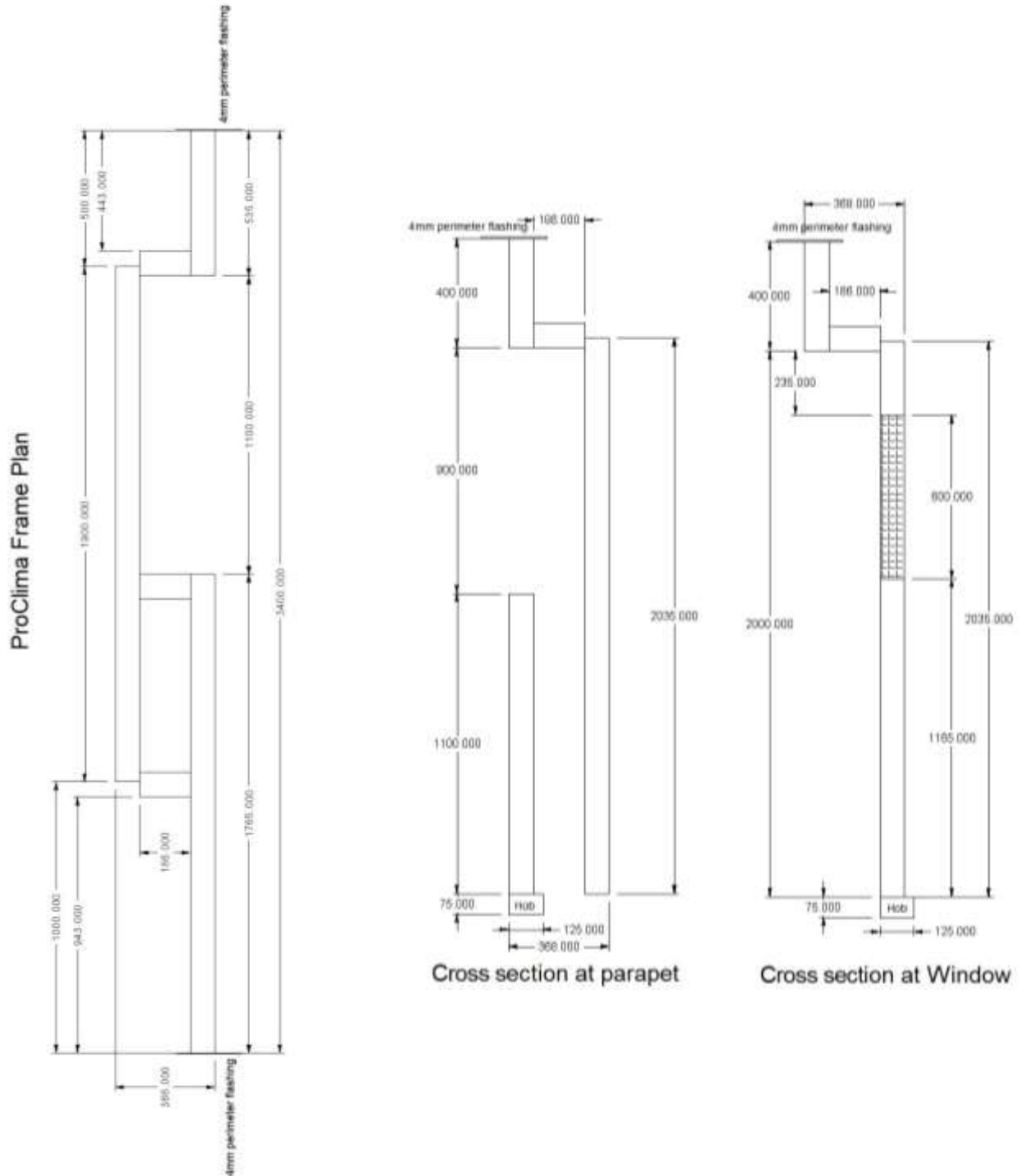
**Results:**

Test Pressure [kPa]	Results
+ 4.0	All criteria met
- 4.0	All criteria met

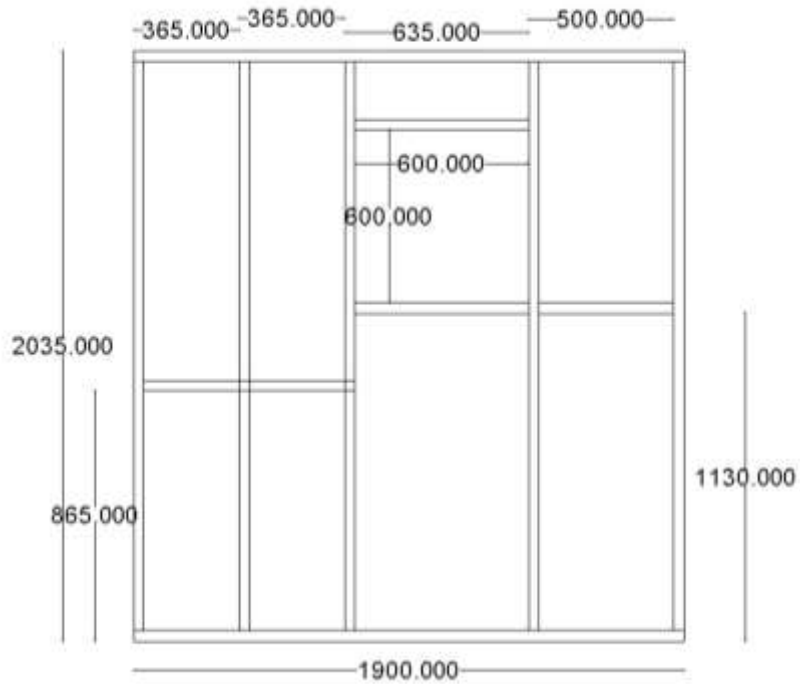
*Table 9: Results, Ultimate Limit State*

**Conclusion:** The Ultimate limit state results of the test sample comply with the requirements of AS/NZS 4284:2008.

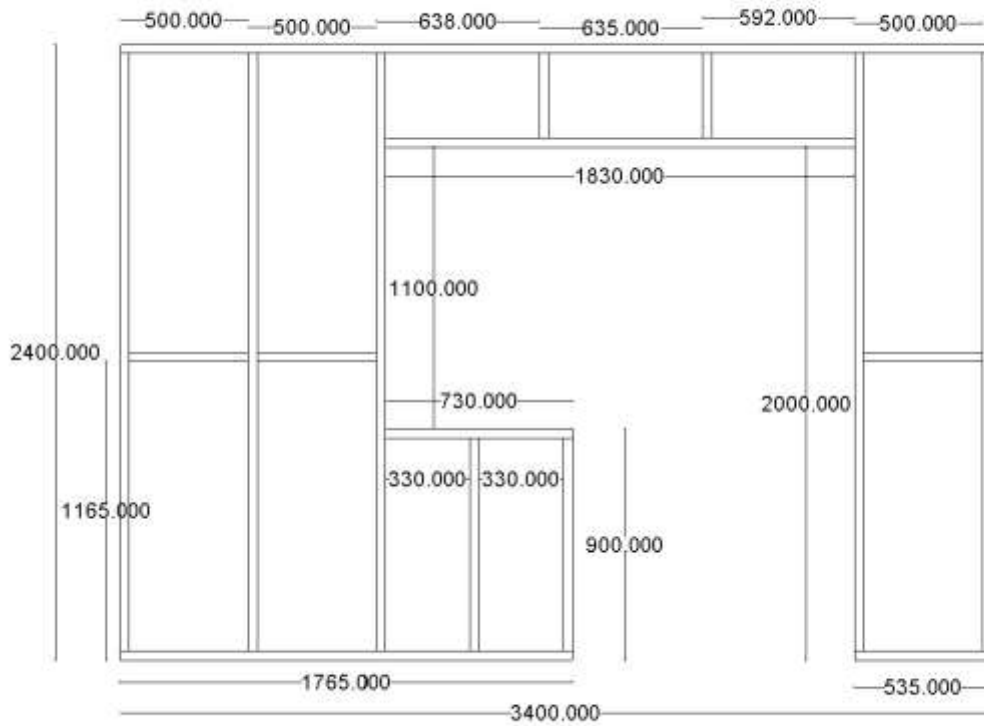
## Appendix A TEST SAMPLE STRUCTURE

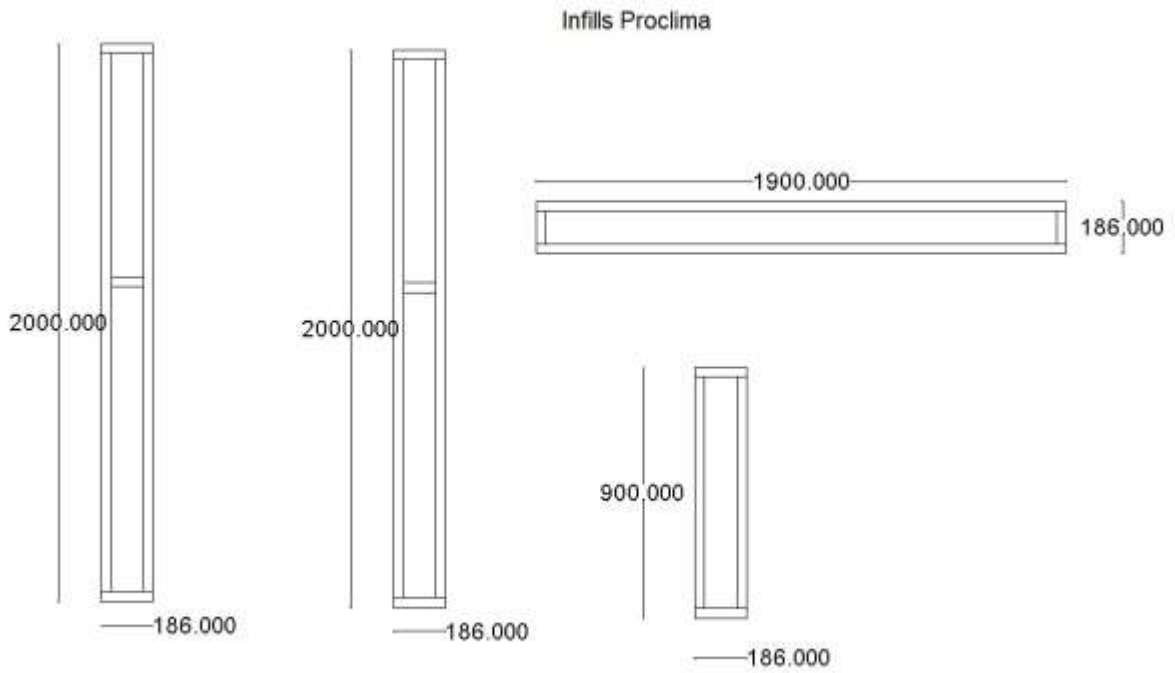


Back Frame Proclima



Face Frame Proclima



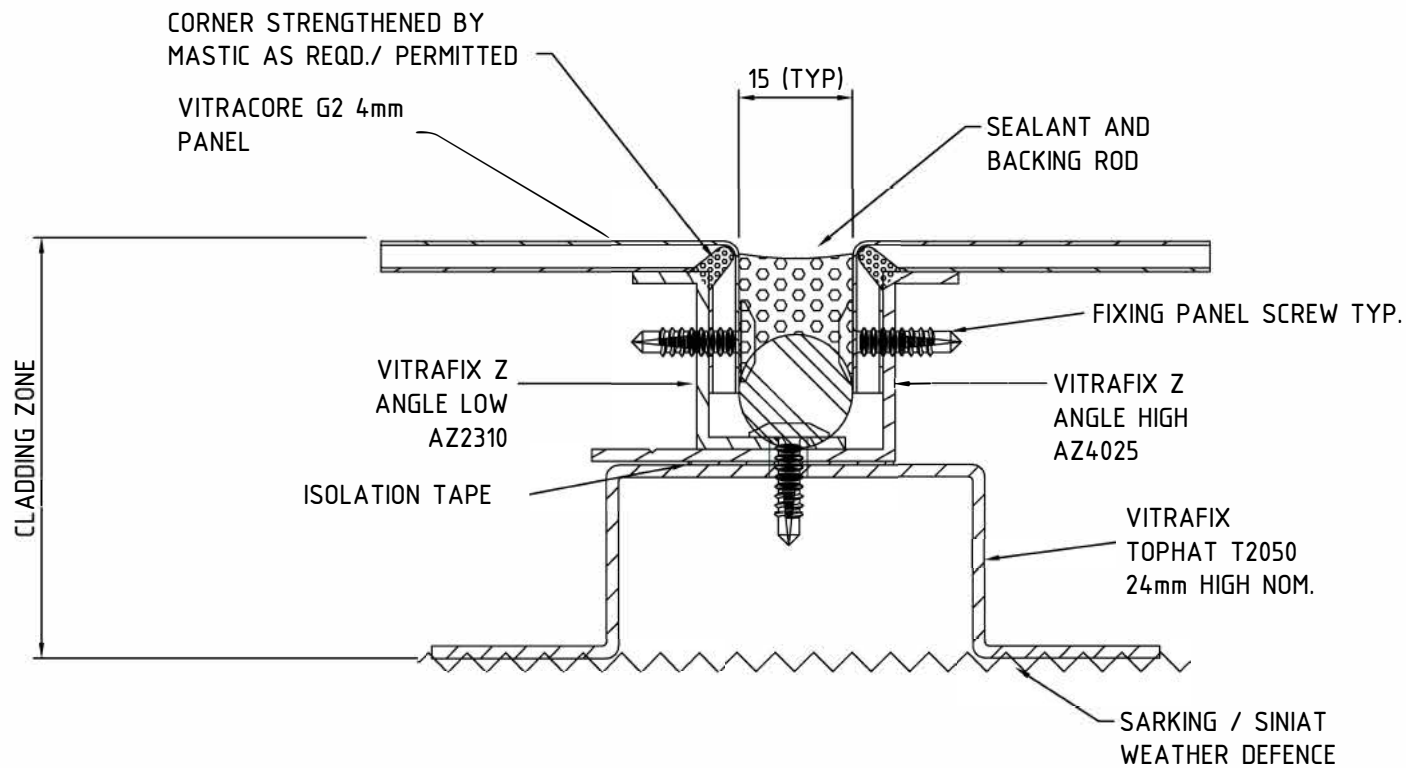




## **Appendix B TEST SAMPLE DETAILS**

This page is blank and the sample details are in the following pages.

# **VITRACORE G2 AS4284 INSTALLATION DETAILS**



## 1. TYPICAL VERTICAL PANEL JOINT DETAIL



**vitracore G2**

NON-COMBUSTIBLE COMPOSITE PANEL / MANUFACTURED BY FAIRVIEW  
as deemed by the BCA

**Disclaimer:**

These details are limited to the generalised design specification for VITRACORE G2, and are intended for use by a technically skilled person only. Any use of the same is at their own discretion and risk



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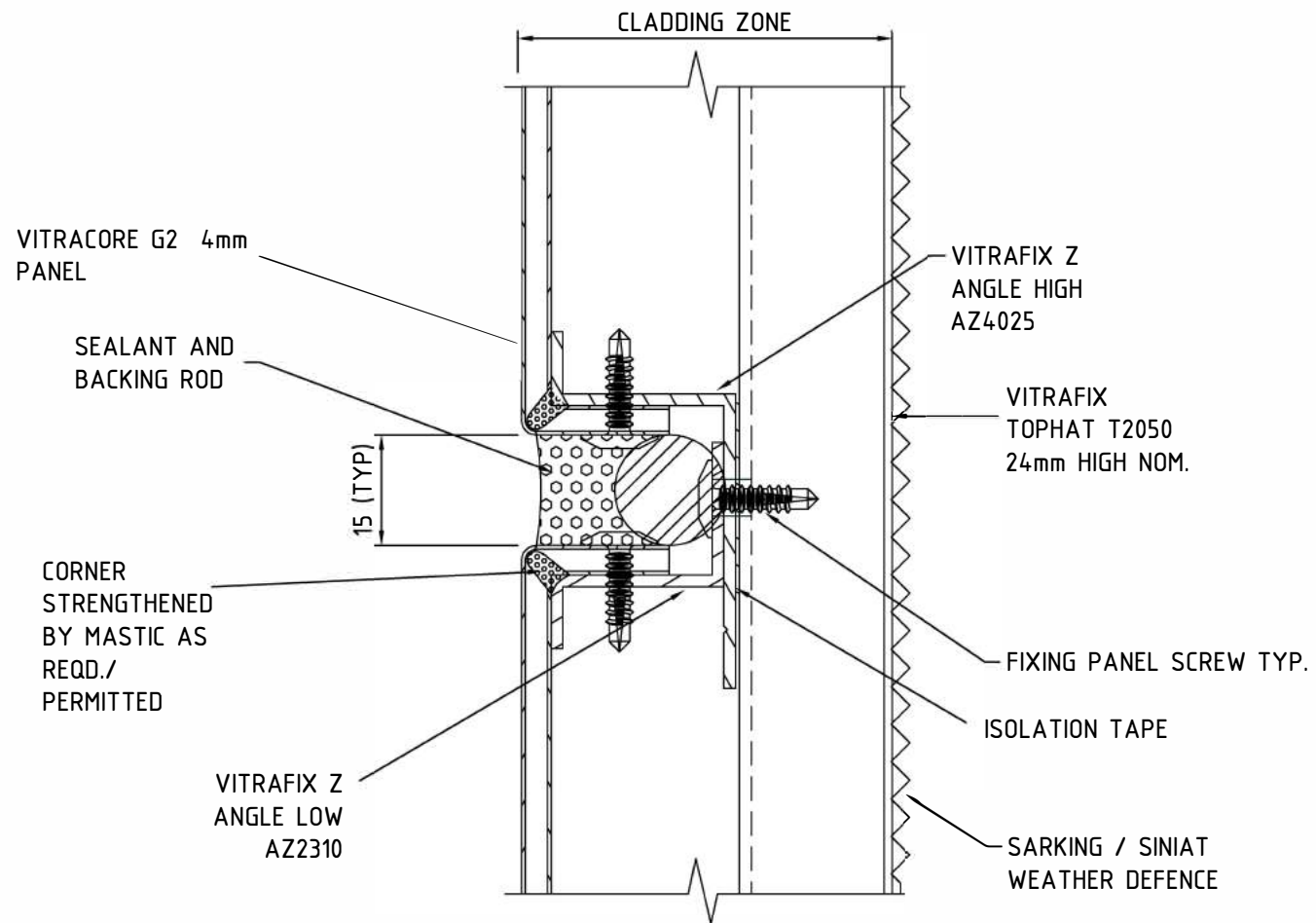
18-20 Donald St  
Lithgow, NSW 2790

P: 02 6352 2355

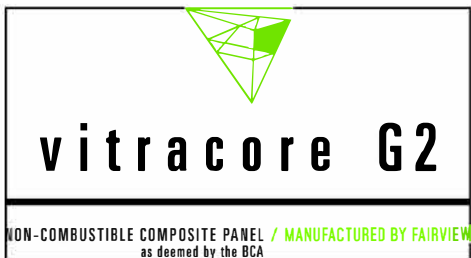
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## 2. HORIZONTAL JOINT DETAIL

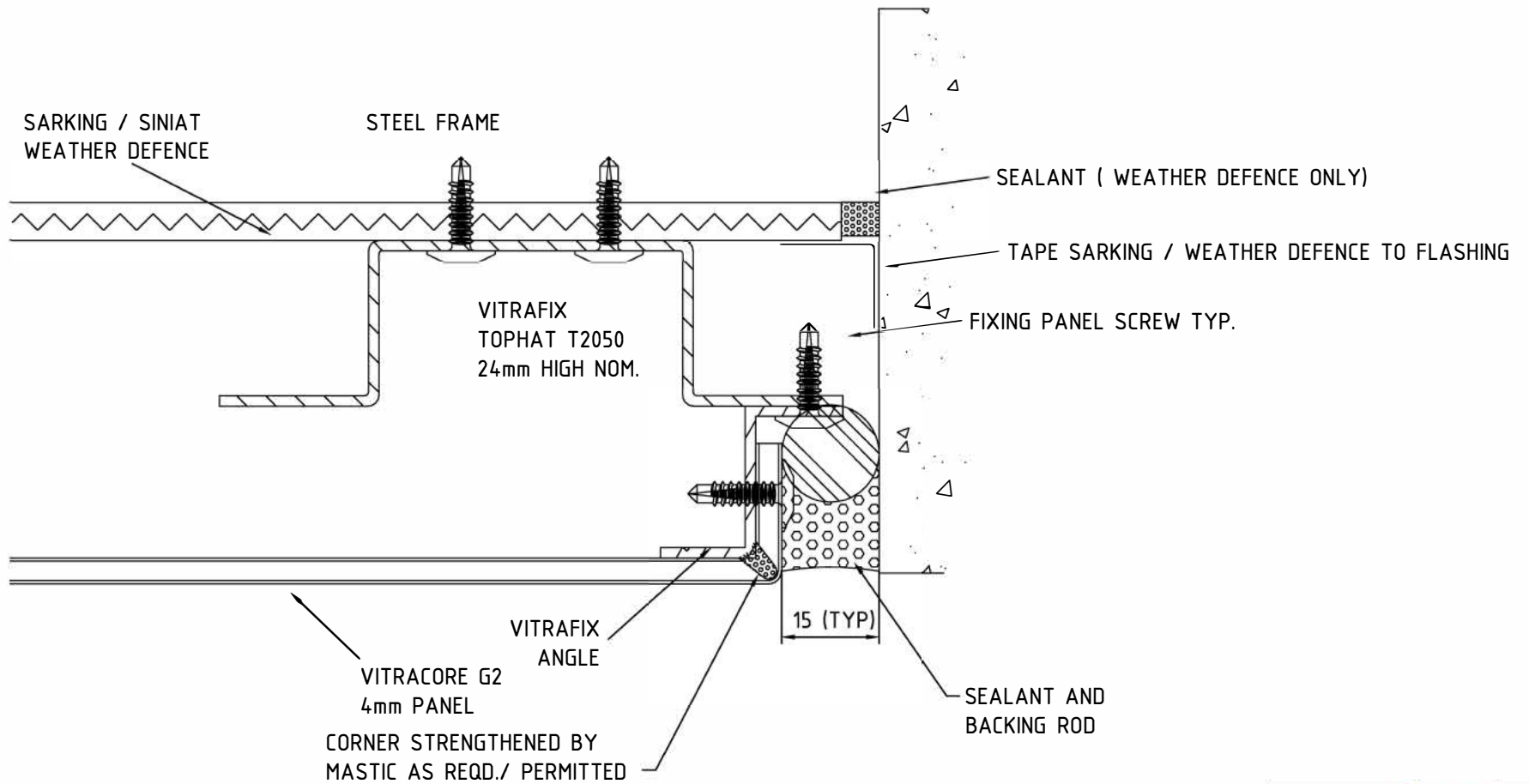


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### 3. WALL JUNCTION DETAIL



**vitracore G2**

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as deemed by the BCA

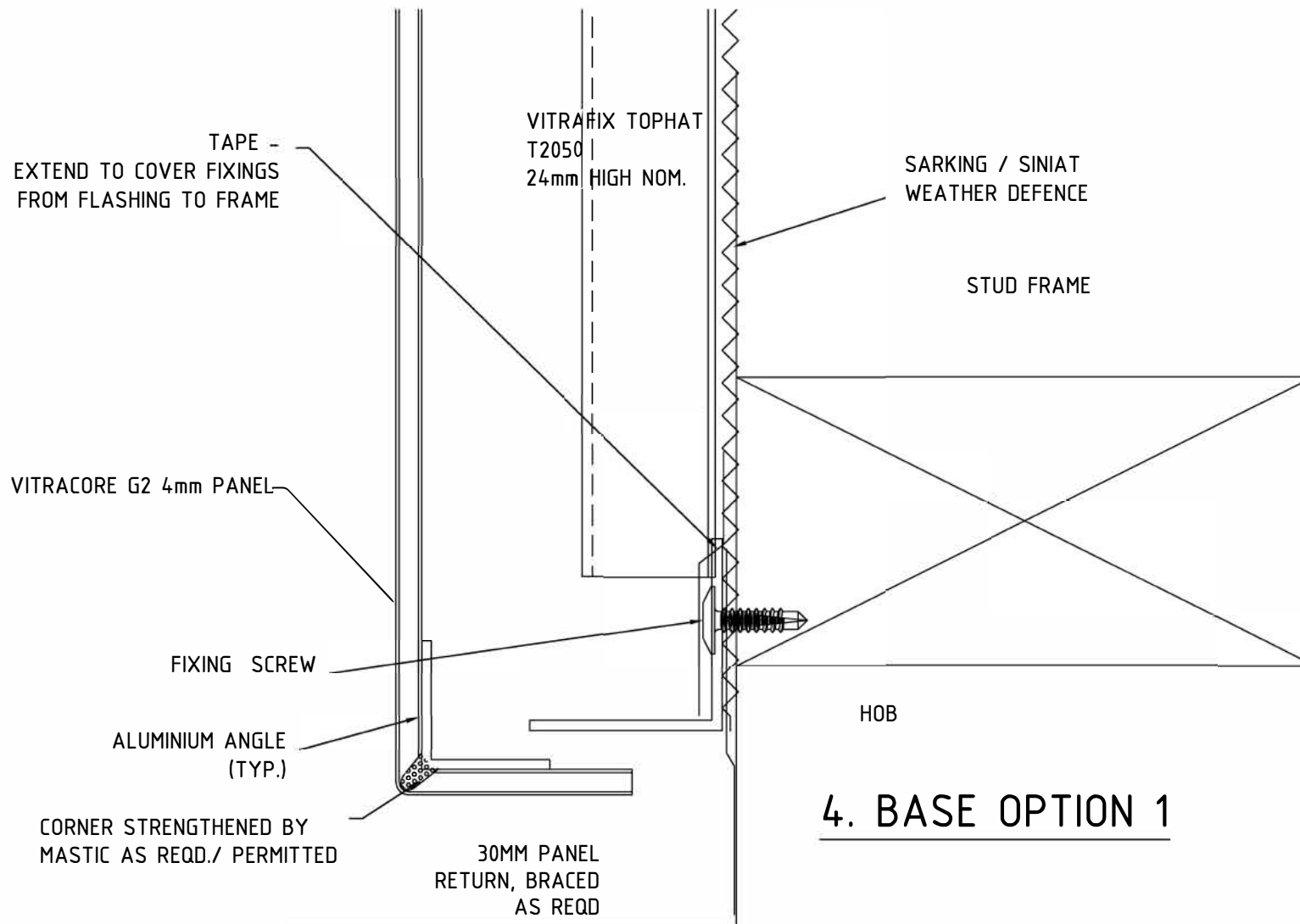
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FIXING SCREW TYP.

VITRACORE G2 4mm  
PANEL

LINES OF CASSETTE  
SYSTEM BELOW

BRACING ANGLE  
ADHERED AS REQD./  
PERMITTED

CORNER STRENGTHENED BY  
MASTIC AS REQD./ PERMITTED

FIXING TO  
STRUCTURE  
TO ENGINEERS  
DETAIL

SARKING / SINIAT  
WEATHER DEFENCE

STEEL STRUCTURE

PACKING AS REQD

VITRAFIX  
TOPHAT T2050  
24mm HIGH NOM.

ISOLATION  
TAPE

## 5. EXTERNAL CORNER DETAIL

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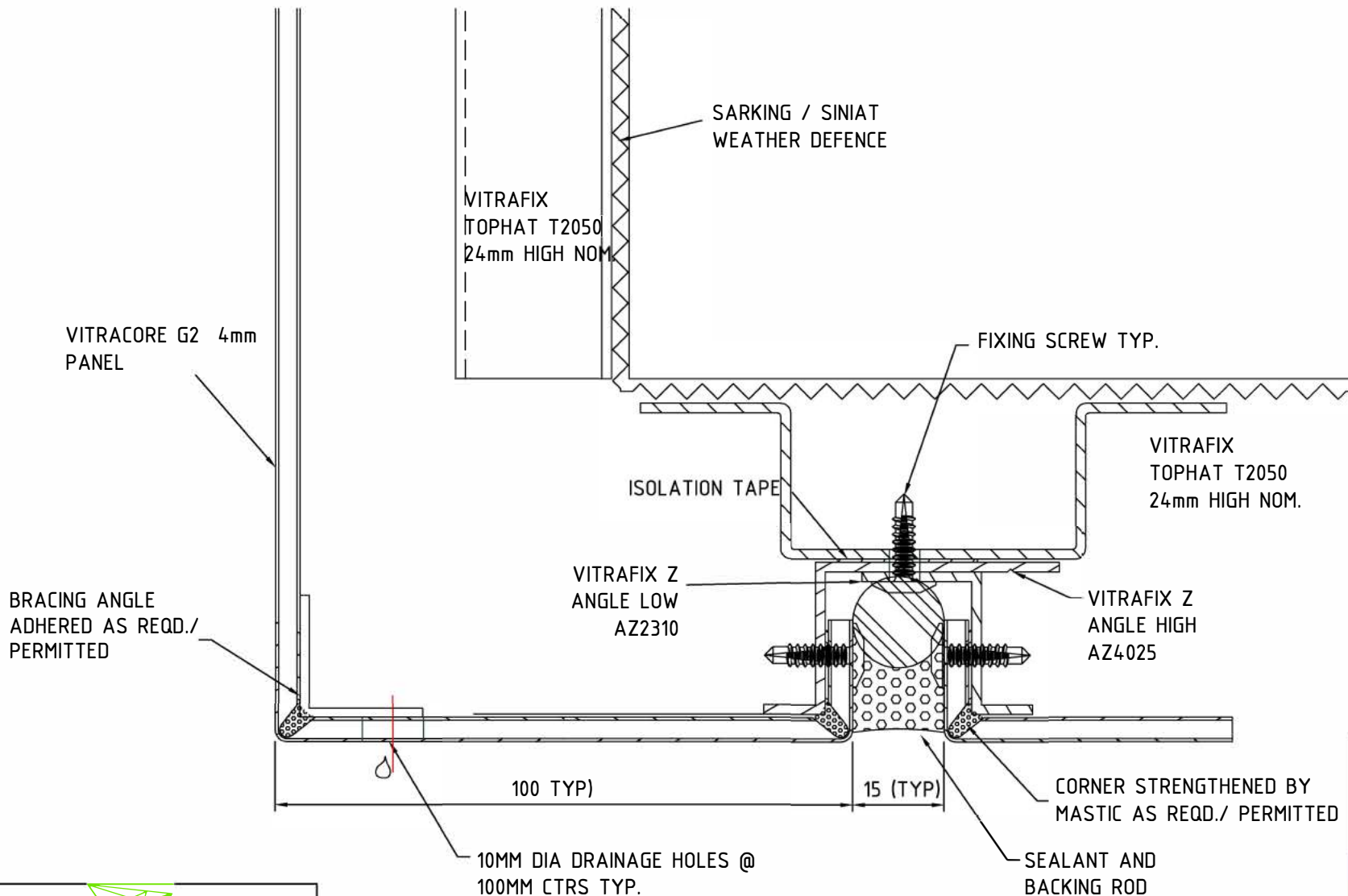
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## vitracore G2

NON-COMBUSTIBLE COMPOSITE PANEL / MANUFACTURED BY FAIRVIEW  
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## 6. DETAIL AT SOFFIT JUNCTION

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**vitracore G2**

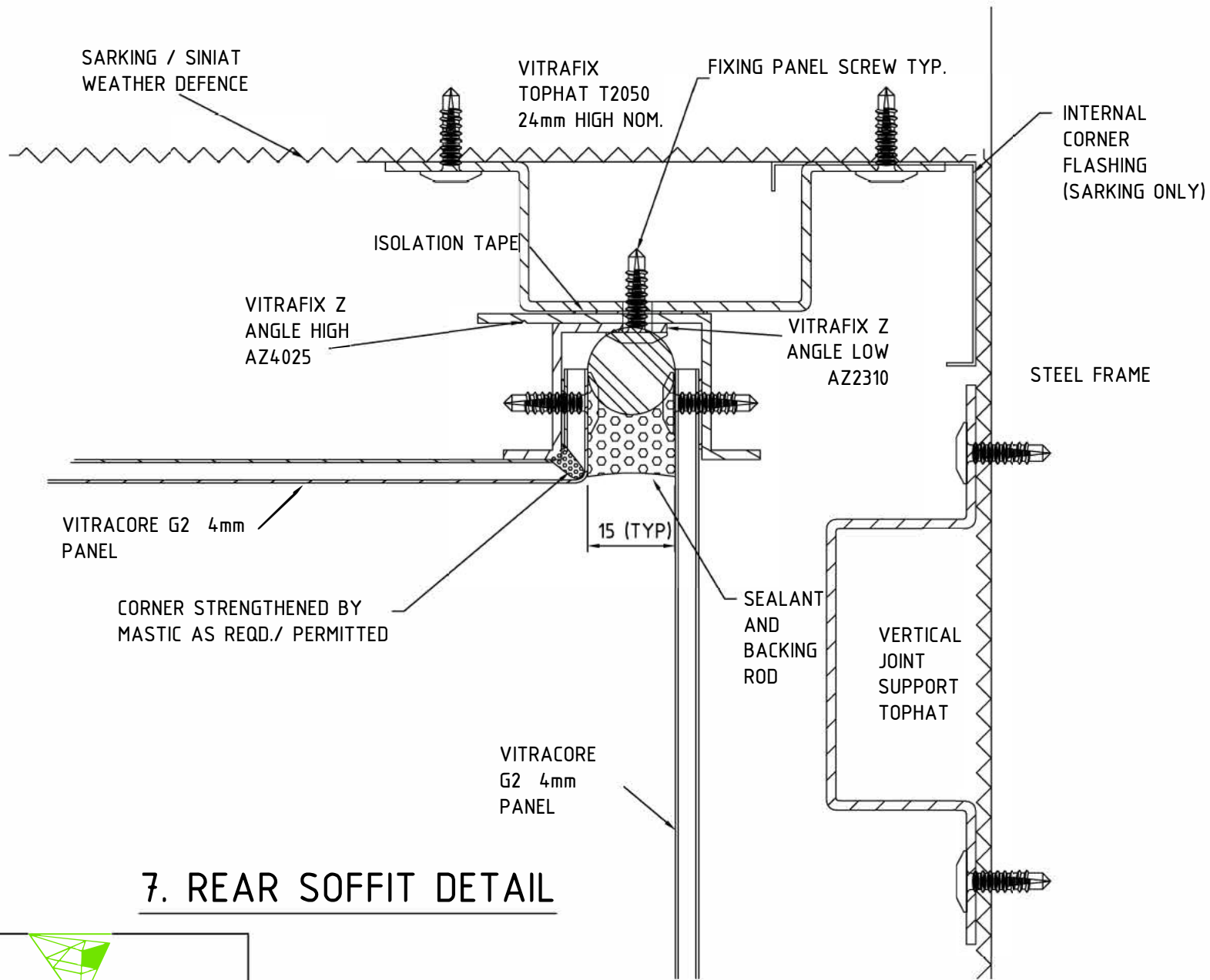
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## 7. REAR SOFFIT DETAIL



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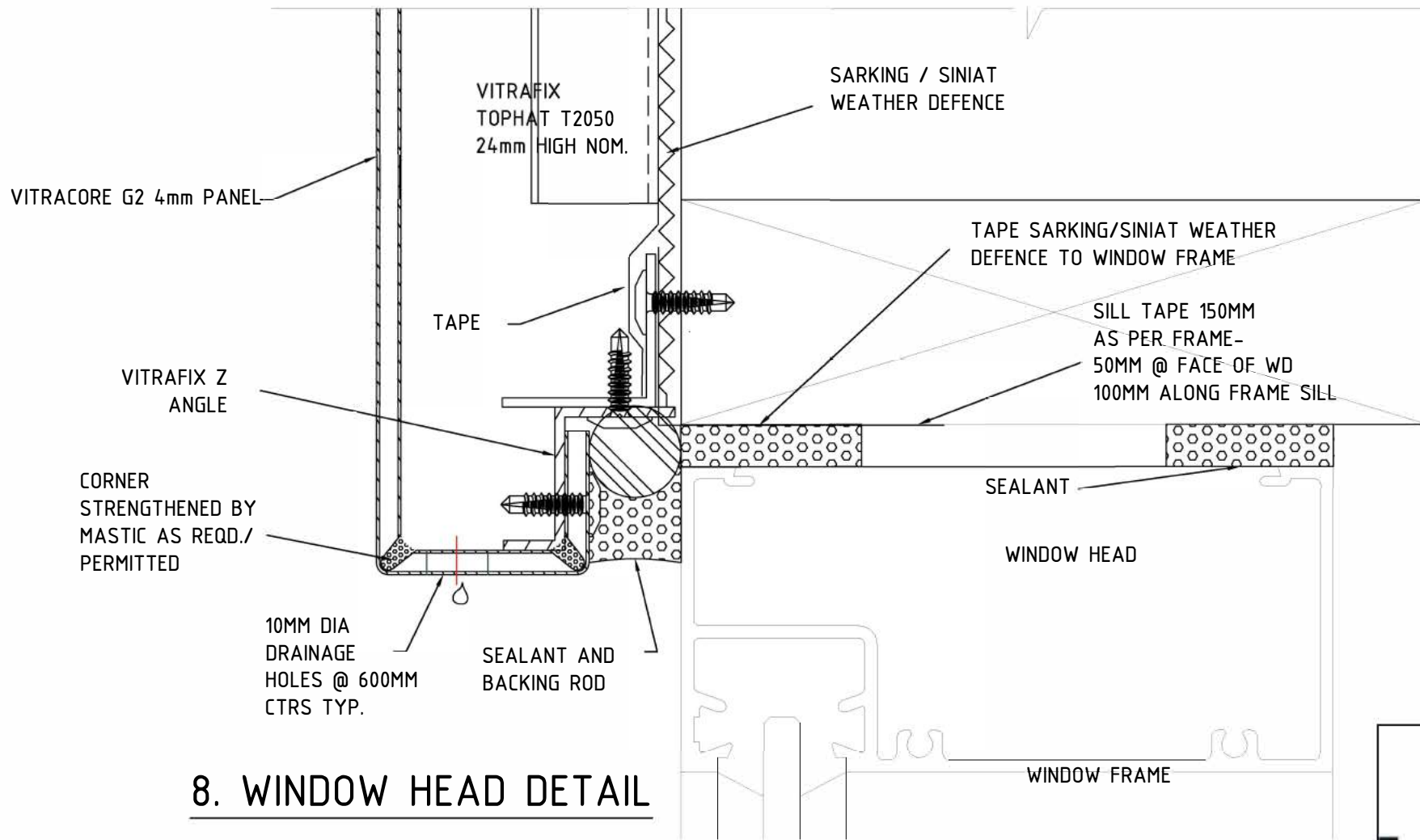
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## 8. WINDOW HEAD DETAIL

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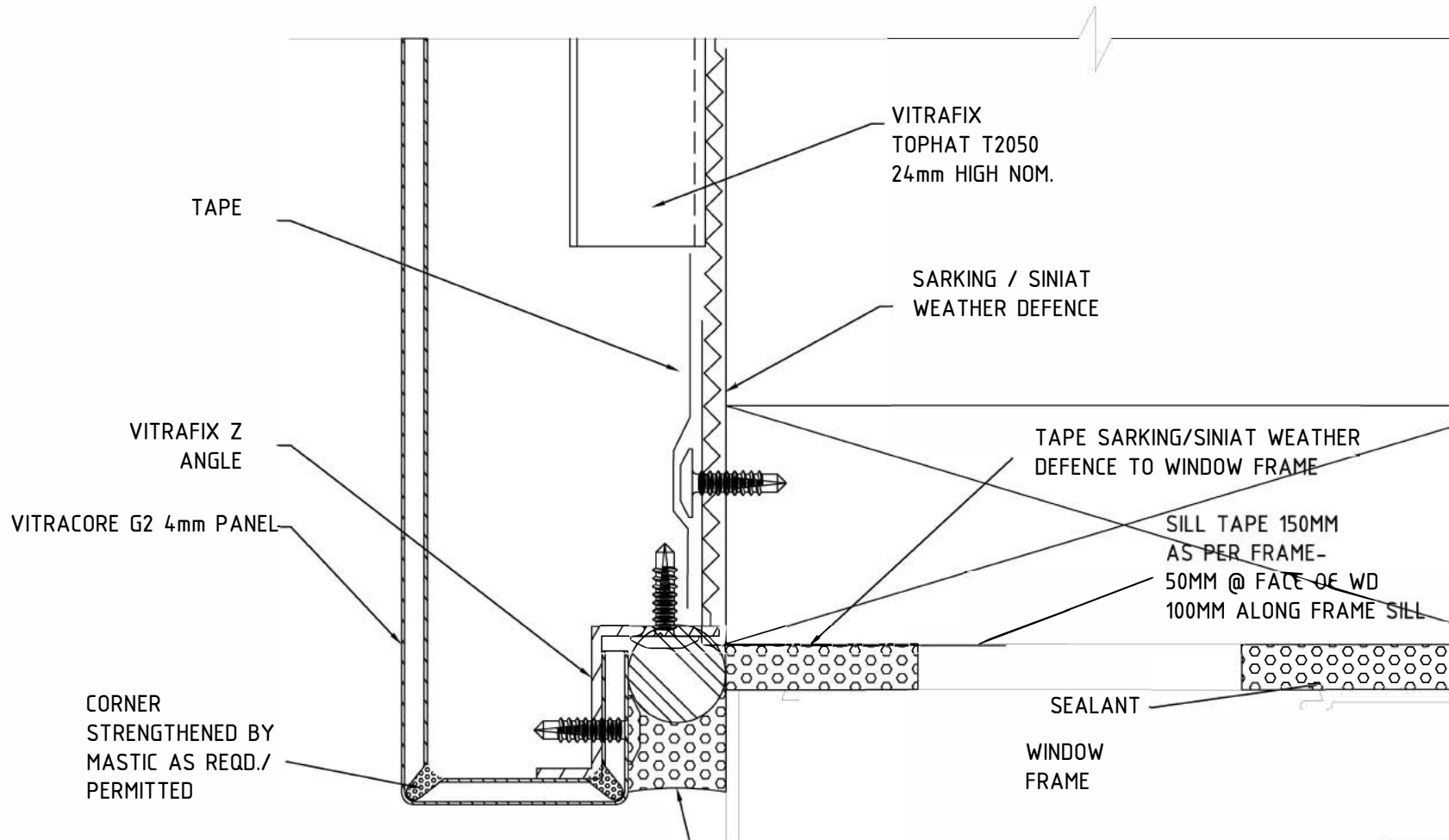
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## 9. WINDOW JAMB DETAIL



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FULL SEAL AT LHS AND  
RHS OF SILL TO PREVENT  
WATER TRACKING  
LATERALLY INTO CAVITY

WINDOW SILL

SILL TAPE 150MM  
AS PER FRAME-  
50MM @ FACE OF WD  
100MM ALONG FRAME SILL

TAPE

FIXING PANEL SCREW TYP.  
SEALANT

STEEL FRAME

CORNER  
STRENGTHENED BY  
MASTIC AS REQD./  
PERMITTED

SARKING / SINIAT  
WEATHER DEFENCE

VITRACORE G2 4mm PANEL

VITRAFIX TOPHAT T2050  
24mm HIGH NOM.

## 10. WINDOW SILL DETAIL

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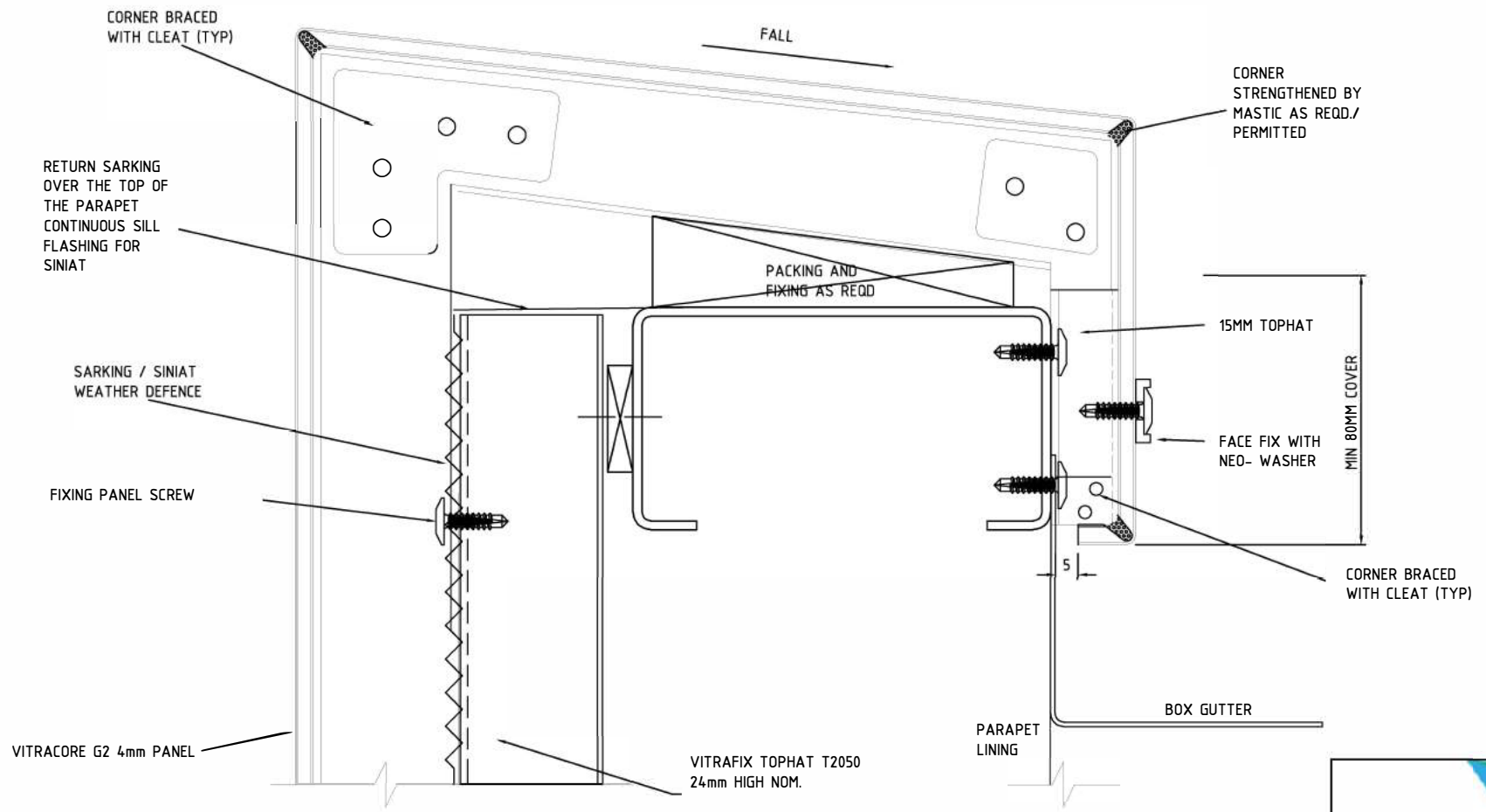
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**11. PARAPET CAPPING DETAIL**

**vitracore G2**

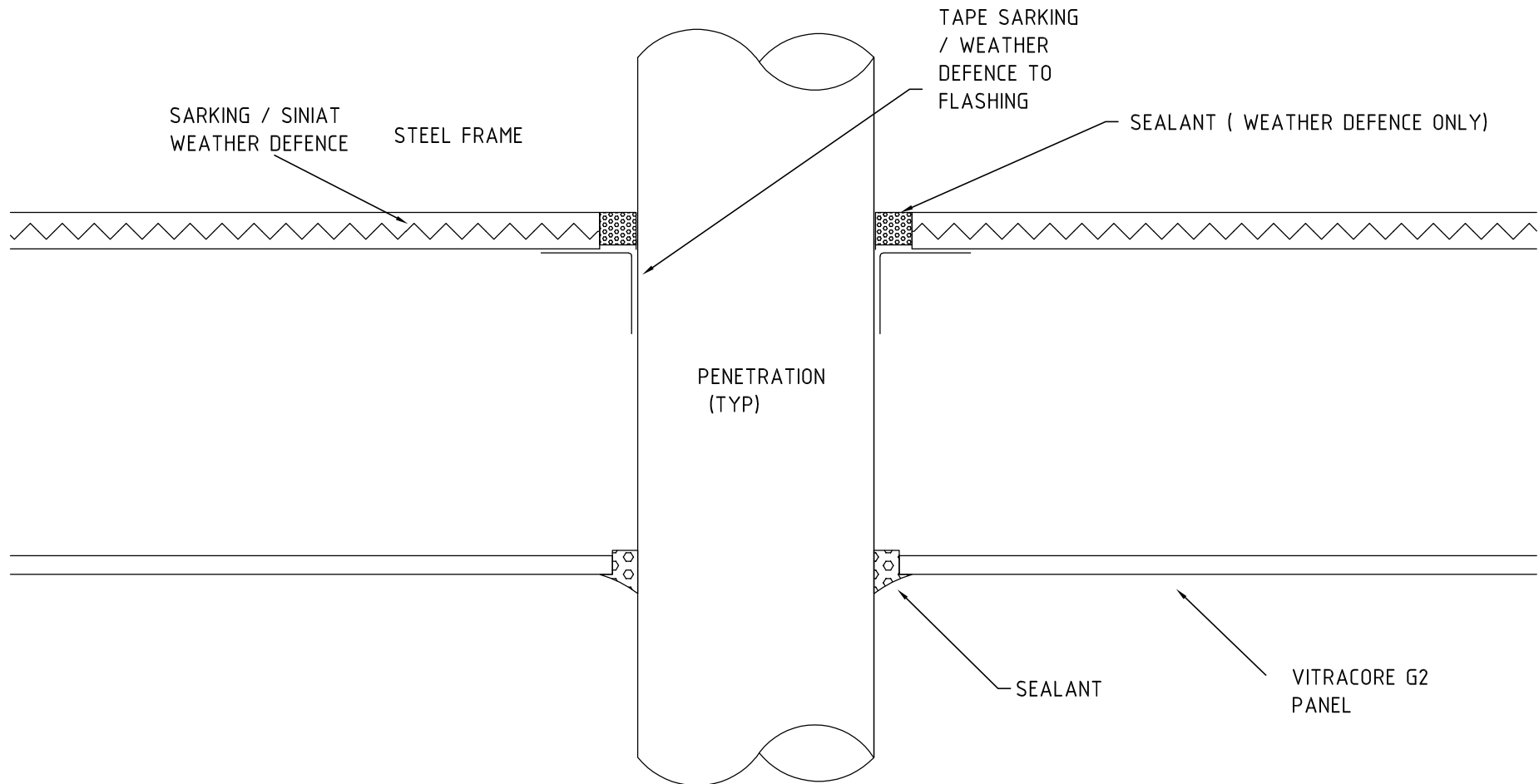
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## 12. TYPICAL PENETRATION DETAIL



**vitracore G2**

---

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**END OF REPORT**

# Certificate of Test

QUOTE No.: NC8163

REPORT No.: FNC12446

## COMBUSTIBILITY TEST FOR MATERIALS IN ACCORDANCE WITH AS 1530.1-1994

**SPONSOR:** Fairview Architectural Pty Ltd  
18 – 20 Donald Street  
LITHGOW NSW 2790  
AUSTRALIA

**DESCRIPTION OF TEST SAMPLE:**

The sponsor described the tested specimen as an aluminium material representative of the aluminium used in the aluminium Vitracore G2 cladding panel. The aluminium was tested without any coatings or adhesives. The specimen was comprised of the following layers:

Layer 1: 0.7-mm thick aluminium sheet;  
Layer 2: 2.8-mm thick expanded corrugated aluminium core with a 0.3-mm aluminium wall thickness;  
Layer 3: 0.5-mm thick aluminium sheet.

The layers were loose laid on top of each other to form 50-mm ( $\pm$  3mm) thick samples required for testing.

Nominal thickness of top aluminium sheet: 0.7 mm  
Nominal thickness of bottom aluminium sheet: 0.5 mm  
Nominal thickness of expanded corrugated aluminium core: 2.8 mm  
Nominal wall thickness of expanded corrugated aluminium core: 0.3 mm  
Nominal total thickness: 50 mm  
Nominal density: 2700 kg/m<sup>3</sup>  
Colour: silver

Note: The specimen was provided by UL International Singapore Pte Ltd.

**TEST PROCEDURE:**

Five (5) samples were tested in accordance with Australian Standard 1530 Methods for fire tests on building materials, components and structures, Part 1- 1994: Combustibility Test for Materials.

An alternative suitable insulating material was used to fill the annular space between the furnace tubes, as specified in Clause 4.2 of ISO 1182:2010.

**RESULTS:**

The following calculated results were obtained, refer also to Summary of measurements:

Arithmetic mean	$\frac{\Sigma \text{ results}}{5}$
Mean furnace thermocouple temperature rise (°C)	4.22
Mean specimen centre thermocouple temperature rise (°C)	7.76
Mean specimen surface thermocouple temperature rise (°C)	10.58
Mean duration of sustained flaming (s)	0
Mean mass loss (%)	0.08

**DESIGNATION:**

The material is **NOT** deemed combustible according to the test criteria specified in Clause 3.4 of AS 1530.1-1994.

These test results relate only to the behaviour of the test specimens of the material under the particular conditions of the test and they are not intended to be the sole criterion for assessing the potential fire hazard of the material in use.

DATE OF TEST: 29 August 2019

Issued on the 18<sup>th</sup> day of September 2019 without alterations or additions.



Faustin Molina  
Testing Officer



Brett Roddy  
Group Leader, Fire Testing and Assessments

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NATA Accredited Laboratory  
Number: 165

Corporate Site No 3625

Accredited for compliance with ISO/IEC 17025 - Testing.

Page 1 of 2

CSIRO INFRASTRUCTURE TECHNOLOGIES

14 Julius Avenue, Riverside Corporate Park, North Ryde NSW 2113 AUSTRALIA  
Telephone: 61 2 9490 5444 Facsimile: 61 2 9490 5555 www.csiro.au



**SUMMARY OF MEASUREMENTS AND OBSERVATIONS OF SAMPLES UNDER TEST C12446**

Parameters	Symbol or expression	Unit symbol	Sample Number				
			1	2	3	4	5
Initial specimen mass	$m_{si}$	g	89.66	78.73	79.26	81.73	78.65
Final specimen mass	$m_{sf}$	g	89.63	78.65	79.10	81.68	78.64
Mass loss	$\Delta m = \frac{M_{si} - M_{sf}}{M_{si}} \times 100$	%	0.03	0.10	0.20	0.06	0.01
Total duration of sustained flaming	Cumulative total of duration of flaming*	s	0	0	0	0	0
Initial furnace thermocouple temperature	$T_{fi}$	°C	754	751	752	747	755
Maximum furnace thermocouple temperature	$T_{fm}$	°C	776	793	779	786	783
Final furnace thermocouple temperature	$T_{ff}$	°C	773	790	774	782	777
Furnace thermocouple temperature rise	$\Delta T_f = T_{fm} - T_{ff}$	°C	3	3	5	4	6
Maximum specimen centre thermocouple temperature	$T_{cm}$	°C	724	745	731	737	738
Final specimen centre thermocouple temperature	$T_{cf}$	°C	717	737	726	729	727
Specimen centre thermocouple temperature rise	$\Delta T_c = T_{cm} - T_{cf}$	°C	7	8	5	8	11
Maximum specimen surface thermocouple temperature	$T_{cm}$	°C	750	764	753	754	757
Final specimen surface thermocouple temperature	$T_{sf}$	°C	739	752	742	743	748
Specimen surface thermocouple temperature rise	$\Delta T_s = T_{cm} - T_{sf}$	°C	11	12	11	11	9
Test duration	-	min	65	85	65	85	70

\* Any individual duration flaming less than 5 seconds was discarded

**End of Test Certificate**



# Certificate of Test

QUOTE No.: NE8164

REPORT No.: FNE12445

## AS/NZS 1530.3:1999 SIMULTANEOUS DETERMINATION OF IGNITABILITY, FLAME PROPAGATION, HEAT RELEASE AND SMOKE RELEASE

**TRADE NAME:** Vitracore G2

**SPONSOR:** Fairview Architectural Pty Ltd  
18-20 Donald Street  
LITHGOW NSW 2790  
AUSTRALIA

**DESCRIPTION OF SAMPLE:**

The sponsor described the tested specimen as an aluminium composite panel comprised of the following layers:

Layer 1: 30- $\mu$ m thick PVDF coating (face);  
Layer 2: 0.7-mm thick aluminium sheeting;  
Layer 3: 2.8-mm expanded aluminium core comprised of 0.3-mm thick aluminium wall;  
Layer 4: 0.5-mm thick aluminium sheeting;  
Layer 5: 5- $\mu$ m to 10- $\mu$ m polyester coating.

The core and the face were adhered together using EVA resin with a total thickness of < 0.2-mm.

Nominal thickness: 4 mm  
Nominal mass: 4.6 kg/m<sup>2</sup>  
Colour: red or black

Note: The specimen was provided by UL International Singapore Pte Ltd.

**TEST PROCEDURE:** Six (6) samples were tested in accordance with AS/NZS 1530, Method for fire tests on building components and structures, Part 3: Simultaneous determination of ignitability, flame propagation, heat release and smoke release, 1999.

**RESULTS:** The following means and standard errors were obtained:

Parameter	Mean	Standard Error
Ignition Time (min)	n/a	n/a
Flame Spread Time (s)	n/a	n/a
Heat Release Integral (kJ/m <sup>2</sup> )	n/a	n/a
Smoke Release (log <sub>10</sub> D)	-2.046	0.063

For regulatory purposes these figures correspond to the following indices:

Ignitability Index	Spread of Flame Index	Heat Evolved Index	Smoke Developed Index
(0-20)	(0-10)	(0-10)	(0-10)
0	0	0	1

The results of this fire test may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all fire conditions.

DATE OF TEST: 29 August 2019

Issued on the 19<sup>th</sup> day of September 2019 without alterations or additions.



Shaw Tran  
Testing Officer



Brett Roddy  
Group Leader, Fire Testing and Assessments

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**Title:**

CLASSIFICATION OF  
REACTION TO FIRE  
PERFORMANCE  
IN ACCORDANCE WITH  
EN 13501-1:2018

**Notified Body No:**

0833

**Product Names:**

"Vitracore G2"

**Report No:**

418244

**Issue No:**

1

**Prepared for:**

Fairview Architectural Pty  
Ltd,  
18-20 Donald Street,  
Lithgow NSW 2790,  
Australia

**Date:**

9<sup>th</sup> September 2019



## 1. Introduction

This classification report defines the classification assigned to “Vitracore G2”, a bonded aluminium panel with a profiled aluminium core in line with the procedures given in EN 13501-1:2018.

## 2. Details of classified product

### 2.1 General

The product, “Vitracore G2”, a bonded aluminium panel with a profiled aluminium core, is defined as being suitable for construction applications, excluding flooring and linear pipe thermal insulation.

### 2.2 Product description

The product, “Vitracore G2”, is fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description		A bonded aluminium panel with a profiled aluminium core
Product reference of overall composite		“Vitracore G2”
Name of manufacturer of overall composite		Fairview
Thickness of overall composite		4mm (stated by sponsor) 4.1mm (determined by <a href="#">Warringtonfire</a> )
Weight per unit area of overall composite		4.6kg/m <sup>2</sup> (stated by sponsor) 4.42kg/m <sup>2</sup> (determined by <a href="#">Warringtonfire</a> )
Top coat (Test face)	Generic type	PVDF
	Product reference	“PVDF Top Coat”
	Name of manufacturer	PPG
	Colour reference	“Poppy Red 1677”
	Number of coats	One
	Application rate	24g/m <sup>2</sup>
	Application thickness	17 -20 microns
	Specific gravity	1.2 ± 0.03
	Application method	Roller coil coating
	Curing process	Stove baking
Flame retardant details		<b>See Note 1 below</b>
Primer	Generic type	Polyester
	Product reference	“Polyester Primer”
	Name of manufacturer	Yali
	Colour reference	“Primer 0000”
	Number of coats	One
	Application rate	12.2g/m <sup>2</sup>
	Application thickness	6 -9 microns
	Specific gravity	1.36
	Application method	Roller coil coating
	Curing process	Stove baking
Flame retardant details		<b>See Note 1 below</b>

Aluminium	Generic type	Aluminium
	Product reference	"Face Skin"
	Detailed description	Aluminium sheet
	Name of manufacturer	<b>See Note 2 below</b>
	Thickness	0.7mm
	Density	2.7g/cm <sup>3</sup>
	Weight per unit area	1.89kg/m <sup>2</sup>
	Colour reference	"Silver"
	Flame retardant details	This component is inherently flame retardant
Adhesive	Generic type	EVA Resin
	Product reference	"30E753"
	Detailed description	EVA resin extruded to a thin film
	Name of manufacturer	<b>See Note 3 below</b>
	Thickness	80±10 microns (2 layers of adhesive)
	Weight per unit area	76g/m <sup>2</sup>
	Density	0.938/cm <sup>3</sup>
	Colour reference	White, semi-translucent
	Flame retardant details	<b>See Note 1 below</b>
Profiled core	Generic type	Aluminium
	Product reference	"Profiled Core"
	Detailed description	0.3mm aluminium sheet, profiled to a depth of 2.8mm
	Name of manufacturer	<b>See Note 2 below</b>
	Thickness	2.8mm
	Density	2.7g/cm <sup>3</sup>
	Weight per unit area	0.81kg/m <sup>2</sup>
	Colour reference	"Silver"
	Flame retardant details	This component is inherently flame retardant
Adhesive	Generic type	EVA Resin
	Product reference	"30E753"
	Detailed description	EVA resin extruded to a thin film
	Name of manufacturer	<b>See Note 3 below</b>
	Thickness	80±10 microns (2 layers of adhesive)
	Weight per unit area	76g/m <sup>2</sup>
	Density	0.938/cm <sup>3</sup>
	Colour reference	White, semi-translucent
	Flame retardant details	<b>See Note 1 below</b>
Aluminium	Generic type	Aluminium
	Product reference	"Rear Skin"
	Detailed description	Aluminium sheet
	Name of manufacturer	<b>See Note 2 below</b>
	Thickness	0.5mm
	Density	2.7g/cm <sup>3</sup>
	Weight per unit area	1.35kg/m <sup>2</sup>
	Colour reference	"Silver"
	Flame retardant details	This component is inherently flame retardant

Primer	Generic type	Polyester
	Product reference	"Polyester Primer"
	Name of manufacturer	Yali
	Colour reference	"Primer 0000"
	Number of coats	One
	Application rate	12.2g/m <sup>2</sup>
	Application thickness	6 -9 microns
	Specific gravity	1.36
	Application method	Roller coil coating
	Curing process	Stove baking
	Flame retardant details	<b>See Note 1 below</b>
Mounting and fixing details		A 40mm ventilated cavity was situated between the reverse face of the specimens and the calcium silicate backing board
Joint details		Horizontal and verticals details included
Brief description of manufacturing process		Liquid coated on the coils with high temperature

**Note 1:** The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the component.

**Note 2:** The sponsor was unwilling to provide this information.

**Note 3:** The sponsor of the test has provided this information but at the specific request of the sponsor, these details have been omitted from the report and are instead held on the confidential file relating to this investigation.

### 3. Test reports & test results in support of classification.

#### 3.1 Test reports.

Name of Laboratory	Name of sponsor	Test reports/extended application report Nos.	Test method / extended application rules & date
Warringtonfire	Fairview Architectural Pty Ltd	WF 417795 (full) WF 417796, 417798 (indicative)	BS EN 13823
Warringtonfire	Fairview Architectural Pty Ltd	WF 417747, 417748, 417749, 417750, 417795	EN ISO 1716
Warringtonfire	Fairview Architectural Pty Ltd	WF 418236	EN ISO 1716 Composite Report
Warringtonfire	Fairview Architectural Pty Ltd	WF 418243	EN 15117

#### 3.2 Test results

Test method & test number	Parameter	No. tests		Results	
				Continuous parameter - Max/ Mean (m)	Compliance with parameters
BS EN 13823-2	FIGRA <sub>0.2MJ</sub>	3	<b>Formal test average</b>	16.53 W/s (full)	Compliant
			Indicative 1	0.00, 0.00 W/s (indic)	
			Indicative 2		
	FIGRA <sub>0.4MJ</sub>		<b>Formal test average</b>	0.00 W/S (full)	Compliant
			Indicative 1	0.00, 0.00 W/S (indic)	
			Indicative 2		
	THR <sub>600s</sub>		<b>Formal test average</b>	0.61 MJ (full)	Compliant
			Indicative 1	0.39, 0.71 MJ (indic)	
			Indicative 2		
	LFS	<b>Formal test average</b>	None (full)	Compliant	
		Indicative 1	None (indic)		
		Indicative 2			
SMOGRA	<b>Formal test average</b>	0.00 m <sup>2</sup> /s <sup>2</sup> (full)	Compliant		
	Indicative 1	0.00, 0.00 m <sup>2</sup> /s <sup>2</sup> (indic)			
	Indicative 2				

	TSP <sub>600s</sub>		<b>Formal test average</b>	21.92 m <sup>2</sup> (full) 12.38, 14.75 m <sup>2</sup> (indic)	Compliant
	Flaming droplets lasting > 10s		Indicative 1	None (full) None (indic)	Compliant
			Indicative 2		
			<b>Formal test average</b>		
			Indicative 1		
			Indicative 2		
EN ISO 1716	Top Coat - PCS (b)	3		0.6818 MJ/m <sup>2</sup> (full) 0.406, 0.6244 MJ/m <sup>2</sup> (indic)	Compliant
	Primer – PCS (b)			0.148 MJ/m <sup>2</sup>	Compliant
	Aluminium – PCS (a)	Deemed to satisfy (0.00)		Compliant	
	Adhesive – PCS (d)	3		3.4242 MJ/m <sup>2</sup>	Compliant
	Profiled core - PCS (a)	Deemed to satisfy (0.00)		Compliant	
	Adhesive – PCS (d)	3		3.4242 MJ/m <sup>2</sup>	Compliant
	Aluminium – PCS (a)	Deemed to satisfy (0.00)		Compliant	
	Primer – PCS (b)	3		0.148 MJ/m <sup>2</sup>	Compliant
	For the product as a whole – PCS (e)	N/a		1.8374 MJ/kg	Compliant

#### 4. Classification and field of application

##### 4.1 Reference of classification

This classification has been carried out in accordance with clause 8 of EN 13501-1:2018, EN 15725:2009 and EN/TS 15117:2005.

##### 4.2 Classification

The product, "Vitracore G2", a bonded aluminium panel with a profiled aluminium core, in relation to its reaction to fire behaviour is classified:

**A2**

The additional classification in relation to smoke production is:

**s1**

The additional classification in relation to flaming droplets / particles is:

**d0**

The format of the reaction to fire classification for construction applications, excluding flooring and linear pipe thermal insulation is:

Fire Behaviour		Smoke Production			Flaming Droplets	
<b>A2</b>	-	<b>s</b>	<b>1</b>	,	<b>d</b>	<b>0</b>

i.e. **A2– s1, d0**

**Reaction to fire classification: A2 - s1, d0**

### 4.3 Field of application

This classification is valid for the following end use applications:

- i) Construction applications applied over any substrate with a minimum density of 870kg/m<sup>3</sup>, having a minimum thickness of 11mm and a fire performance of A2-s1,d0 or better
- ii) Air gap details - ≥ 40mm allowed

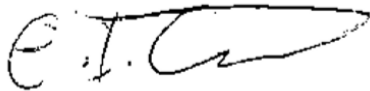
This classification is also valid for the following product parameters:

Product colour	Any variation allowed
Product thickness	No variation allowed
Product weight per unit area	No variation allowed
Product composition	No variation allowed
Product construction	No variation allowed
Mounting and fixing details	No variation allowed
Air gap details	≥ 40mm allowed

### 5. Limitations

This document does not represent type approval or certification of the product.

#### SIGNED



.....

#### Euan Gardner

Junior Certification Engineer  
Technical Department

#### APPROVED



.....

#### Matthew Dale

Senior Certification Engineer  
Technical Department  
On behalf of **Warringtonfire**

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**Agrément Certificate**

**20/5791**

Product Sheet 1

## VITRACORE RAINSCREEN CLADDING SYSTEMS

### VITRACORE G2 ALUMINIUM BONDED RAINSCREEN CLADDING PANEL

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Vitracore G2 Aluminium Bonded Rainscreen Cladding Panel, used to provide a decorative and protective façade over the external walls of new and existing buildings.

(1) Hereinafter referred to as 'Certificate'.

#### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



#### KEY FACTORS ASSESSED

**Strength and stability** — the panel, with suitable support, can resist the wind actions normally encountered in the UK (see section 6).

**Behaviour in relation to fire** — the panel has an A2-s1, d0 reaction to fire classification to BS EN 13501-1 : 2018 (see section 7).

**Air and water penetration** — the panel joints will restrict the passage of water entering the cavity. Any water entering the cavity will be removed by drainage and ventilation (see section 8).

**Durability** — the panel has acceptable durability and can be expected to have a service life in excess of 30 years (see section 10).



The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 17 September 2020

Hardy Giesler  
Chief Executive

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://www.bbacerts.co.uk)

Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

#### British Board of Agrément

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## Regulations

In the opinion of the BBA, Vitracore G2 Aluminium Bonded Rainscreen Cladding Panel, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



### The Building Regulations 2010 (England and Wales) (as amended)

<b>Requirement:</b>	<b>A1</b>	<b>Loading</b>
Comment:		The product can sustain and transfer the design loads to the structural frame as set out in section 6.5 of this Certificate.
<b>Requirement:</b>	<b>B3(4)</b>	<b>Internal fire spread (structure)</b>
Comment:		The product can contribute to satisfying this Requirement. See section 7.2 of this Certificate.
<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:		The product is unrestricted by this Requirement. See sections 7.1 and 7.4 of this Certificate.
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:		The product, when used within a cladding system, is not watertight but will resist the passage of precipitation to the supporting structure. See section 8 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>7(2)</b>	<b>Materials and workmanship</b>
Comment:		The product is unrestricted by this Regulation. See section 7.4 of this Certificate.



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The product can contribute to a construction satisfying this Regulation. See sections 9 and 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	1.1(a)(b)	Structure
Comment:		The product is acceptable, with reference to clause 1.1.1 <sup>(1)(2)</sup> of this Standard. See section 6.5 of this Certificate.
Standard:	2.4	Cavities
Comment:		The product can contribute to satisfying this Standard, with respect to clause 2.4.2 <sup>(1)(2)</sup> . See section 7.2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is unrestricted by this Standard, with respect to clauses 2.6.4 <sup>(1)(2)</sup> , 2.6.5 <sup>(1)</sup> and 2.6.6 <sup>(2)</sup> . See sections 7.1 and 7.4 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The product is unrestricted by this Standard, with respect to clause 2.7.1 <sup>(1)(2)</sup> . See sections 7.1 and 7.4 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product will contribute to satisfying this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> and 3.10.5 <sup>(1)(2)</sup> . See section 8 of this Certificate.

<b>Standard:</b>	<b>7.1(a)(b)</b>	Statement of sustainability
<b>Comment:</b>		The product can contribute to meeting the relevant Requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
<b>Comment:</b>		All comments given for the product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2012 (as amended)

<b>Regulation:</b>	<b>23(a)(i)</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	<b>(iii)</b>	The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
<b>Comment:</b>		The product can contribute to satisfying this Regulation. See section 8 of this Certificate.
<b>Regulation:</b>	<b>30</b>	<b>Stability</b>
<b>Comment:</b>		The product is acceptable as set out in section 6.5 of this Certificate.
<b>Regulation:</b>	<b>35(4)</b>	<b>Internal fire spread - Structure</b>
<b>Comment:</b>		The product is unrestricted by this Regulation. See section 7.2 of this Certificate.
<b>Regulation:</b>	<b>36(a)</b>	<b>External fire spread</b>
<b>Comment:</b>		The product is unrestricted by this Regulation. See sections 7.1 and 7.4 of this Certificate.

## Construction (Design and Management) Regulations 2015

## Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

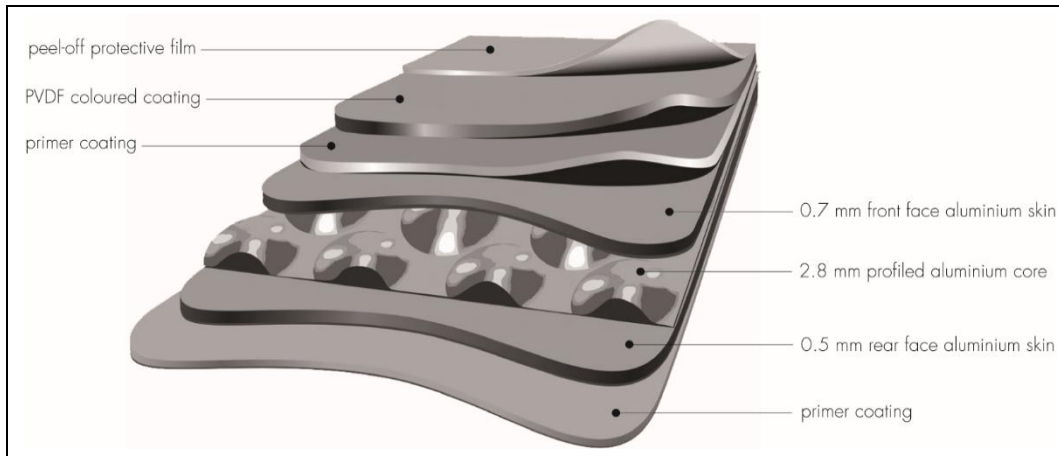
See sections: 1 *Description* (1.2), 3 *Delivery and site handling* (3.4) and 9 *Maintenance and repair* (9.3) of this Certificate.

## Technical Specification

### 1 Description

1.1 Vitracore G2 Aluminium Bonded Rainscreen Cladding Panel (see Figure 1 and section 1.2) consists of aluminium dimple core with a sheet of aluminium alloy bonded to each side. The outward-facing aluminium sheet is covered with a 17 - 20 microns layer of PPG polyvinylidene difluoride (PVDF) coating. The reverse side is covered with a protective polyester primer finish.

**Figure 1 Vitracore G2 Aluminium Bonded Rainscreen Cladding Panel cross-section make-up**



1.2 The panel and its fixings have the following characteristics:

**Panel**

Width (mm)	1250 and 1500
Length (mm)	2500, 3200 and 4000
Coating – outward facing, PVDF PPG (µm)	17 - 20
Polyester primer (µm)	6 - 9
Aluminium sheet front face skin (mm)	0.7
Adhesive (µm)	70 - 90
Core, thickness (mm)	2.8
Adhesive (µm)	70 - 90
Aluminium sheet rear face skin (mm)	0.5
Coating – reverse facing, Polyester primer (µm)	6 - 9
Overall panel thickness (mm)	4 (±2%)
Density of dimples (/m <sup>2</sup> )	11000
Panel weight (kg·m <sup>-2</sup> )	4.4
Top coat colour	Any variation <sup>(1)</sup>
Panel format	Flat/Bonded
Aluminium grade	
Face skin	EN AW-3003 H24 to BS EN 573-3 : 2019
Core	EN AW-1100 H0 to BS EN 573-3 : 2019
Rear skin	EN AW-3003 H24 to BS EN 573-3 : 2019

Note: Custom widths and lengths are available to special order. Widths and lengths greater than specified are outside the scope of this Certificate.

(1) No other variation in coating composition or manufacturer besides top coat colour is covered under this Certificate.

**Fixings**

Specification of panel fixings to subframe rail:

- rivets — Fixfast R-SS-LF 4.8 x 16, 4.8 mm body diameter, 14 mm head diameter, 16 mm long, stainless steel.

1.3 Ancillary components for use with the panel, but outside the scope of this Certificate, are:

- screws — Fixfast DF3-SSA4-P-5.5 x 35 (no washer) 35 mm in length, 5.5 mm body diameter, used to fix the rails to wall brackets
- support sub-frame — typically aluminium (rails, wall brackets and fixings)
- substrate fixings — used to fix wall brackets to the substrate wall (specification dependent on the strength of the substrate)
- substrate wall
- insulation — rigid or semi-rigid insulation boards
- breather membrane

- cavity barriers
- protective cavity mesh
- horizontal joint profiles
- bird's beak profiles.

## 2 Manufacture

2.1 The panel is manufactured by laminating the core between two sheets of coil-coated aluminium, which is bonded in a continuous process. The outer aluminium sheets are coated with primer and PVDF finish and a peel-off protective film is added.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

## 3 Delivery and site handling

3.1 The panels are delivered to site on pallets with edge protection and wrapped in protective material. The pallets bear product details such as type, size, quantity, identification code, manufacturing references and colour.

3.2 The pallets should be stored on a dry, flat and level surface, suitably protected from the weather. The protective film on the panel should be removed as soon after installation as possible.

3.3 The panels should be handled with care to avoid damage. They should be lifted off, rather than slid across other panels.

3.4 Care should be exercised when handling the panels to avoid injury from sharp edges. Protective clothing should be worn and all Health and Safety measures observed.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Vitracore G2 Aluminium Bonded Rainscreen Cladding Panel.

## Design Considerations

### 4 Use

4.1 Vitracore G2 Aluminium Bonded Rainscreen Cladding Panel can be incorporated in back-ventilated and drained cladding systems. The cavity behind the cladding should be at least 50 mm wide (see section 8).

4.2 The panels can be installed in either the vertical or horizontal plane.

4.3 The panels are installed with horizontal and vertical open joints of 10 mm width. Horizontal joints are closed with bird's beak profiles.

4.4 It is important for designers, planners, contractors and/or installers to ensure that the installation of the panels is in accordance with the Certificate holder's instructions and the information given in this Certificate. All design aspects

should be checked by a suitably qualified and experienced individual in accordance with the requirements of the relevant national Building Regulations and Standards. For advice on specific construction details, eg flue pipe penetrations, the Certificate holder should be consulted.

4.5 The substrate wall and the sub frame to which the cladding is fixed should be structurally sound and constructed in accordance with the requirements of the relevant national Building Regulations and Standards.

4.6 Ventilation and drainage must be provided behind the panels. All ventilation openings around the periphery of the system should be suitably protected with mesh to prevent the ingress of birds, vermin and insects.

4.7 Any insulation (outside the scope of this Certificate) installed behind the panels must be suitably fixed to the supporting wall and protected to resist the forces of wind suction. Insulation should be of a rigid type (eg boards or batts) and a breather membrane should be provided over its outer face to prevent its performance being diminished by moisture. The ventilation pathway behind the cladding must not be allowed to become blocked, or the insulation dislodged, where it may be vulnerable to wetting.

4.8 To allow for longitudinal expansion, a gap of between 3 and 4 mm per metre length between adjacent support rails should be provided. The panels must not be installed across this gap.

## 5 Practicability of installation

The panel must only be installed by installers who have been trained and approved by the Certificate holder.

## 6 Strength and stability

6.1 Wind actions should be calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. Higher pressure coefficients applicable to corners of the building should be used in the locations recommended in this Standard. In accordance with BS EN 1990 : 2002 and its UK National Annex, it is recommended that a partial load factor of 1.5 is used to determine the design wind load to be resisted by a cladding system incorporating the Vitracore G2 panels.

6.2 The supporting substrate wall must be able to take the associated wind actions, as well as any racking forces. No contribution from the panels and subframe may be assumed in this regard.

6.3 The designer should ensure that:

- the design of the sub-frame and its fixings is in accordance with the relevant codes and Standards, such as to limit mid-span deflections (ie length span deflections to L/200 and cantilever deflections to L/150)
- the panels are fixed to the sub-frame using the specified fixing mechanisms (see section 1.2)
- the specified fixings have adequate tensile and pull-out strength to resist the applied actions
- fixing of the support brackets to the supporting wall has adequate pull-out strength and corrosion resistance (not covered by this Certificate). An appropriate number of site-specific pull-out tests must be conducted on the substrate wall to determine the minimum pull-out resistance of the fixings. The characteristic pull-out resistance should be determined in accordance with the guidance given in EOTA TR055 : 2016, using 50% of the mean value of the five smallest measured values at the ultimate load.

6.4 Wind load tests carried out on a wall comprising Vitracore G2 Aluminium Bonded Rainscreen Cladding Panel, fixed to Vitrafix L (60 x 40 x 2 mm) and T (60 by 100 by 2 mm) vertical rails supports spaced at 425 mm centres horizontally using R-SS-LF-4.8x16 rivets – with vertical and horizontal spacing of 425mm, with horizontal joints closed off with bird's beak profile, achieved a design resistance<sup>(1)</sup> of 1.8 kN·m<sup>-2</sup>.

(1) Derived by dividing the wind load test result by a partial factor of 2.0.



6.5 For design purposes, the panel properties given in Table 1 may be adopted.

**Table 1 Panel properties**

Panel thickness (mm)	Characteristic flexural stress (MPa)	Characteristic flexural modulus (MPa)
4	41.87	3855

**Impact**

6.6 Hard and soft body impact tests were carried out in accordance with CWCT Technical Note 76. The panel is suitable for use in all Use Categories as defined in EAD 090062-00-0404, an extract of which is reproduced in Table 2 of this Certificate.

**Table 2 Definition of Use Categories (reproduced from EAD 090062-00-0404 Table G.2)**

Use Category	Description
I	A zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use.
II	A zone liable to impacts from thrown or kicked objects, but in public locations where the height of the kit will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care.
III	A zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects.
IV	A zone out of reach from ground level.

**7 Behaviour in relation to fire**



7.1 The external surface of the panel has a reaction to fire classification of A2-s1, d0<sup>(1)</sup> in accordance with BS EN 13501-1 : 2018. This relates to the full thickness and colour range referred to in section 1 of this Certificate.

(1) This classification is valid only for substrate walls with a minimum density of 870kg/m<sup>3</sup>, a minimum thickness of 11 mm and a fire performance of A2-s1,d0 or better.

7.2 The reverse side of the panel (facing into the cavity) has not been classified. Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity barriers, service penetrations and combustibility limitations for other materials and components used in the overall wall construction, for example, thermal insulation.

7.3 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity barriers, service penetrations and combustibility limitations for other materials and components used in the overall wall construction, for example, thermal insulation.



7.4 The panel is not subject to any restriction on building height or proximity to boundaries.

## 8 Air and water penetration



8.1 The panel is suitable for use in back-ventilated and drained cladding systems.

8.2 The substrate wall to which the cladding is fixed must be weathertight and reasonably airtight satisfying the requirements of the relevant national Building Regulations and Standards.

8.3 To satisfy the NHBC requirements (see *NHBC Standards 2020*, Chapters 6.2, 6.9 and 6.10.18), the minimum clear, drained and ventilated cavity width between the back of the cladding panel and front of the substrate wall (or insulation if installed within the cavity) must be 50 mm.

8.4 In addition, a minimum ventilation area of 5000 mm<sup>2</sup> per metre run of cladding at the building base point and at the roof edge, is required.

8.5 Any water collecting in the cavity owing to rain or condensation will be removed by drainage and ventilation.

## 9 Maintenance and repair



9.1 To maintain the panel appearance, a bi-annual cleaning regime should be carried out using soapy water followed by rinsing with clean water; alternatively, a pressure hose method can be used (outside the scope of assessment). For more difficult chemical soiling, the Certificate holder's specialist advice must be sought.

9.2 Annual maintenance inspections must be carried out to ensure that such features as panels, flashings and seals are in place, and ancillary fixings are secure.

9.3 Damaged panels should be replaced as soon as practicable. Work carried out should follow the Certificate holder's instructions and all necessary Health and Safety regulations should be observed.

## 10 Durability



10.1 When incorporated in an overall wall cladding system, the panel should have a service life in excess of 30 years if designed, installed and maintained in accordance with this Certificate.

10.2 In a non-corrosive atmosphere, the panel can be expected to retain a good appearance for up to 20 years, and for 15 years in coastal or severe industrial regions.

10.3 In normal circumstances, the panel coating has adequate resistance to abrasion and scratching.

10.4 When tested for cracking in accordance with BS EN ISO 4628-4 : 2003, and peeling the panel coating was found to have adequate resistance.

10.5 When tested for rapid deformation caused by a falling weight (large-area indenter) in accordance with BS EN ISO 6272-1 : 2011, the panel coating was found to have satisfactory resistance to cracking or peeling.

10.6 The performance of the coating will depend upon the colour chosen, building location, façade aspect and immediate environment. Colour change will be generally small and uniform on any one elevation.

## 11 Reuse and recyclability

Both the aluminium outer skins and core of the panel can be recycled.

### 12 General

12.1 Vitracore G2 Aluminium Bonded Rainscreen Cladding Panel must be installed in accordance with the Certificate holder's recommendations, the requirements of this Certificate and the specifications laid down by the design engineer.

12.2 Installers must be trained and approved by the Certificate holder who can provide technical assistance at the design stage and at the start of the installation.

12.3 Installation of the panel should be carried out between temperatures of 5 and 25°C. Extremes of temperature must be avoided.

12.4 The panel must be mounted to allow for thermal expansion movement. When the panel is secured, allowance for expansion must also be made by the appropriate use of clearance holes at fixings.

12.5 The panel can be worked by conventional techniques in accordance with the Certificate holder's instructions. These include sawing and cutting, drilling and riveting. It is essential that the correct tools, in good condition, are used to prevent any damage to the coating, and that swarf is removed.

12.6 The panel may be fabricated for installation in either the vertical or horizontal plane. The panels may be predrilled in the factory or on site.

### 13 Procedure

13.1 Based on a preliminary survey of the wall and the architectural/structural design, a grid layout for the sub-frame (wall brackets and vertical rails) is prepared.

13.2 Wall brackets are fixed to the substrate using appropriate fixings. Vertical spacing between wall brackets should be as specified by the Certificate holder.

13.3 Where required, a rigid or semi-rigid insulation, protected by a suitable breather membrane, can be installed on the substrate wall. The thickness of the insulation should be such as to ensure a minimum ventilation cavity width at the back of the cladding panel is maintained (see section 8.3).

13.4 Vertical support rails are fixed to the brackets with provision for an expansion gap between adjacent vertical rails (see section 4.7).

13.5 The panel is fixed to vertical rails ensuring minimum vertical and horizontal gaps between panels are maintained (see sections 4.4 and 8.3). To allow for thermal expansion, the correct specified pre-drilled fixing holes are required for both the panels and support rail. Fixing heads must have sufficient overlap onto the panel and must be concentrically positioned ensuring that the panel is not fixed too tightly, and therefore prevent the face of panel to move and pull causing distortion to the surface.

13.6 Typical installation details are given in Figure 2.



Figure 2 Typical installation — rivet fixing

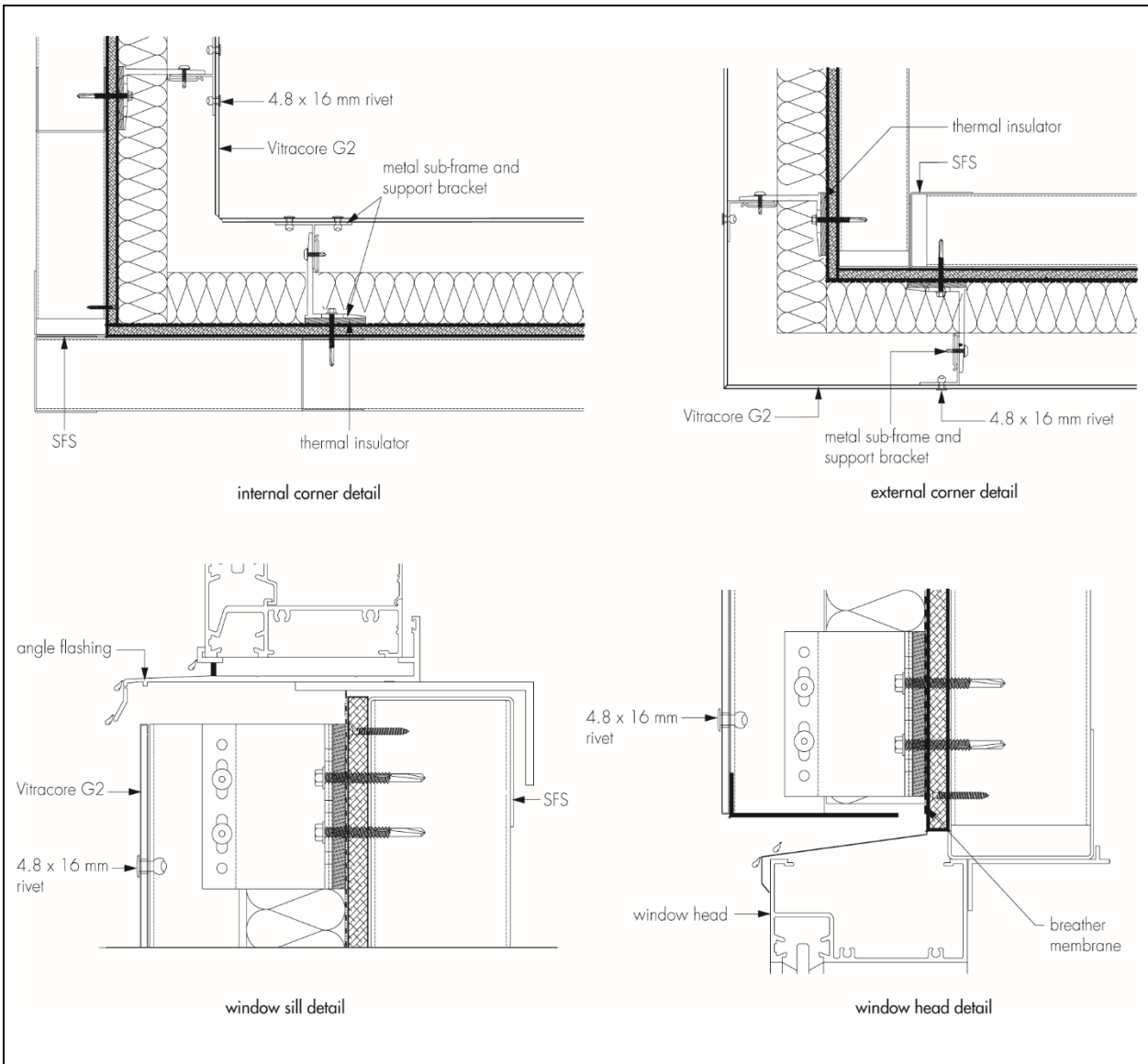


Figure 2 Typical installation – rivet fixing (continued)

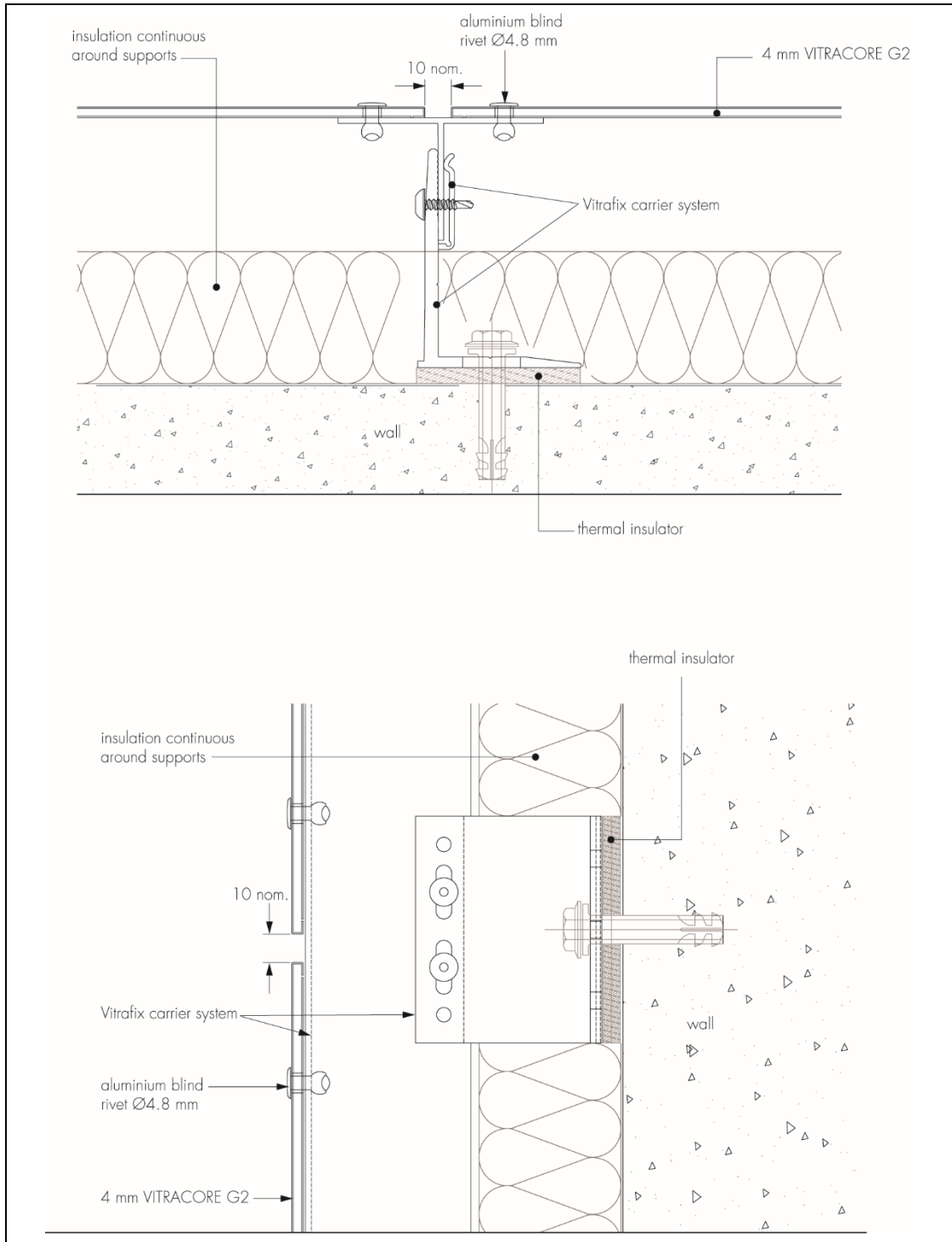
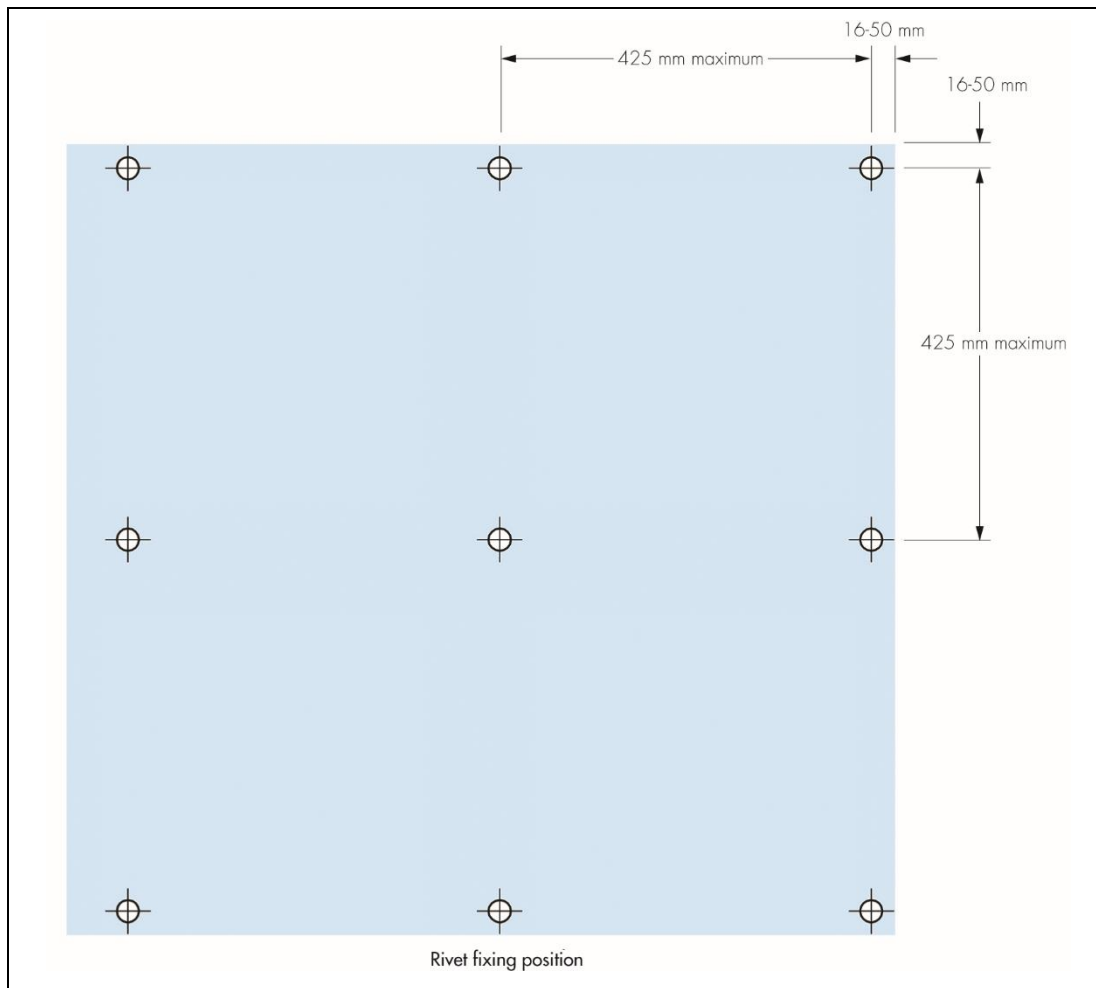


Figure 2 Typical installation – rivet fixing (continued)



## Technical Investigations

### 14 Tests

Tests were carried out by the BBA and the results assessed to determine:

- resistance of coating to impact
- colour stability
- bond strength (peel test)
- cross cut test
- flexural strength and modulus
- resistance to artificial weathering.

### 15 Investigations

15.1 An evaluation was made of external test reports relating to:

- wind load resistance
- fire testing
- resistance to scratching
- resistance to abrasion.

15.2 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

## Bibliography

BS EN 573-3 : 2019 *Aluminium and aluminium alloys. Chemical composition and form of wrought products — Chemical composition and form of products*

BS EN 1990 : 2002 + A1 : 2005 + UK National Annex *Eurocode — Basis of structural design*

BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 — Actions on structures — General actions — Wind actions*

NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to *Eurocode 1 — Actions on structures — General actions — Wind actions*

BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN ISO 6272-1 : 2011 *Paints and varnishes — Rapid-deformation (impact resistance) tests — Falling-weight test, large-area indenter*

BS EN ISO 4628-4 : 2003 *Paints and varnishes - Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance*

EAD 090062-00-0404 *Kits for external wall claddings mechanically fixed*

EOTA TR055 : 2016 *Design of fastenings based on EAD 330232-00-0601*

### 16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

16.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

16.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

16.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

16.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.