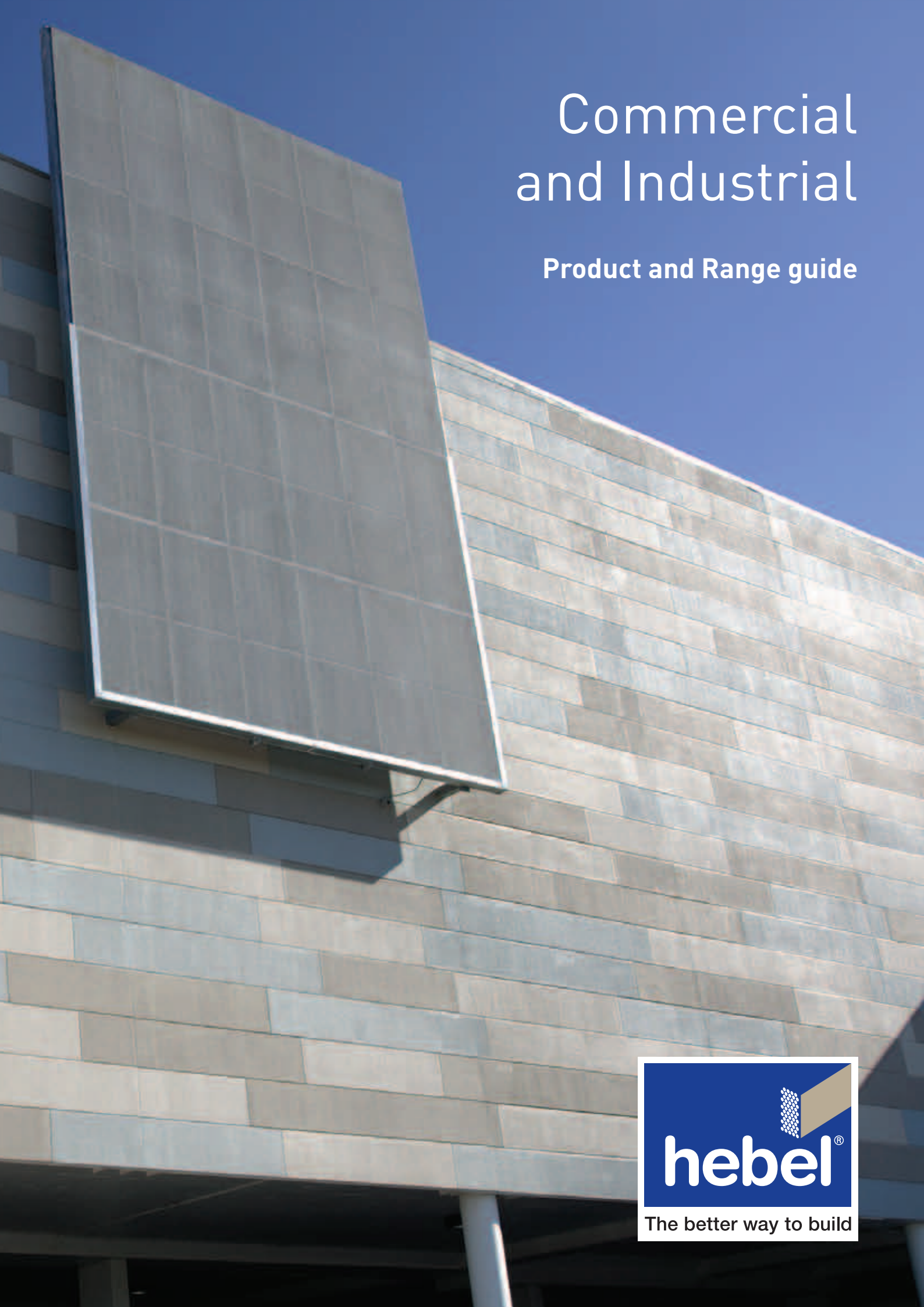
Commercial and Industrial

Product and Range guide



hebel®

The better way to build

Hebel®
Designed for Future Living

Hebel® is designing the long term future of Australian commercial and industrial construction with a commitment to products that are practical, versatile, environmentally responsible and durable enough to stand the test of time.

Hebel® is Australia's leading manufacturer of autoclaved aerated concrete (AAC), a non-toxic, lightweight masonry which has remarkable properties:

- Non-combustible
- Excellent acoustic insulation
- High thermal resistance
- Easily worked with standard tools
- Solid masonry feel

The manufacture of Hebel® AAC uses just one quarter of the raw materials needed for conventional masonry. There are no waste products produced – even the steam generated is recycled.

Hebel® has earned the prestigious, internationally recognised 'Good Environmental Choice – Australia' label.

HEB - 2006
Environmentally Innovative Products

The endorsement is designed as a guide to consumers who want to choose environmentally friendly products. To be able to qualify for this endorsement, a product must satisfy stringent requirements. The lifecycle analysis report demonstrated a reduced environmental load of at least 30% in energy use in comparison to like products with 61% less embodied energy and 64% less Greenhouse gasses than concrete.

Hebel® is proud to have been awarded the right to display the label.

Designed

Shopping Centres

- External Walls
- Floors
- Internal Walls
- Fire Tunnels
- Cinema Walls
- SoundBarrier™

Clubs

- External Walls
- Floors
- Internal Walls
- Fire Tunnels
- Spandrel Walls
- SoundBarrier™

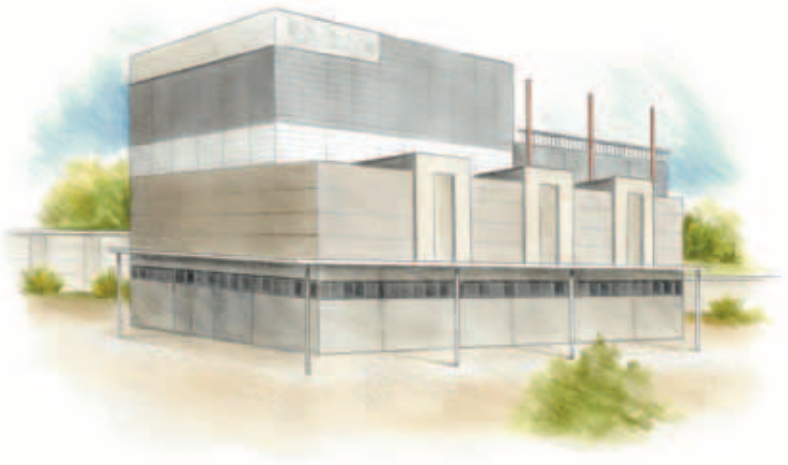
for Commercial and Industrial

Offices/High Rise

- External Walls
- Floors
- Internal Walls
- Intertenancy Walls
- Spandrel Walls

Hotels

- External Walls
- Floors
- Intertenancy Walls
- Spandrel Walls
- SoundBarrier™



Commercial/Industrial

- External Walls
- Floors
- Internal Walls
- Fire Tunnels
- Spandrel Walls
- SoundBarrier™

Hospital

- External Walls
- Floors
- Internal Walls
- Fire Tunnels
- SoundBarrier™

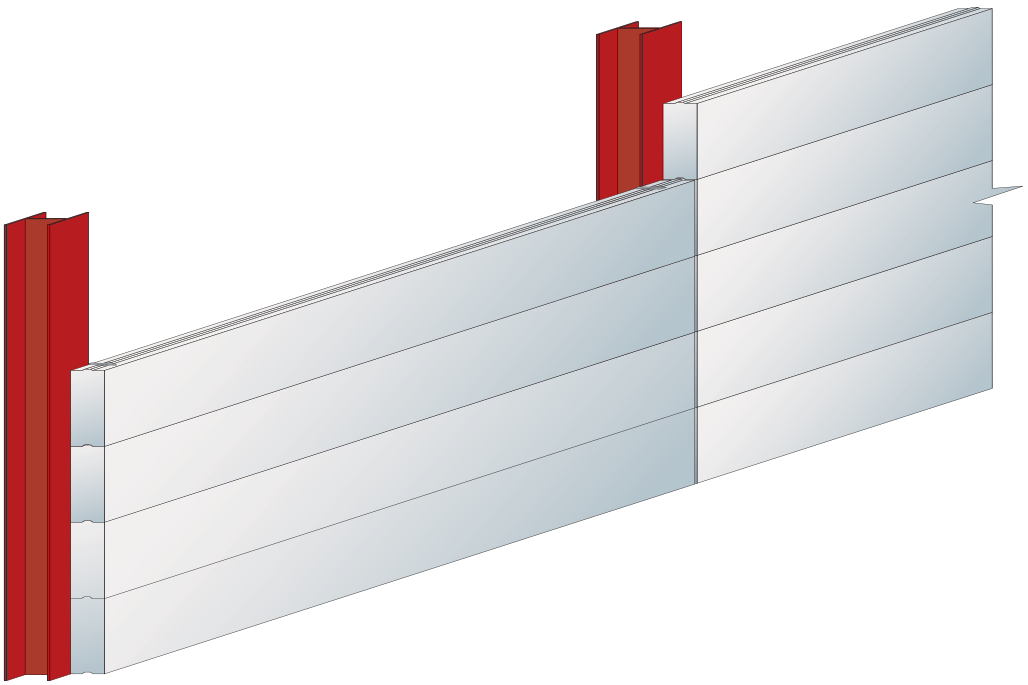
External Walls

Hebel® has developed external wall systems for commercial applications ranging from low rise industrial/commercial developments to high rise offices or medium density residential buildings. Hebel® panels are installed vertically or horizontally to steel or concrete structural framing as a non-loadbearing cladding.

- **Cost effective:** Light weight panels allow for reduced structural components and smaller lifting equipment.
- **Thermal resistance:** Excellent thermal resistance performance.
- **Acoustic performance:** Effective sound transmission barrier between external and internal environments of the building.
- **Fire protection:** Excellent fire rating properties.
- **No wet trades:** Less mess and a cleaner, safer work area.
- **Less wastage:** Greatly reduced waste as panels can be custom made to length requirements. Fewer waste bins and less crane movements.
- **Design flexibility:** Hebel® panels can be easily cut and routed to suit design requirements. Panel may be manufactured up to 6m in length.
- **Strength and security:** Corrosion protected steel-reinforced AAC panels provide a high degree of strength, durability and security.
- **Cost effective:** Speed of installation and reduced structural sizes mean cost savings compared to traditional masonry construction.

Fire	-/240/240
Acoustic	$R_w + C_{tr}$ 36 to 45 (125mm to 300mm panels)
Thermal	R0.96 to R2.06 (125mm to 300mm panels)
Wall Thickness	125mm to 300mm (single skin panel only)

Acoustic values are for panel only.
Thermal values are for panel + inside & outside air films + coating.



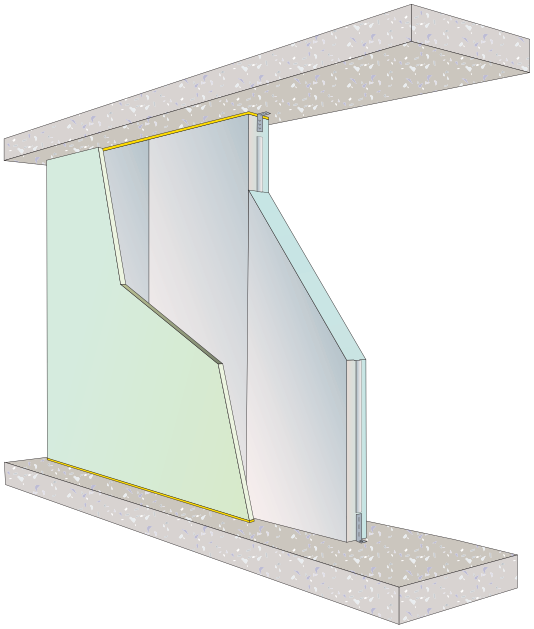
Internal Wall

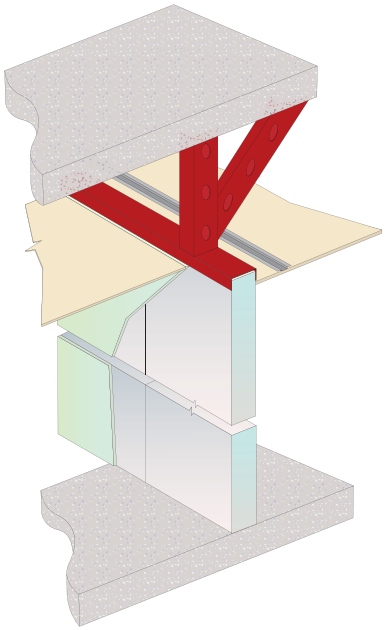
Hebel® internal wall systems provide a solid, slender, non-loadbearing wall for use in commercial applications such as around toilets and offices or between industrial units as a fire wall. The systems consist of 75mm, 100mm or 125mm PowerPanels™ connected to slabs or steel frames. Hebel® internal wall systems are installed very quickly and can provide a fire rating of up to 4 hours.

- **Lightweight:** Lighter loads on the structure compared to traditional masonry products reduces the size of structural components.
- **Cost effective:** Speed of installation and reduced structural sizes mean cost savings compared to traditional masonry construction.
- **Less wastage:** Greatly reduced waste as panels can be custom made to height requirements. Fewer waste bins and less crane movements.
- **Speed of construction:** Fast installation and assembly speeds with smaller construction crew requirements.
- **No wet trades:** Less mess and a cleaner, safer work area.
- **Slender walls:** Slimmer walls than other systems resulting in more lettable space.
- **Strength and security:** Corrosion protected steel-reinforced AAC panels provide a high degree of strength, durability and security.
- **Solid masonry walls:** Suitable for food areas in retail areas and hospitals as it will not attract vermin.
- **Thermal resistance:** Excellent thermal resistance performance.
- **Acoustic performance:** Effective sound transmission barrier.

Fire	-/120/90 to -/240/240 (100mm to 200mm panels)
Acoustic	$R_w + C_{tr}$ 33 to 39 (75mm to 200mm panels)
Thermal	R0.77 to R1.51 (75mm to 200mm panels)
Wall Thickness	75mm to 200mm (single skin panel only)

Acoustic values are for panel only.
Thermal values are for panel + adjacent still air films + coating.





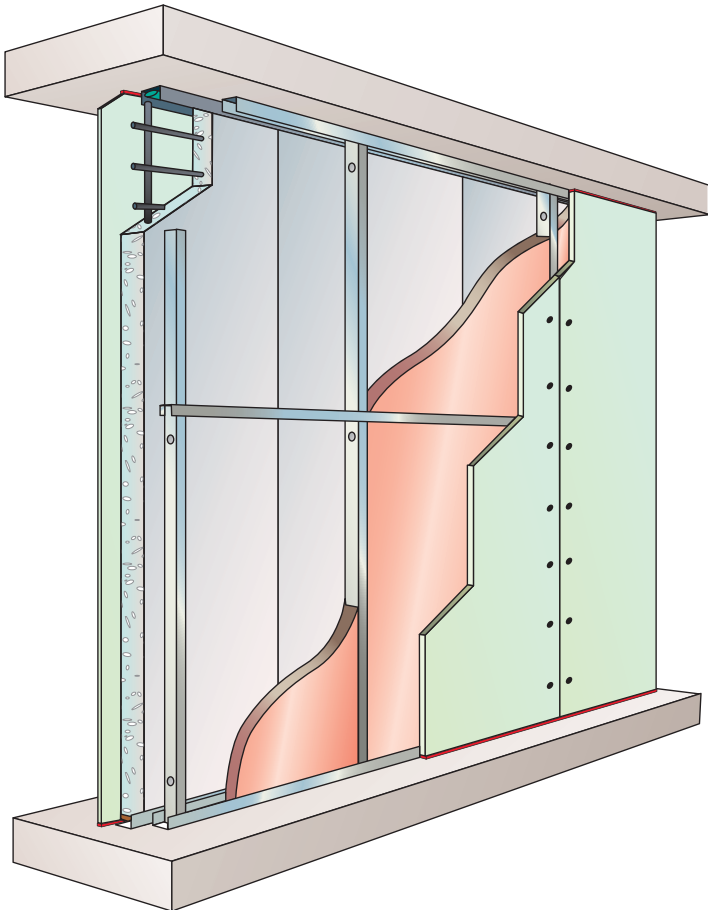
Intertenancy Wall

Hebel® intertenancy wall systems provide cost-effective, slender walls which are quick to install. These walls with a solid masonry element provide acoustic performance that meets or exceeds BCA requirements. Hebel® intertenancy walls are primarily used for party walls as well as corridor, shaft and general internal walls in commercial construction.

- **Lightweight:** Lighter loads on the structure which will reduce slabs, columns and footings.
- **Cost effective:** Speed of installation and reduced structural sizes means cost savings compared to traditional masonry construction.
- **Less wastage:** Greatly reduced waste as panels can be custom made to height requirements. Fewer waste bins and less crane movements.
- **Fire protection:** Excellent fire rating properties.
- **Slender walls:** Wall thicknesses can be reduced, resulting in more lettable space.
- **Speed of construction:** Fast installation and assembly speeds with smaller construction crew requirements.
- **Strength and security:** Corrosion protected steel-reinforced AAC panels provide a high degree of strength, durability and security.
- **Acoustic performance:** Effective sound transmission barrier to meet or exceed BCA requirements - *Nata laboratory certified acoustic tests and expert opinions.*
- **No wet trades:** Less mess and a cleaner, safer work area.

Fire	-/60/60 to -/240/240
Acoustic	$R_w + C_{tr}$ 50 to 59
Thermal	R2.17 to R2.64
Wall Thickness	185mm to 276mm

Values are for complete wall systems.



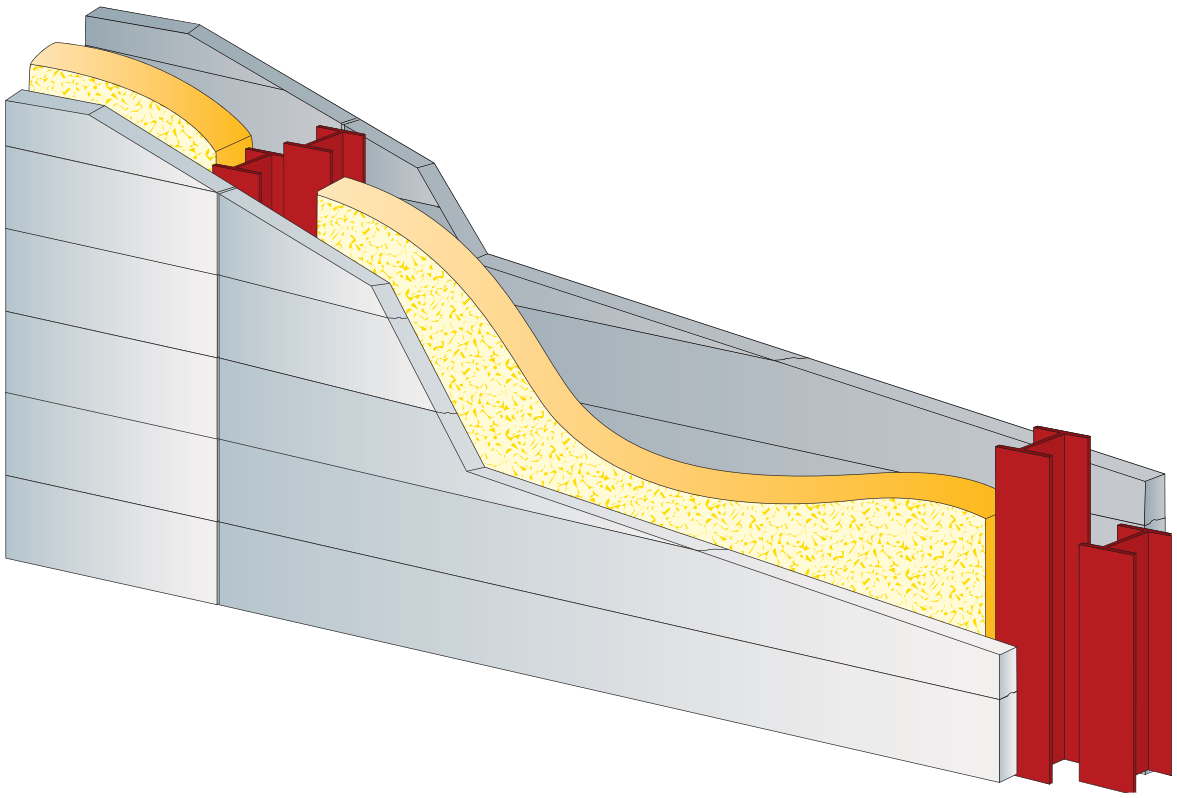
Cinema Wall

The Hebel® Cinema Wall system consists of two panels supported by a structural steel frame with insulation placed between the panels. The system meets the current requirement for acoustics for cinema operators and can be constructed quickly when compared to plasterboard and masonry wall systems currently available. The system is also able to be constructed before the roof is installed.

- **Acoustic performance:** Excellent acoustic rating that meets high cinema requirements.
- **Cost effective:** Lower installed cost than plasterboard and masonry wall systems.
- **Less wastage:** Custom panel lengths greatly reduce waste allowing fewer waste bins.
- **Fire protection:** Excellent fire ratings.
- **Flexible finishing options:** Can be either painted, rendered or plasterboard lined.
- **Strength and security:** Corrosion protected steel-reinforced AAC panels provide a high degree of strength, durability and security.
- **No wet trades:** Less mess and a cleaner, safer work area.

Fire	-/240/240
Acoustic	R_w+C_{tr} 65
Wall Thickness	475mm

Values are for complete wall system.



Spandrel Wall and Fire Tunnel

Spandrel Wall

Hebel® Spandrel Wall can be used where there needs to be a fire separation from one floor to the one above/below. The wall consists of 75mm Hebel® PowerPanel™ and steel columns at a maximum of 3m centres. The 3 metre long PowerPanel™ is equivalent in area to 22.5 concrete blocks making installation quick & easy. Significant savings in labour and construction time can be achieved for your project.

Fire Tunnel

The Hebel® Fire Tunnel system utilises the great fire characteristics of Hebel® by having the walls made of 125mm Hebel® panels supported by a steel frame and a Hebel® ceiling panel which encloses the fire tunnel. By utilising the same product to construct the walls and the ceiling and having the same contractor constructing both elements, the process is simpler and quicker than conventional methods.

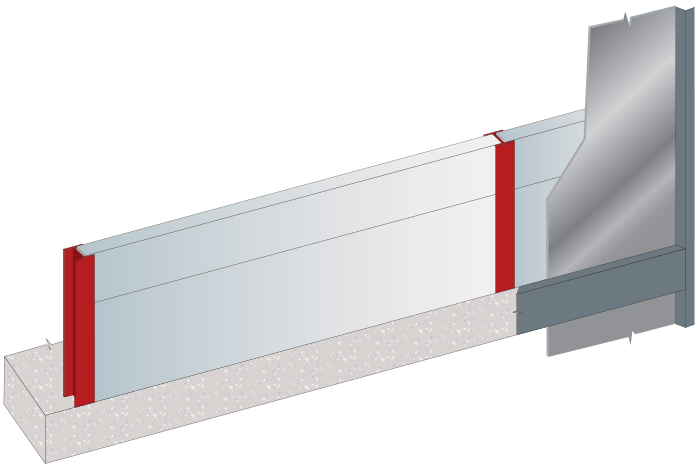
- **Lightweight:** Lighter loads on structure can assist in reducing slabs, columns and footings.
- **Cost effective:** Speed of installation and reduced structural sizes means cost savings compared to traditional masonry structures.
- **Less wastage:** Greatly reduced waste as panels can be custom made to suit requirements. Fewer waste bins and less crane movements.
- **Speed of construction:** Fast installation compared to small masonry units with no wet trades required.
- **Strength and security:** Corrosion protected, steel-reinforced AAC panels provide a high degree of strength, durability and security.
- **Slender walls:** Wall thickness can be reduced by up to 40mm compared to other wall systems providing more lettable area.
- **Fire protection:** Excellent fire properties.

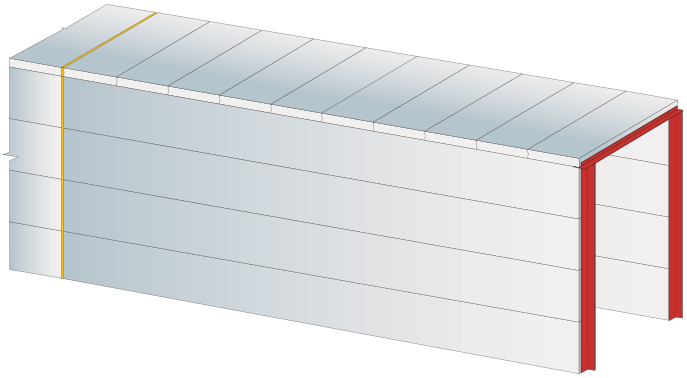
Fire	-/60/60
Wall Thickness	75

The above fire system needs to be engineered and certified by others based on technical information supplied by CSR Panel Systems.

Fire	-/240/240
Wall Thickness	125

The above fire system needs to be engineered and certified by others based on technical information supplied by CSR Panel Systems.





PowerFloor™ and FloorPanel

Hebel® has developed flooring systems for a wide range of commercial applications. Hebel® Powerfloor™ consists of 75mm steel-reinforced panels installed over steel or timber joists to give an excellent, solid base for just about any floor covering. Hebel® FloorPanel is made up of steel-reinforced panels (150mm – 250mm thick) supported by a steel or concrete support frame with a ring anchor around every panel to hold it in position.

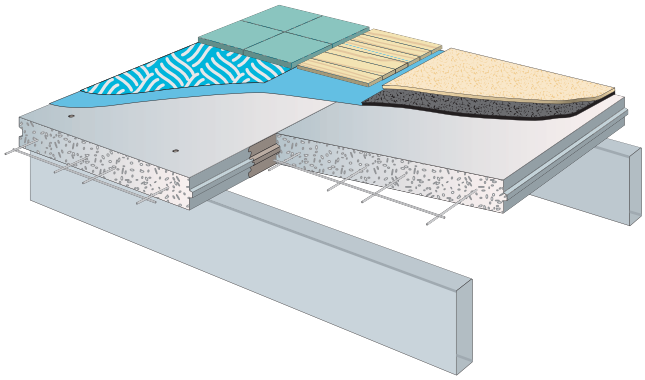
- **Lightweight:** lighter loads on structure can assist in reducing slabs, columns and footings.
- **Cost effective:** Speed of installation and reduced structural sizes means cost savings compared to masonry flooring.
- **Less wastage:** Greatly reduced waste as panels can be custom made to suit requirements. Fewer waste bins and less crane movements.
- **Strength and security:** Corrosion protected, steel-reinforced AAC panels provide a high degree of strength, durability and security.

PowerFloor™

- **Solid feel:** Eliminates the bounce, flex and noise of timber sheet flooring.
- **Superior acoustic insulation:** R_w of up to 62 can be achieved.
- **Excellent thermal performance:** Unique combination of thermal performance and thermal mass delivers a total system R-Value of 2.4 – ideal for floors over carparks.

Fire	Up to 240 mins from above, 90 mins from below
Acoustic - no ceiling system - with ceiling system	 $R_w + C_{tr}$ 29 to 33, $L_{nw} + C_l$ 78 to 45 $R_w + C_{tr}$ 48 to 56, $L_{nw} + C_l$ 70 to 30
Thermal	Min. R2.4

Values are for complete systems.

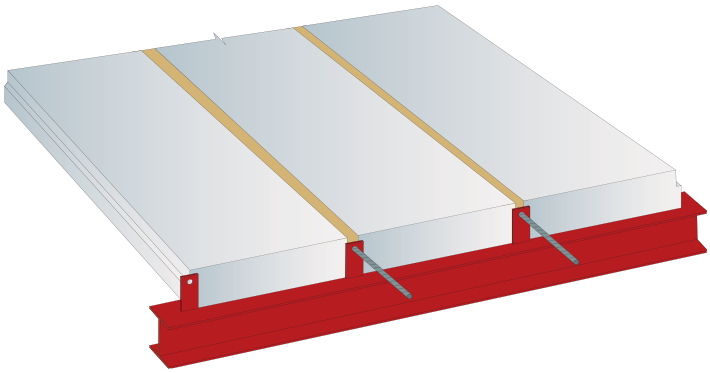


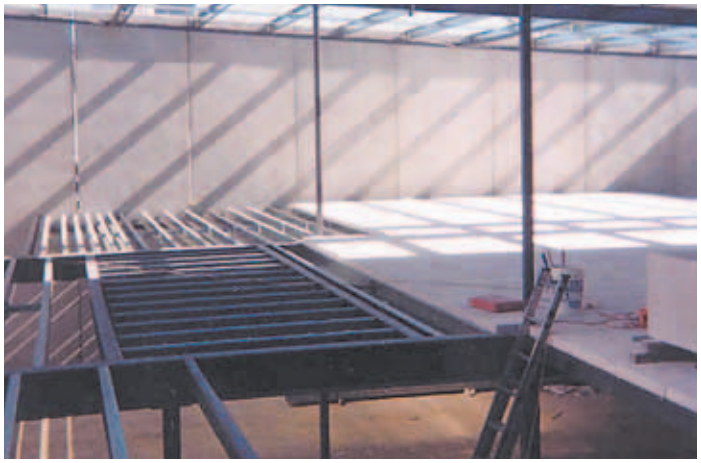
FloorPanel

- **Long spans:** Up to 5.85 metres.
- **Safer installation:** Minimal props or scaffold under floor and less people in dangerous positions (up high) which reduces safety risk and reduces costs.
- **Quick installation:** The floor is usable three days after mortar is poured (no curing/setting time) which reduces critical path.

Fire	180/180/180
Acoustic	$R_w + C_{tr}$ 39 to 42, (150mm to 250mm panels)
Thermal	R0.89 to R1.48 (150mm to 250mm panels)

Values are for panels only.



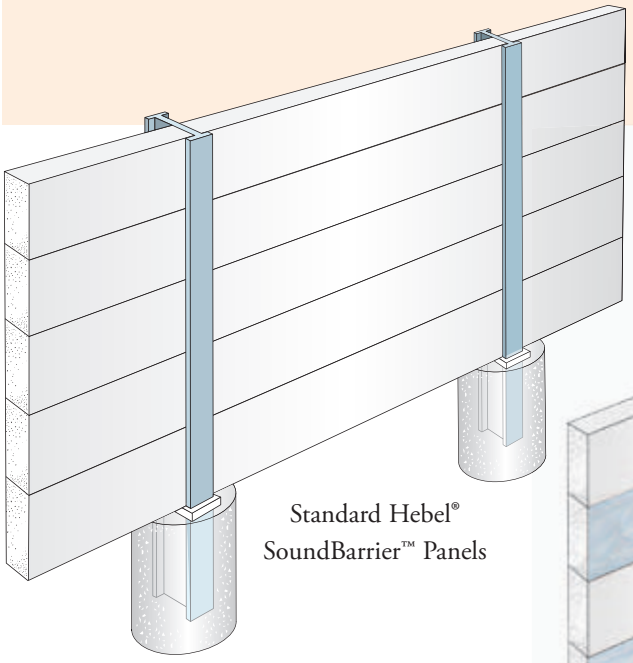


SoundBarrier™

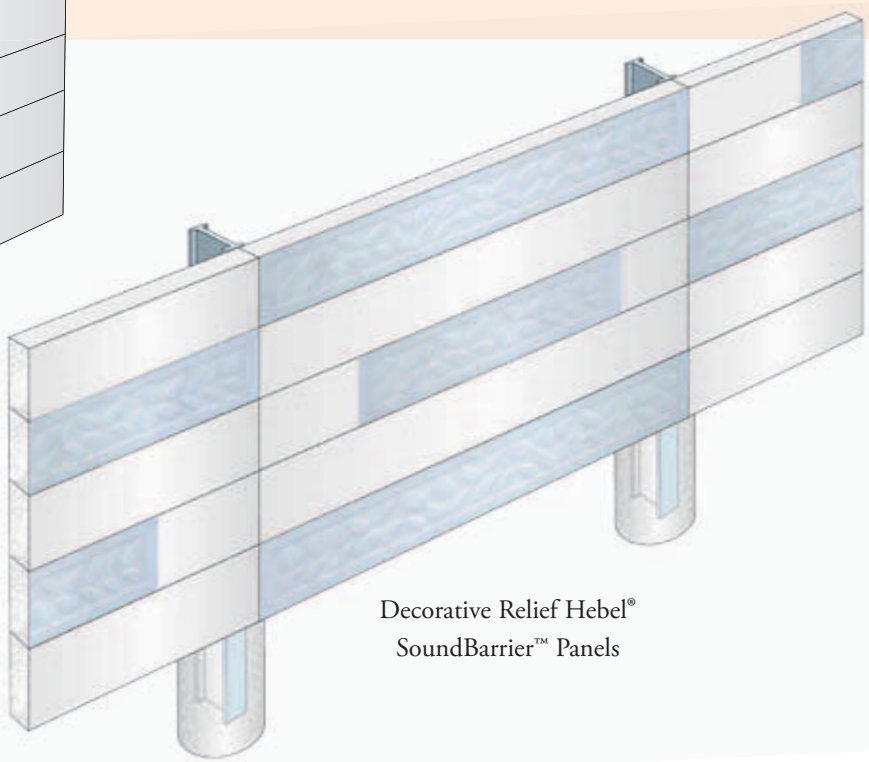
Hebel® SoundBarrier™ is a highly effective acoustic barrier that produces significant reductions in noise levels such as those emanating from roads, freeways and rail corridors. Hebel® SoundBarrier™ panels are available in 4 standard thicknesses that provide sound reductions of up to 43db. Other panel sizes can be made to order if greater noise reduction is required. SoundBarrier™ walls can be further enhanced by the addition of decorative post treatments, capping, routed patterns or by affixing featurework to the face to create an attractive design.

- **Cost Effective:** Speed of installation means mean cost savings compared to traditional masonry construction.
- **Speed of Construction:** Fast installation and assembly speeds with smaller construction crew requirements.
- **Fire Protection:** Panels are non-combustible and won't burn. Can provide bush fire hazard reduction.
- **Design flexibility:** Patterns/designs can be routed into the panels.
- **Different wall configurations:** Allows for relief on large walls.
- **Footings:** Smaller and quicker footings to be installed than other masonry barriers.
- **Acoustic performance:** High acoustic rating, effective sound transmission barrier.

Acoustic	R_w 39 to 44
Wall Thickness	100mm to 200mm



Standard Hebel® SoundBarrier™ Panels



Decorative Relief Hebel® SoundBarrier™ Panels

Hebel® – Meeting Building Regulations

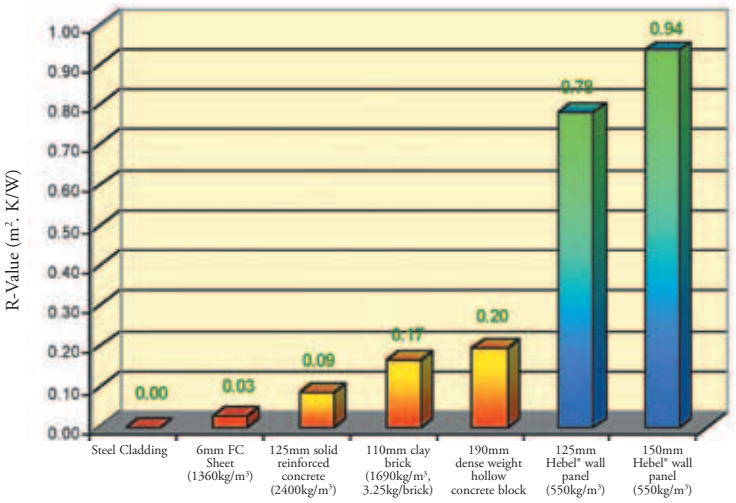
The unique combination of thermal resistance, thermal mass, acoustic and fire properties make building with Hebel® a smart choice for meeting Australia's building regulations.

For commercial and industrial construction, the Building Code of Australia (BCA) details regulations covering energy efficiency, fire resistance and acoustics, across a broad range of building classes.

Energy Efficiency

BCA Vol. 1 Section J covers energy efficient construction requirements. The goal of Section J is to reduce greenhouse gas emissions through the efficient use of energy in buildings. Hebel® has exceptional thermal insulation properties when compared to alternative building materials. Hebel® Panels have significantly greater R-Value than pre-cast concrete, concrete masonry, brickwork and claddings such as fibre cement and sheet steel as shown in Figure 1.

Figure 1



Source: BCA2007 Vol.1: Specification J1.5, Figure 2
Except steel and Hebel®

Fire Resistance

The BCA details comprehensive fire safety building requirements.

Hebel® panels are non-combustible and Hebel® External Walls, Spandrel and Fire Tunnel Systems achieve FRLs up to 240 minutes.

Refer to the system design and installation guides for detailed fire performance ratings and certificates.

External Wall	
Panel Thickness	Fire Rating
100mm	- /120/90
125mm to 300mm	- /240/240
PowerFloor	
75mm	Up to 240 mins from above,90 mins from below
FloorPanel	
150mm to 250mm	180/180/180

Acoustics

The BCA generally classifies commercial/industrial buildings into class 5, 6d, 7b, 8, 9a and 9b and with the exception of intertenancy walls, acoustic performance requirements for these are not currently stated in the BCA. Local councils and client specific requirements generally drive construction materials and systems to meet specific levels of acoustic performance. Hebel® has worked closely with acoustic experts and testing authorities to engineer, inherently superior acoustics from its systems. Below are the acoustic ratings for Hebel® panels. Refer to the system design and installation guides for system performance details.

Panel Thickness	R_w	$R_w + C_{tr}$
75mm	37	33
100mm	39	34
125mm	41	36
150mm	42	37
175mm	43	38
200mm	44	39
250mm	45	40
300mm	51	45

Refer to Table 1 to obtain system R-Values for the range of wall panels and different internal cavity treatments. The table is shaded to indicate compliance with the BCA performance requirements.

Table 1

System R-Value (m^2K/W)							
Wall panel thickness	1. Wall panel only*	2. Wall panel + 25mm cavity	3. Wall panel + 25mm cavity + sarking	4. Wall panel + 25mm cavity+75mm PowerPanel™	5. Wall panel + 40mm cavity + R1.0 insulation	6. Wall panel + 25mm cavity + dobule sided RFL = 25mm cavity	7. Wall panel + 90mm cavity + R2.0 insulation
100	0.81	1.03	1.36	1.50	1.87	2.07	2.87
125	0.96	1.18	1.51	1.65	2.02	2.23	3.02
150	1.12	1.34	1.67	1.81	2.18	2.38	3.18
175	1.28	1.50	1.83	1.97	2.34	2.54	3.34
200	1.43	1.65	1.98	2.12	2.49	2.70	3.49
225	1.59	1.81	2.14	2.28	.65	2.85	3.65
250	1.75	1.97	2.30	2.44	2.81	3.01	3.81
300	2.06	2.26	2.61	2.75	3.12	3.32	4.12

Meets BCA requirements for building fabric (walls) for Class 5-9b buildings in Climate Zones 1 to 7. Meets BCA requirements for building fabric (walls) for Class 5-9b buildings in Climate Zone 8.

*Wall panel only includes outside air film, coating, Hebel® panel, inside air film.

Notes: 1. Cavities are unventilated. **2.** Sarking = Bradford EnviroSeal (polymer weave) with e_1 = 0.9, e_2 = 0.05. **3.** Double sided RFL = EnviroSeal metal roof/wall (paper weave) with e_1=0.2, e_2=0.03. **4.** R1.0 insulation = Bradford R1.0 Specitel: thickness - 40mm, density-12kg/m³. **5.** R2.0 insulation = Bradford R2.0 Gold Wall Batts; thickness - 90mm, density -10kg/m³.

Finishing Systems

Hebel®, in conjunction with Dulux® Australia has developed a selection of finishing systems designed to specifically suit Hebel® products and systems. For full details including surface preparation and application instructions, please refer to the Hebel® High Performance Coating Systems brochure, available from www.hebelaustralia.com.au

Hebel® Product	Build Style	Finish Style	Surface Alignment	Base Render or Levelling Coat	Primer	Acrylic Texture Body Coat	Finish Coat	Comment
	Monolithic	Uniform Sand Texture profile	>3mm	Hebel® HighBuild (Render)	AcraPrime 501/1	Tuscany or Coventry Coarse	AcraShield Matt or Elastomeric 201 2 coats	Min. 2 coats of fonishing membrane recommended due to increased complexity of broad wall aesthetics, scaffolding, cutting in detail
Express Option 1 Low profile, Roll On Texture Uniform texture, Weather-tight finish	Express V-Joint	Texture roller low profile Will unify minor panel blemishes	True and Flush	N/A	AcraSilane	AcraSand	AcraSand	AcraSilane primer provides a water transmission barrier at the substrate interface for improved system performance in low build system recommendations.
Express Option 2 High Build Elastomeric coating Weather-tight finish	Express V-Joint	High Build paint finish Will not hide surface profile	True and Flush	N/A	AcraSilane	AcraShield Matt	AcraShield Matt	AcraSilane primer provides a water transmission barrier at the substrate interface for improved system performance in low build system recommendations.

Hebel® has tested and verified the performance of our Hebel® branded coatings, Dulux® Acratex and Dulux® paint products and is satisfied that the Dulux® products and systems as nominated will perform over Hebel® products (provided they are applied in conformance with Product and System guidelines outlined by Dulux® see www.dulux.com.au and in accordance with the system recommendations for each building type contained in the Hebel® High Performance Coating brochure).
If other coatings are preferred by our customers then customers must obtain their own separate warranties and guarantees from the manufacturers and distributors of other coatings and systems, confirming at very least that they will perform in accordance with and are suited to the Hebel® Material Properties Specification contained in the Hebel® High Performance Coating brochure.

www.hebelaustralia.com.au

Designing for Future Living

Hebel® is a quality building product, and is backed by CSR Building Products Limited. Further details on engineering and building with Hebel® systems are available in the Hebel® Design Guides and Technical Manual. To obtain a copy, or for further sales or technical assistance, please visit our website.

www.hebelaustralia.com.au

For sales enquiries or further information, please telephone us from anywhere in Australia: **1300 369 448**

hebel®
The better way to build

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Warranty

Hebel continues to lead the market with premium quality products, which are the preferred choice of many building professionals. All CSR products are designed to achieve optimal performance when installed in accordance with published Design and Installation Guides using recommended products, accessories and other components. For details of product and system warranties provided by Hebel, contact a CSR Hebel representative on 1300 369 448 or visit www.hebelaustralia.com.au.

Health & Safety

Information on any known health risks of our products and how to handle them safely is on their packaging and/or the documentation accompanying them. Additional information is listed in the Material Safety Data Sheet (MSDS). To obtain a copy of a MSDS, telephone 1800 807 668 or download from hebelaustralia.com.au. Contractors are required by law to perform their own risk assessments before undertaking work. Hebel® has sample Safe Work Method Statements (SWMS) to assist in this. To obtain a sample SWMS, refer also to the above sources.

Available from:

CSR