Hebel®
Designed for Future Living

Hebel is designing for 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.

Driven by the commitment to meet customer needs Hebel listens and responds by designing systems and products that are better to build with and better to live in.

Supported by CSR, Hebel offers the knowledge and technical expertise to help customers and reduce risk.

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

Environmentally friendly, Hebel products and systems are the sustainable choice. Independent testing shows that overall, Hebel has a 30% lower environmental impact than concrete or brick veneer.

Using over 60% less embodied energy, and producing at least 55% less greenhouse emissions than concrete or brick veneer, Hebel is the cleaner, greener choice.
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 PowerPanel+ 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 PowerPanel+ panels can be easily cut and routed to suit design requirements. Panel length up to 6 metres.

<table>
<thead>
<tr>
<th>Fire</th>
<th>-/240/240</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acoustic</td>
<td>$R_w + C_n$ 37 to 45 (125mm to 300mm panels)</td>
</tr>
<tr>
<td>Thermal</td>
<td>R0.96 to R2.06 (125mm to 300mm panels)</td>
</tr>
<tr>
<td>Wall Thickness</td>
<td>125mm to 300mm (single skin panel only)</td>
</tr>
</tbody>
</table>

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

- **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.
- **A sustainable choice**: Environmentally produced and less site wastage.
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.
- **A sustainable choice**: Environmentally produced and less site wastage.

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire</td>
<td>-90/-90 to -240/240 (100mm to 200mm panels)</td>
</tr>
<tr>
<td>Acoustic</td>
<td>$R_w + C_v$ 33 to 40 (75mm to 200mm panels)</td>
</tr>
<tr>
<td>Thermal</td>
<td>$R_0.52$ to $R_{1.28}$ (75mm to 200mm panels)</td>
</tr>
<tr>
<td>Wall Thickness</td>
<td>75mm to 200mm (single skin panel only)</td>
</tr>
</tbody>
</table>

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.
- **A sustainable choice**: Environmentally produced and less site wastage.

<table>
<thead>
<tr>
<th>Fire</th>
<th>-/60/60 to -/240/240</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acoustic</td>
<td>$R_w + C_v$ 50 to 59</td>
</tr>
<tr>
<td>Wall Thickness</td>
<td>185mm to 276mm</td>
</tr>
</tbody>
</table>

Values are for complete wall systems.

Photography Eric Sierins, courtesy of Fraser Property and Sekisui House.
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.

**A sustainable choice:** Environmentally produced and less site wastage.

<table>
<thead>
<tr>
<th>Fire</th>
<th>-/240/240</th>
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<tbody>
<tr>
<td>Acoustic</td>
<td>$R_w = 65$</td>
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<tr>
<td>Wall Thickness</td>
<td>475mm</td>
</tr>
</tbody>
</table>

Values are for complete wall systems.
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 15 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 PowerPanel+ 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.

### Benefits

- **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.

<table>
<thead>
<tr>
<th>Fire</th>
<th>-/60/60</th>
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</thead>
<tbody>
<tr>
<td>Wall Thickness</td>
<td>75</td>
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</table>

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

<table>
<thead>
<tr>
<th>Fire</th>
<th>-/120/120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Thickness</td>
<td>125</td>
</tr>
</tbody>
</table>

The above fire system needs to be engineered and certified by others based on technical information supplied by CSR Panel Systems.
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 the floor perimeter and at panel joints to form a monolithic floor panel system.

- **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 R0.76 to R2.4 – ideal for floors over car parks.

### PowerFloor+
- **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
- **Fire**
  - Up to 240 mins from above, 90 mins from below

### Acoustic – no ceiling system
- $R_w + C_v$ 29 to 33, $L_{nw} + C$ 83 to 45
- $R_w + C_v$ 48 to 54, $L_{nw} + C$ 70 to 32

### Wall Thickness
- R0.59 to R3.49

### Fire
- **Fire**
  - Up to 180/180/180 (depending on panel thickness)

### Acoustic
- $R_w + C_v$ 40 to 42, (150mm to 250mm panels)

### Wall Thickness
- R0.93 to R1.55 (150mm to 250mm panels)

Values are for complete systems.

Values are for panels only.
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 45db. 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.

<table>
<thead>
<tr>
<th>Acoustic</th>
<th>$R_w$ 38 to 43</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Thickness</td>
<td>100mm to 200mm</td>
</tr>
</tbody>
</table>

- **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.
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.

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

**Acoustics**

The BCA generally classifies commercial/industrial buildings into class 5, 6d, 7b, 8, 9a and 9b and with the exception of inteternancy 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.

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.

### Energy Efficiency

Energy efficiency is crucial in modern building regulations, especially in meeting Australia’s energy efficiency standards. Hebel Panels, with their exceptional thermal insulation properties, outperform alternatives like pre-cast concrete, concrete masonry, brickwork, and claddings such as fibre cement and sheet steel. This makes Hebel a smart choice for meeting the energy efficiency requirements set by the BCA.

### Fire Resistance

Hebel panels are designed to be non-combustible, ensuring a high level of fire safety. The Fire Resistance Levels (FRLs) of Hebel panels can range up to 120 minutes, meeting or exceeding the stringent fire safety requirements set by the BCA. Further details can be found in the system design and installation guides.

### Acoustics

Acoustics are vital in commercial and industrial buildings, particularly in class 5, 6d, 7b, 8, 9a, and 9b constructions. While the BCA does not specify acoustic requirements for all interior walls, local councils and client-specific needs drive the choice of construction materials and systems to meet specific acoustic performance levels. Hebel has worked closely with acoustic experts and testing authorities to engineer inherently superior acoustics from its systems. Further details can be found in the system design and installation guides.

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### Table 1

<table>
<thead>
<tr>
<th>Panel Thickness</th>
<th>R_w</th>
<th>R_w + C_tr</th>
</tr>
</thead>
<tbody>
<tr>
<td>75mm</td>
<td>36</td>
<td>33</td>
</tr>
<tr>
<td>100mm</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>125mm to 300mm</td>
<td>40</td>
<td>37</td>
</tr>
<tr>
<td>150mm</td>
<td>43</td>
<td>40</td>
</tr>
<tr>
<td>175mm</td>
<td>42</td>
<td>39</td>
</tr>
<tr>
<td>200mm</td>
<td>45</td>
<td>42</td>
</tr>
<tr>
<td>225mm</td>
<td>51</td>
<td>45</td>
</tr>
<tr>
<td>250mm</td>
<td>100</td>
<td>180/180/180</td>
</tr>
<tr>
<td>300mm</td>
<td>200</td>
<td>300</td>
</tr>
</tbody>
</table>

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*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 Speciﬁc: thickness = 40mm, density=12kg/m³.
5. R2.0 insulation = Bradford R2.0 Gold Wall Batts: thickness = 90mm, density=10kg/m³.

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**References:**

- Hebel – Meeting Building Regulations
- Building Code of Australia (BCA)
- System design and installation guides.
Finishing Systems

You can choose from a range of visual effects from high build acrylic renders and textures to simple acrylic coatings to achieve the visual appeal you want to complete your design. If you choose a rendered finish which includes painting, you always have the freedom to give the building a totally new look and refresh when you want.

Coatings are available to help you deliver the perfect finish to any Hebel project and engineered to accommodate the unique physical characteristics of Hebel.

Please ensure you choose an appropriate external coating system that is compatible with the Hebel substrate and provides the performance requirements as recommended and specified by CSR Hebel. Application and maintenance of such a coating system is to be as directed by the coating suppliers specification and conditions of warranty.

Health & safety

Information on any known health risks of our products and how to handle them safely is on product packaging and / or the accompanying documentation.

Additional information is listed in the Material Safety Data Sheet (MSDS). To obtain a copy of a MSDS, download from www.hebel.com.au. Contractors are required by law to perform their own risk assessments before undertaking work.

Performance & certification

Hebel® products and systems are developed in Australia by CSR Building Products. ABN 55 008 631 356. It is a manufacturer and supplier of Hebel Autoclaved Aerated Concrete (AAC) products. Because it is a manufacturer and supplier only, CSR does not employ people qualified as Accredited or Principal Certifiers.

CSR is therefore unable to provide Construction Compliance Certificates or Statements of Compliance. CSR conducts appropriate testing of its products and systems to determine performance levels. These include structural, fire and acoustic tests. Testing is conducted and certified by appropriate specialists in these fields. When using Hebel products and systems in specific projects, such specialists should be consulted to ensure compliance with the Building Code of Australia and relevant Australian Standards.

Disclaimer

Information presented in this document is supplied in good faith and to the best of our knowledge was accurate at the time of preparation. The provision of this information should not be construed as a recommendation to use any of our products in violation of any patent rights or in breach of any statute or regulation. Users are advised to make their own determination as to the suitability of this information in relation to their particular purpose or specific circumstances. Since the information contained in this document may be applied under conditions beyond our control, no responsibility can be accepted by CSR or its staff for any loss or damage caused by any person acting or refraining from action as a result of misuse of this information.

Other

The design of a wall, floor or fence system requires the services of professional consultants. This document has been prepared as a source of information to provide general guidance to those consultants – and in no way replaces the services of the professional consultant and relevant engineers designing the project.

No liability can therefore be accepted by CSR or other parties for the use of this document. Hebel products and systems undergo constant research and development to integrate new technology and reflect ongoing performance enhancement. Hebel systems are constantly reviewed so as to reflect any changes in legislative building requirements and or general developments in common building practice, due to our commitment to continual development and improving our building systems.

We advise that all users of this document should regularly check that this document is current, and they are applying our latest design information.

The latest editions of our documents are available on our website: www.hebel.com.au