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Certificate Holder:

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THIS IS TO CERTIFY THAT

Hebel® PowerPanel^{XL} Wall System

Type and/or use of product:

Wall Cladding System for Houses & Low Rise Multi-Residential External Walls.

Description of product:

75mm Non load bearing steel reinforced Autoclaved Aerated Concrete (AAC) panel, comprising several proprietary components. Refer A2 below.

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

BCA 2019 (Amdt. 1)

	Volume One	Volume Two
Performance Requirement(s)	BP1.1(a), (b)(i),(ii), (iii),(iv) FP1.4	P2.1.1(a), (b)(i),(ii), (iii),(iv) P2.2.2
	Structural Provisions Damp and Weatherproofing	Structural Stability and Resistance to Actions Weatherproofing
Deemed-to-Satisfy Provision(s):	C1.1(b) J1.5 F6.2(a)(i)	3.7.2.4(b) 3.12.1.4 3.8.7.2(a)(i)
	Fire Resistance and Stability – FRL varies, dependant of the configuration of the wall. Refer condition and limitation 5. Energy Efficiency – Refer A5 Condensation Management - Pliable building membrane.	Protection from the Spread of Fire - FRL varies, dependant of the configuration of the wall. Refer condition and limitation 5. Energy Efficiency – Refer A5 Condensation Management - Pliable building membrane.
State or territory variation(s):	Not Applicable	Part 3.12 (NSW, NT, Qld, Tas, ACT); 3.8.7.2 (Tas, ACT)

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

Limitations and conditions:

- For Type A & B construction, the use of the Hebel® PowerPanel^{XL} Wall System must be supported by a site-specific Performance Solution where the BCA requires building elements and/or ancillary elements to be non-combustible. Acceptance or otherwise of the site-specific Performance Solution is at the discretion of the appropriate Authority subject to the regulatory framework of the relevant State or Territory.
- Compliance with FRL is dependent on the system components being as specified in A3. Any deviation from the tested specimen does not form part of this certificate of conformity.
- Construction methods for external walls required to be fire resisting in relation to class 1 and 10 buildings and structures must comply with part 3.7.2.4 of the NCC Volume 2.
- The 75mm Hebel® PowerPanel^{XL} has not been tested and certified for impact loading from windborne debris in Region C and D as denoted in AS 1170.2:2011. The building designer should take into consideration internal pressure resulting from dominant openings.

Building classification/s:

Class 1,2,3,4,5,6,7,8,9 & 10


 Richard Donarski - CMI


 Don Grehan – Unrestricted Building Certifier

Date of issue: 31/08/2020

Date of expiry: 01/05/2022





Certificate of Conformity

5. In order to achieve compliance with weatherproofing in accordance with FV1.1 and V2.1.1, all windows must comply with AS 2047:2014.
6. This Certificate of Conformity is reliant on system components specified in A3. Substitution or omission of any component listed in A3 will void this Certificate of Conformity.
7. Where the clearance from the underside of the panel to the finished surface level below has been reduced to a minimum of 25mm, including sites subject to Saline Soils as defined by AS 2870—2011, installation must be in accordance with [HELIT016_MARCH20_Houses_and_Low_Rise_Multi_Res_PowerPanelXL_External_Walls_DiGuide](#) and incorporating [Hebel PowerPanelXL External Walls Slab Edge Rebate Technical Update TU-033 dated 17/08/2020](#).
8. Other than the items and information listed, the remainder of the information contained in the product's literature is outside the scope of this certification.
9. The use of the certified product/system is subject to these Limitations and Conditions and must be read in conjunction with the Scope of Certification below.

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

Only criteria as identified within this Certificate of Conformity can be used for CodeMark certification claims. Where other claims are made in a client's Installation Manual, Website or other documents that are outside the criteria on this Certificate of Conformity, such criteria cannot be used or claimed to meet the requirements of this CodeMark certification.

The NCC defines a Performance Solution as one that complies with the Performance Requirements by means other than a Deemed-to-Satisfy Solution. A Building Solution that relies on a CodeMark Certificate of Conformity that certifies a product against the Performance Requirements cannot be considered as Deemed-to-Satisfy Solution.

This Certificate of Conformity may only relate to a part of a Performance Solution. In these circumstances other evidence of suitability is needed to demonstrate that the relevant Performance Requirements have been met. The relevant provisions of the Governing Requirements in Part A of the NCC will also need to be satisfied.

This Certificate of Conformity is issued based on the evidence of compliance as detailed herein. Any deviation from the specifications contained in this Certificate of Conformity is outside of this document's scope and the installation of the certified product will not be covered by this Certificate of Conformity. This may result in the product being classified as a non-conforming building product.

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.

When using the CodeMark logo in relation to or on the product/system, the Certificate Holder makes a declaration of compliance with the Scope of Certification and confirms that the product is identical to the product certified herein. In issuing this Certificate of Conformity, CertMark International has relied on the experience and expertise of external bodies (laboratories and technical experts). Nothing in this document should be construed as a warranty or guarantee by CMI, and the only applicable warranties will be those provided by the Certificate Holder.

APPENDIX A – PRODUCT TECHNICAL DATA

A1 Type and intended use of product

As per page 1.

A2 Description of product

Hebel® PowerPanel^{XL} Panel Physical Properties

Thickness:	75mm
Standard Width:	600mm
Standard Length:	2400, 2550, 2700, 2800, 2850, 3000, 3300mm, tolerance: ±5mm
Reinforcement:	4 x 4mm longitudinal steel bars and 6-8 x 4mm diameter transverse steel bars per panel
Nominal Dry Density:	400 kg/m ³
Average working density:	540 kg/m ³ at 35% moisture content
Average service life density:	440 kg/m ³ at 10% moisture content

Hebel® PowerPanel^{XL} Wall System Components

Product	Description																								
Hebel® PowerPanel ^{XL} panel	The Hebel® PowerPanel ^{XL} is a 75mm thick AAC panel with a minimum nominal dry density of 400kg/m ³ and up to 3300mm length, installed vertically to timber or steel framing via horizontal top hats.																								
	<table border="1"> <thead> <tr> <th>Length (mm)</th> <th>Width (mm)</th> <th>Weight (kg) at 35% M.C.</th> </tr> </thead> <tbody> <tr> <td>2400</td> <td>600</td> <td>58</td> </tr> <tr> <td>2550</td> <td>600</td> <td>62</td> </tr> <tr> <td>2700</td> <td>600</td> <td>66</td> </tr> <tr> <td>2800</td> <td>600</td> <td>68</td> </tr> <tr> <td>2850</td> <td>600</td> <td>69</td> </tr> <tr> <td>3000</td> <td>600</td> <td>73</td> </tr> <tr> <td>3300</td> <td>600</td> <td>80</td> </tr> </tbody> </table>	Length (mm)	Width (mm)	Weight (kg) at 35% M.C.	2400	600	58	2550	600	62	2700	600	66	2800	600	68	2850	600	69	3000	600	73	3300	600	80
Length (mm)	Width (mm)	Weight (kg) at 35% M.C.																							
2400	600	58																							
2550	600	62																							
2700	600	66																							
2800	600	68																							
2850	600	69																							
3000	600	73																							
3300	600	80																							
Top Hat	The Top Hats are used to fix the Hebel® PowerPanel ^{XL} panel to the structural support framing. There are two nominal widths available: 24mm and 35mm - incorporating perforated flanges for ease of installation onto external wall frames.																								
Fasteners & Fixing	Fixing of Top Hat to timber stud frame; 12-11x35mm Hex Head Type 17 screw. Fixing of Top Hat to steel framing; 10-16x16mm Hex Head Tek screw. Fixing of Hebel® PowerPanel ^{XL} to top hat 14-10x90mm Hex Head Type 17 screw. Fixing of Hebel® PowerPanel ^{XL} panels to Top Hat from inside of buildings 14-10x65mm Hex Head Type 17 Screw (Boundary walls only). Fixing of Hebel® PowerPanel ^{XL} panels to Top Hat from inside of buildings; 14-10x65mm Hex Head Type 17 screw (Zero Boundary walls only).																								
Hebel® Mortar	Hebel® Mortar (supplied in 20kg bags) when required is used as a thick bed mortar base to provide a level base for Hebel® PowerPanel ^{XL} installation as well as providing acoustic and fire protection at the base of the panels.																								
Hebel® Adhesive	Hebel® Adhesive (supplied in 20kg bags) is used for gluing the Hebel® PowerPanel ^{XL} panels together at vertical and horizontal joints.																								

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Hebel® Patch	Minor Chips or damage to Hebel® PowerPanel ^{XL} panels are to be repaired using Hebel® Patch (supplied in 10kg bags).
Hebel® Anti Corrosion Protection Paint	To coat reinforcement steel that has been exposed during cutting of the panels.
Hebel external Aluminium Render Bead (optional)	Hebel external Aluminium Render Bead is used to provide neat and consistent horizontal control joints. *Note; this option is not a Fire Rated option
Wall Wrap	Thermoseal Wall Wrap XP, Enviroseal ProctorWrap RW, Thermoseal Wall Wrap PRIME, Polyair Performa 4.0 XHD.

A3 Product specification

The properties of the wall systems relevant to the Hebel® PowerPanel^{XL} Wall System, as described herein, vary with the configuration of the wall structure. It is therefore considered essential that this certificate be read in conjunction with [HELIT016_MARCH20 Houses and Low Rise Multi Res PowerPanelXL External Walls DIGuide](#).

Fire resistance Level	Depending on the system configuration; Refer HELIT016_MARCH20 Houses and Low Rise Multi Res PowerPanel^{XL} External Walls DIGuide the following FRLs can be achieved.	
	HELIT016_MARCH20 Figures	FRL
	3.6.5.7	180/180/180
	3.6.7.1	-/120/120
	3.6.7.2	-/120/120
	3.6.7.5	-/120/120
	3.6.7.9	-/120/120
	3.6.7.10	-/120/120

Fire resistance Level (FRL 180/180/180)

Compliance with FRL 180/180/180 subject to the following conditions:

- The panel wall is constructed using 3000mm x 600mm x 75mm thick CSR PowerPanel^{XL} panels with a minimum nominal density of 400 kg/m³;
- The timber framed wall system is designed for a load calculated in accordance with the requirements of the relevant timber frame design codes, with no load shedding permitted to the Hebel PowerPanel^{XL};
- The maximum wall height per level is restricted to 3300-mm, with the steel tophat sections spaced at maximum 1200mm centres over the panel height;
- An approved fire rated mastic may be substituted for the Hebel thick bed mortar for gaps larger than 3mm in width at the base of the panels when used in conjunction with a concrete slab rebate;
- Where Hebel PowerPanel^{XL} panels are provided with a steel shelf angle fixed to the vertical face of the concrete slab as shown in Figure 2 to provide protection to the wall cavity, an approved fire rated mastic is to be applied to all gaps at the base of the panels and between the steel shelf angle and the vertical face of the concrete slab. The steel shelf angle is required to have a horizontal angle leg length of 75-mm (BMT 1.2-mm) with a minimum of 40-mm cover to the bottom of the PowerPanel^{XL}. The steel shelf angle is to be kept a minimum of 15-mm clear of the timber bottom plate;
- All footing and wall junction details are to be as shown in [HELIT016_MARCH20 Houses and Low Rise Multi Res PowerPanelXL External Walls DIGuide](#), Footing Junction detail, Suspended Base Detail, Typical Roof Eaves detail and Typical Eaves detail (No Eave Overhang) Roof Parapet Wall Detail.
- All soffit and eaves linings are to be designed to maintain the FRL of the external wall system.
- The maximum wall height per level may be either supported at the base by a slab edge rebate, shelf angle or similar, and upper storey panels may be considered to be suspended from the frame.

Source: CSIRO Ref No. FCO-3003/SP3672 dated 13 April 2016 reaffirmed CSIRO Ref No. FCO-3003 Review Letter dated 28/05/ 2018.

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Thermal Properties

75mm Hebel PowerPanel^{XL} 413kg/m³ External Wall System

	Insulation path Total R, m ² K/W		Overall (Timber Framing 12.13% area) Total R, m ² K/W		Overall (Steel Framing 5.3% area) Total R, m ² K/W	
	Summer	Winter	Summer	Winter	Summer	Winter
	75mm Hebel PowerPanel ^{XL} (4% M.C.), 24+64=88mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.91	R0.92	R0.95	R0.97	R0.91
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.05, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.84	R1.88	R1.87	R1.91	R1.79	R1.84
75mm Hebel PowerPanel ^{XL} (4% M.C.), 20mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0HDXD e0.05/0.03, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.10	R2.14	R2.13	R2.16	R2.05	R2.09
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.07, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.05	R3.19	R2.89	R3.01	R2.81	R2.94
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.71	R2.85	R2.55	R2.66	R2.43	R2.55
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35+64=99mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.91	R0.92	R0.95	R0.97	R0.91	R0.93
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.05, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.84	R1.88	R1.87	R1.91	R1.79	R1.84
75mm Hebel PowerPanel ^{XL} (4% M.C.), 31mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0HDXD e0.05/0.03, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.10	R2.14	R2.13	R2.16	R2.05	R2.09
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.07, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.05	R3.19	R2.89	R3.01	R2.81	R2.94
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.71	R2.85	R2.55	R2.66	R2.43	R2.55
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24+70=94mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.91	R0.92	R0.95	R0.97	R0.91	R0.93
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.05, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.94	R1.98	R1.97	R2.01	R1.89	R1.93
75mm Hebel PowerPanel ^{XL} (4% M.C.), 20mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0HDXD e0.05/0.03, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.10	R2.14	R2.13	R2.16	R2.05	R2.09
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.07, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.18	R3.34	R3.00	R3.13	R2.92	R3.05
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.84	R3.00	R2.65	R2.77	R2.53	R2.65
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35+70=105mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.91	R0.93	R0.96	R0.99	R0.92	R0.94
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.05, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.84	R1.88	R1.87	R1.91	R1.79	R1.84
75mm Hebel PowerPanel ^{XL} (4% M.C.), 31mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0HDXD e0.05/0.03, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.10	R2.14	R2.13	R2.16	R2.05	R2.09
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.07, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.18	R3.34	R3.00	R3.13	R2.92	R3.05

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75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.84	R3.00	R2.65	R2.77	R2.53	R2.65
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24+90=114mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.91	R0.93	R0.97	R0.99	R0.92	R0.94
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated semireflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.05, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.88	R1.92	R1.91	R1.95	R1.83	R1.87
75mm Hebel PowerPanel ^{XL} (4% M.C.), 20mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0HXD e0.05/0.03, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.10	R2.14	R2.13	R2.16	R2.05	R2.09
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.87, Bradford Gold Wall Batts R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.17	R3.36	R2.99	R3.15	R2.91	R3.07
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford Gold Wall Batts R2.5, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.33	R3.52	R3.00	R3.15	R2.87	R3.02
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford Polymax Wall Batt R2.5, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.33	R3.52	R3.00	R3.15	R2.87	R3.02
75mm Hebel PowerPanel ^{XL} (4% M.C.), 24mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford Gold Wall Batts R2.7 HP, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.53	R3.71	R3.15	R3.29	R3.01	R3.16
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35+90=125mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.91	R0.93	R0.97	R0.99	R0.92	R0.94
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.05, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.84	R1.88	R1.87	R1.91	R1.79	R1.84
75mm Hebel PowerPanel ^{XL} (4% M.C.), 31mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0HXD e0.05/0.03, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.10	R2.14	R2.13	R2.16	R2.05	R2.09
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e0.09/0.87, Bradford Gold Wall Batts R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.17	R3.36	R2.99	R3.15	R2.91	R3.07
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford Gold Wall Batts R2.5, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.33	R3.52	R3.00	R3.15	R2.87	R3.02
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford Polymax Wall Batt R2.5, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.33	R3.52	R3.00	R3.15	R2.87	R3.02
75mm Hebel PowerPanel ^{XL} (4% M.C.), 35mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford Gold Wall Batts R2.7 HP, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.53	R3.71	R3.15	R3.29	R3.01	R3.16

Notes:

- Above all for 10mm Plasterboard Plus lining.
- The above results are for 75mm 413kg/m³ External Wall System. For 400kg/m³ product, Total R values will be slightly higher, thus the displayed values can be used conservatively for 400kg/m³ product systems.
- Timber framing assumed to be 45mm thick and studs 600mm centres + top and bottom plates and one noggin.
- Steel framing assumed to be 35mm thick and studs 600mm centres + top and bottom plates and one noggin (No thermal break present).

Source: James M Fricker; Report i107e; Thermal performance calculations to AS/NZS 4859 Parts 1 & 2:2018; Dated 03/03/2020.

Thermal Properties

Panel	PowerPanel ^{XL} and Thermoseal wall wrap PRIME				Insulation path Total R, m ² K/W		Overall (Timber Framing 12.13% area) Total R, m ² K/W		Overall (Steel Framing 5.8% area) Total R, m ² K/W	
	Frame	Insulation	Wall Wrap	Batten	Summer	Winter	Summer	Winter	Summer	Winter
PowerPanel ^{XL}	90mm stud frame	No batts	Thermoseal wall wrap PRIME	24mm top hat	1.53	1.57	1.56	1.59	1.45	1.48
	70mm stud frame				1.53	1.57	1.54	1.57	1.44	1.48
	90mm stud frame	90mm Gold Batts R2.0			2.82	3.02	2.63	2.79	2.35	2.49
	70mm stud	75mm R1.5 batt			2.29	2.44	2.17	2.29	2.00	2.11

Notes:

- System Total R determinations based upon AS/NZS 4859 Parts 1&2:2018, Thermal insulation materials for buildings.
- Assumes thermal resistance of 75mm Hebel PowerPanel^{XL} (dry density 413kg/m³) is R0.52 m².K/W for 4.0% moisture content.
- Bradford Thermoseal Wall Wrap PRIME e0.9/0.05 assumed to have normal infrared emittances as stated.
- Timber framing assumed to be 45mm wide and studs 600mm centres + top and bottom plates and one noggin.
- Steel framing assumed to be 35mm wide and studs 600mm centres + top and bottom plates and one noggin. (No thermal break present.)

Source: James M Fricker; Report i107f; Thermal performance calculations to AS/NZS 4859 Parts 1 & 2:2018; Dated 04/03/2020.

A4 Manufacturer and manufacturing plant(s)

CSR Hebel®
112 Wisemans Ferry Rd,
Somersby NSW 2250.

A5 Installation requirements

1. Only to be installed in accordance with [HELIT016 MARCH20 Houses and Low Rise Multi Res PowerPanel^{XL} External Walls DIGuide](#), incorporating [Hebel PowerPanel^{XL} External Walls Slab Edge Rebate Technical Update TU-033 dated 17/08/2020](#).
2. The Hebel® PowerPanel^{XL} Wall System is only to be installed by a suitably qualified tradesperson or a builder.
3. The walls are constructed in accordance with AS 5146.3:2018.
4. Stud wall support frame to be designed and certified by others.
5. External coating system to be in accordance with AS 5146.3:2018 and comply with AS/NZS 4548.5-1999 and must be suitable and compatible with AAC substrate (with priming where required).
6. The first (texture) coat and second (finish) coats must be acrylic latex coatings complying with AS/NZS 4548.5-1999.
7. The coatings must be suitable and compatible with AAC Hebel substrate (with priming where required).
8. Coatings to comply with AS/NZS 4548.5-1999.
9. Coating manufacturer to specify minimum coating dry film thickness to comply with AS/NZS 4548.5-1999.
10. The following External coating systems are acceptable for use with PowerPanel^{XL} 75mm;
 1. Rockcote Armorflex
 2. Dulux AcraTex
11. AECOM validate the system to vary the minimum clearance from the bottom of the wall cladding under the BCA requirement 3.5.4.7 to a minimum of 25mm provided the coating at the base of 50 and 75mm Hebel panels shall return to the underside of panel to ensure continuity of the weather tightness layer.

When Hebel AAC products are installed with their base below ground the following conditions must apply:

- The maximum depth of embedment of Hebel AAC products below grade is 100mm (i.e. no more than 100mm above the lowest part of the Hebel AAC).
- Hebel AAC products must not be used to retain garden beds, earth, soil or other organic matter, Hebel AAC is not to be used as a retaining wall structure.
- The base of the Hebel AAC product must be coated with "Hebel Base Sealer" prior to installation.
- The lower 150mm of the rear face of the Hebel AAC product may be coated with "Hebel Base Sealer" prior to installation, however, this is not essential.
- The lower 200mm of the front / external face of the Hebel AAC product must be coated with "Hebel Base Sealer" after installation but prior to render coating, covering the panel to panel joints.
- To promote drying of the soil and subsurface adjacent to the external wall, drainage of the Finished Ground Level (and pavements) must fall away from the building at a minimum grade of 1:100.
- Even when coated, the builder must ensure external walls are not constantly wet.
- CSR Hebel details shown on drawings CSR-03 Rev C & CSR-05 Rev B apply.
- DPC must be installed to maintain a continuous damp barrier around the perimeter of the building.
- Suitable Termite protection must be installed in accordance with AS 3660.1:2014 and maintained in accordance with AS 3660.2:2017.

Source: Clarkson Consulting Services Pty Ltd report date 11/12/2019.

A6 Other relevant technical data

Acoustic Properties	Stud Frame	Top Hat Cavity	Hebel Panel	Plasterboard	Batts	Wall Wrap	R _w	Ctr
	64mm Steel	24mm	PowerPanel ^{XL}	10mm Light Weight	None	Thermoseal wall wrap XP Plus	40	-10
						Polyair Performa 4.0 HXD	40	-10
						Thermoseal wall wrap XP	43	-11
		70mm Bradford Soundscreen Batts R _m 2.0			Enviroseal ProctorWrap RW	43	-11	
		None			Thermoseal wall wrap XP Plus	40	-9	
					Polyair Performa 4.0 HXD	40	-9	
	92mm Steel	24mm	PowerPanel ^{XL}	10mm Light Weight	70mm Bradford Soundscreen Batts R _m 2.0	Thermoseal wall wrap XP	44	-11
						Enviroseal ProctorWrap RW	44	-11
						Thermoseal wall wrap XP Plus	40	-9
		90mm Bradford Gold Wall Batts R2.0			Thermoseal wall wrap XP	44	-11	
		90mm Bradford Gold Wall Batts R2.5			Enviroseal ProctorWrap RW	44	-11	
		90mm Bradford Polymax Wall Batts R2.5			Enviroseal ProctorWrap RW	44	-11	
35mm	PowerPanel ^{XL}	10mm Light Weight	90mm Bradford Gold Wall Batts R2.7	Enviroseal ProctorWrap RW	44	-11		
				Thermoseal wall wrap XP Plus	40	-9		
				Polyair Performa 4.0 HXD	40	-9		
	90mm Bradford Gold Wall Batts R2.0		Thermoseal wall wrap XP	44	-11			
	90mm Bradford Gold Wall Batts R2.5		Enviroseal ProctorWrap RW	44	-11			
	90mm Bradford Polymax Wall Batts R2.5		Enviroseal ProctorWrap RW	44	-11			
	90mm Bradford Gold Wall Batts R2.7	Enviroseal ProctorWrap RW	44	-11				

Source: Acoustic Logic Report No. 20140366.34/1909A/R3/GW dated 19/07/2017

Certificate of Conformity

Bushfire	The 75mm Hebel [®] PowerPanel ^{XL} Wall System can contribute to satisfying the NCC Performance Requirements for the construction of buildings in bushfire prone areas up to BAL - FZ, where the configuration achieves an FRL of 30/30/30 or -/30/30 in accordance with AS 3959:2018 clause (9.4.1). Refer to The Houses and Low Rise Multi-Residential External Walls (Hebel [®] PowerPanel ^{XL} Panel) Design and Installation Guide HELIT016_MARCH20, for further information.
Non Combustibility	The certificate holder has provided the Certificate of Test for Combustibility for Materials in accordance with AS 1530.1:1994 for 75mm Hebel [®] PowerPanel ^{XL} Panel– Autoclaved Aerated Concrete (AAC) of density 400kgm ³ . The material is NOT deemed combustible - Limited to the panel only. <i>Source: CSIRO; NATA Accreditation No. 165; Report No. FNC12490 dated 11/11/2019.</i>

APPENDIX B – EVALUATION STATEMENTS

B1 Evaluation methods

1. Fire safety provision A5.2(1)(d) & (e). Reports from Accredited Testing Laboratories and Qualified Professional Engineer.
2. Structural Provision A5.2(1)(e). Reports from Qualified Professional Engineer.
3. Thermal provision A5.2(1)(e). Reports from Qualified Professional Engineer.
4. Weatherproofing A5.2(1)(e). Reports from Qualified Professional Engineer.

B2 Reports

1. AECOM; Letter dated 02 April 2020; Assessment of CSIRO Weatherproofing report above and coatings; Dated 02/04/2020.
2. Clarkson Consulting Services Pty Ltd; Assessment of Hebel Wall Systems – Installation Below Ground; Dated 11/12/2019.
3. CSIRO; NATA Accreditation No. 165; Ref No. FCO-3003/CO4942; Assessment Review renewal letter for report FCO-3003/SP3672; Dated 28/05/2018, Expires 31/05/2023.
4. CSIRO; NATA Accreditation No. 165 (not accredited testing for this standard); Report number DTF1021; Weatherproofing testing to AS/NZS 4284:2008; Dated 27/01/2015.
5. James M Fricker Pty Ltd; Report i107e; Thermal performance calculations; Dated 03/03/2020.
6. PACE Structural; File PS18153; Structural Design Certificate – 75mm XL Hebel Vertical External Wall System; Dated 15/03/2020.
7. The Coatings Consultancy Pty Ltd; Reference No. TCC20049-20200820; Clearance between external Hebel PowerPanel Walls and Finished Ground Level; Dated 20/08/2020.
8. WarringtonFire; NATA Accreditation No. 3277; Report No. 27915.24; FRL assessment of penetrations; Dated 20/08/2019.

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