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THIS IS TO CERTIFY THAT

Hebel® High Rise Façade Wall System

Type and/or use of product:

Hebel® High Rise Façade Wall System is a non-loadbearing external wall system.

Description of product:

Hebel® High Rise Façade Wall System comprises 75mm steel reinforced autoclave aerated concrete (AAC) Hebel® PowerPanel™ or Hebel® PowerPattern™ Panels secured vertically to structural (cold formed) steel or timber support framing.

Refer to 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) Structural reliability - Subject to <i>limitation and condition 9</i>	P2.1.1(a), (b)(i)(ii)(iii)(iv) Structural stability and resistance - Subject to <i>limitation and condition 9</i>
	FP1.4 Weatherproofing – Subject to <i>limitation and condition 8</i>	P2.2.2 Weatherproofing – Subject to <i>limitation and condition 8</i>
Deemed-to-Satisfy Provision(s):	C1.1(b) Fire resistance and Stability – Subject to <i>limitation and condition 1</i>	3.7.2.4(b)(i) Fire resistance and Stability – Subject to <i>limitation and condition 1</i>
	C1.9 Non-combustible building elements – Subject to <i>limitation and condition 2</i>	3.8.7.2(a)(i) Condensation management - Pliable building membrane.
	C1.14 Fire resistance - Ancillary elements – Refer A3	3.12.1.4 Energy efficiency – External walls. Can be used in conjunction with other building elements to achieve a Total R Value. Refer to A3
	F6.2(a)(i) Condensation management – Pliable building membrane.	
	J1.5 Energy efficiency – External walls. Can be used in conjunction with other building elements to achieve a Total R Value. Refer to A3	
State or territory variation(s):	Not applicable	Part 3.12 (NSW, NT, SA, Qld, Tas, ACT)


 Richard Donarski - CMI


 Don Grehan – Unrestricted Building Certifier

Date of issue: 16/11/2021

Date of expiry: 08/10/2022



Certificate of Conformity

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

Limitations and conditions:

1. Compliance with FRL is dependant on the system components being as specified in A3. Any deviation from the tested specimen or the variations outlined in A3 do not form part of this Certificate of Conformity.
2. The non-combustibility requirements of C1.9 only apply where this system is installed using steel stud frames. Where timber stud frames are used, this system may only be installed where concession for timber framed construction apply, in the NCC.
3. The wall systems using 75mm Hebel® PowerPanel™ or Hebel® PowerPattern™ have 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.
4. The installation of the systems must be in accordance with the [CSR Hebel® Design and Installation Guide – HELIT015Oct21](#) as outlined in *A5 Installation requirements* of this Certificate of Conformity.
5. Design certification for earthquake loading compliance in accordance with AS 1170.4:2007 excludes Meckering Regions and Island Regions as stipulated in Table 3.2 of AS 1170.4:2007. Components approved under this certificate are not part of the seismic-force resisting system. Stud wall support frame to be designed and certified by others.
6. A 5mm thick galvanised continuous shelf angle; grade G250 is required fixed to the edge of the Hidden Slab Edge system with the distance between the external face of the panel and the slab face not exceeding 125mm.
7. When using Hebel® PowerPattern™, a layer of 16mm thick CSR Fyrchek™ plasterboard sheet is to be used for internal wall lining as per manufacturer's requirements for Visible Slab Edge variation when -/180/180 FRL is required from the Hebel Side only.
8. To satisfy FP1.4 & P2.2.2 via verification, the relevant design is required to meet the criteria of FV1.1 and/or V2.2.1 to the satisfaction of the Appropriate Authority as defined by the NCC. The site specific building must;
 - (a)(i) have a risk score of 20 or less, when the sum of all risk factor scores is determined in accordance with Table FV1.1/V2.2.1a; and
 - (a)(ii) not be subjected to an ultimate limit state wind pressure of more than 2.5kPa; and
 - (a)(iii) include only windows that comply with AS 2047.
 Compliance with Weatherproofing is limited to the tested specimen detailed in A3, deviations from this specimen, is subject to site specific design and approval by the regulatory authority.
9. This certification is limited to the use of 75mm Hebel® PowerPanel™ or Hebel® PowerPattern™ panels for the purpose of a non-loadbearing external wall system.
10. Other than the items and information listed, the remainder of the information contained in the product's literature is outside the Scope of Certification
11. 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.

Building classification/s:

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

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.



Certificate of Conformity

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.

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™ or Hebel® PowerPattern™ High Rise Façade Wall System Components

Product	Description
Hebel® PowerPanel™	Thickness: 75mm
	Standard Width: 600mm
	Standard Length: 2500, 2550, 2700, 2800, 2850, 3000, 3300mm (square edge, single mesh) 3600, 4200mm (T&G, caged mesh) Tolerance: ±5mm
	Reinforcement: 4 x 4mm longitudinal steel bars
	Nominal Dry Density: 510 kg/m ³
Hebel® PowerPattern™	Thickness: 75mm (10mm routed into Hebel® PowerPanel™ to form Hebel® PowerPattern™)
	Standard Width: 600mm
	Standard Length: 3000, 3050, 3100, 3300mm
	Reinforcement: 4 x 4mm longitudinal steel bars
Hebel® PowerProfile®	Nominal Dry Density: 510 kg/m ³ (when using Hebel® PowerPanel™ panels)
Hebel® PowerProfile®	Universal backing clip: Fixed to the Hebel® PowerPanel™ and a powder coated aluminium profile snaps onto the clip
Rondo Steel Stud Framework	Zinc coated steel studs, noggings and head and base tracks are used to create separated stud framework. All steel stud framework components are to be designed in accordance with framing manufacturer's specifications, and AS/NZS 4600:2018
Hebel® High Rise Façade Top Hat	Top Hats are used to fix the Hebel® PowerPanel™ or Hebel® PowerPattern™ AAC Panel to the structural support framing. 50mm x 4.8m x 0.75mm BMT (also used as cavity baffle)
Hebel® Shelf Angle	Used in the hidden slab edge system. It is the responsibility of the project engineer to confirm suitability of the angle, connection system and durability performance and additional protection requirements. 150mm x 100mm x 3m x 6mm
Fasteners & Fixings	Fixing of Top Hat to steel framing; 10-16x16mm Hex Head self drilling screw.
	Fixing of Hebel® PowerPanel™ or Hebel® PowerPattern™ Panel to top hat 14-10 x 100 bugle head type 17 OR 14-10 x 90 hex head type 17 screw
Hebel® Adhesive	Hebel® Adhesive is used for gluing the Hebel® PowerPanel™ or Hebel® PowerPattern™ AAC Panel together at vertical and horizontal joints.
Hebel® Patch	Minor Chips or damage to Hebel® PowerPanel™ or Hebel® PowerPattern™ AAC Panel are to be repaired using Hebel® Patch.
Hebel® Anti Corrosion Protection Paint	To coat reinforcement steel that has been exposed during cutting of the panels.
Wall Wrap	Bradford Enviroseal™ or DuPont™ Tyvek® HomeWrap®
CSR Fireseal™ sealant.	Max. 10mm wide and full depth of plasterboard lining at perimeter
Selleys Fireblock XT	Sealant Min 10mm depth for 10mm wide joint, Min 16mm depth for 20mm wide joint
Bradford Insulation	Glasswool batts to AS/NZS 4859.1:2018
Gyprock® Plasterboard	13mm plasterboard. For internal fire rating, Gyprock® Fyrchek is to be used

Fixings	PowerPanel to top hat - 14-10 x 100mm bugle head type 17 screw or 14-10 x 90mm bugle head type 17 screw Top hat to steel framing - 10-16 x 16mm hex head self-drilling screw
DPC/Flashing	Plastic flashing minimum 100mm wide for wall junction and wider for base of facade wall when on exposed slab. Overlap details to manufacturer's specifications
Backing Rod	Backing rod (gasket) is used to enable correct filling of joints with sealant. Open cell type backing rod is recommended to enable sealant to cure from behind. The diameter of backing rod must be appropriate for the width of the gap being filled

A3 Product specification

Structural Reliability – Structural Reliability and Resistance

Structural capacity design calculations for strength and serviceability requirements were carried out in accordance with the current relevant building and structural engineering codes in particular; AS 1170.2:2011 (R2016), AS 1170.4:2007, AS 4055:2012 and AS 5146.2:2018 for the Hebel® High Rise Façade Wall System using 75mm Hebel® PowerPanel™ or 75mm Hebel® PowerPattern™.

Structural adequacy of the 75mm Hebel® PowerPanel™ or 75mm Hebel® PowerPattern™ panels and their immediate fixings used for High Rise Facades with respect to [CSR Hebel® Design and Installation Guide – HELIT015APR21](#).

Source: PACE Structural, Report No. PS21034 dated 24 April 2021.

Fire resistance and Stability

System Component	Hidden Slab Edge	Exposed Slab Edge	Combustibility
FRAMING SYSTEM			
RONDO 92 x 50 x 1.15mm BMT deflection head track (or approved equivalent)	✓	✓	Non-Combustible Subject component is constructed out of light gauge steel.
RONDO 92 x 32 x 1.15mm BMT lipped studs (or approved equivalent)	✓	✓	
Timber stud framed construction (for class 1a & 10a structures), or where permitted under concessions where timber framing can be used for the specified building class(es).	✓	✓	
		✓	Combustible Complies with BCA Clause C1.9
	✓	✓	
10-16mm x 16 hex head tek Top Hat fastener	✓	✓	Subject component is constructed out of light gauge steel
	✓		
	✓		
Galvanised mechanical anchors at 600mm centres: Hilti HSA-F M10 (to fix shelf angle to slab edge)	✓		
Non-compressible packers to suit	✓	✓	Non-Combustible Complies with BCA Clause C1.9
Backing Rod	✓	✓	
Selleys Fireblock XT	✓	✓	

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System Component	Hidden Slab Edge		
Hebel® AAC Panel	✓	✓	Subject component is constructed out of Autoclaved Aerated Concrete.
Hebel Anti-Corrosion Protection Paint	✓	✓	Complies with BCA Clause C1.14
Hebel® Adhesive	✓	✓	Subject component is constructed out of Portland cement, fine sand aggregate and calcium carbonate filler.
	✓	✓	
Pressure equalization slots	✓	✓	Combustibility requirements not applicable
	✓	✓	
Screw: 14-10 x 150 bugle head type 17 OR Screw: 12-11 x 35 hex head for fastening top hats to timber stud frames	✓	✓	Complies with BCA Clause C1.9
Hebel® patch	✓	✓	<u>Non-Combustible</u> Subject component is constructed out of Portland cement, Calcium sulfoaluminate cement and calcium carbonate filler.
Flashing / DPC - not supplied by CSR	✓	✓	<u>Combustible</u> Complies with BCA Clause C1.9
Gyprock plasterboard	✓	✓	
Bradford insulation	✓	✓	
HEBEL POWERPROFILE®			
Aluminium profiles and end caps	✓	✓	<u>Non-combustible</u>
Universal backing clip (without tape)	✓	✓	Subject component is constructed out of aluminium.
3M VHB Tape GPH 110 (1.1 mm thick)	✓	✓	<u>Combustible</u> Complies with BCA Clause C1.14 as discussed in Section 9.1.3.
Screw: 6G 1-3/4" (44 mm) Stainless Steel	✓	✓	<u>Non-combustible</u> Subject component is constructed out of light gauge steel.

Fire Resistance for various configurations of CSR Hebel® panels

An assessment of the fire resistance of wall system comprising 75mm thick Hebel® PowerPanel™ tongue and groove panel or nil profile with various steel stud plasterboard lined wall systems on one side has been conducted in accordance with AS 1530.4-2014 based on the following schedule of assessed components:

FRL Assessment of Hebel® PowerPanel™

Item	Description	
Hebel® PowerPanel™	Size	300mm wide and 75mm thick with single reinforcement or 600mm wide and 75mm thick with single reinforcement.
	Installation	Panels fitted together with either tongue and groove or nil profile arrangement in vertical orientation and laterally restrained at wall junctions and at panels ends with steel angles. Fixed through Hebel façade top hat and connected with steel stud framed wall using two 14-10 x 100mm MP Bugle head screws per 300mm wide panel and three screws per 600mm wide panel. For nil profile Hebel® PowerPanel™ panel arrangement, the panel joint shall be maximum 3mm wide and fully filled with CSR Hebel® thin bed adhesive.
Sealant	Material	Selleys Fireblock XT sealant.
	Installation	Max. 20mm wide x 16mm deep on external side of Hebel® PowerPanel™ panel along top edges, between panels and bottom edge.
Polyethylene Backing Rod	Installation	Placed between panels and support construction leaving the required recess depth for the Selleys Fireblock XT sealant.
Steel Stud	Material	Rondo 92mm x 32mm x 1.15mm BMT lipped studs.
	Installation	Installed at maximum 450mm centres and nogging shall be installed at mid wall height.
Hebel Façade Top Hat	Material	50mm x 4.8m x 0.75mm BMT steel top hat.
	Installation	Fixed to steel studs max. 150mm from ends of Hebel® PowerPanel™ panel top and bottom and max. 900mm centres in between.
Plasterboard Lining	Material	CSR Fyrchek™ plasterboard
	Installation	Linings shall be horizontally fixed to one side of steel wall framing.
Sealant	Material	CSR Fireseal™ sealant.
	Installation	Max. 10mm wide and full depth of plasterboard lining at perimeter.
Shelf steel angle	Material	Min. 5mm thick hot rolled steel angle.
CSR Hebel thin bed adhesive	Material	Proprietary Cementitious Mortar.
	Installation	Applied to the joint in the panels to full depth of panel.

The test specimen comprised a non-loaded timber frame of 70mm x 35mm F5 soft wood studs at 430mm centres. The top plate was bolted to the specimen-containing frame. The bottom plate was fixed with masonry anchors to the brick infill at the lower edge of the specimen. Steel top hat sections, BHP top span 22 ceiling baton, were fixed horizontally to the timber frame. The Hebel® PowerPanel™s, 75mm thick and 600mm wide were fixed to the top hat section with 14 gauge-10 x 65 hex head type 17 class 3 screws. The individual panels were fixed with two screws through the top, three screws through the middle and two screws through the lower top hat section. The unexposed face was clad with 10mm CSR plasterboard.

Assessed modifications to Hebel Façade Wall System (without routed panels):

The following linings are subject to installation in accordance with the Plasterboard fixing requirements detailed below.

Lining on Side 1	Lining on Side 2	Wall Framing	FRL
75mm thick Hebel® PowerPanel™ panel	1 x 16mm CSR Fyrchek™	92mm deep steel framing at max. 450mm centres, (Subject to amended variation in <i>Stephen Grubits & Associates; Report 113337-FSE2-r2; Determination of FRL By Calculation; Dated 05/08/2021</i>)	-/60/60
	2 x 13mm CSR Fyrchek™		-/90/90
	2 x 16mm CSR Fyrchek™		-/120/120
	3 x 16mm CSR Fyrchek™		-/180/180
	1 x 10mm CSR non fire rated plasterboard		-/180/180 (From Hebel side only)
	1 x 13mm CSR non fire rated plasterboard		-/180/180 (From Hebel side only)

Plasterboard Fixing Requirements

Wall Lining Thickness	No. of Layers	Plasterboard installation		
		1 st Layer (inner layer)	2 nd Layer	3 rd Layer (outer layer)
16mm	1	Screw type: S 6-18 x 30 DP screws Fixed at max. 300mm centres in steel studs. The butt joints shall be screwed staggered at max. 200mm centres.	-	-
13mm	2	Screw type: S 6-18 x 25 DP screws Fixed at max. 300mm centres in steel studs. The butt joints shall be screwed staggered at max. 200mm centres.	Screw type: S 6-18 x 40 DP screws Fixed at max. 300mm centres in steel studs. The butt joints shall be screwed at max. 200mm centres and staggered at 100mm.	-
16mm	2	Screw type: S 6-18 x 30 DP screws Fixed at max. 300mm centres in steel studs. The butt joints shall be screwed staggered at max. 200mm centres.	Screw type: S 6-18 x 45 DP screws Fixed at max. 300mm centres in steel studs. The butt joints shall be screwed at max. 200mm centres and staggered at 100mm.	-
16mm	3	Screw type: S 6-18 x 30 DP screws Fixed at max. 300mm centres in steel studs. The butt joints shall be screwed at max. 200mm centres, staggered at 100mm and 50mm spacing between the vertical joint and the screws.	Screw type: S 6-18 x 45 DP screws Fixed at max. 300mm centres in steel studs. The butt joints shall be screwed at max. 200mm centres, staggered at 100mm and 50mm spacing between the vertical joint and the screws.	Screw type: 10 x 40mm laminating screw Fixed at max. 400 x 400mm grid. The butt joints shall be screwed at max. 200mm centres, staggered at 100mm and 50mm spacing between the vertical joint and the screws.

Source: Exova Warringtonfire; NATA Accreditation 3277; Report number 43090900.3; Fire resistance in accordance with AS 1530.4:2014; Dated 08/10/2021.

Variations to linings and framing

Frame	Orientation of panel	Interior Lining	Direction of Fire	FRL
Timber or Steel	Vertical fixed to frame*	Standard grade plasterboard	Outside Only	-/60/60 or 60/60/60
Timber	Vertical fixed to frame*	1 x 16mm Fyrchek	Inside and Outside	-/60/60 or 60/60/60
Steel	Vertical fixed to frame*	1 x 13mm or 1 x 16mm Fyrchek	Inside and Outside	-/60/60 or 60/60/60
Timber or Steel	Vertical fixed to frame*	Standard grade plasterboard	Outside Only	-/90/90 or 90/90/90
Timber or Steel	Vertical fixed to frame*	2 x 13mm or 1 x 16mm Fyrchek	Inside and Outside	-/90/90 or 90/90/90
Timber or Steel	Vertical fixed to frame*	Standard grade plasterboard	Outside Only	-/120/120 or 120/120/120
Timber or Steel	Vertical fixed to frame*	2 x 16mm Fyrchek	Inside and Outside	-/120/120 or 120/120/120

*Installation requirements as per A5 of this Certificate of Conformity.

Note: Stud Spacings at 450mm or 600mm centres dependent on applied loading including wind.

Source: IGNI Solutions Pty Ltd; Report No. IGNS-8349 I02R04 Hebel Wall Compliance dated 17/03/2021. **(Report is available upon request, contact Hebel Technical Services)**

FRL Assessments of Hebel® PowerPattern™

The assessment conducted by Stephen Grubits and Associates confirms that the below Wall Systems and arrangements could be expected to achieve the desired FRLs as per the following table, if it were tested to AS 1530.4-2014.

Wall System	Arrangement	FRL	Panel	Lining/Stud Spacing
Hebel® PowerPanel™ façade wall system (with/without PowerProfile®)	Hidden Slab Edge	-/120/120 (two way)	PowerPanel™	2 x 16 mm CSR Fyrchek / 450 mm
	Visible Slab Edge	-/180/180 (two way)	PowerPanel™	3 x 16 mm CSR Fyrchek / 450 mm
Hebel® PowerPattern™ using Hebel® PowerPanel™	Hidden Slab Edge	-/120/120 (two way)	PowerPanel™	2 x 16 mm CSR Fyrchek / 450 mm
	Visible Slab Edge	-/180/180 (two way)	PowerPanel™	3 x 16 mm CSR Fyrchek / 450 mm
Hebel® PowerPattern™ using Hebel® PowerPanel™	Hidden Slab Edge	-/120/120 (one way)	PowerPanel™	1 x 10 or 1 x 13 mm non-firegrade plasterboard
	Visible Slab Edge	-/180/180 (one way)	PowerPanel™	1 x 16 mm CSR Fyrchek
Hebel® PowerPanel™ façade wall system (with/without PowerProfile®)	Hidden Slab Edge	-/120/120 (one way)	PowerPanel™	1 x 10 or 1 x 13 mm non-firegrade plasterboard / 600 mm or 450 mm
	Visible Slab Edge	-/180/180 (one way)	PowerPanel™	1 x 10 or 1 x 13 mm non fire grade plasterboard / 600 mm or 450 mm

Source: Stephen Grubits & Associates; Report No. 113337-FSE2-r2 dated 05/08/2021.

Thermal Properties

Hebel® Vertically Installed Facade Wall System incorporating 75mm Hebel® PowerPanel™ (4% M.C)

The below table gives Total R & Total U values for the thermally bridged whole wall surface (no glazing). The All Wall (bridged) results do not have any thermal break product present, and metal tophats cross metal studs. Assumes thermal resistance of 75mm Hebel® PowerPanel™ (dry density 510kg/m³) is R0.454 m².K/W for 4.0% M.C. R-Values calculated per AS/NZS 4859 Parts 1 & 2:2018, Thermal insulation materials for buildings. Framing details with 92 x 32mm metal studs.

Description of Specimen	Insul Path		All Wall			
	Total R, m ² .K/W		Total R, m ² .K/W		Total R, m ² .K/W	
	Winter	Summer	Winter	Summer	Winter	Summer
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.7 Acoustigard 32 90mm (32kg/m ³), and steel studs at 600mm centres (13mm Gyprock Plasterboard)	R3.69	R3.49	R3.12	R2.98	U0.321	U0.336
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.5 Acoustigard 20 90mm (20kg/m ³), and steel studs at 600mm centres (13mm Gyprock Plasterboard)	R3.49	R3.29	R2.99	R2.84	U0.335	U0.352
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.2 Acoustigard 14 90mm (14 kg/m ³), and steel studs at 600mm centres (13mm Gyprock Plasterboard)	R3.19	R2.99	R2.78	R2.62	U0.360	U0.381
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.7 Acoustigard 32 90mm (32kg/m ³), and steel studs at 450mm centres (16mm Fyrcheck Plasterboard)	R3.71	R3.51	R3.00	R2.86	U0.334	U0.349
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.5 Acoustigard 20 90mm (20kg/m ³), and steel studs at 450mm centres (16mm Fyrcheck Plasterboard)	R3.51	R3.31	R2.88	R2.74	U0.348	U0.365
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.2 Acoustigard 14 90mm (14 kg/m ³), and steel studs at 450mm centres (16mm Fyrcheck Plasterboard)	R3.21	R3.01	R2.69	R2.55	U0.372	U0.393
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.7 Acoustigard 32 90mm (32kg/m ³), and steel studs at 450mm centres (2x13mm Fyrchek Plasterboard)	R3.77	R3.57	R3.09	R2.95	U0.324	U0.339
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.5 Acoustigard 20 90mm (20kg/m ³), and steel studs at 450mm centres (2x13mm Fyrchek Plasterboard)	R3.57	R3.37	R2.96	R2.82	U0.337	U0.354
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.2 Acoustigard 14 90mm (14 kg/m ³), and steel studs at 450mm centres (2x13mm Fyrchek Plasterboard)	R3.27	R3.06	R2.77	R2.62	U0.361	U0.381
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.7 Acoustigard 32 90mm (32kg/m ³), and steel studs at 450mm centres (2x16mm Fyrchek Plasterboard)	R3.80	R3.60	R3.13	R3.00	U0.319	U0.334
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.5 Acoustigard 20 90mm (20kg/m ³), and steel studs at 450mm centres (2x16mm Fyrchek Plasterboard)	R3.60	R3.40	R3.01	R2.87	U0.332	U0.349
75MM HEBEL® POWERPANEL™ (4% M.C.) SYSTEM with 50mm tophat and R2.2 Acoustigard 14 90mm (14 kg/m ³), and steel studs at 450mm centres (2x16mm Fyrchek Plasterboard)	R3.31	R3.10	R2.82	R2.67	U0.355	U0.375

Source: James M Fricker; Report No. i107g; Determination of R values by calculation in accordance with AS/NZS 4859.1:2018, 75mm thickness; Dated 04/02/2021.

Hebel Vertically Installed Façade Wall System with Horizontal top hats incorporating 75mm Hebel® PowerPattern™ dry density 510kg/m³ (10mm Routed Hebel® PowerPanel™) (4% M.C)

The below table gives Total R & Total U values for the thermally bridged whole wall surface (no glazing). The All Wall (bridged) results do not have any thermal break product present, and metal tophats cross metal studs. Assumes thermal resistance of 75mm Hebel® PowerPattern™ (dry density 510kg/m³) is R0.392 m².K/W for 4.0% M.C. R-Values calculated per AS/NZS 4859 Parts 1 & 2:2018, Thermal insulation materials for buildings. Framing details with 92 x 32mm metal studs.

Description of Specimen	Insul Path		All Wall			
	Total R, m ² ·K/W		Total R, m ² ·K/W		Total R, m ² ·K/W	
	Winter	Summer	Winter	Summer	Winter	Summer
75MM HEBEL POWERPATTERN™ (10mm routed panel) (4% M.C.) SYSTEM with 50mm tophat and Acoustigard 14 R2.2 90mm, 14kg/m ³ , and steel studs at 600mm centres (1x16mm Gyprock Fyrchek plasterboard)	R3.16	R2.96	R2.74	R2.58	U0.365	U0.387
75MM HEBEL POWERPATTERN™ (10mm routed panel) (4% M.C.) SYSTEM with 50mm tophat and Acoustigard 14 R2.2 90mm, 14kg/m ³ , and steel studs at 600mm centres (2x13mm Gyprock Fyrchek plasterboard)	R3.23	R3.02	R2.82	R2.66	U0.355	U0.376
75MM HEBEL POWERPATTERN™ (10mm routed panel) (4% M.C.) SYSTEM with 50mm tophat and Acoustigard 14 R2.2 90mm, 14kg/m ³ , and steel studs at 600mm centres (2x16mm Gyprock Fyrchek plasterboard)	R3.26	R3.05	R2.86	R2.70	U0.350	U0.371
75MM HEBEL POWERPATTERN™ (10mm routed panel) (4% M.C.) SYSTEM with 50mm tophat and Acoustigard 14 R2.2 90mm, 14kg/m ³ , and steel studs at 600mm centres (13mm Gyprock Plasterboard)	R3.15	R2.94	R2.71	R2.56	U0.369	U0.391

Source: James M Fricker; Report No. i107g; Determination of R values by calculation in accordance with AS/NZS 4859.1:2018, 75mm thickness (10mm routed panel); Dated 17/08/2021.

A4 Manufacturer and manufacturing plant(s)

CSR Hebel®
112 Wisemans Ferry Road
Somersby NSW 2250.

A5 Installation requirements

1. The installation of the 75mm Hebel PowerPanel™ or 75mm Hebel PowerPattern™ with 10mm routed depth system must be in accordance with the [CSR Hebel® Design and Installation Guide – HELIT015Oct21](#).
2. RONDO steel stud framing must be specified in accordance with the project wind loads as determined by the project design engineer. A design certificate prepared by the stud frame manufacturer or project engineer in regards to the stud framing specification must be provided to CSR Hebel®.
3. The wall studs shall be 92mm deep steel studs installed at maximum 450mm or 600mm (as applicable) centres and installed in accordance with the manufacturer's or project engineer's specification.
4. 75mm Hebel® PowerPanel™ panel shall fixed to steel studs through 50mm × 4.8m × 0.75mm BMT steel tophats which fixed to steel studs at max. 150mm from ends of top and bottom and max. 900mm centres in between.
5. Include a maximum 20mm wide horizontal control joint within 75mm thick Hebel® PowerPanel™ and sealed with minimum 16mm deep Selleys Fireblock XT sealant backed with backing rod.
6. The 75mm thick Hebel® PowerPanel™ shall be either supported on the concrete slab or on a continuous steel shelf angle fixed to the face of the concrete slab.
7. The Hebel® PowerPanel™ shall optionally be nil profile and the panel joints shall be maximum 3mm wide and fully sealed with CSR Fireseal sealant.
8. The 75mm thick Hebel® PowerPanel™ shall be extended to a height of up to 4.2 m.
9. All construction details of the 75mm Hebel® PowerPattern™ system must be identical to CSR Hebel® 75mm PowerPanel™ detailed in Exova Warringtonfire report ref. EWFA 43090900.2 with the only exceptions being the following,
 - Overall or partial thickness of the Hebel® PowerPanel™ may be reduced from 75mm to 65mm by way of routing (to produce Hebel® PowerPattern™); and
 - The wall studs spacing can be increased from 450mm centres to 600mm centres for one way FRL only (from Hebel® PowerPanel™ side).
10. Where required a layer of 16mm thick CSR Fyrchek plasterboard sheet has to be fixed to the internal face of the 75mm Hebel® PowerPattern™ system. This plasterboard sheet must be affixed as specified in the paragraph B.1.2.31 of EWFA 43090900.2.
11. The walls are constructed in accordance with AS 5146.3:2015. AS 5146.3:2018
12. External coating system to be in accordance with AS 5146.3:2015. AS 5146.3:2018
13. The first (texture) coat and second (finish) coats must be acrylic latex coatings complying with AS/NZS 4548:1999 series.
14. The coatings must be suitable and compatible with AAC Hebel® substrate (with priming where required).
15. Coatings to comply with AS/NZS 4548.5:1999.
16. Coating manufacturer to specify minimum coating dry film thickness to comply with AS/NZS 4548.5:1999.

A6 Other relevant technical data

Non Combustibility

75mm Hebel® AAC Panel with density of 510kgm³

The certificate holder has provided the Certificate of Test for Combustibility for Materials in accordance with AS 1530.1:1994 for 75mm Hebel® Panel – Autoclaved Aerated Concrete (AAC) of density 510kgm³. **The material is NOT deemed combustible - Limited to the panel only.**

Source: CSIRO; NATA Accreditation No. 165; Report No. FNC12427A; dated 02/09/2019.

APPENDIX B – EVALUATION STATEMENTS

B1 Evaluation methods

1. Structural Provision – A5.2(1)(e). Reports from qualified professional engineer.
2. Thermal Properties – A5.2(1)(e). Reports from qualified professional engineer.
3. Fire Assessment – A5.2(1)(d). Reports from accredited test laboratories.
4. Weatherproofing – A5.2(1)(e). Reports from qualified professional engineer.
5. Condensation Management – A5.2(1)(e). Reports from qualified professional engineer.

B2 Reports

1. AECOM; Letter dated 8 April 2021; Expert opinion validating Report No DTF 1021' by CSIRO testing to the FV1 And V2.2.1 dated 27 Jan 2015; Dated 08/04/2021.
2. CSIRO; NATA Accreditation No. 165; Report number DTF1021; Water penetration testing to the Verification Methods FV1 & V2.2.1; dated 27/01/2015.
3. CSIRO; NATA Accreditation No. 165; Report number FCO-2532 Revision F; Assessment on the likely fire performance in accordance with AS1530.4-2014; Dated 12/08/2021.
4. CSIRO; NATA Accreditation No. 165; Report number FCO-3039; Assessment on the likely fire performance in accordance with AS1530.4-2014; Dated 24/06/2014; revalidated by CSIRO dated 30/04/2019.
5. CSIRO; NATA Accreditation No. 165; Report number FNC12427A; Certificate of Test for Combustibility Test for Materials in accordance with AS1530.1:1994; Dated 24/07/2019
6. Exova Warringtonfire; NATA Acc No. 3277; Rep No: 43090900.3; Assessment of the fire resistance in accordance with AS1530.4-2014; Dated 08/10/2021.
7. IGNIS Solutions Pty Ltd; Report No. IGNS-8349 I02R04 Hebel Wall Compliance dated 17/03/2021. **(Report is available upon request, contact Hebel Technical Services)**
8. James M Fricker; Report No. i107g; Determination of R values by calculation in accordance with AS/NZS 4859.1:2018, 75mm PowerPanel; Dated 04/02/2021.
9. James M Fricker; Report No. i107g; Determination of R values by calculation in accordance with AS/NZS 4859.1:2018, 75mm PowerPattern (routed panel); Dated 17/08/2021.
10. PACE Structural; File PS21034; Structural Design Certificate; Dated 24/04/2021.
11. Stephen Grubits & Associates; Report No. 113337-FSE2-r2; Determination of FRL By Calculation; Dated 05/08/2021.
12. Stephen Grubits & Associates; Report No. 113337-FSE1-r1; Determination Non-Combustibility of the tested wall system; Dated 26/04/2021.

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