The quickest way to find a Boral Masonry Block or Brick Solution.
Simply follow the FAST FIND GUIDE on the right hand side of the table.

### Fast Find Guide

#### Products @ a Glance

<table>
<thead>
<tr>
<th>WALL FINISH</th>
<th>Face Masonry</th>
<th>Rendered</th>
<th>Plasterboard</th>
<th>No Lining</th>
<th>Retaining Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB = Loadbearing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NLB = Non-loadbearing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For technical support and sales office details please refer to the outside back cover.
Boral Feature Face Masonry
for External and Internal Walls

• **Designer Block™**
  10 Contemporary Colours.
  5 Innovative Textures — Smooth, Honed, Polished, Shot-Blast or Split Face
  Pre-Sealing Technology to reduce water absorption, and hence reduce the possibility of efflorescence, mould or mildew staining.
  Suitable for loadbearing and non-loadbearing walls.

Boral Engineered Bricks
for Structural, Fire and Acoustic Wall Systems

• **Standard Natural Blocks and Bricks**
  Hollow Concrete Block suitable for loadbearing and non-loadbearing applications.

• **Scoria Blocks and Bricks**
  Manufactured from fire tested Scoria material offering High Fire Performance, ideal for non-loadbearing walls in concrete-framed highrise buildings or portal-framed buildings.

• **Core-Fill Block**
  Natural Concrete Block or Designer Block coloured and textured finishes for reinforced retaining walls and loadbearing walls requiring increased robustness.

• **FireLight Brick**
  FireLight Bricks for non-loadbearing fire and/or acoustic systems where weight saving is important. FireLight Brick format (162mm height) for faster more cost effective construction.

• **Connex**
  Dry-stack masonry system for reinforced 150mm and 200mm thick walls.
Boral Masonry Construction Solutions

Boral Masonry offers a comprehensive range of proven products and systems including Masonry Blocks, Masonry Bricks, Fire and Acoustic Wall Systems, Segmental Block Retaining Walls and Segmental Paving Products.

What’s in this Guide

The Boral Masonry Blocks and Bricks guide, (this book), details a comprehensive selection of decorative, structural, fire and acoustic walling solutions not available with other materials. This guide has been prepared as a comprehensive Boral Product Reference Guide. It does not attempt to cover all the requirements of the Codes and Standards which apply to masonry construction. All structural detailing should be checked and approved by a structural engineer before construction. Boral reserves the right to change the contents of this guide without notice.

Please note that this guide is based on products available at the time of publication from Boral Masonry South Australian sales region. Different products and specifications may apply to Boral products sourced from other regions.

Additional Assistance and Information

• Contact Details: Please refer to the outside back cover of this publication for Boral Masonry contact details.

• Colour and Texture Variation: The supply of raw materials can vary over time. In addition, variation can occur between product types and production batches. Also please recognise that the printed colours in this brochure are only a guide. Please, always ask to see a sample of your colour/texture choice before specifying or ordering.

• Terms and Conditions of Sale: For a full set of Terms and Conditions of Sale please contact your nearest Boral Masonry sales office.

Guided Tour of a Typical Product Page

- Product Name and other identifying feature, such as texture finish
- Product Icons with dimensions for products available in your region/state
- Availability information for products distributed in your region/state
- Product Information relating to features, applications, texture finishes and accessories
- Book, Page and Section Identification
- Specifications

Introduction

Introduction

About This Guide

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Blockwork Design Considerations

Sizes

Blocks have a face dimension (nominal) of 400mm long x 200mm high. Because an allowance is made for 10mm wide mortar joints, the actual face size of the block is 390mm x 190mm. There are 12.5 blocks per m$^2$.

Material and Dimensional Variation

Concrete blocks are formed in steel moulds using relatively stable materials enabling the size of individual units to be controlled to within small tolerances. The code for concrete masonry units, AS/NZS4455 : 1997, permits a general tolerance of ±1.0mm on the overall dimension of each unit.

Modular Planning

The concrete block was one of the first building components to be designed with modular construction in mind. Originally it was based on a 4 inch module (as it remains in the USA) but when the metric system was adopted in Australia during the 1970’s, this was changed to a 100mm module.

Module Selection

For greatest ease and efficiency when constructing with masonry blockwork, it is recommended to plan a building using a 200mm module, as a significant reduction in the number of ‘special’ or cut blocks can be achieved.

Providing the design of a building is based on this module, cutting of blocks can generally be avoided. Coloured face blocks are generally made in only full length units (390mm) with part sizes (halves, etc) being cut on-site when required (or factory cut to order) from the full length units, to maintain colour consistency.

NOTE: All saw grindings must be washed off the cut blocks as they are cementitious. They are invisible while wet, but if allowed to dry, they appear as a pastel colour and are difficult to move.

Most building materials work to a 600mm module. Blocks can also work to a 300mm module by using part sizes, which include half height blocks, (e.g. A skirting course of half high blocks and 5 courses of full blocks = 2100mm to suit typical door head height).

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Most building materials work to a 600mm module. Blocks can also work to a 300mm module by using part sizes, which include half height blocks, (e.g. A skirting course of half high blocks and 5 courses of full blocks = 2100mm to suit typical door head height).

Nominal widths of doors and windows are also based on this module, e.g. 900mm wide single door; and 1200mm, 1800mm or 2400mm windows and doors.

The preferred way of dimensioning drawings is to show the ‘Nominal Sizes’ on openings. However, because the blocks are made 10mm shorter than the nominal (or modular) size, the actual openings will be different. Openings include one more mortar joint than units. For this reason, window and door frames are manufactured to suit openings which are 10mm wider than the module, e.g. 910mm 1210mm, 1810mm, 2410mm.

Core-Fill Blocks for reinforced wall construction are made in thicknesses of 141mm (Series 150), 190mm (Series 200), and 290mm (Series 300). Refer to Section E of this guide.

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Before specifying your choice, please contact your local Boral Masonry sales office to confirm availability in your region.

Face Blockwork Design Considerations

The following items should be considered carefully during the design stage to maximise the long-term beauty and to minimise the need for maintenance of face masonry.

Setout of Face Blockwork

When designing with split face blocks, special consideration should be given to the distances between openings and between corners and openings to facilitate the bolstering of block ends where required. Refer to additional information on Corner Details in Section C of this guide.

Colour and Texture Selection

The colour and texture of the unit should take into account the location of the masonry and the building. Dark coloured units can mask unsightly staining from dirt and pollution. On the other hand, darker units can accentuate the presence of any efflorescence or calcium carbonate caused by poor construction detailing, materials or cleaning.

Mortar Selection

Less staining and more aesthetically pleasing walls are achieved by ensuring the mortar colour is similar to the masonry unit. The colour of mortar is determined by the colour of the cement and sand used, and by the use or not of different iron oxides. For colours other than greys, off-white cement and clean sand will assist colour matching.

Construction of sample walls is recommended to determine the appropriate mortar colour.

Staining on light coloured units can be reduced by the use of off-white cements.

Copings, Sills, Parapets

Sills should shed stormwater from the masonry by projecting at least 30mm beyond the wall face. Copings or parapets should also shed water by having a ‘fall’ towards the unexposed (inner) face. Copings and parapets should be covered with a metal capping to prevent any water from penetrating the wall.

In-built Elements

Where there are in-built elements (e.g. signage support frames etc.) they should slope away from the masonry. The soffit of major elements, such as balconies, should be provided with a drip mould.

Protecting Face Masonry

The presealing additive used in the manufacture of Designer Block units and its mortar is designed to reduce the risk of staining, and additional sealing should not be required.
Blockwork Mortar Joints

Hollow blocks are normally laid with face shell bedding, i.e. there are two strips of mortar which are laid over the face shells with no mortar being laid on the web (except at corner construction). These two strips of mortar are continued up the vertical (or perpend) joints. Refer to Fig B2.

Flush Joint

Where a plaster or textured coating is to be applied to the blockwork, a flush joint may be used. Rub surface with a piece of block when the mortar is firm to provide a flat surface for the coating.

Raked Joint

Although the raked joint is sometimes used in face brickwork for aesthetic reasons, it should NOT be used with hollow blocks which are not to be rendered. This is to avoid:

- Reducing the face shell mortar width; and
- Adversely affecting the weatherproofing.

<table>
<thead>
<tr>
<th>Number of Bricks</th>
<th>Brickwork Opening</th>
<th>Brickwork Opening</th>
<th>Brickwork Opening</th>
<th>Brickwork Opening</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>230</td>
<td>290</td>
<td>350</td>
<td>390</td>
</tr>
<tr>
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<td>470</td>
<td>590</td>
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<td>710</td>
<td>890</td>
<td>1190</td>
<td>1310</td>
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<td>950</td>
<td>1190</td>
<td>1590</td>
<td>1710</td>
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<td>1190</td>
<td>1490</td>
<td>1990</td>
<td>2110</td>
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<td>1430</td>
<td>1790</td>
<td>2390</td>
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<td>2090</td>
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<td>11</td>
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<td>3390</td>
<td>4390</td>
<td>4510</td>
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<td>12</td>
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<td>3590</td>
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<td>12710</td>
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<td>6960</td>
<td>9990</td>
<td>13290</td>
<td>13410</td>
</tr>
<tr>
<td>30</td>
<td>7200</td>
<td>10490</td>
<td>13990</td>
<td>14110</td>
</tr>
</tbody>
</table>

Table B1 — Brickwork Dimensions
(with 10mm mortar joints)

Table B2 — Brick Quantities per Square Metre
(No allowance for wastage)

| Face Size \| Bricks per m² |
|-----------|-----------------|
| 76 x 230  | 48.5            |
| 119 x 230 | 32.3            |
| 162 x 230 | 24.3            |
| 162 x 390 | 14.6            |

Additional information is provided on individual product pages in the following sections of this guide.
Modular Planning

Standard size bricks, as with most building materials, work to a 600mm module.

In standard height bricks, this module is 7 bricks high x 2.5 bricks long (for standard length brick).

In one-and-a-half height bricks, this module is 1 standard height course plus 4 courses of brick-and-a-half high x 2.5 bricks long (for standard length brick).

In double height bricks, it is 1 standard course plus 3 courses of double height brick x 2.5 bricks long (for standard length brick).

Mortar Joints

Mortar joints (both bed and perpend) are usually specified as 10mm in thickness. Any raking, if specified, should not exceed 10mm depth and should not penetrate closer than 5mm to any core or perforation in cored units. Tooling of joints is particularly beneficial in improving durability and must always be carried out as specified. Joint finishing options are illustrated in Fig B8.

Control Joints (Expansion Gaps)

Blocks and bricks (both concrete and clay) expand when heated and contract as they cool. They both expand when they absorb moisture and contract as they dry.

As they cure however, clay units expand and concrete units contract. For this reason, they should not be bonded in the same wall.

Control joints are constructed and spaced to allow for these movements and in some cases, movement due to foundation settlement. Control joints should be used beside large openings, at changes of level in footings and at other points of potential cracking.

Table B3 details the recommended maximum control joint spacings for non-reinforced concrete walls.

The design and construction of control gaps in the external leaf of a full brick wall is identical to that in a brick veneer wall. Except at re-entrant angles in long walls, control gaps are not usually required in internal brick masonry. Where an internal gap is required, it can usually be located at a full-height opening such as a door or window.

Articulation Joints

Articulation joints are vertical gaps in brick walls or gaps between brick masonry and windows or doors, that allow for minor footing movements without causing distress or significant wall cracking.

Articulation joints provide the flexibility needed when building on reactive clay soils. Articulation is not required for masonry on stable sites. The basic design and construction of articulation joints in the outer leaf of a full brick house is similar to that in a brick veneer. The principles are illustrated in Fig B10.

Table B3 — Control Joint Spacing

<table>
<thead>
<tr>
<th>Product</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dense Weight Masonry (Standard Concrete)</td>
<td>7 metres</td>
</tr>
<tr>
<td>Medium Density Masonry (Fire Rated Scoria)</td>
<td>6 metres</td>
</tr>
<tr>
<td>Lightweight Masonry ≤ 1500 kg/m³ (FireLight)</td>
<td>5 metres</td>
</tr>
</tbody>
</table>

**NOTES:**

- Joint width is 10mm for panels up to 6000mm long. For panels over 6000mm and up to 8000mm, joint width is 14mm.
- Joint sealants should be applied towards the end of construction to minimise the effect of panel movement.
Mortar Mixes for Concrete Block and Brick

The three principal functions of mortar are:

- To provide an even bedding for blocks and allow level coursing by taking up small variations in unit height;
- To transmit compressive loads; and
- To hold the blocks together in the wall by bonding to them, so that tensile and shear force can be carried - often referred to as 'bond strength'. This is particularly important so that units on top of the wall are not easily dislodged.

In order to provide a good bond between the units and the mortar, the following guidelines should be followed:

- An appropriate mortar mix should be selected (refer to Tables B4 and B5 together with the following section on ‘Mortar for Laying Designer Block’).
- The mortar should be batched accurately using some consistent form of volume measurement.
- The sand used in the mortar should be clean pit sand or plasterer’s sand. Clayey loam or sand containing organic impurities will affect the mortar strength and should not be used. Sand should be well washed to ensure it is free of salt. (Sand supplies of a suitable standard are normally readily available in South Australia).
- Mortar should be discarded and not retempered, after the initial set of the cement has taken place.

Sand

The sand used in making the mortar for concrete blocks and bricks should not be the same as commonly used for clay bricks. ‘Brickie’s loam’ contains clay particles, which make the mortar more workable, but also cause some additional shrinkage in the mortar. As clay masonry units tend to expand, this compensates for the mortar shrinkage. Concrete masonry units, however, tend to shrink, thus, if used with a mortar with high shrinkage, cracking of the joints may result.

For this reason, mortar for concrete blockwork and brickwork should be prepared with clean sharp sand, such as pit sand, or plasterer’s sand. Tests have shown that the sand can contain up to 10% fines but it should not contain clay particles. Lime or Methyl cellulose, such as ‘Dynex’, can be added to increase workability. These additives or lime must not be used in Designer Block mortar. Refer to the following section.

### Mortar for Laying Boral Designer Block™

- Boral Designer Block products are manufactured using the latest presealing technology to reduce water absorption, and hence reduce the possibility of efflorescence, mould or mildew staining.
- Lime or plasticisers must not be added to mortar if Boral Designer Block additive is used.

Other Admixtures

- Additives may be used with products other than Designer Block products, however caution should always be exercised when using lime replacing additives such as plasticisers or workability agents. They should be cellulose based, and only be used if specified by the architect or engineer and then strictly in accordance with the manufacturer’s instructions. Detergent and air entrainers should never be used.

### Other Admixtures

<table>
<thead>
<tr>
<th>Type</th>
<th>Compatibility</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime</td>
<td>Not compatible</td>
<td>Do not use</td>
</tr>
<tr>
<td>Plasticiser</td>
<td>Compatible</td>
<td>Use only if specified by architect or engineer</td>
</tr>
<tr>
<td>Detergent</td>
<td>Compatible</td>
<td>Use with caution</td>
</tr>
<tr>
<td>Air Entrainer</td>
<td>Compatible</td>
<td>Use with caution</td>
</tr>
</tbody>
</table>

### Mortar Mixes

<table>
<thead>
<tr>
<th>Mortar Mix</th>
<th>Description</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3</td>
<td>Designer Block additive: 8 litres</td>
<td>General purpose with moderate exposure</td>
</tr>
<tr>
<td>M4</td>
<td>Designer Block additive: 8 litres</td>
<td>Structural blockwork and severe exposure (marine and industrial environments). External walls adjacent to stairwells, below damp-proof course, fences.</td>
</tr>
</tbody>
</table>

### Approximate Material Quantities for 1m³ of Mortar

- **Blocks**: There are 12.5 full blocks per square metre of wall surface area.
- **Mortar**: For every 800 blocks or 64m² of wall, about 1m³ of mortar mix is required, allowing for wastage.

### Table B4 - Mortar Mixes

<table>
<thead>
<tr>
<th>G.P. Portland</th>
<th>Lime</th>
<th>Sand</th>
<th>Additive</th>
<th>Mortar Classification</th>
<th>Where Used (exposure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>5</td>
<td>No</td>
<td>M3</td>
<td>General purpose with moderate exposure.</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>6</td>
<td>No</td>
<td>No</td>
<td>Structural blockwork and severe exposure (marine and industrial environments). External walls adjacent to stairwells, below damp-proof course, fences.</td>
</tr>
<tr>
<td>1</td>
<td>0.5</td>
<td>4.5</td>
<td>No</td>
<td>Yes</td>
<td>M3</td>
</tr>
</tbody>
</table>

### Table B5 - Approximate Material Quantities for 1m³ of Mortar

<table>
<thead>
<tr>
<th>Mortar Classification</th>
<th>Ash Grey Block</th>
<th>Designer Block Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3</td>
<td>Mix in 1 : 1 : 6 proportions</td>
<td>Mix in 1 : 4 proportions</td>
</tr>
<tr>
<td>Cement: 14 bags (20kg each)</td>
<td>Cement: 16 bags (20kg each)</td>
<td></td>
</tr>
<tr>
<td>Lime: 5 bags (20kg each)</td>
<td>Designer Block additive: 8 litres</td>
<td></td>
</tr>
<tr>
<td>Sand: 1.2m³</td>
<td>Sand: 1.2m³</td>
<td></td>
</tr>
<tr>
<td>M4</td>
<td>Mix in 0.5 : 4.5 proportions</td>
<td>Mix in 1 : 4 proportions</td>
</tr>
<tr>
<td>Cement: 18 bags (20kg each)</td>
<td>Cement: 20 bags (20kg each)</td>
<td></td>
</tr>
<tr>
<td>Lime: 3 bags (20kg each)</td>
<td>Designer Block additive: 8 litres</td>
<td></td>
</tr>
<tr>
<td>Sand*: 1.2m³</td>
<td>Sand*: 1.2m³</td>
<td></td>
</tr>
</tbody>
</table>

*Allowed 20% extra sand for bulking.
*Use brickies sand.
Reinforced Core-Fill Masonry Walls

Concrete blocks (140, 190, and 290mm) have large cores which facilitate the placement of steel reinforcing rods and the pouring/pumping of grout (grout is highly workable concrete).

If a wall is reinforced with bars spaced at 800mm centres or less and fully grouted, the wall is referred to as ‘reinforced masonry’. These walls can have similar strength and ‘flexure’ characteristics to reinforced insitu concrete walls.

Partially reinforced block walls are only grout filled where the reinforcement is placed, usually in bond beams and vertically in cores.

All reinforced walls must be designed by a structural engineer.

Grout Filling

Grout Specification

The correct grout specification (mix design) is critical to achieving the structural design of a reinforced wall. The grout used to fill the cores of blockwork walls should be specified as follows:

- Characteristic Compressive Strength 20MPa;
- Clean sand (salts can leach through to the face); and
- Round aggregate (if any) not bigger than 10mm;
- Clean sand (salts can leach through to the face); and
- A pouring consistency which ensures that the cores can be cleaned off with a high-pressure water jet before the mortar has set.

In hot weather it may be necessary to hose the cores out with water in order to cool the blocks and so prevent ‘flash-setting’ of the grout. If so, this hosing should be completed at least 30 minutes before the grout is placed.

Because of the high pressures developed at the bottom of the core when they are filled, grouting in lifts of more than 1.2 metres should not be attempted in one pour. Where the lift is more than 1.2 metres, it is preferable to fill the cores in two stages at least 30 minutes apart.

When grouting Series 150 blocks, lifts should be reduced to 800mm (4 courses) to ensure no voids are left in the wall.

Grout for Designer Block Units

Due to the high hydrostatic pressure at the bottom of freshly grouted cores, water will seep out of the wall. This MUST be cleaned off. The admixture used with Designer Block units will increase the time for the grout to firm and dry, therefore more care must be used inspecting and cleaning any seepage on the surface of these walls. Clean all grout spills before they set.

Construction Considerations

Mortar Deposits

Mortar extruded from masonry joints during laying should be cut off with an upward stroke of the trowel. In this way a clean cut can be made without smearing the face of the unit. On completion of laying and tooling, any mortar smears which may be on the face of the work should be removed, firstly with dry brushing and secondly, if necessary, by wet brushing. Do not allow mortar smears and dags to set on the face of the masonry. If these mortar deposits are allowed to set on face masonry, high pressure water jets or in extreme cases a diluted acid solution might be needed to remove mortar stains. See ‘Cleaning Face Concrete Masonry’ before testing either water jets or acid solutions. Acid cleaning should be avoided as face concrete blocks can be discoloured.

Scaffolding

Scaffolding planks should be placed with a clearance of at least 150mm to the wall. This gap allows mortar droppings to fall clear of the plank instead of splattering on the plank and building up dirt on it. At the end of each day’s work or when rain interrupts work, the plank nearest the wall should be propped on edge to prevent mortar from being splattered onto the wall by overnight rain.

Concrete Droppings

Masonry, supporting reinforced concrete slabs and beams is frequently disfigured by droppings from the concrete pour. If such deposits are allowed to set it is sometimes impossible to rectify the damage. Protection is best achieved by covering the walls with plastic sheeting. Where this is not done, any concrete on the wall must be thoroughly cleaned off before it sets.

Rain Interruption

Overnight, and when rain interrupts blocklaying, the top of newly laid walls should be protected with plastic sheeting or similar. This is essential with face blockwork. When newly laid masonry is saturated by rain, lime is put into solution either from portland cement, or from saline (unwashed) sands or hydrated lime in the mortar. This solution takes in carbon dioxide from the atmosphere and precipitates calcium carbonate. This whitish stain is very disfiguring and not easily removed. Frequently, new masonry is marred by bands of calcium carbonate stain confined to three or four courses of masonry - the result of rain saturating freshly laid work.

Cleaning Concrete Masonry

Good Building Practice

Block layers must exercise extra care when laying face concrete masonry to minimise mortar staining.

Block layers must:

- Keep face blocks as clean as possible while laying and tooling;
- Keep unused pallets of blocks and tops of unfinished walls covered during rain to prevent water penetration and excessive efflorescence;
- Clean any dags and mortar smears before they set hard. Remaining stains could be removed following the procedures set out below.

Removal of Mortar Stains with Hand Tools

After using a bucket and brush, remove any remaining mortar dags and smears by rubbing the surface with a piece of ‘like coloured’ block or a piece of wood if cleaning polished masonry (to prevent scratching). Careful use of a paint scraper, wide bladed chisel or wire brush can be helpful in removing mortar buildup. However care must be taken not to scratch or damage the masonry surface.

Pressure Cleaning

This cleaning method is not a substitute for good building practice and hand cleaning methods. It should only be used after these procedures have been carried out if further cleaning is required.

Essential Preliminaries:

Thoroughly remove mortar smears and dags back to a flat surface with hand tools as outlined above. Hand cleaning must not leave any thickness of mortar, otherwise pressure cleaning will damage the masonry face and mortar joints before removing the thickness of mortar.

Allow the mortar to harden for a minimum of seven days prior to pressure cleaning;

Carry out a pressure cleaning trial on a typical but inconspicuous area and allow it to dry to determine:

- The effectiveness of this cleaning method; and
- That marking, damage or erosion of the surface has not been caused before proceeding with the general cleaning.

NOTE: If there is no inconspicuous area, a small wall could be constructed for this purpose.

Cleaning Face Concrete Masonry

Grout may be mixed on site and poured from buckets into hoppers placed on top of the wall. Alternatively, for larger jobs, the grout may be delivered by transit mixer and pumped into the cores, using a small nozzle on the hose.

Before commencing placement of the grout, it is important that the cores be clean and free of mortar ‘dags’ projecting into the core. A steel rod is pushed down the core to knock off these ‘dags’ and to break up any mortar that has dropped onto the footing. The cores are then hosed or swept out from the bottom of each core through the ‘clean-out’ space, see Fig E2 on page 44 for detail of clean out block. The vertical steel rods are tied to the starter bars, and then the clean-out blocks are covered with formwork, ready for grouting (see ‘Retaining Wall Details’). An alternative method, which may be used in low height walls, is to leave a gap in the mortar bed at the bottom of each core and to hose out the dropped mortar and dags before the mortar has set.

In hot weather it may be necessary to hose the cores out with water in order to cool the blocks and so prevent ‘flash-setting’ of the grout. If so, this hosing should be completed at least 30 minutes before the grout is placed.

Because of the high pressures developed at the bottom of the core when they are filled, grouting in lifts of more than 1.2 metres should not be attempted in one pour. Where the lift is more than 1.2 metres, it is preferable to fill the cores in two stages at least 30 minutes apart.

When grouting Series 150 blocks, lifts should be reduced to 800mm (4 courses) to ensure no voids are left in the wall.

Grout for Designer Block Units

Due to the high hydrostatic pressure at the bottom of freshly grouted cores, water will seep out of the wall. This MUST be cleaned off. The admixture used with Designer Block units will increase the time for the grout to firm and dry, therefore more care must be used inspecting and cleaning any seepage on the surface of these walls. Clean all grout spills before they set.

Grouting

Grout Filling

Table B6

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<td>Cutex 200</td>
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</table>

Grout Pumping and Core Filling
Pressure cleaning may be carried out with pressure not exceeding 7MPa (1000 psi) and volume not exceeding 20 litres/minute and fan jet of a minimum 40 degree width, held not closer than 500mm from the wall. Cleaning should be continuous and even. The pressure jet should never be stationary and should not ‘needle’ or zero in on mortar stains as surface erosion will almost certainly occur.

NOTE: If this method is not totally successful, further hand cleaning and scraping should be carried out prior to further pressure cleaning.

Caution:
- High pressure water blasting can cause personal injury and damage masonry. Mortar joints can be blown out and face blockwork marked and eroded;
- Zero degree or needle jets, narrow fan jets and turbo jets should not be used on blockwork because all concentrate the water pressure on too small an area which can cause damage;
- Minimal pressure should be used to avoid mortar blowouts and/or damage to the face of units.

Experienced operators should carry out pressure cleaning in accordance with the above recommendations after appropriate trials have taken place.

Acid Treatments

Only if hand cleaning and pressure washing methods have failed to totally remove mortar stains, should acid treatments be considered for cleaning of concrete blockwork.

NOTE: Acids react with and dissolve cement, lime and oxide colourants in concrete blocks and mortar joints and are thus capable of etching, fading and streaking the masonry finish. When acid is applied to dry blockwork without pre-wetting, it is drawn in below the surface it is intended to clean. Salts may appear when the masonry dries out.

If it is considered necessary to use an acid for general cleaning, it should only be used after trialing in an inconspicuous area as outlined under ‘Essential Preliminaries’ and strictly in accordance with the following procedures.

Hydrochloric acid (otherwise known as Muriatic Acid or Spirits of Salts) can be tested at a strength of 1 part acid to 20 parts water. A less aggressive alternative is powdered Citric Acid which can be used at strengths up to 1 Part acid to 10 parts water (by volume).

Procedures for Acid Cleaning
1. Remove mortar dags and smears as described under ‘Hand Tools’;
2. Working from the top of the wall down in vertical ‘runs’, thoroughly pre-wet (SOAK) an area of blockwork of approximately 2m² at a time;
3. Apply dilute acid to the water-soaked area by brush or broom with a horizontally (sideways) action to prevent runs and streaks;
4. Within 2 to 3 minutes, rinse this area from top to bottom under tap pressure only;
5. Pressure clean this area thoroughly, gently and evenly, as outlined previously;
6. Repeat steps 1 to 5 as necessary to achieve the best compromise between cleaning and damage caused by excessive treatment.

Other Stains

Timber (Tannin)
These can usually be removed by the application of a chlorine solution, preferably Sodium Hypochlorite (household bleach), onto the dry surface. Re-apply as necessary to achieve the desired result.

Clay or Loam Stains
If not too severe and intransigent, these stains may be removed with a solution of 50ml household detergent and 500 grams of oxalic acid dissolved in 4 litres of warm water. Lightly pre-wet then apply the above solution with a nylon brush. Rinse off and repeat as necessary. Pressure cleaning as outlined previously may be of assistance.

Mosses, Moulds and Lichens
These commonly appear as a green to black area, often with a hair like growth, around damp areas such as taps, gutter overflow areas, south facing walls, etc.

Moss or mould can be removed with:
1. Scrape off any thickness of moss/mould/lichen
2. Pre-wet the mouldy area;
3. Apply a chlorine solution, preferably Sodium Hypochlorite (household bleach), at sufficient strength to kill mould within approximately 1 hour;
4. Scrubbing with a stiff brush or broom will normally assist;
5. Thoroughly flush the surface. If mould remains, repeat steps 1 to 3 as necessary to kill and remove the mould;
6. Pressure cleaning, as outlined previously, may assist.

Efflorescence
The term efflorescence is given to a white powdery deposit that forms on the surfaces of porous building materials such as masonry units, mortar and concrete. The temporary appearance of efflorescence is common on new masonry. For efflorescence to occur, three conditions must be present:
1. There must be soluble or semi soluble salts present;
2. There must be water entering the masonry; and
3. The masonry must be able to dry out.

The absence of any of the above three conditions will prevent efflorescence. Any situation which allows water to enter the wall is likely to promote efflorescence. The most common causes are:
- Poor building practice such as partially built walls left uncovered during rain. Delays in installation of window sills and downpipes can exacerbate this problem, allowing rainwater to enter block cavities and leach free lime to the surface;
- Poor storage of masonry units on site. Before units are placed in the wall they can absorb ground salts and excessive water in the stockpiled masonry and can mobilise latent salts. It is desirable to store masonry off the ground and loosely cover with a waterproof membrane during rain;
- Poor or missing copings and flashings;
- Excessively raked joints which allow water to enter the bed face of the masonry (trowelled joints are recommended); and
- The use of air entraining agents in the mortar which makes the mortar act like a sponge.

Good laying practice and site procedures are necessary for keeping efflorescence to a reasonable level. Care should also be taken to ensure that excessive lime is not used in mortar joints.

In conjunction with dry brushing, the cleaning methods outlined previously will usually remove most ‘normal’ levels of efflorescence. It is important to remove as much efflorescence as possible with DRY brushing because powder efflorescence is water soluble. Wet brushing can dissolve the powder and the dry block can re-absorb it. If high levels of efflorescence are present on walls exposed to continual wetting from rain or other sources of dampness over an extended period, calcification or hardening of the lime tends to take place. The powdery lime gradually becomes a very hard film of calcium carbonate. If this occurs, it will almost certainly require professional advice and specialised cleaning methods for its removal.

Safety Precautions and Warnings

When using chemicals, care must be taken to avoid damage to adjacent materials and finished surfaces. Masking and plastic sheeting may be necessary;
- To avoid personal injury, wear protective clothing and vapour cartridge breathing mask particularly in confined areas, as recommended by chemical manufacturers;
- NEVER mix chemicals with which you are unfamiliar, particularly chlorine and acid - it emits deadly chlorine gas. Follow the chemical manufacturer’s recommendations;
- Dilute acid by adding acid to water. Never add water to acid;
- Harsh acidic chemicals should never be used for the cleaning of blockwork; and
- Chemical wastes must not be allowed to run down drains and storm water outlets in accordance with Environmental Protection Regulations.
Masonry Design Guide

MASSORY BLOCKS AND BRICKS  SOUTH AUSTRALIA  BOOK 2

C  DESIGNER BLOCK™
Designer Block™

Contemporary Colours

for External and Internal Walls

The colour palette has been developed in consultation with designers and offers a broad and co-ordinated range. The Designer Block colour palette provides the flexibility of many colour combinations essential for the popular composite building styles that require varying finishes and materials.

Choose from a palette of 10 contemporary colours and 5 bold textures or customise to create an individual look. (please note longer lead times and surcharges may apply for this service).

Designer Block™

Pre-sealing Technology

Designer Block products utilise the latest pre-sealing technology to reduce water absorption, and hence reduce the possibility of efflorescence, mould or mildew staining. Designer Block products are suitable for loadbearing and non-loadbearing walls.
Designer Block™ Textures

**Smooth Face**
A finely textured finish created through the standard moulding process.

**Shot-Blast Face**
This process subtly exposes the aggregates, producing a finish like weathered sawn stone.

**Honed Face**
The honing process grinds 2-3mm from the block surface, producing a matt exposed-aggregate finish.

**Polished Face**
This involves producing a denser block which is honed and then buffed. Polishing enriches the colour of the aggregates. The finely finished polished surface is ideal for feature walls, trim and banding.

**Split Face**
The splitting process produces a bold textured, exposed aggregate finish.

**Block Ends**
Honed, Shot-Blast or Polished finishes are available on the end of blocks for corners, openings and free ends. Please contact your nearest Boral Masonry sales office for further details.

---

**Essential Colours**

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<th>Honed Face</th>
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**Accent Colours**

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<td>Wilderness</td>
<td>Rust</td>
<td>Sandune</td>
<td>Paperbark</td>
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</table>

**Availability and Quantities**
- Lead times apply to all coloured blocks. Longer lead times apply to Honed, Polished and Shot-Blast finishes as the product must be cured for four weeks, to harden sufficiently, before processing.
- No minimum order quantities apply to Essential Colours.
- Accent Colours are made to order. A surcharge may apply. Ask your representative for details.
- Boral recommends part size blocks are cut/bolstered on-site to maintain colour consistency. Blocks can be made-to-order.

**Colour and Texture Variations**
- The colours shown in this brochure are provided as an indication of the colours and textures available. Some variations in colour may occur due to changes in raw materials. In addition, variation can occur between production batches. Please ask to see a sample of your chosen colour/texture before specifying or ordering.
**INTRODUCTION**

Series 100 Designer Block (90mm thickness) are suitable for internal and external walls in loadbearing and non-loadbearing applications. They are popular for feature face applications in double leaf construction.

**FACE TEXTURES**

Series 100 Designer Block are available with the following face texture finishes:

- Smooth Face
- Honed Face
- Shot-Blast Face
- Polished Face
- Ends — Honed, Shot-Blast or Polished finishes.

**COLOURS**

Designer Block is available in 10 colours. Please refer to page C5 for additional information.

Customised colours and textures are also possible. Please note that extended lead times and minimum order quantities may apply.

### Specifications

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**Availability**

* Load times apply to all coloured blocks.
* Part size blocks are best cut/bolstered on-site to maintain colour consistency. Part size blocks can be made-to-order.
* Contact Boral Masonry for further details.

* Cut on site or made to order.
**Designer Block™ Series 150**

**Smooth, Honed, Shot-Blast and Polished Face**

**INTRODUCTION**

Series 150 Designer Block (140mm thickness) is suitable for internal and external walls in loadbearing and non-loadbearing applications.

**FACE TEXTURES**

Series 150 Designer Block is available with the following face texture finishes:

- Smooth Face
- Honed Face
- Shot-Blast Face
- Polished Face
- Ends = Honed, Shot-Blast or Polished finishes

**COLOURS**

Designer Block units are available in 10 colours. Please refer to page C5 for additional information.

Customised colours and textures are also possible. Please note that extended lead times and minimum order quantities may apply.

## Specifications

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<th>Code</th>
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Also refer to Core-Fill Blocks (Page E3 of this guide) for coloured retaining wall blocks.

* Cut on site or made to order.

### Availability

- Load times apply to all coloured blocks.
- Part size blocks are best cut/bolstered on-site to maintain colour consistency. Part size blocks can be made to order.
- Contact Boral Masonry for further details.
INTRODUCTION
Series 200 Designer Block (190mm thickness) is suitable for internal and external walls in loadbearing and non-loadbearing applications.

FACE TEXTURES
Series 200 Designer Block is available with the following face texture finishes:
- Smooth Face
- Honed Face
- Shot-Blast Face
- Polished Face
- Ends — Honed, Shot-Blast or Polished finishes

COLOURS
Designer Block units are available in 10 colours. Please refer to page C5 for additional information.

Customised colours and textures are also possible. Please note that extended lead times and minimum order quantities may apply.

NOTE: Designer Block units for reinforcement are detailed on page E3.

Specifications

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Availability
- Lead times apply to all coloured blocks.
- Part size blocks are best cut/bolstered on-site to maintain colour consistency. Part size blocks can be made-to-order.
- Contact Boral Masonry for further details.

Designer Block™ Split Face - Series 100

INTRODUCTION
Designer Block Split Face is suitable for internal and external walls in loadbearing and non-loadbearing applications.

FACE TEXTURES
- Split Face - The splitting process produces a bold textured surface resulting in characteristics much like split natural stone.

COLOURS
Designer Block units are available in 10 colours. Please refer to page C5 for additional information.

Customised colours are also possible. Please note that extended lead times and minimum order quantities may apply.

Specifications

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Availability
- Lead times apply to all coloured blocks.
- Part size blocks are best cut/bolstered on-site to maintain colour consistency. Part size blocks can be made-to-order.
- Contact Boral Masonry for further details.
Series 100 Installation Details

Fig C1 — Corner Bonding Detail Using Bolstered-On-Site Split Face Block

Fig C2 — Corner Bonding Detail Utilising Cut-On-Site Corner Block

Architect: Barry Architecture

Usable — Split Face with Quarter High Projected Courses

Fig C3 — Sill Detail with Capping Piece Series 100 Split Face Designer Block

Fig C4 — Sill Detail with Smooth Face Sill Series 100 Split Face Designer Block

Fig C5 — Sill Detail with bevelled half block Series 100 Feature Face Cavity Wall

Fig C6 — 45° Obtuse Corner Series 100 Split Face Designer Block

Fig C7 — 45° Acute Corner Series 100 Split Face Designer Block
### Series 150 Installation Details

**Fig C8 — Corner Bonding Details Utilising 15.22 Corner Block**

- Full block
- 3/4 block
- 1/2 block
- Cut block in half
- Remove remainder of centre web
- Lay end down

### Series 200 Installation Details

**Fig C10 — Sill Detail - Single Skin Wall Series 200 Feature Face Designer Block**

- For window heights 900mm or 1500mm
- 50.31 split to width required

**Fig C9 — Face Lintel Detail with 1800mm Opening for Series 150 or 200 Blocks**

- Full block
- 3/4 block
- 1/2 block
- Cut block in half
- Remove remainder of centre web
- Lay end down
Engineered Blocks

### Availability
- No minimum order quantities apply.
- Lead time 0-2 weeks.

### INTRODUCTION
Scoria is manufactured from a blend of material which reduces the block weight and increases the fire performance characteristics.

Scoria is ideal for non-loadbearing walls of commercial, industrial and high-rise buildings with concrete and portal framed structures.

Scoria is also suitable for loadbearing walls, however the Srf values from Designer Block units apply. Refer to the Boral Masonry Design Guide (MDG Book 1) for more information.

Scoria is manufactured in 90, 110, 140 and 190mm thicknesses to suit most types of fire and/or acoustic wall construction.

### FIRE DESIGN CONSIDERATIONS
Scoria utilises a unique blend of material, which has been shown through fire testing to provide excellent fire insulation characteristics.

### ACoustIC DESIGN CONSIDERATIONS
Scoria provides excellent sound resistance with a wide variety of board-lining systems.

### ADDITIONAL INFORMATION
Please refer to the Boral Masonry Design Guide (MDG Book 1) for additional structural, fire and acoustic performance information.

### Specifications - Series 100

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* Cut on site or made to order.
### Standard Natural Block - Series 100

**INTRODUCTION**

An extensive range of fractional sizes cater for most construction requirements.

Standard Natural Block combines strength, durability and ease of construction and provides highly cost effective solutions for every-day construction applications.

**APPLICATIONS**

Standard Natural Series 100 is a 90mm thickness block which is manufactured from controlled dense-weight concrete.

Boral Series 100 Standard Natural Block is very popular for internal walls and veneer wall construction.

Standard Natural Block Series 150 is very popular for loadbearing and non-loadbearing wall construction, and the construction of small cantilevered walls as it is the thinnest block suitable for reinforced grout filling.

Standard Natural Block Series 200 is very popular for loadbearing and non-loadbearing wall construction, and the construction of small cantilevered walls as it is suitable for reinforced grout filling.

**COLOURS**

Standard Natural Block is available in Natural Grey only. For coloured blocks, refer to the Designer Block section of this guide.

**ADDITIONAL INFORMATION**

Please refer to the Boral Masonry Design Guide (MDG Book 1) for additional structural, fire and acoustic performance information.

Also refer to Core-Fill Blocks (Section E of this guide) for retaining wall blocks.

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### Standard Natural Block

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* Cut on site or made to order.

---

**Availability**

- No minimum order quantities apply.
- Lead time 0-2 weeks.

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**Engineered Blocks**

- **D4**
- **D5**

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**Book 2**

- **October 2007**

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**Boral Masonry Design Guide | October 2007**

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**South Australia | Book 2**
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* Cut on site or made to order.

### Specifications

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- **Product Description**
- **MPa**
- **Wt (kg)**
- **N°/Pallet**

### Availability

- No minimum order quantities apply.
- Lead time: 0-2 weeks.

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* Cut on site or made to order.

### Specifications

- **Code**
- **Product Description**
- **MPa**
- **Wt (kg)**
- **N°/Pallet**

### Availability

- No minimum order quantities apply.
- Lead time: 0-2 weeks.
**Typical Component Usage - Series 100 Block**

1. Use 10.01 or 10.31 blocks as needed.
2. Steel lintel to engineers specification.
3. Or cut 10.71 to 290mm long.
4. 10.72 or 10.73 blocks as needed.
5. 10.71 or 10.83 blocks as needed.
6. 10.74 blocks as needed.
7. 10.02 blocks as needed.
8. 10.03 blocks as needed.
9. 900mm blocks as needed.

**Fig D2 — Alternative Corner Bonding and Free End Detail for Series 100 Block**

**Typical Component Usage - Series 150 Block**

1. Use 15.01 or 15.31 blocks as needed.
2. Steel reinforcing and grout to project specification.
3. Steel lintel as needed.
4. Or cut from 15.83 blocks.
5. 15.71 or 15.83 blocks as needed.
6. 15.74 or 15.86 blocks as needed.
7. 15.98 blocks as needed.
8. 900mm blocks as needed.

**Fig D3 — Corner Bonding and Free End Detail for Series 150 Block**
Typical Component Usage - Series 200 Block

Engineered Blocks

D10

Masonry Design Guide

MASONRY BLOCKS AND BRICKS  SOUTH AUSTRALIA  BOOK 2

CORE-FILL BLOCK

2

NOTE: Also suitable for Series 200 Designer Block.

Fig D4 — Corner Bonding and Free End Detail for Series 200 Block
Core-Fill Reinforced Retaining Walls

Designer Block™ Colours and Textures or Ash Grey

• Core-Fill Block
For construction of reinforced masonry retaining walls and loadbearing walls requiring increased robustness characteristics.
Available in Ash Grey or Designer Block colours.
Available with Smooth, Honed, Polished, Shot-Blast and Split Face textured finishes.

INTRODUCTION
Boral Masonry Feature Face Core-Fill Blocks are designed for the construction of reinforced masonry retaining walls and loadbearing walls requiring increased robustness characteristics and where a feature face is required.

FACE TEXTURES
Core-Fill Block is available with the following face texture finishes:
• Smooth Face
• Honed Face
• Shot-Blast Face
• Polished Face
• Split Face
• Ends — Honed, Shot-Blast or Polished finishes.
Please refer to page C4 for general information.

COLOURS
Designer Block units are available in 10 colours. Please refer to page C5 for additional information.
Customised colours and textures are also possible. Please note that extended lead times and minimum order quantities may apply.

INSTALLATION CONSIDERATIONS
Hydrostatic pressure at the bottom of a freshly grouted core is very high, forcing water to seep out of the wall. This MUST be cleaned off. The admixture used with Designer Block will increase the time for the grout to firm and dry, therefore more care must be used inspecting and cleaning any seepage on the surface of these walls. Pours of 1.2m max. lift are recommended.

Specifications

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Availability
• Lead times apply to all coloured blocks.
• Part size blocks are best cut bolstered on-site to maintain colour consistency. Part size blocks can be made-to-order.
• Contact Boral Masonry for further details.
Core-Fill Block - Natural - Series 150, 200 and 300

**INTRODUCTION**
Boral Core-Fill Block is designed for the construction of reinforced masonry retaining walls and loadbearing basement walls requiring increased robustness characteristics.

**CONSTRUCTION CONSIDERATIONS**
Before commencing placement of the grout, it is important that the cores should be clean and free of mortar ‘dags’ projecting into the core. A steel rod is pushed down the core to knock off these ‘dags’ and to break up any mortar that has dropped onto the footing. The cores are then hosed or swept out from the bottom of each core through the ‘clean-out’ space, see E2 below. The vertical steel rods are tied to the starter bars, and then the clean-out blocks are covered with formwork, ready for grouting (see ‘Retaining Wall Details’ in Book 1). An alternative method, which may be used in low height walls, is to leave a gap in the mortar bed at the bottom of each core and to hose out the dropped mortar and dags before the mortar has set.

When grouting Series 150 blocks, lifts should be reduced to 800mm (4 courses) to ensure no voids are left in the wall.

Clean any seepage on the surface of these walls. Clean all grout spills before they set.

**Specifications - Series 150**

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**Specifications - Series 200**

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<td>20.15</td>
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**Specifications - Series 300**

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<tr>
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<td>Double ‘U’ Block</td>
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<td>10.32</td>
<td>End Closer</td>
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<td>30.14</td>
<td>Deep Lintel Sash</td>
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<td>30.15</td>
<td>Lintel Sash</td>
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**Blocks Filled per cubic metre of Grout**

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<tr>
<th>Block Type</th>
<th>Blocks Filled per m3 of Grout (approximate)</th>
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<tr>
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<tr>
<td>15.01 Full</td>
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<td>120</td>
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<td>2802 Notch</td>
<td>120</td>
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<td>2891 Double ‘U’ Block</td>
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</tr>
<tr>
<td>3891 Double ‘U’ Block</td>
<td>65</td>
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**Fig E1 — Corner Bonding Detail for Series 150 Core-Fill Block**

**Fig E2 — Clean-out Course Detail**

**Fig E3 — Corner Bonding Detail for Series 200 Core-Fill Block**

**Fig E4 — Corner Bonding and End Detail for 300 Series Core-Fill Block**
Connex™ 150

Design
Wall heights and lengths should be in multiples of 200mm to avoid cutting. Lengths should be in odd 200mm increments, e.g. 1300, 1500, etc.

Estimating
- There are 12.5 full Connex™ blocks per m²
- There are 5 courses per vertical metre
- There are 2.5 Half units/vertical metre at ends and openings
- There are 2.5 Full end units/vertical metre of ends and openings
- There are 5 Corner units per vertical metre at corners
- One m³ of concrete grout fills 180 Connex™ blocks (7.44m²).

Construction
Where starter bars are required (retaining walls), the first starter bar is 75mm in from all ends and corners.

The 2nd starter bar is 275mm from the 1st bar. See fig E5.

Other starter bars are spaced at 400mm or 200mm as required by the engineer.

A clean-out course is not required as there will be no mortar droppings, however the cores must be kept clear of rubbish.

The first course of Connex™ is laid with nibs on top, in a bed of conventional mortar as footings and floor slabs are seldom perfectly level.

The following courses are dry-stacked. Check each course is plumb and level. Use tile wedges to adjust, inserting them from inside the core.

Grout-fill Connex™ blocks with 20MPa concrete with a maximum aggregate size of 7mm and a minimum quantity of 300kg cement per cubic metre.

Walls over 1.5m high should be filled to half way, allowing half an hour before returning to start to fill the remainder. This is to give the first part of the pour enough time to firm, reducing the amount of hydrostatic pressure at the bottom of the cores.

Connex™ 200

Design
Wall heights and lengths should be in multiples of 200mm to avoid cutting.

Estimating
- There are 12.5 full Connex™ blocks per m²
- There are 5 courses per vertical metre
- There are 2.5 Half units/vertical metre at ends and openings
- There are 2.5 Full end units/vertical metre of ends and openings
- There are 5 Corner units per vertical metre at corners
- One m³ of concrete grout fills 93 Connex™ blocks (7.44m²).

Construction
Where starter bars are required (retaining walls), the first starter bar is 100mm in from all ends and corners.

The 2nd starter bar is 300mm from the 1st bar. See fig E6.

Other starter bars are spaced at 400mm or 200mm as required by the engineer.

A clean-out course is not required as there will be no mortar droppings, however the cores must be kept clear of rubbish.

The first course of Connex™ is laid with nibs on top, in a bed of conventional mortar as footings and floor slabs are seldom perfectly level.

The following courses are dry-stacked. Check each course is plumb and level. Use tile wedges to adjust, inserting them from inside the core.

Grout-fill Connex™ blocks with 20MPa concrete with a maximum aggregate size of 7mm and a minimum quantity of 300kg cement per cubic metre.

Walls over 1.5m high should be filled to half way, allowing half an hour before returning to start to fill the remainder. This is to give the first part of the pour enough time to firm, reducing the amount of hydrostatic pressure at the bottom of the cores.
**Loadbearing Concrete Bricks**

**INTRODUCTION**

Boral Loadbearing Concrete bricks have an f’uc of 12MPa, making them excellent for loadbearing or non-loadbearing applications. They provide good fire performance and acoustic performance characteristics where minimising weight is not a primary consideration.

Boral Loadbearing Concrete bricks are a popular choice for walls in high-rise units where they are commonly used with a rendered finish. They are also commonly used for loadbearing walls in 3-storey unit construction with plasterboard or render finish.

**Textures:**
- ‘Traditional’ texture is smooth, machine-formed:
  - 120.715cxf,
  - SUPTRC; and
  - SUPTRH.
- ‘Celltex’ is a more coarse texture, ideal for rendering.

**FIRE DESIGN CONSIDERATIONS**

Boral Loadbearing Concrete bricks comprise of a concrete blend which provides good fire performance characteristics in loadbearing conditions.

All core areas are ≤30% of total volume, therefore all of these bricks can be considered as solid for fire design purposes.

**ACOUSTIC DESIGN CONSIDERATIONS**

The mass of Loadbearing Concrete is higher than Clay therefore rendered walls perform better.

Its texture is coarser and its porosity is higher than Clay and Calsil, so it performs better with plasterboard, particularly when daub-fixed.

Please refer to acoustic test/estimate data in the Boral Masonry Design Guide Book 1 for appropriate systems.

---

**Scoria Brick**

**INTRODUCTION**

Boral Scoria Brick is a non-loadbearing, medium density scoria-blend material which provides high fire rated performance.

Scoria Brick is ideal for large commercial, industrial and high-rise buildings with concrete and portal framed structures.

For larger masonry panel applications, also refer to Scoria products in the Boral Masonry Block Guide.

**FIRE DESIGN CONSIDERATIONS**

Boral Scoria Brick utilises a unique scoria-blend material which has been shown through fire testing to provide excellent fire insulation, integrity and structural adequacy characteristics.

**ACOUSTIC DESIGN CONSIDERATIONS**

Boral Scoria Brick provides excellent sound resistance with a wide variety of board-lining systems.

Please refer to acoustic test/estimate data in the Boral Masonry Design Guide Book 1 for appropriate systems.

---

**Specifications**

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Nominal Size (mm)</th>
<th>Average Unit Wt kg</th>
<th>f’uc MPa</th>
<th>f’wc w/M3</th>
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<th>N° per Pallet</th>
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**Specifications**

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<tr>
<th>Product Code</th>
<th>Nominal Size (mm)</th>
<th>Average Unit Wt kg</th>
<th>f’uc MPa</th>
<th>Perforation</th>
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<th>N° per Pallet</th>
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<td>5</td>
<td>&lt;20%</td>
<td>24.3</td>
<td>224</td>
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</table>
**FireLight™ Bricks (FL)**

**INTRODUCTION**

Boral FireLight bricks are manufactured from a low-density material which provides high fire rated performance and minimum weight for non-loadbearing applications.

Boral FireLight is ideal for concrete framed office buildings and high-rise home units.

**FIRE DESIGN CONSIDERATIONS**

FireLight is a fire tested lightweight concrete which is unique to Boral, and provides excellent fire rating characteristics. Please refer to the fire performance characteristics in the specification table of Book 1.

**ACOUSTIC DESIGN CONSIDERATIONS**

Boral FireLight is not recommended for cement rendered acoustic walls, but gives excellent sound resistance with a wide variety of tested boarding systems.

Please refer to acoustic test/estimate data in the Boral Masonry Design Guide Book 1 for appropriate systems.

### Specifications

<table>
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<tr>
<th>Product Code</th>
<th>Nominal T x L x H (mm)</th>
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<th>Unit F'uc MPa</th>
<th>Perforation %</th>
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<td>3</td>
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<td>24.3</td>
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**Availability**

- No minimum order quantities apply.
- Lead time 0-2 weeks.

NOTES
Customer Support New South Wales

1. Stock colours Colours other than stock colours are made to order. Not all colours displayed in this brochure are available in all states. (Contact your nearest Boral Masonry office for your area’s stock colours.) A surcharge applies to orders less than the set minimum quantity.

2. Brochure colours The printed colours in this Masonry Design Guide are only a guide. Please ask to see a sample of your colour/texture before specifying or ordering.

3. Colour and texture variation The supply of raw materials can vary over time. In addition, variation can occur between product types and production batches.

4. We reserve the right to change the details in this publication without notice.

5. For a full set of Terms and Conditions of Sale please contact your nearest Boral Masonry sales office.

6. Important notice Please consult with your local council for design regulations prior to the construction of your wall. Councils in general require those walls over 0.5m in height and/or where there is loading such as a car or house near the wall be designed and certified by a suitably qualified engineer.

Technical Enquires

Specifier Line 1300 360 255
Internet www.boral.com.au/masonry

Orders, Product Samples and Sales Enquires

South Australia
Main North Road, Pooraka, 5095
T: (08) 8262 3529
F: (08) 8260 3011

Other Regional Sales Offices

NSW
Clunies Ross Street, Prospect, 2148
T: (02) 9840 2333
F: (02) 9840 2344

231 Wisemans Ferry Road Somersby 2250
T: (02) 4340 1008
F: (02) 4340 1308

ACT
16 Whyalla Street, Fyshwick, 2609
T: (02) 6239 1029
F: (02) 6280 6262

Victoria
Level 1 Port IT, 63-85 Turner Street, Port Melbourne, 3207
T: (03) 9363 1944
F: (03) 9363 6008

Queensland
62 Industrial Ave, Wacol, 4076
T: (07) 3271 9292
F: (07) 3271 1581

North Queensland:
Cairns
8 Palmer Street, Portsmith, 4870
T: (07) 4035 1888
F: (07) 4035 1208

Townsville
360 Bayswater Road, Garbutt, 4814
T: (07) 4725 6285
F: (07) 4725 6043

Mackay
David Muir Street, Slade Point, 4740
T: (07) 4955 1155
F: (07) 4955 4130

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