

# CORED BRICKS VS SOLID BRICKS

What you need to know

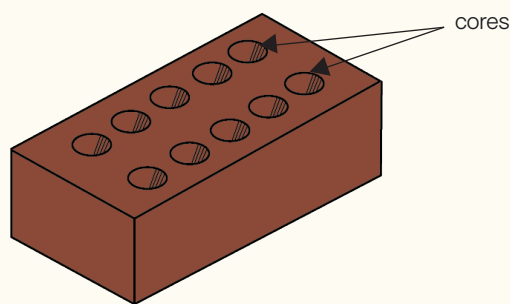
Midland Brick

THINK  
BRICK

Did you know that clay bricks can be made in two main ways? This affects their look, shape and properties. Learn about their differences, benefits and usage below.

## CORED BRICKS

Bricks that are extruded (think: squeezing a toothpaste tube) are manufactured with cores (or holes) and are referred to as **cored bricks**. They are intended to be laid with their cores vertical with full bed joints.



### USAGE

Cored bricks are a cost-efficient masonry option that use less material and are lighter in weight—without sacrificing durability or performance. These are the most common brick type used in the majority of Australian masonry builds.

### STRENGTH

Strength is influenced by packing density, particle size and firing conditions. Extruded bricks will generally have a higher compressive strength (generally  $\geq 20$  MPa)<sup>1</sup>. Check manufacturer data sheets for specific information.

### THERMAL

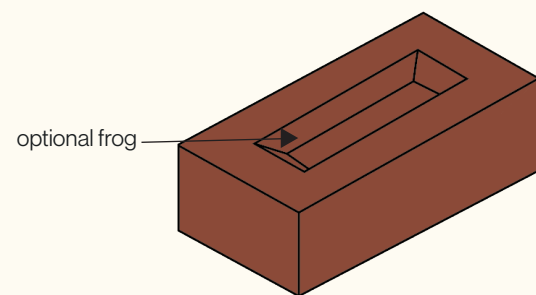
Cored bricks will have a slightly higher R value (R0.2 based on a 2.75 kg cored brick)<sup>2</sup> than solid bricks. However, the R value of a brick alone does not contribute significantly to the overall R value of a wall system. Insulation assists with meeting energy efficiency requirements.

### ACOUSTICS

Because cored bricks have a lower density, they will have a slightly lower acoustic performance compared to solid bricks. However, bricks in general are a superior performing acoustic material compared to other walling systems (weatherboard, fibre cement, plasterboard) due to their high density.

## SOLID BRICKS

Bricks that are wet or dry pressed into a mould (think: packing wet sand into a mould for a sand castle) have no cores, and are referred to as **solid bricks**. A solid brick can have a recess (commonly called a 'frog') up to 10% of its gross volume.



### USAGE

Solid bricks are best used in areas where cores in cored bricks would otherwise be visible (e.g. window sills, hit and miss walls, corbelled walls).

### STRENGTH

Whilst solid bricks will generally have a slightly lower compressive strength compared to cored units (generally  $\geq 12$  MPa)<sup>1</sup>, they can still be used in load-bearing applications. Check manufacturer data sheets for specific information.

### THERMAL

As solid bricks are heavier than cored bricks, they actually have a lower R value (R0.16 based on a 3.5 kg solid brick)<sup>1</sup> due to their decreased resistance to heat flow. However, when paired with insulation, this slight difference becomes insignificant. Their increased thermal mass can assist with temperature regulation.

### ACOUSTICS

Solid bricks will generally have better acoustic qualities due to their increased density. However, NCC compliance for acoustics in Volumes One and Two does not reference solid or cored bricks, allowing either to be used in a deemed-to-satisfy solution (DTS) as required, regardless of coring<sup>3</sup>.

1. Remember that per AS 4455.1, both solid and vertically cored bricks need to achieve a characteristic unconfined compressive strength of 3 MPa to comply.

2. Consult Think Brick Australia Manual 19 for more information about standard R values for clay brick walling systems.

3. Consult Specification 28 within NCC 2022 Volume One and Section 10.7.5 of the 2022 ABCB Housing Provisions for compliance to NCC 2022 Volumes One and Two, respectively.