Certificate of Conformity

Certification Body:

CMI CERTIFICATION

ABN: 81 663 250 815
JAS-ANZ Accreditation No. Z4450210AK
PO Box 273,
Palmwoods Qld 4555
Australia
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Certificate Holder:

CSR Hebel®
ABN: 55 008 631 356
Triniti 3, 39 Delhi Rd
North Ryde,
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Locked Bag 1345,
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NSW 1670
Australia
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www.hebel.com.au

Certificate number: CM40014

THIS IS TO CERTIFY THAT

Low Rise Multi-Residential Hebel® PowerFloor System

Type and/or use of product:

Hebel® PowerFloor is certified as a floor sheeting element installed onto steel or timber joists forming a platform flooring system.

Description of product:

Hebel® PowerFloor is a lightweight steel reinforced autoclave aerated concrete (AAC) Panel. Refer A2 for details.

COMPLIES WITH THE FOLLOWING BCA PROVISIONS AND STATE OR TERRITORY VARIATION(S) **BCA 2022**

	Volume One		Volume Two	
Performance Requirement(s):	B1P1(1),(2)(a), (b), (c) & (d)	Structural reliability – Refer *Limitation and Condition No. 1*.	H1P1(1),(2)(a), (b), (c) & (d)	Structural reliability and resistance – Refer *Limitation and Condition No. 1*.
	F7P1	Sound transmission – Floors. Can be used in conjunction with other building elements to provide insulation against the transmission of airborne and impact generated sound sufficient to prevent illness or loss of amenity to the occupants. Refer A3.		
Deemed-to-Satisfy Provision(s):	C2D2(2)	Fire-Resisting Construction – Can be used in conjunction with other Fire-Resisting Construction to achieve an FRL floor not exceeding 90/90/90. Refer A3 and *Limitation and Condition No. 5*.	H3D5	Separating Floors – Can be used in conjunction with other Fire-Resisting Construction to achieve an FRL Separating Floor not exceeding 90/90/90. Refer A3 and *Limitation and Condition No. 5*.
	C2D10	Non-combustible building elements – Limited to the Hebel® PowerFloor panel only	H3D2	Non-combustible building elements – Limited to the Hebel® PowerFloor panel only
	J4D7	Energy Efficiency – Floors. Can be used in conjunction with other building elements to achieve a Total R-Value. Refer A3.	H6D2(1)(b)(i)	Energy efficiency – Floors. Can be used in conjunction with other building elements to achieve a Total R-Value. Refer A3.
State or territory variation(s):	Part F7 (NT)		Not Applicable	

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

Richard Donarski – CMI

Don Grehan – Unrestricted Building Certifier

Date of issue: 02/02/2024

Date of expiry: 02/02/2027

ABCB

JAS-ANZ

Certificate of Conformity

Limitations and conditions:

1. The Low Rise Multi-Residential Hebel® PowerFloor System is limited to the loads and joist spans outlined in Section A3 of this Certificate of Conformity and is only to be installed in accordance with the CSR Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023. Loads outside the range specified in Section A3 of this Certificate of Conformity requires a site specific assessment of determination of KPa rating of floor panels and supporting frame as they are outside the scope of this Certificate of Conformity.
2. R values, FRLs and Acoustic values vary with installation configurations - Refer A3.
3. FP5.1 – Sound Transmission, only applies to Class 2 or 3 buildings.
4. It is the responsibility of the architectural designer and engineering parties to ensure that the details in this Design and Installation Guide are appropriate for the intended application.
5. Compliance with FRL is dependant on the system configurations as specified in A3. Any deviation from the tested specimen does not form part of this certificate of conformity and requires a site specific performance solution.
6. 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 1,2,3,4,5,6,7,8,9&10

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.

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, CMI Certification Pty Ltd (CMI) 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

The Low Rise Multi-Residential Hebel® PowerFloor Systems consists of the following components:

Product	Description
Hebel® PowerFloor panel	The core component of Low Rise Multi-Residential Hebel® PowerFloor System is the 75mm thick, steel mesh reinforced Hebel® PowerFloor panel. The panel is manufactured in the following sizes. Product no. / Length (mm) / Width (mm) / Thickness (mm) 21987 / 1800 / 600 / 75 135097 / 2400 / 600 / 75 166300 / 1800 / 600 / 75 Where necessary, panels can be cut on-site using a circular saw with diamond tipped cutting blade. The minimum recommended width of a cut panel is 270mm. The minimum length of a cut panel shall be double the length of the joist spacing of the floor – i.e. 1200mm length where installed over joist spacings set out at 600mm. These lengths can be reduced if additional support is provided so that the panel is supported on 3 joists and is continuous over 2 spans with the maximum joist to joist spacing in accordance with Section 2.1 – Structural Performance. Furthermore, the minimum staggered overlap between adjacent (side-by-side) panels must have one joist bay, and not less than 450mm. Staggered joints are not required where panel joints can be avoided and the full panel length can be used to infill the floor area. The panels are screw fixed and bonded to all floor joists except at panel butt joints. At butt joints, panels are fixed using two beads of adhesive, and the screws may be omitted.
Timber & Steel Support Systems	Timber or steel floor framing can be used to support the Hebel® PowerFloor panels. The allowable spacing of the joists are 300mm, 450mm or 600mm (refer to section 2.1 of the Hebel® PowerFloor Design & Installation Guide HELIT017 September 2023). The joists, bearers and other supports shall be sized in accordance with the framing manufacturer's recommendations. Where steel joist framing is used it must be ensured that the PowerFloor panels are provided with uniform and complete bearing onto each steel joist. **NOTE:** The designer should allow at least 51kg/m^2 for the self-weight of the Hebel® PowerFloor panel. A minimum joist flange width of 45mm is required.
Hebel® Adhesive	Hebel® Adhesive (supplied in 20kg bags) is used for gluing the panels together at all joints. Typically, panel joints are 2-3mm thick. Sufficient pressure is to be applied to the joint to ensure full coverage of adhesive in the joint. Adhesive is to be mixed to the proportions as stated on the bag.
Construction Adhesive	A 5mm (minimum) bead of Fuller Max Bond construction adhesive is applied to the top of the joists. Where panel ends butt together over a common joist, two beads of adhesive shall be applied. Ensure the surface is free of coatings and loose material that may inhibit bond.
Fasteners & Fixings	**Screws for fixing Hebel® PowerFloor panels to Timber Joists:** 14-10 x 100mm MP Bugle Head type 17 Screws or equivalent. **Screws for fixing Hebel® PowerFloor panels to Steel Joists:** 14-10 x 95mm Hex Head Self-tapping Screws or equivalent (no seal required). This fastener is suitable for metal thickness <1.2mm. Refer to screw manufacturer's guidelines.
Caulking	Hebel® PowerFloor requires that all gaps at openings, penetrations and control joints be caulked to provide an airtight floor system that maintains acoustic, thermal, vermin and fire resistance performance. All gaps must be carefully and completely filled with an appropriate flexible polyurethane sealant, installed in accordance with the sealant manufacturer's specifications. **NOTE:** The designer should specify the magnitude of the gaps between the Hebel® PowerFloor panel and structure. This gap will allow movement to release any confining stresses due to movement of the supporting structure.
Hebel® Patch	Minor Chips or damage to Hebel® PowerFloor panels are to be repaired using Hebel® Patch (supplied in 10kg bags).
Hebel® anti-corrosion protection paint	To coat exposed reinforcement during cutting.

A3 Product specification

Structural Performance

Hebel® PowerFloor systems can support a maximum uniformly distributed load of 5kPa, or concentrated (point) load of 1.8kN over a load area of 350mm^2 (with joists at 450mm or 600mm centres only) and 2.7kN & 3.9kN over a load area of 10,000mm^2 (with joists at 300mm centres) when installed in accordance with Section 3.3 of CSR Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023.

For loads outside this range, please contact CSR Hebel® as they are outside this Scope of Certification of this Certificate of Conformity.

The designer should specify the magnitude of the gaps between the Hebel® PowerFloor panel and structure. This gap will allow movement to release any confining stresses due to movement of the supporting structure.

Non-combustibility – Limited to the PowerFloor Panel only

The certificate holder has provided the Certificate of Test for Combustibility for Materials in accordance with AS 1530.1:1994 for Hebel PowerPanel – Autoclaved Aerated Concrete (AAC) Dry 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.*

Acoustic Performance and Fire-Resistance Levels

To achieve the Acoustic and Thermal Performances tabled below, The PowerFloor System Configurations must be constructed in accordance with Section 2.1 of Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023.

FRL Note: When tested and reviewed in accordance with AS 1530.4:2014 from both underside and above the fire source, the systems meet the minimum required FRLs when installed as detailed in the CSR Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023.

Source: *Exova Warrington Fire & Jensen Hughes Pty Limited, Trading as BCA Logic.*

Acoustic Note: PKA Acoustic Consulting has provided an assessment of the Low Rise Multi-Residential Hebel® PowerFloor Systems and the Acoustic performance has been tabled below.

Source: *PKA Acoustic Consulting Pty Ltd Report No. PKA-A071 Version 5 dated 18/04/2023.*

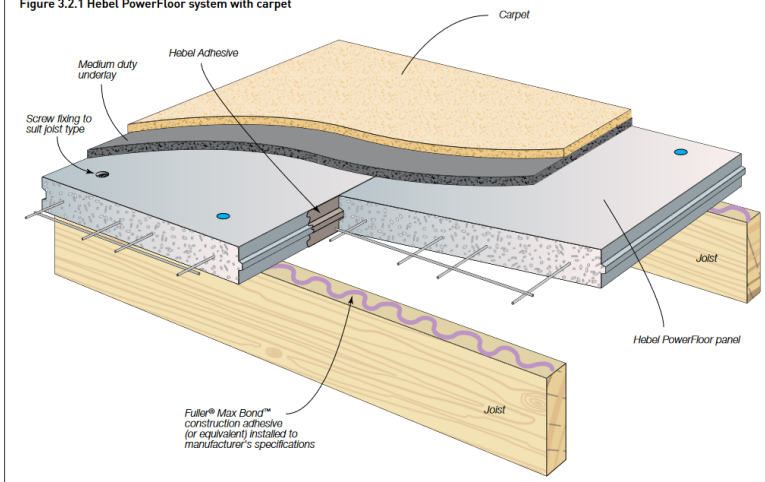
Hebel® PowerFloor System – Carpet

Carpet			Fire	Acoustic		
System Code	Floor Joist	System Description	FRL	R_W	R_W+C_{tr}	L_{nw}
CSR21184	Timber	Carpet, PowerFloor 75mm, ground floor enclosed	90/90/90 From above only	37	33	45
CSR22109	Steel					
CSR21185	Timber	Carpet, PowerFloor 75mm, ground floor unenclosed	90/90/90 From above only	37	33	45
CSR22110	Steel					
CSR21186	Timber	Carpet, PowerFloor 75mm, Gyprock ceiling (CSR 6209)[1]	90/90/90 From above only	55	48	33
CSR22111	Steel					
CSR21187	Timber	Carpet, PowerFloor 75mm, Gyprock ceiling (CSR 6217)[1]	90/90/90 Above 60/60/60 Below	58	52	30
CSR22112	Steel					
CSR21188	Timber	Carpet, PowerFloor 75mm, Gyprock ceiling (CSR 6222)[1]	90/90/90 Above and below	59	53	30
CSR22113	Steel					

NOTE:

1. For Gyprock ceiling system description refer to Table 1.3.1 Ceiling Systems on page 5 of CSR Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023.
2. Acoustic values are based on joist spacing of 600mm and joist depth of 190mm filled with 90mm Gold Batts Insulation R2.0. Contact Technical Services for further details on system.

Figure 3.2.1 Hebel PowerFloor system with carpet



NOTE: Patching of recesses at fixings or localised chipping may be required prior to installation of floor coverings.

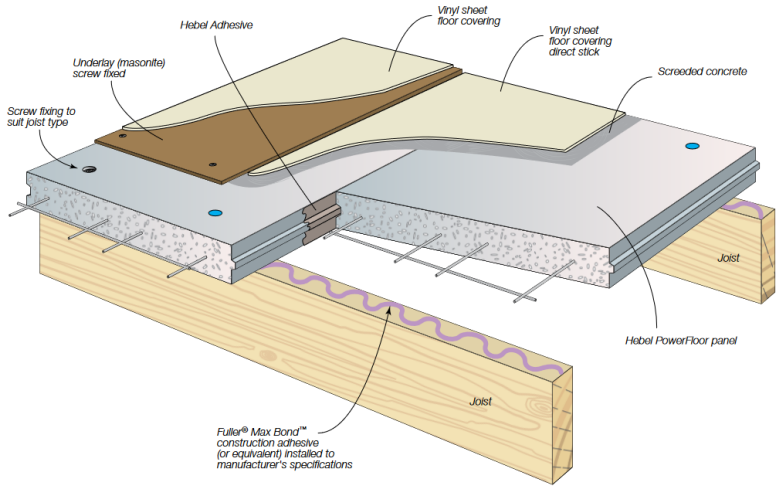
Hebel® PowerFloor System – Vinyl Sheet with Masonite

Vinyl Sheet with Masonite			Fire	Acoustic		
System Code	Floor Joist	System Description	FRL	R_W	R_W+C_{tr}	L_{nw}
CSR21199	Timber	Vinyl sheet, masonite, PowerFloor 75mm, ground floor enclosed	90/90/90 From above only	38	34	76
CSR22114	Steel					
CSR21200	Timber	Vinyl sheet, masonite, PowerFloor 75mm, ground floor unenclosed	90/90/90 From above only	38	34	76
CSR22115	Steel					
CSR21201	Timber	Vinyl sheet, masonite, PowerFloor 75mm, Gyprock ceiling (CSR 6209)[1]	90/90/90 From above only	56	48	64
CSR22116	Steel					
CSR21202	Timber	Vinyl sheet, masonite, PowerFloor 75mm, Gyprock ceiling (CSR 6217)[1]	90/90/90 Above 60/60/60 Below	59	52	60
CSR22117	Steel					
CSR21203	Timber	Vinyl sheet, masonite, PowerFloor 75mm, Gyprock ceiling (CSR 6222)[1]	90/90/90 Above and below	60	53	59
CSR22118	Steel					

NOTE:

1. For Gyprock ceiling system description refer to Table 1.3.1 Ceiling Systems on page 5 of CSR Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023.
2. Acoustic values are based on joist spacing of 600mm and joist depth of 190mm filled with 90mm Gold Batts Insulation R2.0. Contact Technical Services for further details on system.

Figure 3.2.2 Hebel PowerFloor system with vinyl sheet floor covering



NOTE: Patching of recesses at fixings or localised chipping may be required prior to installation of floor coverings.

Hebel® PowerFloor System – Timber Floors

Timber Floors on Battens			Fire	Acoustic		
System Code	**Floor Joist**	**System Description**	**FRL**	**R_W**	**R_W+C_{tr}**	**L_{nw}**
CSR21204.1	Timber	Timber floor, Battens, PVC, PowerFloor 75mm, ground floor enclosed	90/90/90 From above only	37	33	80
CSR21204.2	Steel					
CSR21205.1	Timber	Timber floor, Battens, PVC, PowerFloor 75mm, ground floor unenclosed	90/90/90 From above only	37	33	80
CSR21205.2	Steel					
CSR21206.1	Timber	Timber floor, Battens, PVC, PowerFloor 75mm, Gyprock ceiling (CSR 6209) [1]	90/90/90 From above only	55	48	65
CSR21206.2	Steel					
CSR21207.1	Timber	Timber floor, Battens, PVC, PowerFloor 75mm, Gyprock ceiling (CSR 6217) [1]	90/90/90 Above 60/60/60 Below	58	58	61
CSR21207.2	Steel					
CSR21208.1	Timber	Timber floor, Battens, PVC, PowerFloor 75mm, Gyprock ceiling (CSR 6222) [1]	90/90/90 Above and below	59	53	59
CSR21208.2	Steel					

Timber Floating Floors			Fire	Acoustic		
System Code	**Floor Joist**	**System Description**	**FRL**	**R_W**	**R_W+C_{tr}**	**L_{nw}**
CSR21209	Timber	Timber floor, underlay, PVC, PowerFloor 75mm, ground floor enclosed	90/90/90 From above only	37	33	77
CSR22119	Steel					
CSR21210	Timber	Timber floor, underlay, PVC, PowerFloor 75mm, ground floor unenclosed	90/90/90 From above only	37	33	77
CSR22120	Steel					
CSR21211	Timber	Timber floor, underlay, PVC, PowerFloor 75mm, Gyprock ceiling (CSR 6209) [1]	90/90/90 From above only	56	48	63
CSR22121	Steel					
CSR21212	Timber	Timber floor, underlay, PVC, PowerFloor 75mm, Gyprock ceiling (CSR 6217) [1]	90/90/90 Above 60/60/60 Below	59	52	59
CSR22122	Steel					
CSR21213	Timber	Timber floor, underlay, PVC, PowerFloor 75mm, Gyprock ceiling (CSR 6222) [1]	90/90/90 Above and below	60	53	58
CSR22123	Steel					

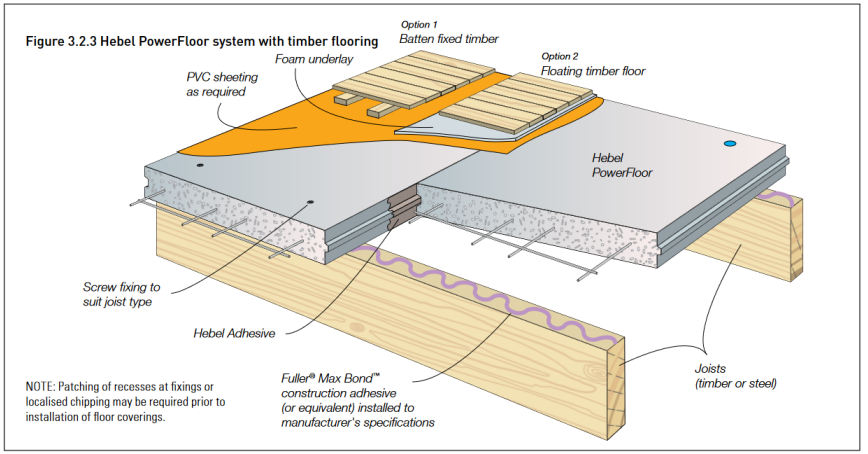


Figure 3.2.3 Hebel PowerFloor system with timber flooring

NOTE:
1. For Gyprock ceiling system description refer to Table 1.3.1 Ceiling Systems on page 5 of CSR Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023.
2. Acoustic values are based on joist spacing of 600mm and joist depth of 190mm filled with 90mm Gold Batts Insulation R2.0. Contact Technical Services for further details on system.

Hebel® PowerFloor System – 8mm Ceramic Tiles

8MM Ceramic Tiles			Fire	Acoustic		
System Code	Floor Joist	System Description	FRL	R_W	R_W+C_{tr}	L_{nw}
CSR21189	Timber	Floor tiles, PowerFloor 75mm, ground floor enclosed	90/90/90 From above only	38	34	82
CSR22124	Steel					
CSR21190	Timber	Floor tiles, PowerFloor 75mm, ground floor unenclosed	90/90/90 From above only	38	34	82
CSR22125	Steel					
CSR21191	Timber	Floor tiles, PowerFloor 75mm, Gyprock ceiling (CSR 6209)[1]	90/90/90 From above only	54	48	74/64[3]
CSR22126	Steel					
CSR21192	Timber	Floor tiles, PowerFloor 75mm, Gyprock ceiling (CSR 6217)[1]	90/90/90 Above 60/60/60 Below	57	51	70/60[3]
CSR22127	Steel					
CSR21193	Timber	Floor tiles, PowerFloor 75mm, Gyprock ceiling (CSR 6222)[1]	90/90/90 Above and below	58	52	69/59[3]
CSR22128	Steel					

NOTE:

1. For Gyprock ceiling system description refer to Table 1.3.1 Ceiling Systems on page 5 of CSR Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023.
2. Acoustic values are based on joist spacing of 600mm and joist depth of 190mm filled with 90mm Gold Batts Insulation R2.0. Contact Technical Services for further details on system.
3. Performance of floor system is with use of minimum 4.5mm rubber underlay.

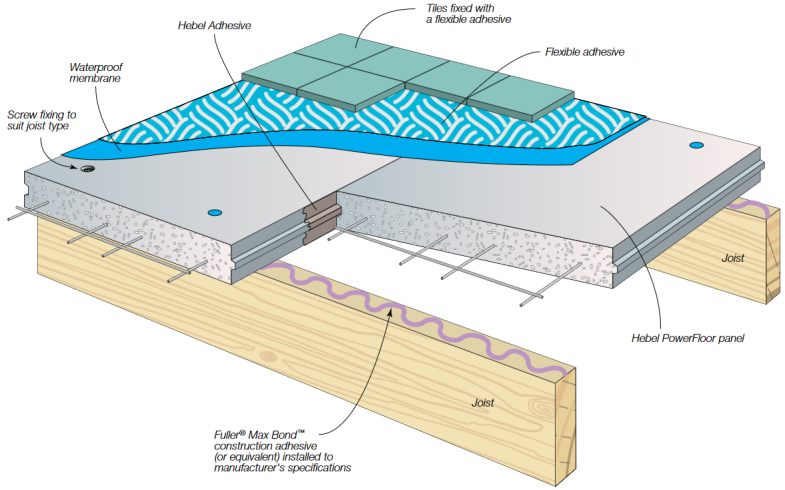
Hebel® PowerFloor System – 8MM Ceramic Tiles on 50MM Topping Slab

8MM Ceramic Tiles on 50MM Topping Slab			Fire	Acoustic		
System Code	Floor Joist	System Description	FRL	R_W	R_W+C_{tr}	L_{nw}
CSR21194	Timber	Floor tiles, topping slab, PowerFloor 75mm, ground floor enclosed	90/90/90 From above only	43	39	79
CSR22129	Steel					
CSR21195	Timber	Floor tiles, topping slab, PowerFloor 75mm, ground floor unenclosed	90/90/90 From above only	43	39	79
CSR22130	Steel					
CSR21196	Timber	Floor tiles, topping slab, PowerFloor 75mm, Gyprock ceiling (CSR 6209)[1]	90/90/90 From above only	57	49	71/60[3]
CSR22131	Steel					
CSR21197	Timber	Floor tiles, topping slab, PowerFloor 75mm, Gyprock ceiling (CSR 6217)[1]	90/90/90 Above 60/60/60 Below	60	53	67/59[3]
CSR22132	Steel					
CSR21198	Timber	Floor tiles, topping slab, PowerFloor 75mm, Gyprock ceiling (CSR 6222)[1]	90/90/90 Above and below	61	54	66/55[3]
CSR22133	Steel					

NOTE:

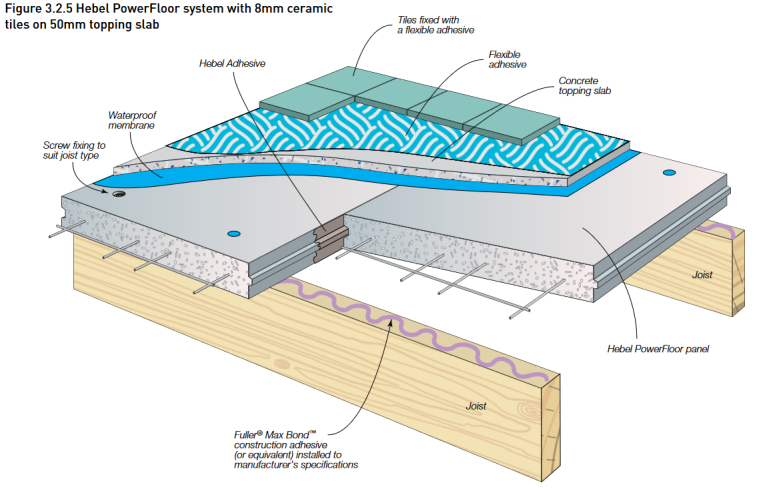
1. For Gyprock ceiling system description refer to Table 1.3.1 Ceiling Systems on page 5 of CSR Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023.
2. Acoustic values are based on joist spacing of 600mm and joist depth of 190mm filled with 90mm Gold Batts Insulation R2.0. Contact Technical Services for further details on system.
3. Performance of floor system is with use of minimum 4.5mm rubber underlay.

Figure 3.2.4 Hebel PowerFloor system with 8mm ceramic tiles



NOTE: Patching of recesses at fixings or localised chipping may be required prior to installation of floor coverings.

Figure 3.2.5 Hebel PowerFloor system with 8mm ceramic tiles on 50mm topping slab



NOTE: Patching of recesses at fixings or localised chipping may be required prior to installation of floor coverings.

Thermal Properties – Total R Values of Low Rise Multi-Residential Hebel® PowerFloor Systems consisting with Steel Joists

Interfloor Total R values (2nd storey floor/ceiling)

	Uninsulated				R2.0 insulated ceiling system type beneath floor											
	No ceiling		With ceiling		CSR 6209		CSR 6221		CSR 6217		CSR 6222		CSR 6223		CSR 6220	
Floor Type	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down
75mm Hebel® PowerFloor with Carpet	R0.94	R1.04	R1.16	R1.34	R2.68	R3.01	R2.79	R3.11	R2.77	R3.09	R2.81	R3.13	R2.92	R3.24	R2.68	R3.05
75mm Hebel® PowerFloor with Ceramic Tiles on 50mm concrete topping slab	R0.70	R0.80	R0.92	R1.10	R2.42	R2.73	R2.54	R2.84	R2.52	R2.82	R2.56	R2.86	R2.67	R2.97	R2.40	R2.77
75mm Hebel® PowerFloor with Ceramic Tiles on flexible adhesive	R0.67	R0.77	R0.89	R1.07	R2.38	R2.69	R2.50	R2.80	R2.48	R2.78	R2.52	R2.82	R2.63	R2.93	R2.36	R2.73
75mm Hebel® PowerFloor with Vinyl on masonite	R0.67	R0.77	R0.89	R1.07	R2.38	R2.69	R2.50	R2.80	R2.48	R2.78	R2.52	R2.82	R2.63	R2.93	R2.36	R2.73
75mm Hebel® PowerFloor with Vinyl on screeded concrete	R0.66	R0.76	R0.88	R1.06	R2.37	R2.68	R2.49	R2.79	R2.47	R2.77	R2.51	R2.81	R2.62	R2.92	R2.35	R2.72
75mm Hebel® PowerFloor with T&G flooring and nonreflective 35mm air space	R0.91	R1.06	R1.14	R1.34	R2.67	R3.03	R2.77	R3.13	R2.75	R3.12	R2.79	R3.15	R2.90	R3.26	R2.66	R3.05
75mm Hebel® PowerFloor with T&G flooring and reflective 35mm air space	R1.22	R1.99	R1.44	R2.30	R3.02	R4.05	R3.12	R4.15	R3.10	R4.13	R3.14	R4.17	R3.24	R4.26	R3.24	R3.63
75mm Hebel® PowerFloor with Tasmanian Oak 3 strip flooring on underlay	R0.81	R0.91	R1.03	R1.21	R2.55	R2.85	R2.66	R2.96	R2.64	R2.94	R2.68	R2.98	R2.79	R3.09	R2.53	R2.90
75mm Hebel® PowerFloor with T&G Hardwood flooring on 12mm plywood	R0.84	R0.94	R1.06	R1.25	R2.59	R2.90	R2.70	R3.00	R2.68	R2.99	R2.72	R3.02	R2.83	R3.13	R2.57	R2.94

Note: The above table assumes 0.11 (up) or 0.16 (down) floor and ceiling air film resistances per Table 15 of AS/NZS 4859.1:2018.

Ground floor Total R values (exposed subfloor, e.g. car park)

	Uninsulated				R2.0 insulated ceiling system type beneath floor											
	No ceiling		With ceiling		CSR 6209		CSR 6221		CSR 6217		CSR 6222		CSR 6223		CSR 6220	
Floor Type	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down
75mm Hebel® PowerFloor with Carpet	R0.91	R0.96	R1.13	R1.26	R2.65	R2.93	R2.76	R3.03	R2.74	R3.01	R2.78	R3.05	R2.89	R3.16	R2.65	R2.97
75mm Hebel® PowerFloor with Ceramic Tiles on 50mm concrete topping slab	R0.67	R0.72	R0.89	R1.02	R2.39	R2.65	R2.51	R2.76	R2.49	R2.74	R2.53	R2.78	R2.64	R2.89	R2.37	R2.69
75mm Hebel® PowerFloor with Ceramic Tiles on flexible adhesive	R0.64	R0.69	R0.86	R0.99	R2.35	R2.61	R2.47	R2.72	R2.45	R2.70	R2.49	R2.74	R2.60	R2.85	R2.33	R2.65
75mm Hebel® PowerFloor with Vinyl on masonite	R0.64	R0.69	R0.86	R0.99	R2.35	R2.61	R2.47	R2.72	R2.45	R2.70	R2.49	R2.74	R2.60	R2.85	R2.33	R2.65
75mm Hebel® PowerFloor with Vinyl on screeded concrete	R0.63	R0.68	R0.85	R0.98	R2.34	R2.60	R2.46	R2.71	R2.44	R2.69	R2.48	R2.73	R2.59	R2.84	R2.32	R2.64
75mm Hebel® PowerFloor with T&G flooring and nonreflective 35mm air space	R0.88	R0.98	R1.11	R1.26	R2.64	R2.95	R2.74	R3.05	R2.72	R3.04	R2.76	R3.07	R2.87	R3.18	R2.63	R2.97
75mm Hebel® PowerFloor with T&G flooring and reflective 35mm air space	R1.19	R1.91	R1.41	R2.22	R2.99	R3.97	R3.09	R4.07	R3.07	R4.05	R3.11	R4.09	R3.21	R4.18	R3.21	R3.55
75mm Hebel® PowerFloor with Tasmanian Oak 3 strip flooring on underlay	R0.78	R0.83	R1.00	R1.13	R2.52	R2.77	R2.63	R2.88	R2.61	R2.86	R2.65	R2.90	R2.76	R3.01	R2.50	R2.82
75mm Hebel® PowerFloor with T&G Hardwood flooring on 12mm plywood	R0.81	R0.86	R1.03	R1.17	R2.56	R2.82	R2.67	R2.92	R2.65	R2.91	R2.69	R2.94	R2.80	R3.05	R2.54	R2.86

Note: The above table assumes air film resistances of 0.11 (up) or 0.16 (down) for floor per Table 15 of AS/NZS 4859.1:2018, and 0.08 (up or down) for exposed ceiling air film resistance.

	Ground floor Total R values (enclosed subfloor)															
	Uninsulated				R2.0 insulated ceiling system type beneath floor											
	No ceiling		With ceiling		CSR 6209		CSR 6221		CSR 6217		CSR 6222		CSR 6223		CSR 6220	
Floor Type	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down
75mm Hebel® PowerFloor with Carpet	R1.50	R1.62	R1.72	R1.92	R3.24	R3.59	R3.35	R3.69	R3.33	R3.67	R3.37	R3.71	R3.48	R3.82	R3.24	R3.63
75mm Hebel® PowerFloor with Ceramic Tiles on 50mm concrete topping slab	R1.26	R1.38	R1.48	R1.68	R2.98	R3.31	R3.10	R3.42	R3.08	R3.40	R3.12	R3.44	R3.23	R3.55	R2.96	R3.35
75mm Hebel® PowerFloor with Ceramic Tiles on flexible adhesive	R1.23	R1.35	R1.45	R1.65	R2.94	R3.27	R3.06	R3.38	R3.04	R3.36	R3.08	R3.40	R3.19	R3.51	R2.92	R3.31
75mm Hebel® PowerFloor with Vinyl on masonite	R1.23	R1.35	R1.45	R1.65	R2.94	R3.27	R3.06	R3.38	R3.04	R3.36	R3.08	R3.40	R3.19	R3.51	R2.92	R3.31
75mm Hebel® PowerFloor with Vinyl on screeded concrete	R1.22	R1.34	R1.44	R1.64	R2.93	R3.26	R3.05	R3.37	R3.03	R3.35	R3.07	R3.39	R3.18	R3.50	R2.91	R3.30
75mm Hebel® PowerFloor with T&G flooring and nonreflective 35mm air space	R1.47	R1.64	R1.70	R1.92	R3.23	R3.61	R3.33	R3.71	R3.31	R3.70	R3.35	R3.73	R3.46	R3.84	R3.22	R3.63
75mm Hebel® PowerFloor with T&G flooring and reflective 35mm air space	R1.78	R2.57	R2.00	R2.88	R3.58	R4.63	R3.68	R4.73	R3.66	R4.71	R3.70	R4.75	R3.80	R4.84	R3.80	R4.21
75mm Hebel® PowerFloor with Tasmanian Oak 3 strip flooring on underlay	R1.37	R1.49	R1.59	R1.79	R3.11	R3.43	R3.22	R3.54	R3.20	R3.52	R3.24	R3.56	R3.35	R3.67	R3.09	R3.48
75mm Hebel® PowerFloor with T&G Hardwood flooring on 12mm plywood	R1.40	R1.52	R1.62	R1.83	R3.15	R3.48	R3.26	R3.58	R3.24	R3.57	R3.28	R3.60	R3.39	R3.71	R3.13	R3.52

Note: The above table assumes air film resistances of 0.11 (up) or 0.16 (down) for both floor and ceiling per Table 15 of AS/NZS 4859.1:2018, plus Ground Thermal Resistance (RGX) of 0.56 (up) or 0.58 (down) of Table K3 of the standard.

NOTES:	Determinations based upon AS/NZS 4859 Parts 1&2:2018, Thermal insulation materials for buildings.
	The results are believed representative at the date of calculation, however the author reserves the right to revise calculations.
	All Total RT values include the effect of thermal bridging for 50x100x1mm BMT steel joists with 600mm spacing.
	See individual calc pages for RTi values for the insulation path only. JMF calcs 107.23i-107.29i relate to insulated floors. For uninsulated floors, see JMF calcs 107.23ii-107.29ii.
	Above for 510kg/m³ Hebel® 75mm PowerFloor™ with R=0.375 (for 14% moisture content) based upon CSR Insulation Research Laboratory test report NR-12140 of 9/10/2012
	"Up/Down" refers to heat flow direction. (For floors, Up=summer, Down=Winter)
	"Bare floor, with ceiling" is for one sheet of 13mm GYPROCK Plasterboard (140mm floor joists, 28mm furring channel)
	CSR 6209 has Bradford Soundscreen™ R2.0 Batts (75mm), 1x13mm GYPROCK
	CSR 6221 has Bradford Soundscreen™ R2.0 Batts (75mm), 1x13mm GYPROCK FYRCHEK + 1x16mm GYPROCK FYRCHEK
	CSR 6217 has Bradford Soundscreen™ R2.0 Batts (75mm), 2x13mm GYPROCK FYRCHEK
	CSR 6222 has Bradford Soundscreen™ R2.0 Batts (75mm), 2x16mm GYPROCK FYRCHEK
	CSR 6223 has Bradford Soundscreen™ R2.0 Batts (75mm), 3x16mm GYPROCK FYRCHEK
	CSR 6220 has Bradford Gold™ R2.0 Batts (90mm), 1x16mm GYPROCK FYRCHEK
	Calculations are for R2.0 Bradford Gold™ (glasswool insulation), or R2.0 Bradford Soundscreen™ (rockwool insulation)

Source: *James M Fricker; Report 107_E43steel.; Thermal performance calculations to AS/NZS 4859 Parts 1 & 2:2018; Dated 01/09/2020.*

Thermal Properties – Total R Values of Low Rise Multi-Residential Hebel® PowerFloor Systems consisting with Pine Joists

Interfloor Total R values (2nd storey floor/ceiling)

	Uninsulated				R2.0 insulated ceiling system type beneath floor											
	No ceiling		With ceiling		CSR 6209		CSR 6221		CSR 6217		CSR 6222		CSR 6223		CSR 6220	
Floor Type	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down
75mm Hebel® PowerFloor with Carpet	R0.94	R1.04	R1.16	R1.34	R2.93	R3.25	R3.02	R3.35	R3.01	R3.33	R3.04	R3.37	R3.14	R3.46	R2.93	R3.29
75mm Hebel® PowerFloor with Ceramic Tiles on 50mm concrete topping slab	R0.70	R0.80	R0.92	R1.10	R2.71	R3.01	R2.81	R3.11	R2.79	R3.09	R2.82	R3.12	R2.92	R3.22	R2.69	R3.05
75mm Hebel® PowerFloor with Ceramic Tiles on flexible adhesive	R0.67	R0.77	R0.89	R1.07	R2.67	R2.97	R2.77	R3.07	R2.75	R3.05	R2.79	R3.09	R2.88	R3.18	R2.66	R3.01
75mm Hebel® PowerFloor with Vinyl on masonite	R0.67	R0.77	R0.89	R1.07	R2.68	R2.98	R2.77	R3.07	R2.75	R3.05	R2.79	R3.09	R2.88	R3.19	R2.66	R3.01
75mm Hebel® PowerFloor with Vinyl on screeded concrete	R0.66	R0.76	R0.88	R1.06	R2.67	R2.97	R2.76	R3.06	R2.75	R3.05	R2.78	R3.08	R2.88	R3.18	R2.65	R3.00
75mm Hebel® PowerFloor with T&G flooring and nonreflective 35mm air space	R0.91	R1.06	R1.14	R1.34	R2.92	R3.27	R3.01	R3.37	R3.00	R3.35	R3.03	R3.39	R3.13	R3.48	R2.91	R3.29
75mm Hebel® PowerFloor with T&G flooring and reflective 35mm air space	R1.22	R1.99	R1.44	R2.30	R3.24	R4.23	R3.33	R4.32	R3.31	R4.31	R3.35	R4.34	R3.44	R4.44	R3.44	R3.83
75mm Hebel® PowerFloor with Tasmanian Oak 3 strip flooring on underlay	R0.81	R0.91	R1.03	R1.21	R2.82	R3.12	R2.91	R3.22	R2.89	R3.20	R2.93	R3.23	R3.02	R3.33	R2.80	R3.16
75mm Hebel® PowerFloor with T&G Hardwood flooring on 12mm plywood	R0.84	R0.94	R1.06	R1.25	R2.85	R3.16	R2.95	R3.25	R2.93	R3.23	R2.96	R3.27	R3.06	R3.37	R2.83	R3.19

Note: The above table assumes 0.11 (up) or 0.16 (down) floor and ceiling air film resistances per Table 15 of AS/NZS 4859.1:2018.

Ground floor Total R values (exposed subfloor, e.g. car park)

	Uninsulated				R2.0 insulated ceiling system type beneath floor											
	No ceiling		With ceiling		CSR 6209		CSR 6221		CSR 6217		CSR 6222		CSR 6223		CSR 6220	
Floor Type	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down
75mm Hebel® PowerFloor with Carpet	R0.91	R0.96	R1.13	R1.26	R2.90	R3.17	R2.99	R3.27	R2.98	R3.25	R3.01	R3.29	R3.11	R3.38	R2.90	R3.21
75mm Hebel® PowerFloor with Ceramic Tiles on 50mm concrete topping slab	R0.67	R0.72	R0.89	R1.02	R2.68	R2.93	R2.78	R3.03	R2.76	R3.01	R2.79	R3.04	R2.89	R3.14	R2.66	R2.97
75mm Hebel® PowerFloor with Ceramic Tiles on flexible adhesive	R0.64	R0.69	R0.86	R0.99	R2.64	R2.89	R2.74	R2.99	R2.72	R2.97	R2.76	R3.01	R2.85	R3.10	R2.63	R2.93
75mm Hebel® PowerFloor with Vinyl on masonite	R0.64	R0.69	R0.86	R0.99	R2.65	R2.90	R2.74	R2.99	R2.72	R2.97	R2.76	R3.01	R2.85	R3.11	R2.63	R2.93
75mm Hebel® PowerFloor with Vinyl on screeded concrete	R0.63	R0.68	R0.85	R0.98	R2.64	R2.89	R2.73	R2.98	R2.72	R2.97	R2.75	R3.00	R2.85	R3.10	R2.62	R2.92
75mm Hebel PowerFloor with T&G flooring and nonreflective 35mm air space	R0.88	R0.98	R1.11	R1.26	R2.89	R3.19	R2.98	R3.29	R2.97	R3.27	R3.00	R3.31	R3.10	R3.40	R2.88	R3.21
75mm Hebel® PowerFloor with T&G flooring and reflective 35mm air space	R1.19	R1.91	R1.41	R2.22	R3.21	R4.15	R3.30	R4.24	R3.28	R4.23	R3.32	R4.26	R3.41	R4.36	R3.41	R3.75
75mm Hebel® PowerFloor with Tasmanian Oak 3 strip flooring on underlay	R0.78	R0.83	R1.00	R1.13	R2.79	R3.04	R2.88	R3.14	R2.86	R3.12	R2.90	R3.15	R2.99	R3.25	R2.77	R3.08
75mm Hebel® PowerFloor with T&G Hardwood flooring on 12mm plywood	R0.81	R0.86	R1.03	R1.17	R2.82	R3.08	R2.92	R3.17	R2.90	R3.15	R2.93	R3.19	R3.03	R3.29	R2.80	R3.11

Note: The above table assumes air film resistances of 0.11 (up) or 0.16 (down) for floor per Table 15 of AS/NZS 4859.1:2018, and 0.08 (up or down) for exposed ceiling air film resistance.

	Ground floor Total R values (enclosed subfloor)															
	Uninsulated				R2.0 insulated ceiling system type beneath floor											
	No ceiling		With ceiling		CSR 6209		CSR 6221		CSR 6217		CSR 6222		CSR 6223		CSR 6220	
Floor Type	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down	Up	Down
75mm Hebel® PowerFloor with Carpet	R1.50	R1.62	R1.72	R1.92	R3.49	R3.83	R3.58	R3.93	R3.57	R3.91	R3.60	R3.95	R3.70	R4.04	R3.49	R3.87
75mm Hebel® PowerFloor with Ceramic Tiles on 50mm concrete topping slab	R1.26	R1.38	R1.48	R1.68	R3.27	R3.59	R3.37	R3.69	R3.35	R3.67	R3.38	R3.70	R3.48	R3.80	R3.25	R3.63
75mm Hebel® PowerFloor with Ceramic Tiles on flexible adhesive	R1.23	R1.35	R1.45	R1.65	R3.23	R3.55	R3.33	R3.65	R3.31	R3.63	R3.35	R3.67	R3.44	R3.76	R3.22	R3.59
75mm Hebel® PowerFloor with Vinyl on masonite	R1.23	R1.35	R1.45	R1.65	R3.24	R3.56	R3.33	R3.65	R3.31	R3.63	R3.35	R3.67	R3.44	R3.77	R3.22	R3.59
75mm Hebel® PowerFloor with Vinyl on screeded concrete	R1.22	R1.34	R1.44	R1.64	R3.23	R3.55	R3.32	R3.64	R3.31	R3.63	R3.34	R3.66	R3.44	R3.76	R3.21	R3.58
75mm Hebel® PowerFloor with T&G flooring and nonreflective 35mm air space	R1.47	R1.64	R1.70	R1.92	R3.48	R3.85	R3.57	R3.95	R3.56	R3.93	R3.59	R3.97	R3.69	R4.06	R3.47	R3.87
75mm Hebel® PowerFloor with T&G flooring and reflective 35mm air space	R1.78	R2.57	R2.00	R2.88	R3.80	R4.81	R3.89	R4.90	R3.87	R4.89	R3.91	R4.92	R4.00	R5.02	R4.00	R4.41
75mm Hebel® PowerFloor with Tasmanian Oak 3 strip flooring on underlay	R1.37	R1.49	R1.59	R1.79	R3.38	R3.70	R3.47	R3.80	R3.45	R3.78	R3.49	R3.81	R3.58	R3.91	R3.36	R3.74
75mm Hebel® PowerFloor with T&G Hardwood flooring on 12mm plywood	R1.40	R1.52	R1.62	R1.83	R3.41	R3.74	R3.51	R3.83	R3.49	R3.81	R3.52	R3.85	R3.62	R3.95	R3.39	R3.77

Note: The above table assumes air film resistances of 0.11 (up) or 0.16 (down) for both floor and ceiling per Table 15 of AS/NZS 4859.1:2018, plus Ground Thermal Resistance (RGX) of 0.56 (up) or 0.58 (down) of Table K3 of the standard.

NOTES:	Determinations based upon AS/NZS 4859 Parts 1&2:2018, Thermal insulation materials for buildings.
	The results are believed representative at the date of calculation, however the author reserves the right to revise calculations.
	All Total RT values include the effect of thermal bridging for 50x100x1mm BMT steel joists with 600mm spacing.
	See individual calc pages for RTi values for the insulation path only. JMF calcs 107.23i-107.29i relate to insulated floors. For uninsulated floors, see JMF calcs 107.23ii-107.29ii.
	Above for 510kg/m³ Hebel® 75mm PowerFloor™ with R=0.375 (for 14% moisture content) based upon CSR Insulation Research Laboratory test report NR-12140 of 9/10/2012
	"Up/Down" refers to heat flow direction. (For floors, Up=summer, Down=Winter)
	"Bare floor, with ceiling" is for one sheet of 13mm GYPROCK Plasterboard (140mm floor joists, 28mm furring channel)
	CSR 6209 has Bradford Soundscreen™ R2.0 Batts (75mm), 1x13mm GYPROCK
	CSR 6221 has Bradford Soundscreen™ R2.0 Batts (75mm), 1x13mm GYPROCK FYRCHEK + 1x16mm GYPROCK FYRCHEK
	CSR 6217 has Bradford Soundscreen™ R2.0 Batts (75mm), 2x13mm GYPROCK FYRCHEK
	CSR 6222 has Bradford Soundscreen™ R2.0 Batts (75mm), 2x16mm GYPROCK FYRCHEK
	CSR 6223 has Bradford Soundscreen™ R2.0 Batts (75mm), 3x16mm GYPROCK FYRCHEK
	CSR 6220 has Bradford Gold™ R2.0 Batts (90mm), 1x16mm GYPROCK FYRCHEK
	Calculations are for R2.0 Bradford Gold™ (glasswool insulation), or R2.0 Bradford Soundscreen™ (rockwool insulation)

Source: *James M Fricker; Report 107_E43pine.; Thermal performance calculations to AS/NZS 4859 Parts 1 & 2:2018; Dated 01/09/2020.*

A4 Manufacturer and manufacturing plant(s)

This field is optional. Contact Certificate Holder for details.

A5 Installation requirements

Only to be installed by a suitably qualified tradesperson in accordance with CSR Hebel® PowerFloor Houses, Low Rise Multi-Residential & Commercial Floors Design & Installation Guide HELIT017 September 2023.

A6 Other relevant technical data

No other relevant technical data.

APPENDIX B – EVALUATION STATEMENTS

B1 Evaluation methods

1. Acoustic Provisions A5G3(1)(e). Reports from a professional engineer.
2. Fire Safety Provisions A5G3(1)(d)&(e). Reports from Accredited Testing Laboratories and a professional engineer.
3. Structural Resistance Provisions A5G3(1)(e). Reports from a professional engineer.
4. Energy Efficiency Provisions A5G3(1)(e). Reports from a professional engineer.

B2 Reports

1. CSIRO; NATA Accreditation No. 165; Report No. FNC12427A; Certificate of Test - Combustibility Test for Materials in Accordance with AS 1530.1-1994; Dated 02/09/2019. This certificate confirms that the Hebel® PowerFloor AAC panel is not deemed combustible in accordance with C2D10 and H3D2.
2. Warringtonfire; Nata Accreditation No. 3277; Report No. 26162 Revision 3.2; Fire assessment report - Fire resistance performance of CSR Gyprock® Fyrchek™ ceiling systems in accordance with AS1530.4-2014; Dated 01/09/2023. This report provides an FRL Assessment which confirms compliance with C2D2(2) and H3D5.
3. James M Fricker Pty Ltd; Report No. 107_E43pine; Thermal Performance Calculations in accordance with AS/NZS 4859 Parts 1 & 2:2018; Dated 01/09/2020. The calculations of the Hebel® PowerFloor Systems will contribute to the Energy Efficiency performance requirements of (Thermal) for J4D7 and H6D2(1)(b)(i).
4. James M Fricker Pty Ltd; Report No. 107_E43steel; Thermal Performance Calculations in accordance with AS/NZS 4859 Parts 1 & 2:2018; Dated 01/09/2020. The calculations of the Hebel® PowerFloor Systems will contribute to the Energy Efficiency performance requirements of (Thermal) for J4D7 and H6D2(1)(b)(i)
5. PACE Structural; Report No. PS19167; Hebel® PowerFloor Diaphragm Capacity; Dated 11/04/2021. This report provides evidence for compliance with the structural requirements of B1P1 & H1P1.
6. PACE Structural; Report No. PS20116; Structural Design Certificate - 75mm Hebel® PowerFloor; Dated 16/08/2023. This design certificate contributes to the compliance of the structural requirements of B1P1 & H1P1.
7. PACE Structural; Structural Design Certificate - CSR Hebel AAC Strength Assessment; Dated 15/08/2023. This design certificate contributes to the compliance of the structural requirements of B1P1 & H1P1.
8. PKA Acoustic Consulting Pty Ltd; Report No. PKA-A071 Version 5; Acoustic Performance Assessment of Hebel® PowerFloor; Dated 18/04/2023. This report provides Acoustic performance assessment of Hebel® PowerFloor Systems which contributes to compliance of F7P1.
9. Jensen Hughes Pty Limited, Trading as BCA Logic; Report No. 115620-FAR10-r2; Fire Resistance of 75 mm Hebel® PowerFloor System; Dated 27/04/2023. This report provides an FRL Assessment which confirms compliance with C2D2(2) and H3D5.

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