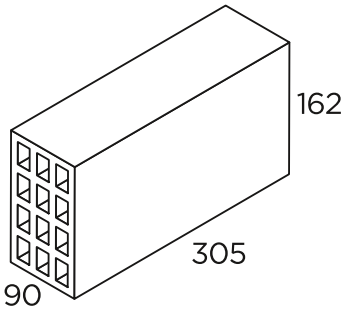
Midland Brick

Product Data Sheet

VERSION: JUN2023

UTILITY BRICK

Fastwall



PRODUCT INFORMATION	
Work Size (mm)	305 x 90 x 162
Dimensional Category	DW1
Approximate Unit Weight (kg)	4.8
Approximate Bricks Per m^2	18.5
Bricks Per Pack	132
Pack Weight (kg) *includes+3% moisture*	653
Unconfined Compressive Strength (MPa)	>3 (see over page)
Cold Water Absorption (%)	<12
Durability Class	General Purpose
Potential to Effloresce	Slight
Susceptibility to Lime Pitting	Slight
Core/Void Percentage	<40
Fire Resistance – Insulation. Unrendered (minutes)	60

This technical information represents average properties obtained from productions runs. If specific results are required, samples should be taken from current production runs. AS/NZS 4456 and 3700 is used as applicable. Durability classifications are based on product knowledge under local (Perth) climatic conditions. Information subject to change without notice.

If you require specific or improved product specification, please contact your Sales Representative.

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Unconfined Compressive Strength Capacity

As per independent engineers report below, Midland Bricks' Fastwall horizontally cored bricks with an Unconfined Compressive Strength of >3 MPa are structurally adequate under compressive load for a **single storey full bick** and **brick veneer** residential application, in accordance with the following design assumptions:

Design Assumptions:

1. Walls constructed from Midland Brick's horizontally cored bricks are to the building geometry limitations of *AS 4773.1: 2015 - Masonry in Small Buildings (Design),* unless otherwise specified in subsequent assumptions, and to the following:
   a. Single storey, residential, detached, single occupancy dwellings;
   b. Constructed in Western Australia, non-cyclonic areas and not within earthquake influence zones; and
2. Geometry limitations of 16m by max 80m as stipulated from *AS 4773.1: 2015 Roof design and construction* and *AS 1684 - Residential Timber-Framed (Non-Cyclonic) Part 1 Design and Part 2 Construction;*
3. Importance Level 2 and Annual Probability Return of 1 in 500 years;
4. Wind design for Region B and Terrain Category 3
   VR = 57 mis as per *AS 1170.2: 2021* - Wind Actions using Ultimate Limit State.
   This is equivalent to an N3 rating criteria in accordance to *AS4055 Wind Loads for Housing;*
5. Strength load combinations as per *AS 1170. 0 - General Principles;*
6. For external cavity brick walls, only the internal leaf is load bearing;
7. Bricks are laid on a minimum M2 mortar· class (1 cement: 2 lime : 9 sand). Bed joints are 10mm thick typically. Fastwall perpends are left open during the construction but will be filled with render when the finishes are applied, or for when fire rating properties.

   Finishing brick perpends are filled with 10mm thick mortar;

   Note: If dry wall finished, the strength is not compromised. The perpend does not significantly affect the wall capacity under compressive loading. However, it is recommended for the first to second course and uppermost course perpends to be filled with 10mm thick mortar for water-proofing purposes.
8. Unconfined compressive strength (f_{sp}) of the masonry tested in accordance to *AS 3 700 - Masonry Structures Appendix C;*
9. Masonry wall is un-grouted, where grout is as defined in *AS 3700* as *"highly workable concrete placed in cores or cavities to produce grouted masonry;"*
10. Suggested spacing between lateral supports of no more than 6.0m, but greater distance can be used if designed to the requirements stipulated in the Australian Standard of *AS 3700-Masonry Structures* and certified by a qualified individual.
11. 3.01 metre maximum wall height from the underside of first course to top of last course.
12. Underpurlin supports are to be 90mm x 90mm timber struts above 90mm x 35mm (min) timber top plate laid on flat.
13. Typical Limit State Design factor of safety= 1.0

Please note:

- AS 4773.1 2015 limits height of 90mm thick walls simply supported to 2400.
- NCC 2022 Volume 2 Part 5.4 – Unreinforced Single Leaf Masonry limits height of 90mm thick walls to 2700.
- Provided that the design assumptions above are followed, this report indicates that a wall height of 3000 can be achieved.
- Every project has its own specific requirements therefore before work commences it is important to refer product specifications to a suitably qualified structural engineer.