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THIS IS TO CERTIFY THAT

Low Rise Multi Residential Hebel® PowerPanel⁵⁰ AAC External Wall System

Type and/or use of product:

Low Rise Multi Residential External Wall System.

Description of product:

Low Rise Multi Residential Hebel® PowerPanel⁵⁰ comprises a steel reinforced 50mm non load bearing Autoclaved Aerated Concrete (AAC) 510kg/m³ panel, comprising several proprietary components installed vertically and horizontally.

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
Deemed-to-Satisfy Provision(s):	C1.1(b) G5.2 J1.5 F6.2(a)(i)	3.7.2.4(b) 3.10.5.0 3.12.1.4 3.8.7.2(a)(i)
State or territory variation(s):	G5.2 (NSW)	3.8.7.2 (Tas, ACT), 3.10.5.0 (NSW, Qld), Part 3.12 (NSW, NT, Qld, Tas, ACT)
Performance Requirement(s):	Structural reliability	Structural stability and resistance
Deemed-to-Satisfy Provision(s):	Weatherproofing – Refer <i>Limitation and condition 5</i>	Weatherproofing – Refer <i>Limitation and condition 5</i>
State or territory variation(s):	Fire resistance and stability – FRL varies, dependant of the configuration of the wall. Refer <i>Limitation and condition 2</i>	Fire separation of external walls – Construction of external walls - FRL varies, dependant of the configuration of the wall. Refer <i>Limitation and condition 2</i>
	Construction in bushfire prone areas – BAL-FZ	Construction in bushfire prone areas – BAL-FZ
	Energy efficiency – Walls - Refer A3	Energy efficiency – External walls - Refer A3
	Condensation management - Pliable building membrane	Condensation management - Pliable building membrane
		3.8.7.2 (Tas, ACT), 3.10.5.0 (NSW, Qld), Part 3.12 (NSW, NT, Qld, 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 Low Rise Multi Residential Hebel® PowerPanel⁵⁰ 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.

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: 12/11/2020

Date of expiry: 08/10/2021



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2. 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.
3. 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.
4. Only to be installed in accordance with [Houses and Low Rise Multi Residential PowerPanel⁵⁰ External Walls Vertical & Horizontal Installation Guide version HELIT181AUG20](#).
5. In order to achieve compliance with weatherproofing up to and including N3 in accordance with FV1.1 and V2.2.1, all windows must comply with AS 2047:2014. This Certificate of Conformity limits compliance with FP1.4 and P2.2.2 up to and including N3. Weatherproofing does not cover wind classifications N4-N6 & C1-C4.
6. Structural compliance BP1.1(b)(iii) & P2.1.1(b)(iii) covers wind classifications N1-N4 & C1-C2. Structural compliance does not cover wind classifications N5-N6 & C3-C4.
7. Hebel[®] Powerpanel⁵⁰ External Wall System are subject to design and certification of the stud frame by a qualified structural engineer and constructed in accordance with AS 5146.3:2015.
8. Hebel[®] PowerPanel⁵⁰ has not been tested and certified for impact loading from windborne debris in Region C and D as denoted in AS/NZS 1170.2:2011. The building designer should take into consideration internal pressure resulting from dominant openings.
9. Design certification for earthquake loading compliance to BP1.1(b)(iv) or P2.1.1(b)(iv) in accordance with AS 1170.4:2007 excludes Meckering Regions and Island Regions.
10. Components approved under this Certificate of Conformity are not part of the seismic-force-resistance system in BP1.1(b)(iv) or P2.1.1(b)(iv).
11. 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.
12. 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 [Houses and Low Rise Multi Residential PowerPanel⁵⁰ External Walls Vertical & Horizontal Installation Guide version HELIT181AUG20](#) and incorporating [Hebel PowerPanel⁵⁰ External Walls Slab Edge Rebate Technical Update TU-033 dated 17/08/2020](#).
13. 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.
14. 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.



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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® PowerPanel⁵⁰ Panel Physical Properties

Thickness:	50mm
Standard Width:	600mm
Standard Length:	2400mm, 2550mm, 2700mm, 2850mm & 3000mm
Reinforcement:	4 x 4mm longitudinal steel bars and 6-8 x 4mm diameter transverse steel bars per panel
Nominal Dry Density:	510kg/m ³

Hebel® PowerPanel⁵⁰ Wall System Components

Product	Description																		
Hebel® PowerPanel ⁵⁰ panel	The Hebel® PowerPanel ⁵⁰ is a 50mm thick AAC panel with a minimum nominal dry density of 510kg/m ³ and up to 3000mm length, installed vertically and horizontally to timber or steel framing via top hats. <table border="1" data-bbox="519 804 1359 1018"> <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>50</td> </tr> <tr> <td>2550</td> <td>600</td> <td>53</td> </tr> <tr> <td>2700</td> <td>600</td> <td>56</td> </tr> <tr> <td>2850</td> <td>600</td> <td>59</td> </tr> <tr> <td>3000</td> <td>600</td> <td>62</td> </tr> </tbody> </table>	Length (mm)	Width (mm)	Weight (kg) at 35% M.C.	2400	600	50	2550	600	53	2700	600	56	2850	600	59	3000	600	62
Length (mm)	Width (mm)	Weight (kg) at 35% M.C.																	
2400	600	50																	
2550	600	53																	
2700	600	56																	
2850	600	59																	
3000	600	62																	
Top Hat	Hebel Perforated Top Hats are used to fix the Hebel® PowerPanel ⁵⁰ panel to the structural support framing. There are two nominal widths available: 24mm and 35mm – incorporating perforated flanges for ease of installation on to the external wall frame.																		
RONDO M515	M515 top hats are used to fix the Hebel® PowerPanel ⁵⁰ panel to the structural support framing.																		
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 self-drilling screw. Fixing of Hebel® PowerPanel ⁵⁰ panels to top hat 14-10x65mm bugle head type 17 screw.																		
Hebel® Mortar	Hebel Mortar when required is used as a thick bed mortar base to provide a level base for Hebel® PowerPanel ⁵⁰ installation as well as providing acoustic and fire protection at the base of the panels.																		
Hebel® Adhesive	Hebel Adhesive is used for gluing the Hebel® PowerPanel ⁵⁰ panels together at vertical and horizontal joints.																		
Hebel® Patch	Minor chips or damage to Hebel® PowerPanel ⁵⁰ panels are to be repaired using Hebel Patch.																		
Hebel® Anti Corrosion Protection Paint	To coat exposed reinforcement during cutting.																		
Hebel Base Sealer	For use when sealing the base of Hebel panels that may come into contact with soil levels.																		
Wall Wrap	Thermoseal Wall Wrap XP, Enviroseal ProctorWrap RW, Thermoseal Wall Wrap PRIME, Polyair Performa 4.0 XHD.																		
Hebel External Aluminium Render Bead	Hebel External Aluminium Render Bead is used to provide neat and consistent horizontal control joints.																		

A3 Product specification

The properties of the wall systems relevant to the Hebel® PowerPanel⁵⁰ 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 Houses and Low Rise Multi Residential PowerPanel⁵⁰ External Walls Vertical & Horizontal Installation Guide version HELIT181AUG20.

Fire resistance Level

FRL of 90/90/90 was achieved from panel side only when tested in accordance with AS 1530.4-2014 by CSIRO.

Source: CSIRO, Report No: FCO-3241; dated 7 August 2017.

Refer Houses and Low Rise Multi Residential PowerPanel⁵⁰ External Walls Vertical & Horizontal Installation Guide version HELIT181AUG20 the following system configurations that achieve an FRL of 90/90/90.

Figure	FRL
2.9.3.1	90/90/90
2.9.4.7	90/90/90
2.9.6.1	90/90/90
2.9.6.2	90/90/90
2.9.6.5	90/90/90
2.9.6.9	90/90/90
2.9.6.10	90/90/90
3.5.4.4	90/90/90
3.5.5.1	90/90/90
3.5.7.1	90/90/90
3.5.7.2	90/90/90
3.5.7.3	90/90/90
3.5.7.7	90/90/90
3.5.7.8	90/90/90

Bushfire Attack Level (BAL)

CSR Hebel Powerpanel⁵⁰ 50mm 510kgm³ external wall system is compliant with AS 3959-2018 Section 9.4.1(c) as the tested system achieved FRL of 90/90/90.

Source: CSIRO, Report No: FCO-3241; dated 7 August 2017.

Weatherproofing

Hebel® PowerPanel⁵⁰ wall panels (with adhesives applied to the edges and with a weatherproof coat) will meet compliance in a horizontal or vertical configuration for up to, and including, Wind category N3.

Source: AECOM, Report dated 2 April 2020.

Structural

Confirmation that the 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, AS 1170.4:2007, AS 4055:2012 and AS 5146.2:2018. Structural compliance BP1.1(b)(iii) & P2.1.1(b)(iii) covers wind classifications N1-N4 & C1-C2 as per Section 2.2 Design tables of Houses and Low Rise Multi Residential PowerPanel⁵⁰ External Walls Vertical & Horizontal Installation Guide version HELIT181AUG20.

Source: PACE Structural, Report dated 14/10/2020.

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Thermal Properties

50mm Hebel® PowerPanel⁵⁰ (dry density 510 kg/m³) Wall Systems

JMF Cal	Description	Insulation Path		Overall (Pine Framing 12.13% area)		Overall (Steel framing 9.5% area)	
		Total R _{Ti} m ² K/W		Total R, m ² K/W		Total R, m ² K/W	
		Summer	Winter	Summer	Winter	Summer	Winter
107w26011n	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24+64=88mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.70	R0.72	R0.74	R0.76	R0.69	R0.70
107w26011	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e=R0.09*R1.36/R0.05, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.63	R1.68	R1.66	R1.71	R1.55	R1.60
107w26021	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0 XHD eR0.05/R0.03, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.89	R1.93	R1.92	R1.96	R1.81	R1.85
107w26031	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.84	R2.98	R2.68	R2.80	R2.44	R2.56
107w26041	50mm Hebel® PowerPanel ⁵⁰ (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)	R2.50	R2.64	R2.33	R2.45	R2.00	R2.11
107w26051n	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35+64=99mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.70	R0.72	R0.74	R0.76	R0.69	R0.70
107w26051	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e=R0.09*R1.36/R0.05, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.63	R1.68	R1.66	R1.71	R1.55	R1.60
107w26061	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 31mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0 XHD eR0.05/R0.03, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.89	R1.93	R1.92	R1.96	R1.81	R1.85
107w26071	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.84	R2.98	R2.68	R2.80	R2.44	R2.56
107w26081	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.50	R2.64	R2.33	R2.45	R2.00	R2.11
107w27051n	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16+64=80mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.70	R0.72	R0.74	R0.76	R0.69	R0.70
107w27051	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e=R0.09*R1.36/R0.05, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.56	R1.60	R1.59	R1.63	R1.49	R1.53
107w27061	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 12mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0 XHD eR0.05/R0.03, 64mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.70	R1.72	R1.72	R1.74	R1.61	R1.63
107w27071	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.77	R2.91	R2.61	R2.72	R2.36	R2.46

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107w27081	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.49	R2.63	R2.32	R2.44	R1.99	R2.09
107w2601n	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24+70=94mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.70	R0.72	R0.74	R0.76	R0.69	R0.70
107w2601	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e=R0.09*R1.36/R0.05, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.63	R1.68	R1.66	R1.71	R1.55	R1.60
107w2602	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 20mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0 XHD eR0.05/R0.03, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.89	R1.93	R1.92	R1.96	R1.81	R1.85
107w2603	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.97	R3.13	R2.78	R2.91	R2.53	R2.65
107w2604	50mm Hebel® PowerPanel ⁵⁰ (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)	R2.63	R2.79	R2.43	R2.56	R2.08	R2.19
107w2605n	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35+70=105mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.70	R0.73	R0.74	R0.77	R0.69	R0.71
107w2605	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e=R0.09*R1.36/R0.05, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.63	R1.68	R1.66	R1.71	R1.55	R1.60
107w2606	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 31mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0 XHD eR0.05/R0.03, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.89	R1.93	R1.92	R1.96	R1.81	R1.85
107w2607	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.95	R3.16	R2.77	R2.93	R2.51	R2.67
107w2608	50mm Hebel® PowerPanel ⁵⁰ (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)	R2.61	R2.82	R2.41	R2.58	R2.06	R2.21
107w2705n	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16+70=86mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.70	R0.73	R0.74	R0.77	R0.69	R0.71
107w2705	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e=R0.09*R1.36/R0.05, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.56	R1.60	R1.59	R1.63	R1.49	R1.53
107w2706	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 12mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0 XHD eR0.05/R0.03, 70mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.70	R1.72	R1.72	R1.74	R1.61	R1.63
107w2707	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.90	R3.06	R2.71	R2.84	R2.44	R2.56

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107w2708	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford New Generation SoundScreen R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.63	R2.78	R2.42	R2.55	R2.07	R2.18
107w2609n	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24+90=114mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.70	R0.73	R0.74	R0.77	R0.69	R0.71
107w2609	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24mm unventilated semireflective air space, Bradford Thermoseal Wall Wrap XP Plus e=R0.09*R1.36/R0.05, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.63	R1.68	R1.66	R1.71	R1.55	R1.60
107w2610	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 20mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0 XHD eR0.05/R0.03, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.89	R1.93	R1.92	R1.96	R1.81	R1.85
107w2611	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 24mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford Gold Wall Batts R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.95	R3.16	R2.77	R2.93	R2.51	R2.67
107w2612	50mm Hebel® PowerPanel ⁵⁰ (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)	R3.11	R3.31	R2.78	R2.93	R2.32	R2.46
107w2613	50mm Hebel® PowerPanel ⁵⁰ (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)	R3.11	R3.31	R2.78	R2.93	R2.32	R2.46
107w2614	50mm Hebel® PowerPanel ⁵⁰ (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)	R3.32	R3.51	R2.91	R3.06	R2.42	R2.55
107w2615n	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35+90=125mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.70	R0.73	R0.74	R0.77	R0.69	R0.71
107w2615	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e=R0.09*R1.36/R0.05, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.63	R1.68	R1.66	R1.71	R1.55	R1.60
107w2616	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 31mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0 XHD eR0.05/R0.03, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.89	R1.93	R1.92	R1.96	R1.81	R1.85
107w2617	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 35mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford Gold Wall Batts R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.95	R3.16	R2.77	R2.93	R2.51	R2.67
107w2618	50mm Hebel® PowerPanel ⁵⁰ (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)	R3.11	R3.31	R2.78	R2.93	R2.32	R2.46
107w2619	50mm Hebel® PowerPanel ⁵⁰ (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)	R3.11	R3.31	R2.78	R2.93	R2.32	R2.46
107w2620	50mm Hebel® PowerPanel ⁵⁰ (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)	R3.32	R3.51	R2.91	R3.06	R2.42	R2.55

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107w2715n	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16+90=106mm unventilated unreflective air space, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R0.70	R0.73	R0.74	R0.77	R0.69	R0.71
107w2715	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP Plus e=R0.09*R1.36/R0.05, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.56	R1.60	R1.59	R1.63	R1.49	R1.53
107w2716	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 12mm unventilated semi-reflective air space, Bradford Polyair Performa 4.0 XHD eR0.05/R0.03, 90mm unventilated reflective air space (stud frame), 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R1.70	R1.72	R1.72	R1.74	R1.61	R1.63
107w2717	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated semi-reflective air space, Bradford Thermoseal Wall Wrap XP e=R0.09*R1.36/R0.87, Bradford Gold Wall Batts R2.0, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R2.89	R3.08	R2.70	R2.85	R2.43	R2.57
107w2718	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford Gold Wall Batts R2.5, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.11	R3.30	R2.77	R2.91	R2.31	R2.44
107w2719	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford Polymax Wall Batt R2.5, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.11	R3.30	R2.77	R2.91	R2.31	R2.44
107w2720	50mm Hebel® PowerPanel ⁵⁰ (4% M.C.), 16mm unventilated nonreflective air space, Bradford Enviroseal ProctorWrap RW, Bradford Gold Wall Batts R2.7 HP, 10mm Gyprock Plasterboard Plus (5.7kg/m ²)	R3.31	R3.50	R2.91	R3.04	R2.41	R2.53

Notes: Above calculations all include 10mm Gyprock Plasterboard Plus (5.7 kg/m² density) indoor lining. Assumes Bradford Polyair Performa 4.0 XHD is compressed at fixings, so air space adjacent to it is reduced by its 4mm thickness. Assumes thermal resistance of 50mm Hebel® PowerPanel⁵⁰ (dry density 510 kg/m³) is R0.313 m².K/W for 4.0% M.C. Pine framing assumed to be 45mm wide 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). For 6mm skim render, add R0.04 m².K/W. Total R would be almost the same with 20mm battens instead of 24mm. Total R-values apply to installation of both vertically and horizontally orientated 50mm thick Hebel® PowerPanel⁵⁰ when fixed to the structural frame variety of battens/top hats as a cladding system.

Source: James M Fricker; Report i107f; Thermal performance calculations to AS/NZS 4859 Parts 1 & 2:2018; Dated 16/06/2020.

Thermal Properties

50mm Hebel® PowerPanel⁵⁰ (dry density 510 kg/m³) Wall Systems incorporating Thermoseal wall wrap PRIME

Hebel® PowerPanel ⁵⁰ 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	
Panel	Frame	Insulation	Wall Wrap	Batten	Summer	Winter	Summer	Winter	Summer	Winter
Hebel® PowerPanel ⁵⁰	90mm stud frame	No batts	Thermoseal wall wrap PRIME	24mm top hat	1.30	1.36	1.33	1.39	1.21	1.27
	70mm stud frame				1.30	1.36	1.31	1.37	1.21	1.26
	90mm stud frame	90mm Gold Batts R2.0			2.61	2.82	2.42	2.58	2.07	2.21
	70mm stud frame	75mm R1.5 batt			2.08	2.24	1.96	2.09	1.74	1.87

Notes: Assumes thermal resistance of 50mm Hebel® PowerPanel⁵⁰ (dry density 510 kg/m³) is R0.313 m² for 4.0% moisture content. Bradford Thermoseal Wall Wrap PRIME e0.9/0.05 assumed to have normal infrared emittances as stated. Pine framing assumed to be 45mm wide 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 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 [Houses and Low Rise Multi Residential PowerPanel50 External Walls Vertical & Horizontal Installation Guide version HELIT181AUG20](#), incorporating [Hebel PowerPanel⁵⁰ External Walls Slab Edge Rebate Technical Update TU-033](#) dated 17/08/2020.
2. The Hebel® PowerPanel⁵⁰ Wall System is only to be installed by a suitably qualified tradesperson or 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.
6. External coating of the panel shall contain an embedded fibreglass mesh reinforcing coat with maximum aperture of 10mm by 10mm and minimum weight of 145g/m² (incorporated in the base levelling coat) – entire wall for horizontally orientated panels and 200 wide fibreglass mesh positioned centrally over panel adhesive joints for vertically orientated panels.
7. The first (texture) coat and second (finish) coats must be acrylic latex coatings complying with AS/NZS 4548.5-1999.
8. The coatings must be suitable and compatible with Hebel® PowerPanel⁵⁰ substrate (with priming where required).
9. Coatings to comply with AS/NZS 4548.5-1999.
10. Coating manufacturer to specify minimum coating dry film thickness to comply with AS/NZS 4548.5-1999.
11. The following External coating systems are acceptable for use with Hebel® PowerPanel⁵⁰:
 1. Rockcote Armorflex
 2. Dulux AcraTex
12. The minimum clearance of the Hebel® PowerPanel⁵⁰ system may be varied 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 Hebel® PowerPanel⁵⁰ shall return to the underside of the panel to ensure continuity of the weather tightness layer.

When Hebel® PowerPanel⁵⁰ are installed with their base below ground the following conditions must apply:

- The maximum depth of embedment of Hebel® PowerPanel⁵⁰ products below grade is 100mm (i.e. no more than 100mm above the lowest part of the Hebel® PowerPanel⁵⁰).
- Hebel® PowerPanel⁵⁰ must not be used to retain garden beds, earth, soil or other organic matter, Hebel® PowerPanel⁵⁰ is not to be used as a retaining wall structure.
- The base of the Hebel® PowerPanel⁵⁰ must be coated with “Hebel Base Sealer” prior to installation.
- The lower 150mm of the rear face of the Hebel® PowerPanel⁵⁰ 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® PowerPanel⁵⁰ 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

Based on expert opinion, predicted results for the panel only is:

Rw = 35 Ctr = -4

Source: Acoustic Logic Consultancy Pty Ltd; Report No: 20130786.1/0209A/R0/GW; dated 2 September 2013.

Proximity to Breaking Surf

The Face-Sealed Hebel® PowerPanel⁵⁰ Wall Systems, constructed with steel framing elements manufactured from Grade Z275 or Grade AZ150 coated steel, and using AS 3566.2-2002 Class 3 fasteners, when installed in accordance with CSR Hebel Design and Installation Guides, meet the NCC Durability requirements for use within 300m of breaking surf, as long as the external coating and cladding is maintained.

Source: The Coatings Consultancy Pty Ltd; Report #TCC18025-B-20180906; dated 06/09/2018.

Non-Combustibility

The Certificate Holder has provided the Certificate of Test for Combustibility for Materials in accordance with AS 1530.1:1994 for Hebel® PowerPanel⁵⁰ Panel– Autoclaved Aerated Concrete (AAC).

The material is NOT deemed combustible - Limited to the panel only.

Source: CSIRO; NATA Accreditation No. 165; Report No. FNC12490 dated 11/11/2019.

APPENDIX B – EVALUATION STATEMENTS

B1 Evaluation methods

1. Fire Safety Provisions A5.2(1)(d). Reports from Accredited Testing Laboratories.
2. Structural Provisions A5.2(1)(e). Reports from a professional engineer.
3. Thermal Provisions A5.2(1)(e). Reports from a professional engineer.
4. Weatherproofing Provision A5.2(1)(e). Reports from a professional engineer.

B2 Reports

1. AECOM; Letter dated 02 April 2020; Expert opinion on the weathertightness testing to the Verification Methods FV1.1 & V2.2.1: Dated 02/04/2020.
2. Clarkson Consulting Services Pty Ltd; Hebel Wall Systems – Installation below ground; Dated 11/12/2019.
3. CSIRO; NATA Accreditation No. 165; Report No. FCO-3241; Fire resistance in accordance with AS1530.4:2014; Dated 07/08/2017.
4. PACE Structural; File No. PS20145; Structural design certificate PowerPanel⁵⁰ External Wall; Dated 14/10/2020.
5. The Coatings Consultancy Pty Ltd; Reference No. TCC20049-20200820; Clearance between external Hebel PowerPanel Walls and Finished Ground Level; Dated 20/08/2020.
6. James M Fricker; Report i107f; Thermal performance calculations to AS/NZS 4859 Parts 1 & 2:2018; Dated 04/03/2020.
7. James M Fricker Pty Ltd; Report Number. i107f; Thermal performance calculations to AS/NZS 4859 Parts 1 & 2:2018; Dated 16/06/2020.

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