



# PowerShield tunable acoustic wall system

## <150 Hz Resonant Frequency Acoustic Walls

With the expansion of residential developments and the consequential reduction in available land, the distance between electrical substations and homes in many locations is shrinking.

Homeowner expectations of 'quiet enjoyment' are increasing and the 100 Hz resonance hum from poorly baffled substations is increasingly leading to homeowner discomfort and in some cases, civil complaints.

After extensive research and acoustic testing, Hebel Australia has developed the Slatted Resonator Wall

system that provides a resonant frequency barrier under 150 Hz – far lower than other available systems. Performance down to 100 Hz has also been achieved.

The result is exceptional and predictable acoustic absorption with elimination of resonant noise at very close distances to the source.



## Technically Advanced Soundbarrier Design

Hebel Soundbarrier is a highly effective acoustic wall system that has been extensively used in major road and rail corridor projects for over 20 years. Manufactured using Autoclaved Aerated Concrete (AAC), Hebel is 25% of the weight of concrete yet solid and tough as masonry and typically constructed as 2.4m – 9m high walls.

The Slatted Resonator Wall system adds a separated layer of Hebel panels as a slatted absorber using steel top hats with a calculated air gap. The system uses Helmholtz resonance principals to achieve acoustic absorption at the specific resonant frequency of the project.

### Powershield Acoustic Wall System

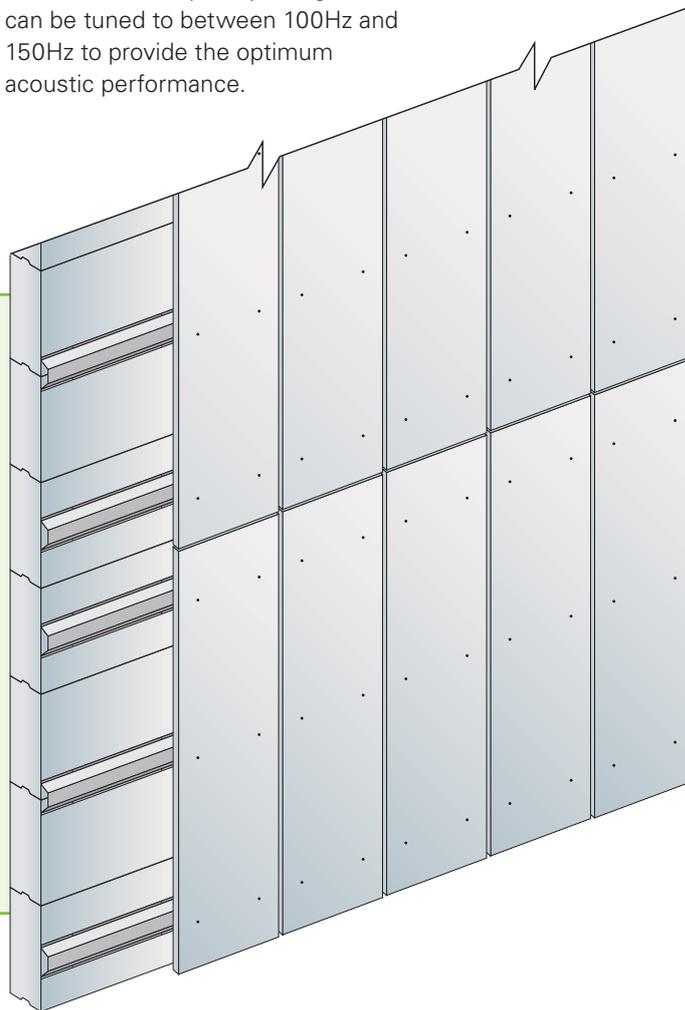
The system consists of a Hebel Soundbarrier wall constructed with horizontal, steel reinforced AAC panels mounted to vertical steel columns in concrete foundations. A second skin of thinner AAC panels is connected to this wall using horizontal steel top hats. These panels have a gap between them both horizontally and vertically, acting as slats. The slatted panel side of the structure faces the noise source.

#### Construction Notes

- Hebel Soundbarrier horizontal panels typically 200mm thick x 600mm x 6000mm
- The Hebel slatted barrier uses vertically mounted Hebel panels 75mm thick x 600mm x 2400mm
- Top hat spacing shown at 1.5 x panel width apart (900mm). Spacing at 2.5 x panel width apart (1500mm) is also acceptable

Resonance can be predicted by varying the cavity depth, the enclosed air volume and distance between panels using a technical formula that Hebel has developed.

The inherent acoustic properties of Hebel combined with a system design based on our formula, delivers an extremely low resonant frequency rating below 150 Hz which can be tuned to between 100Hz and 150Hz to provide the optimum acoustic performance.



## Wider Hebel Capability

Hebel is a wholly Australian owned manufacturer that has been producing AAC blocks and panels for over 20 years for acoustic and fire rated walls, boundary walls, fencing & estate walls and civil sound walls.

The Somersby (NSW) plant has a design capacity of 2.7 million m<sup>2</sup> per year with national distribution with next day delivery in eastern capital cities for standard items and 3 days for regional. Custom solutions are also available with short lead times.

An experienced sales team with factory based design, technical and customer support teams are available for every step of the design and construction process and a complete supply and fix solution through experienced, Hebel trained installers is also available.

Environmentally friendly, Hebel products and systems are the sustainable choice. Independent testing shows that overall, Hebel has a 30% lower environmental impact than concrete. Using over 60% less embodied energy, and producing at least 55% less greenhouse emissions than concrete, Hebel is the cleaner, greener choice.

Hebel provides a wide range of loadbearing wall, floor and ceiling/roof systems that are widely used in commercial/ industrial projects and are ideally suited to MCC room construction requirements:



**Hebel is non-combustible, achieving high FRL levels**



**Hebel systems are fast to construct with lower craneage requirements as they are lighter in weight**



**Hebel delivers a diverse number of environmental benefits compared to concrete**