



Blocks & Bricks

About National Masonry®

National Masonry® has quickly established itself as the industry leader with exceptional product quality and outstanding customer service with a clear vision of customers for life. We are obsessed with ensuring every customer has a memorable experience with us and to leave you with no doubt that you have made the right choice.

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National 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 National Masonry® Blocks and Brick Design Guide (this book) has been prepared as a comprehensive South QLD and NSW Reference Guide. It does not attempt to cover all the requirements of the Codes and Standards which apply to masonry construction, but as an overview of considerations. All structural detailing should be checked and approved by a structural engineer before construction. National Masonry® reserves the right to change the contents of this guide without notice. Please note that this guide is based on products that are available at the time of publication from National Masonry® South QLD and NSW Regions. Different products and specifications may apply to National Masonry Products sourced from other regions.

Additional Assistance and Information

- **Contact Details:** Please refer to the outside back cover of this publication for National 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 National Masonry® sales office.

For technical support and sales office details please refer to the outside back cover.

Overview

For External and Internal Walls.

Designer Range

- 9 Contemporary Colours.
- 5 Innovative Textures — Smooth, Honed, Polished, Shot-Blast or Split Face.
- Suitable for loadbearing and non-loadbearing walls.

Standard Grey Block

Hollow Concrete Block suitable for loadbearing and non-loadbearing applications.

Heavy Duty Block

Grey Concrete Blocks - up to a 50MPa Strength Rating.

Core-Fill Block

Grey Concrete Block or Designer Range coloured and textured finishes for reinforced retaining walls and loadbearing walls requiring increased robustness.

Concrete Brick

Speed-E Brick and Rippa Brick (162mm height) in Concrete material for good fire performance and loadbearing characteristics.

Product Disclaimer: Concrete Blocks, Bricks, Pavers and Retaining Wall products supplied by National Masonry® are manufactured using raw materials that inherently vary in nature. Whilst all effort is made to produce uniformity in our range of products, variation in colour, texture, and finish can be present. The dimensional characteristics of all products are nominal and variations in length, height, and width can occur from unit to unit which needs to be taken into consideration when installing these products.

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Face 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 m².

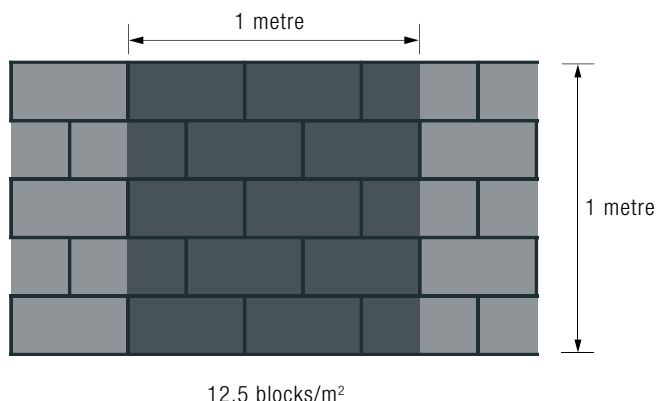


Fig B1 — Typical Block Dimensions

National Masonry® Grey Concrete Blocks are available in thicknesses of 90mm (100 Series), 110mm (120 Series), 140mm (150 Series), 190mm (200 Series) and 290mm (300 Series).

National Masonry® Queensland offers many 'fractional' sized blocks to reduce the need for on-site cutting. However to maintain better colour consistency with coloured blocks, part size blocks for these applications are best prepared on-site by cutting or splitting from full size blocks.

Other block types such as lintel blocks, capping pieces, corner returns are made in various product ranges.

National Masonry® Queensland also manufactures a range of Concrete Bricks. Our ULTRA Brick is made to a standard 76mm height in a range of colours and finishes. Our Speed-E Bricks are made in both a standard 76mm height and a 162mm height to match two standard size brick courses. National Masonry® concrete Ripa Brick are also made in a 162mm height to match two standard size brick courses.

Core-Fill Blocks for reinforced wall construction are made in thicknesses of 140mm (Series 150), 190mm (Series 200), and 290mm (Series 300).

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

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/NZS4455.1, permits a general tolerance of $\pm 3\text{mm}$ 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 height 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.

Note also that the length of piers and walls is 10mm less than the modules, i.e. 890, 1790 etc., due to the omission of the last vertical joint at the end of the pier/wall.

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.

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 additive used in the manufacture of Designer Range and its mortar is designed to reduce water absorption, reduce mould growth and lower the risk of staining.

National Masonry® recommends that all Designer Range should be sealed with a quality penetrating sealer following installation, to manufacturer's guidelines.

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 perpendicular) joints. Refer to Fig B2.

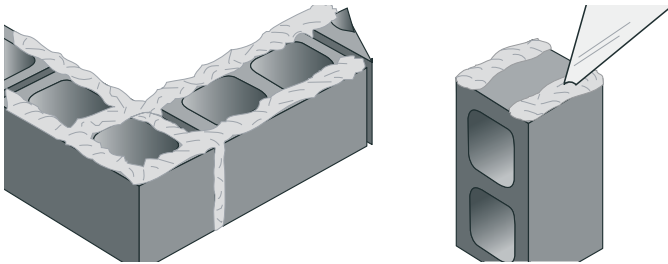


Fig B2 — Applying Mortar

Joint Finishing

AS3700, Clause 4.9.2 requires mortar joints in 'exposure environments' to be ironed.

Ironed Joint

The preferred finish for mortar joints in face blockwork is an ironed finish which provides the following benefits:

- The ironing tool compresses the mortar at the face of the masonry, making it denser and more durable; and
- The mortar is pushed against the top and bottom faces of the blocks, improving the bond between the mortar and block.
- The finish is obtained by ironing the joints with an ironing tool when the mortar is firm to touch (about 20 to 30 minutes after laying) and then lightly scraping off the surplus mortar with a trowel, or by lightly brushing. Refer to Fig B3.
- The ironing tool should be made of 12mm diameter round rod and be more than 400mm long to ensure that a straight joint is produced.

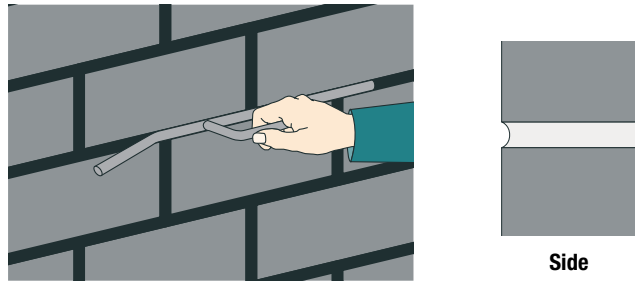


Fig B3 — Ironed Joint

Ironed joints are the preferred finish in Designer Blockwork.

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.

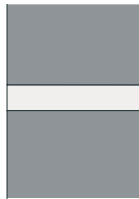


Fig B4— Flush Joint (side)

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.

IMPORTANT: Because acid cannot be used to dissolve mortar without affecting the masonry units' appearance, mortar smears should be cleaned off face blockwork before it sets hard onto the face.

Brickwork Design Considerations

Sizes

The dimensions of standard brick are: 76mm high x 230mm long x 110mm thick. National Masonry® Queensland manufactures a range of Concrete Bricks and Blocks in various modular sizes to complement standard blockwork and brickwork construction. National Masonry's ULTRA BRICK comes 76 mm high x 230mm long x 110mm wide. This Brick range offers 8 different colour options and 4 possible finishes. National Masonry® Speed-E Brick comes in both a standard 76mm high x 230mm long x 110mm wide as well as a double height 162mm high x 230mm long x 110mm wide. Speed-E bricks are more cost effective laying system compared to clay bricks. National Masonry® Concrete Rippa Bricks are also 162mm high x 390mm long x 110mm wide to match two standard size brick course (including mortar). They are generally used to construct one lead of a wall. These are faster option to lay and more cost effective when compared to clay bricks.

Table B2 — Brick Quantities per Square Metre (No allowance for wastage)	
Face Size	Bricks per m ²
76 x 230	50
162 x 230	25
162 x 390	15

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

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

	Brickwork	Opening	Brickwork	Opening	Brickwork	Opening	Brickwork Height (mm)	
Number of Bricks	Brick Length (mm)		Brick Length (mm)		Brick Length (mm)		Brick Height (mm)	
	230		290		390		76	162
5	1190	1210	1490	1510	1990	2010	429	857
10	2390	2410	2990	3010	3990	4010	857	1714
15	3590	3610	4490	4510	5990	6010	1286	2572
20	4790	4810	5990	6010	7990	8010	1714	3428
25	5990	6010	7490	7510	9990	10010	2143	4286
50	11990	-	14990	-	19990	-	4286	8572
100	23990	-	29990	-	39990	-	8572	17144

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).

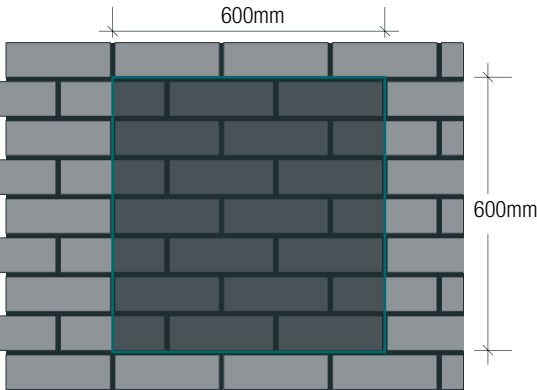


Fig B5. 600mm Module for Standard Height/Standard Length Brick

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)

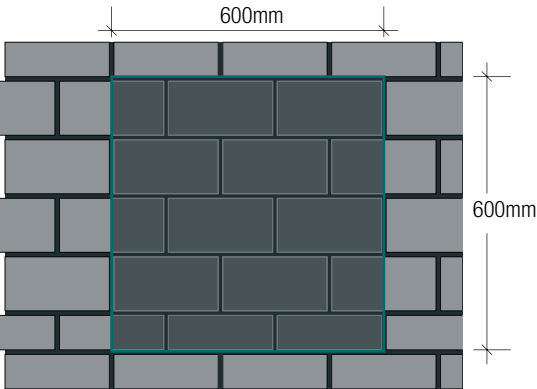


Fig B6. 600mm Module for One-and-a-Half Height/Standard Length Brick

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).

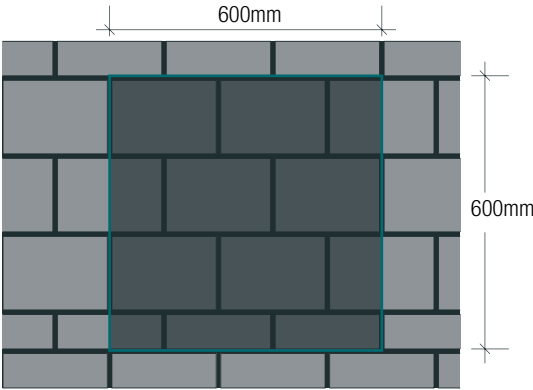


Fig B7. 600mm Module for Double Height/Standard Length Brick

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.

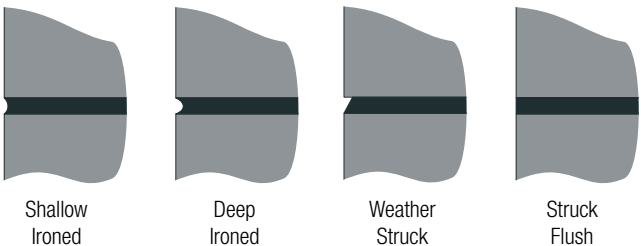


Fig B8 — Joint Finishing Options

Control Joints

(Contraction Joints)

Concrete Masonry blocks will contract as they cure. They will expand as they take up water and then contract again as they dry. Concrete units will also expand as they get hot and again contract as they cool.

Masonry Blocks can encounter problems of cracking due to shrinkage of masonry units, thermal movement and differential settlement of foundations. Control Joints such as contraction joints can be used to counter these problems.

Control joints are constructed and spaced to allow for these movements. Control joints should be used beside large openings, at changes in wall height, changes in wall thickness (other than at piers), control joints in floor and roof slabs, at T-Junctions or at any other points of potential cracking.

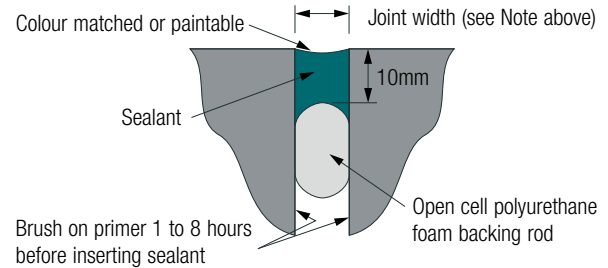
Table B3 details the recommended maximum control joint spacings for non-reinforced concrete walls.

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.

Table B3 — Control Joint Spacing

Product	Spacing
Dense-Weight Masonry (Standard Concrete)	7 metres
Lightweight Masonry (< 1500 kg/m ³)	6 metres

Note 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.



National Masonry® supply the following options for control joints:

150mm Series 2 hour insulation FRL ($f'_{uc} = 15\text{MPa}$)

Image	Product	Name	Dimensions	Notes	Weight per unit (kg)	Units per pallet
	15.09	Control Joint	390x190x140		10.4	120
	15.10	Control Joint Half	190x190x140		8.6	240

200mm Series 2 hour insulation FRL ($f'_{uc} = 15\text{MPa}$ unless noted)

Image	Product	Name	Dimensions	Notes	Weight per unit (kg)	Units per pallet
	20.09	Full Control Joint	390x190x190	1 pallet = 72 x 20.09 and 20.10 (Sold in pairs)	14.2	72
	20.10	Control Joint Half	190x190x190	1 pallet = 72 x 20.09 and 20.10 (Sold in pairs)	8.5	72

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 Range').
- 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 Queensland).
- 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 can cause some additional shrinkage in the mortar. Concrete masonry units tend to shrink so 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, can be added to increase workability. These additives or lime must not be used in mortar used for laying Designer Range products.

Mortar for Laying National Masonry® Designer Range

The additive used in the manufacture of Designer Range and its mortar is designed to reduce water absorption, reduce mould growth and lower the risk of staining.

Designer Range can be laid in convention mortar, however for the best result, Designer Range should be laid in mortar containing Designer Range Additive. Refer to Table B4 and B5 for mortar mixture details.

Lime or plasticisers must NOT be added to mortar with Designer Range additive.

Other Admixtures

Additives may be used with products other than Designer Range, 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.

Table B4 — Mortar Mixes

Mix Proportions by Volume (See AS3700-2011: Table 11.1)			Designer Range Additive	Methyl Cellulose Additive	Minimum Mortar Classification	Where Used (exposure) (See AS3700-2011: Table 5.1)
G.P. Portland Cement	Lime	Sand				
1	—	5	Yes	No	M3	Designer Range products
1	—	4	Yes	No	M4	
1	1	6	No	No	M3	General purpose with moderate exposure
1	—	5	No	Yes	M3	
1	0.5	4.5	No	No	M4	Structural blockwork and severe exposure (marine and industrial environments). External walls adjacent to seafront, below damp-proof course, fences.
1	—	4	No	Yes	M4	

NOTES: Methyl Cellulose water thickener is used to prevent the rapid drying out of the mortar thus improving its workability as well as increasing bond strength. It does not have the detrimental effect of the plasticiser or detergent admixtures which generally reduce bond strength. Methyl Cellulose can cause long delays in drying in moist basement environments.

Approximate Material Quantities for 1m³ of Mortar

	Mortar Classification		Grey Block	Designer Range
M3 Should be used in following exposures: <ul style="list-style-type: none"> • Located within 100m to 1km of non-surf coast or 1km to 10km of surf coast and above damp proof course. • In contact with ground in non-aggressive soils. • In fresh water. • in domestic BBQs and incinerators. 			Mix in 1 : 1 : 6 proportions	Mix in 1 : 5 proportions
			Cement: 14 bags (20kg each)	Cement: 16 bags (20kg each)
			Lime: 5 bags (20kg each)	Designer Range additive: 8 litres
			Sand: 1.2m ³ *	Sand: 1.2m ³ *
			Mix in 1 : 0.5 : 4.5 proportions	Mix in 1 : 4 proportions
M4 Should be used in following exposures: <ul style="list-style-type: none"> • Located within 100m of non surf coast or 1km of surf coast and above damp proof course. • In contact with ground in aggressive soils. • In tidal and splash zones. 			Cement: 18 bags (20kg each)	Cement: 20 bags (20kg each)
			Lime: 3 bags (20kg each)	Designer Range additive: 8 litres
			Sand*: 1.2m ³ *	Sand#: 1.2m ³ *

NOTE: Designer Range mortar should be made with off-white cement and oxide to match the colour of the face block or brick.

* 20% extra sand included for bulking
Use Brickie 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 for Core Filling

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 follow:

- Grout to comply with AS3700 Clause 10.7.
- Characteristic Compressive Strength 20MPa.
- Cement content not less than 300kg/m³.
- Round aggregate (if any) not more than 10mm.
- Clean sand (1.2m)
- A pouring consistency which ensures that the cores are completely filled and the reinforcement completely surrounded without segregation of the constituents.

The approximate number of blocks filled per cubic metre of grout is shown in Table B6. (Based on 10mm rounded aggregate and 300kg/m³ cement.)

Block Type	Blocks Filled per m ³ of Grout (approximate)
15.42 Channel	190
15.01 Standard	230
15.48 H-Block	210
20.01 Standard	150
20.42 Channel	120
20.142 Split Face	125
20.48 H-Block	125
30.48 H-Block	69
40.925 Pier Block	50

Grouting

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 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. The vertical steel rods are tied to the starter bars, and then the clean-out blocks are covered with formwork, ready for grouting. 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 cores 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 Range

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 Range 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.

For added protection against efflorescence caused by the leaching of lime from blockfill, National Masonry recommends BASF MASTERPEL 240 or EQUIVALENT added to your blockfill mix. This is not supplied by National Masonry and would need to be requested from your blockfill supplier.

All core-filled walls must be cleaned thoroughly immediately following filling to ensure lime leaching from the core-fill through unprotected capillary pores does not stain the surface of the Blockwork.

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, disfiguring the wall. 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.

Coping & Flashing

Walls and parapets should have protection such as flashings or capping to the top of the surface. A common source of staining and efflorescence of masonry is water entering the walls and cavities at this point via exposed horizontal surface. If this is not possible the top of the blockwork should be sealed using a waterproofing membrane before capping is bedded to waterproof the top surface.

Blending

National Masonry® strongly recommends "blending" - drawing product across multiple pallets on-site - to obtain a consistent finish and mitigate colour variations.

Rain Interruptions and Masonry Storage

All Masonry blocks and bricks must be kept dry on site, before use as well as when freshly laid. Overnight or when rain interrupts blocklaying, its good practice to cover masonry products with a plastic sheet as to prevent moisture entering the cores. Failing to do this will increase the likelihood of efflorescence.

If masonry blocks or bricks obtain too much moisture, the solution of mortar takes in carbon dioxide from the atmosphere and precipitates calcium carbonate. This whitish stain is very disfiguring and not easily removed from the blockwork.

Sealing of Designer Masonry

Its highly recommended that all Designer Range Blocks or Bricks should be cleaned and sealed with a quality penetrating sealer after installation. Applying a sealer, as per installation instructions, will protect the product from the inside. Generally characteristics of the surface colour and surface texture remain unchanged maintaining the same look after the sealing process but with the added protection against common spills or staining and the likelihood or severity of efflorescence.

Cleaning Concrete Masonry

Good Building Practice

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

Block layers should:

- 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.

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 fully 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

1. 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.
2. Scrape off any thickness of moss/mould/lichen;
3. Pre-wet the mouldy area;
4. Apply a chlorine solution, preferably Sodium Hypochlorite (household bleach), at sufficient strength to kill mould within approximately 1 hour;
5. Scrubbing with a stiff brush or broom will normally assist;
6. Thoroughly flush the surface. If mould remains, repeat steps 1 to 3 as necessary to kill and remove the mould;
7. 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:

- There must be soluble or semi soluble salts present;
- There must be water entering the masonry; and
- 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 (ironed 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.

Wall sealers also help to prevent future efflorescence, mould growth and general staining by reducing water absorption from rain.

National Masonry® recommends that all Designer Range should be sealed with a quality penetrating sealer following installation, to manufacturer's guidelines.

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;

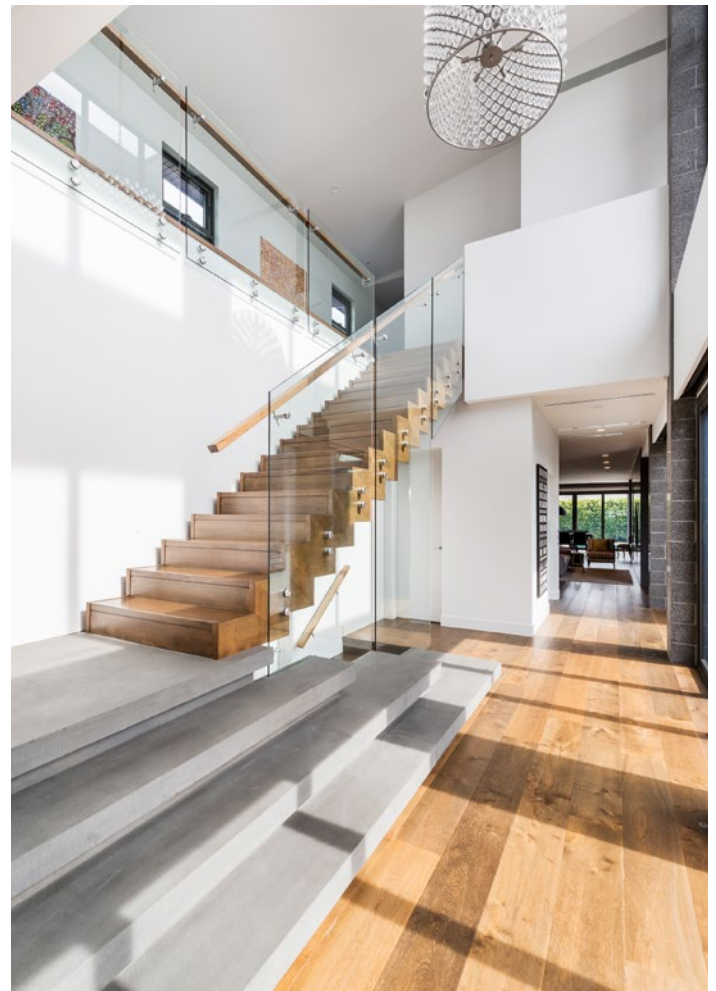
To avoid personal injury, wear protective clothing and vapour cartridge breathing mask- particularly in confined areas, as recommended by chemical manufacturers;

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.



Architectural Designer Blocks & Bricks Overview

National Masonry's Designer Range has the leading range of decorative masonry blocks and bricks available. Blocks are available in Nine contemporary colours in either a smooth face, honed, shot-blast, polished or split face finishes. Bricks are available in eight colours in either smooth face, honed, shot-blast or polished finishes. Whether large or small National Masonry's range of decorative blocks or bricks will give your next project the winning edge.

Five Innovative Textures

Smooth Face – A finely textured finish created through the standard moulding process. Both faces are suitable for face block work. Care is required when laying 2 face walls as variation in width of up to +/- 2mm may be present.

Value Added Finishes

Value added finished masonry is supplied as a single face product. When only one face is value added, the back side of the block may not be suitable as a face finish due to the value adding process. If both faces are value added, both faces will be suitable for a face work but care will be required when laying as there may be 2-5mm difference in the width of the individual blocks due to the honing / polishing process.

Our New ULTRA BRICK with both Smooth and Value Added Finishes extend our range even further to provide a premium look in a traditional brick size.

Important Designer Range Information

Lead Time

Lead times apply to all coloured blocks and bricks. Longer lead times apply to Honed, Polished, and Shot-Blast Finishes as the product must be cured to harden sufficiently before processing.

Part size blocks are best cut/bolstered on-site to maintain colour consistency.

Part size blocks can be made-to-order.

Contact National Masonry® for further details.

Colour and Texture Variation

Some variation in colour may occur due to natural variations in raw materials. Colour variation can also occur from batch to batch making it essential to order all product requirements at the same time. National Masonry® recommends part size blocks are cut on site to maintain colour consistency. Blocks can be cut to order.

Blending

To obtain a consistent finish and mitigate colour variation, National Masonry® strongly recommends "blending" which is drawing product from multiple pallets on-site.

Blocks & Bricks Storage

Blocks and bricks must be kept dry on site before use and when laid. Freshly laid walls must be covered overnight and when rain interrupts work in order to prevent moisture entering the cores of the blocks. Failing to do this will increase the likelihood of efflorescence.

Mortar

Coloured Designer Range blocks and bricks contain an efflorescence inhibitor (Tech-Dry®). To complete the system, an additive must be used in mortar mix. National Masonry® supply and recommend TECH-DRYAD Mortar Additive. The consumption of additive varies significantly, 20 litres of mortar additive may lay approximately 1000-1500 Tech Dry Blocks.

Sealing

All Designer Range blocks and bricks should be cleaned and sealed with a quality penetrating sealer after installation. Failure to do so dramatically increases the likelihood and severity of efflorescence and general staining.

Colour Range

Using a bespoke combination of fine sands, aggregates, and Bayferrox® Pigments, National Masonry® create a solid fine textured masonry block with crisp sharp lines and rich colours. The use of natural raw materials gives the product its own character which cannot be matched by other more artificially processed building materials.

Benefits

- Textures to reflect a wide range of styles
- Suitable for load bearing and non-loading applications
- Low to zero maintenance required
- High Fire Protection
- Excellent thermal and acoustic performance
- Manufactured locally by National Masonry® to strict Australian Standards
- Sika® additive to reduce water absorption
- Bayferrox® colour pigments provide long lasting finish

Where to use

- Suitable for load bearing and non-loading applications
- External and internal walls for both residential and commercial projects
- Retaining Walls
- Feature Walls
- Can be core filled for reinforced concrete wall applications

Which colour

Available in 9 unique and contemporary colours. Customised colours are also possible. Please note that extended lead times and minimum order quantities may apply.



Designer Range Series 100, 150, 200 and 300 Smooth, Honed, Shot-blast and Polished Face

Introduction

Series 100 (90mm thickness), Series 150 (140mm thickness), Series 200 (190mm thickness) and Series 300 (290mm thickness) are suitable for internal and external walls in loadbearing and non-loadbearing applications.

Face textures

Series 100, 200, and 300 Designer Range blocks are available with the following face texture finishes:

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

Designer Range Split Face - Series 100 and 200

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

Designer Range Split Face is produced in two block thicknesses, Series 100 (90mm thickness) and Series 200 (190mm thickness).

Face textures

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

Smooth Face

A finely textured finish created through the standard moulding process.



Shot-blast Face

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



Honed Face

The honed process grinds 2-3mm from the block surface, producing a matt exposed-aggregate finish.



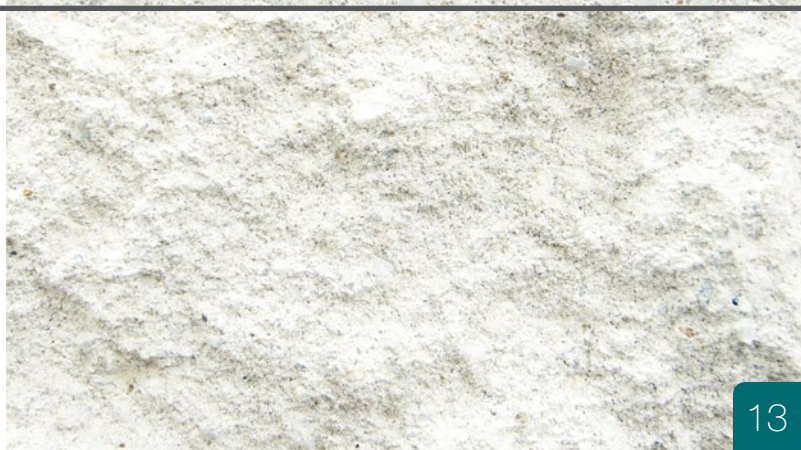
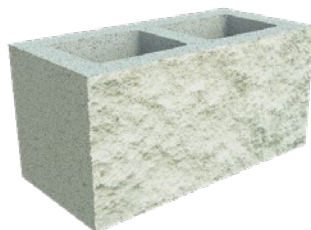
Polished Face

This involves producing a denser block which is honed and then buffed. This enriches the colour of the aggregates.



Split Face

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



Not just another brick, the ULTRA BRICK has been designed and engineered from the ground up delivering a premium pressed brick with a finish to suit any budget. A bespoke mix of raw materials have been combined with the latest pressing technology to produce a brick that is perfect in shape, consistency, durability, and easy to lay. Delivering crisp lines, rich colour and texture, the ULTRA BRICK is the brick range for the 21st Century.

Benefits

- Finely texture surface with Bayferrox® pigments for vibrant long lasting colour
- Sika® additive to reduce likelihood of efflorescence
- No need to paint or render
- Non combustible
- Won't rot, rust, or delaminate
- Manufactured locally by National Masonry®

Where to use

- External and internal walls
- Feature walls
- Fences

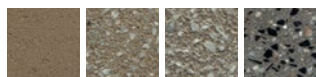
Which colour

Available in 8 modern colours



Alabaster Pearl Grey Platinum Charcoal Terrain Coco Paperbark Almond

Available in 4 finishes



Smooth Honed Shot-blast Polished

A finish for every style

Finish Description

Smooth

The smooth face texture uses the finest grade of sand and world class pigments to provide a rich finely texture solid colour finish.

Honed

The honed finish has its own special blend of materials. These bricks have the face carefully ground exposing the premium selected aggregates producing an elegant honed finish.

Polished

The polished finish takes the honed product and using diamond polishing stones buffs the honed finish to a glass like finish.

Shot-blast

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



Premium look. Ultra results.



The National Masonry® Breeze Block collection has revitalised a 1970's icon into a modern day contemporary classic. Brimming with sharp lines, vibrant texture, and rich colour, these modern day classics will compliment a diverse range of projects. National Masonry® Breeze Blocks can create unique walling and feature solutions that provide permeability of light and air that are aesthetic in character with the durability and practicality that you come to expect in a masonry unit. These crafted units are finished with a lightly honed face leaving no doubt they are a premium architectural finished product that are at home in the most humble of applications through to striking features in a modern master piece.

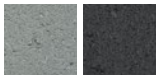
Benefits

- Two contemporary designs
- Durable masonry construction
- Versatile
- Non flammable
- Lightweight
- Lightly honed finish
- Bayferrox® colour pigments provide long lasting finish

Where to use

- Suitable for indoor & outdoor applications
- Can use horizontal & vertically
- Privacy screen
- Room partition
- Patios & outdoor living areas
- Features
- Increase light or ventilation

Which colour

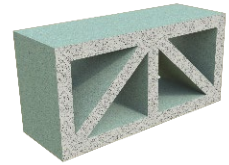
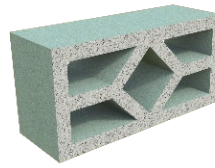


Pearl Grey Charcoal

Fresh contemporary designs

Rhombus



Tetra







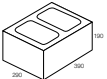
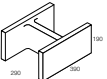
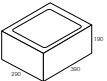




Let in light and air



Smooth, Shot-Blast, Honed and Polished Face

Image	Product	Name	Dimensions LxHxW	Available Finishes	Available Colours	Weight per unit (kg)	Units per pallet
	10.01	Standard	390x190x90	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	10.3	195
	10.03	Half Length	190x190x90	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	5.5	360
	10.31	Solid	390x190x90	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	14.8	156
	10.71	Standard Half Length	390x90x90	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	5.3	390
	12.702	Three Quarter Length	290x190x110	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	8.6	200
	12.703	Half Length	190x190x110	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	6.0	250
	12.709	Standard	390x190x110	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	11.6	150
	15.01	Standard	390x190x140	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	12.7	144
	15.02	Three Quarter Length	290x190x140	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	10.6	160
	15.03	Half Length	190x190x140	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	6.4	240
	15.42	Full Length Channel	390x190x140	Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	12.5	144
	15.48	Full Length H Block	390x190x140	Smooth Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	12.6	144
	20.01	Standard	390x190x190	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	16.2	108
	20.02	Three Quarter Length	290x190x190	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	11.5	144

Smooth, Shot-Blast, Honed and Polished Face

Image	Product	Name	Dimensions LxHxW	Available Finishes	Available Colours	Weight per unit (kg)	Units per pallet
	20.03	Half Length	190x190x190	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	9.0	180
	20.42	Channel#	390x190x190	Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	15.9	108
	20.48	H Block*	390x190x190	Smooth Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	13.2	108
	20.71	Standard Half Height	390x90x140	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	7.6	216
	30.01	Standard*	390x290x190	Smooth Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	20.82	72
	30.48	Standard*	390x290x190	Smooth Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	17.0	72
	30.925	Standard#	390x290x190	Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	20.27	72
	50.31	Capping Tile	390x40x190	Standard Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	6.6	270
		ULTRA BRICK	230x76x110	Smooth, Honed, Shot-blast, Polished	Alabaster, Pearl Grey, Platinum, Charcoal, Terrain, Coco, Paperbark, Almond	3.8	500
	Breeze Block	Rhombus	390x190x140	n/a	Charcoal, Pearl Grey	12.2	108
	Breeze Block	Tetra	390x190x140	n/a	Charcoal, Pearl Grey	12.2	108

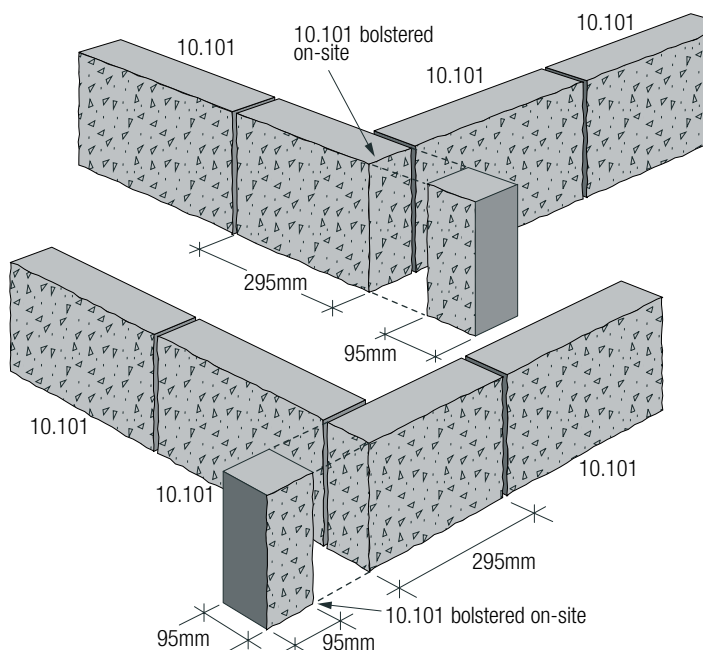
Find detailed information and download more guides at our website - www.nationalmasonry.com.au

Split Face

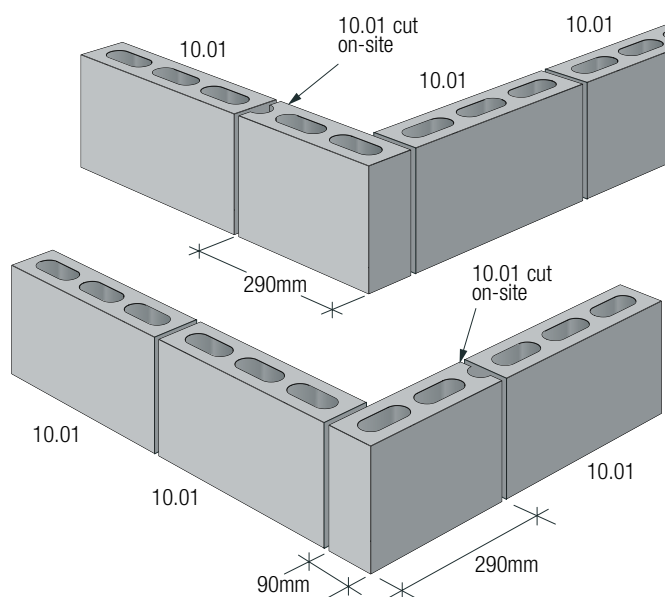
Image	Product	Name	Dimensions LxHxW	Available Colours	Available Finishes	Weight per unit (kg)	Units per pallet
	10.101	Standard	390x190x95	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	14.8	108
	10.109	Standard Half Height	390x90x90	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	8.0	216
	20.121	Standard	390x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	17.5	108
	20.123	Half Length	190x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	11.1	180
	20.127	Standard Half Height	390x90x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	8.75	180
	20.139	Corner Return Half	390x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	18.9	90
	20.141	Half Length	190x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	12.3	180
	20.142	Full Length Channel	390x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	17.0	108

Installation 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**

Series 150 Installation Details

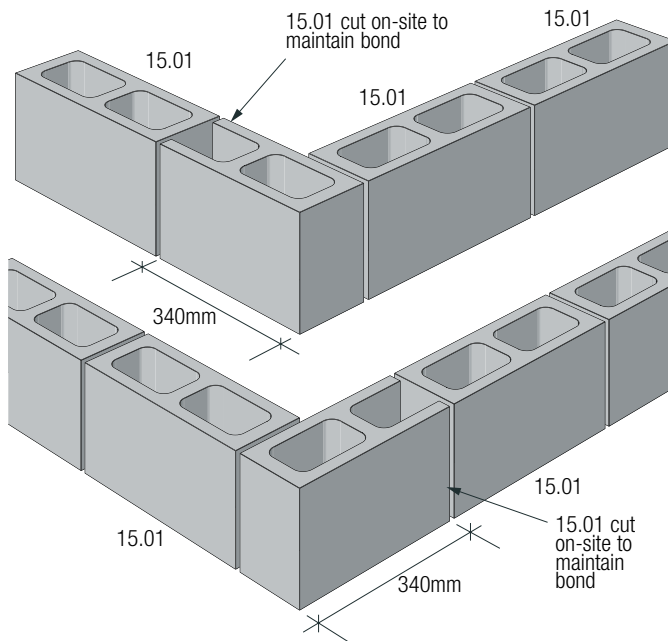


Fig C9 — Corner Bonding Details

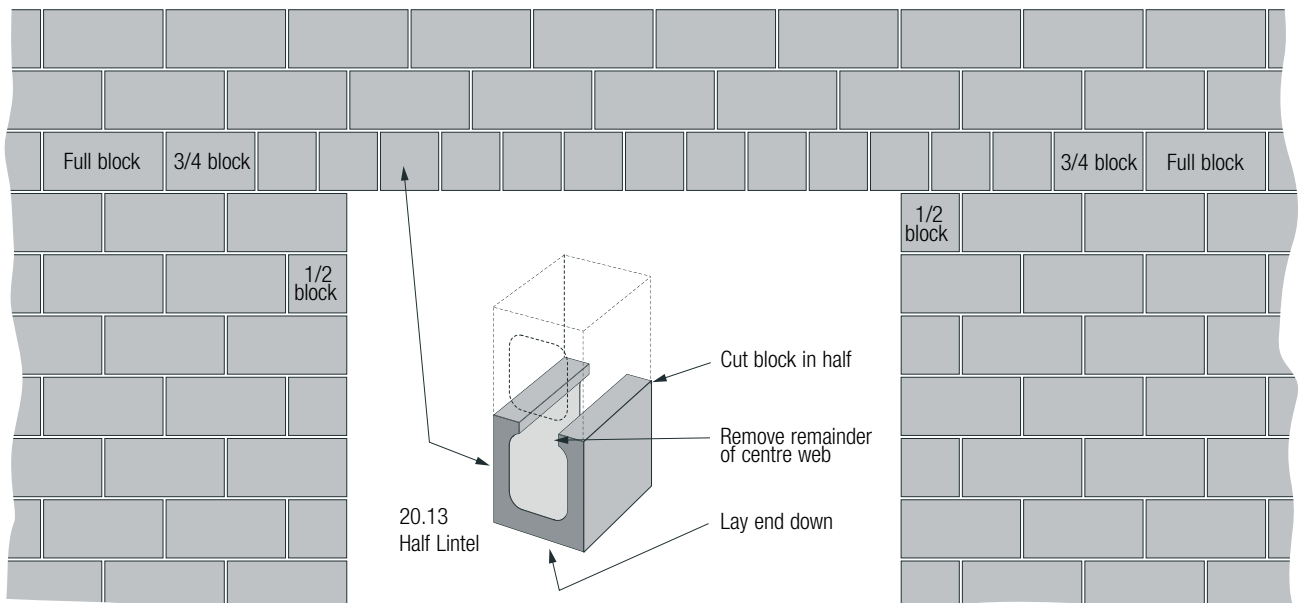


Fig C10 — Face Lintel Detail with 1800mm Opening for Series 150 or 200 Blocks

Series 200 Installation Details

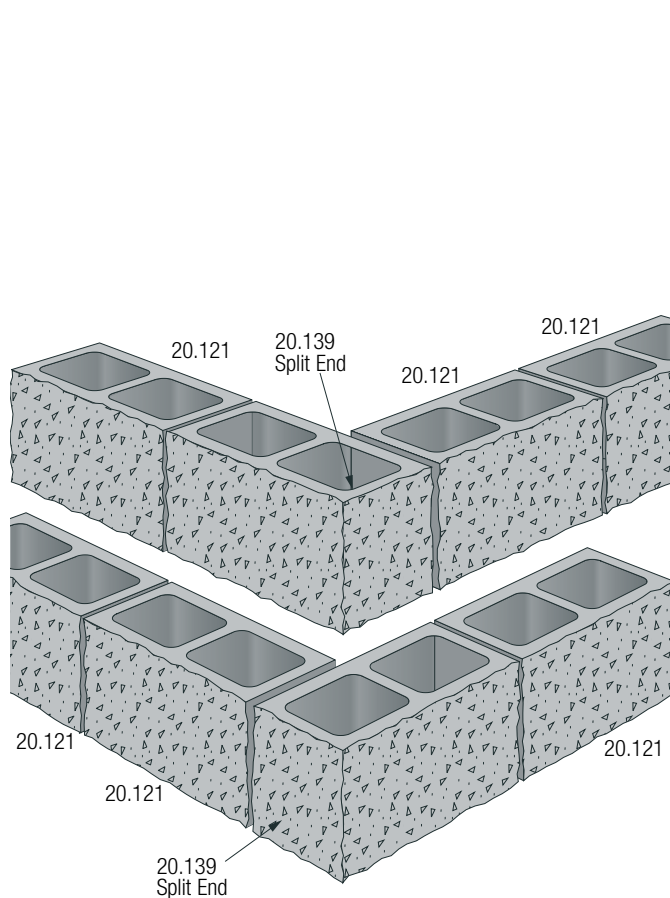


Fig C11 — Corner Bonding Details
Series 200 Split or Smooth Face Designer Range Blocks

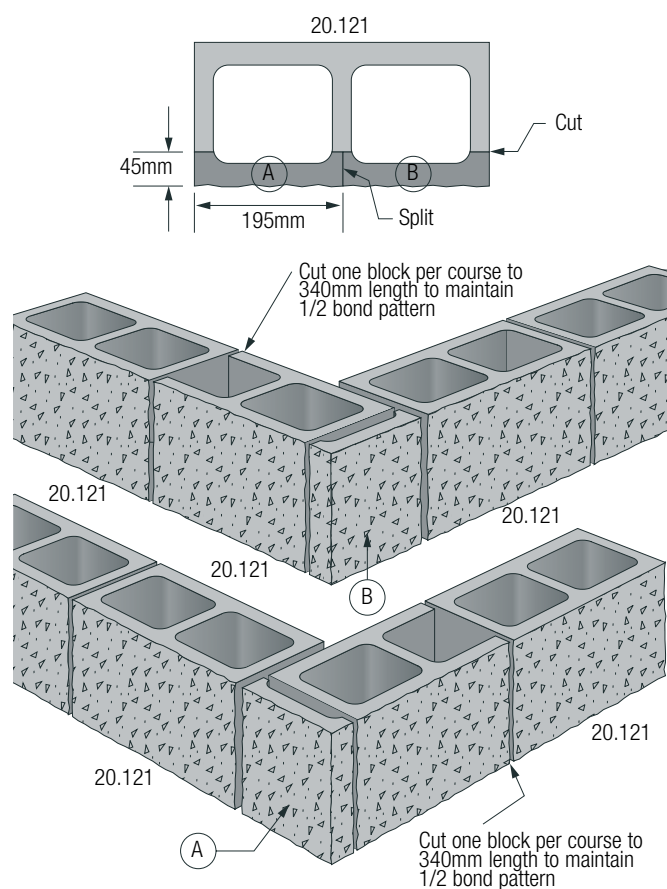


Fig C12 — Alternative Corner Bonding Details
Series 200 Split or Smooth Face Designer Range Blocks

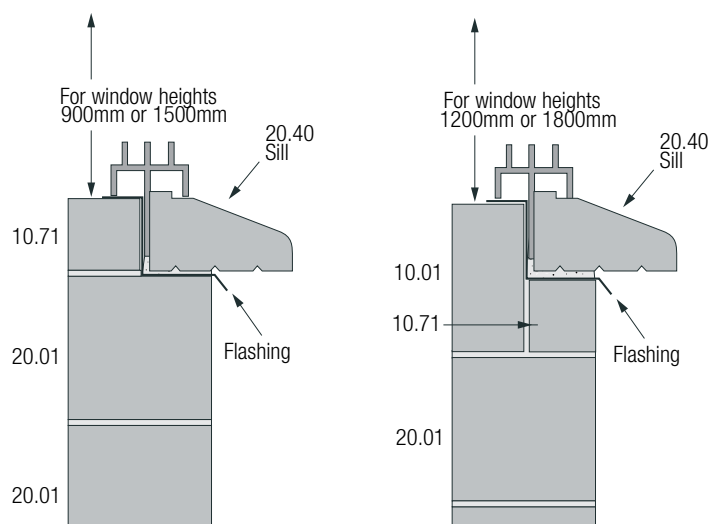


Fig C13 — Sill Detail - Single Skin Wall
Series 200 Feature Face Designer Block

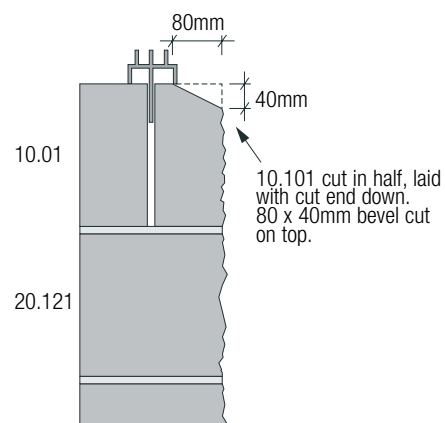


Fig C14 — Sill Detail - Single Skin Wall
Series 200 Split Face Designer Block

Concrete Grey Blocks

Concrete Grey Blocks are manufactured utilising recycled ash to provide a lightweight, high strength product. Concrete Grey Blocks are commonly used for construction on houses, schools, and various commercial projects. Choosing the right Concrete Grey Block is important. Before selecting, you should ensure this product meets your projects requirements. Certain Concrete Grey Blocks are lightweight, heavy duty and/or fire rated. Please check the Additional Information. Please consult National Masonry® if you are unsure on the best Concrete Grey Block for your construction needs.

Popular Products



20.01
Standard



20.03
Half



20.42
Channel



20.45
Cleanout



20.48
H Block



20.71
Standard Half Height

100 Series

100mm Series ($f'_{uc} = 15\text{MPa}$)











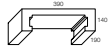



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	10.01	Standard	390x190x90		8.5	195
	10.02	Three Quarters	290x190x90		6.7	240
	10.03	Half	190x190x90		4.4	360
	10.31	Solid	390x190x90		12.4	156
	10.71	Standard Half Height	390x90x90		4.0	390

120 Series



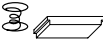
120mm Series 2 hour insulation FRL ($f'_{uc} = 15\text{MPa}$)

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	12.703	Thick Half Wall	190x190x110	Not sold separately	6.3	n/a
	12.709	Thickwall	390x190x110	Pallet contains 10 x 12.703	11.31	150








150mm Series 2 hour insulation FRL ($f'_{uc} = 15\text{MPa}$)

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	15.01	Standard	390x190x140		10.9	144
	15.02	Three Quarter	290x190x140		8.9	160
	15.03	Half	190x190x140		5.7	240
	15.09	Control Joint	390x190x140		10.4	120
	15.10	Control Joint Half	190x190x140		8.6	240
	15.12	Lintel	390x190x140		16.2	120
	15.20	Knockout Bond Beam	390x190x140		10.6	120
	15.22	Seven Eighths	340x190x140		9.7	125
	15.25	Corner Return	390x190x190		12.9	105
	15.42	Channel	390x190x140		10.5	144
	15.45	Cleanout	390x140x190		9.9	120
	15.48	H Block	390x190x140		11.4	144
	15.703	Thick Wall Half	190x190x140	Not sold separately	8.5	n/a
	15.709	Thick Wall	390x190x140	Pallet contains 10 x 15.703	15.3	120
















150mm Series 2 hour insulation FRL (f'uc = 15MPa)

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	15.71	Standard Half Height	390x90x140		5.0	288
	50.31	Capping Tile	390x40x190		5.7	270
	50.45	Biscuit & Spring			4.1	120

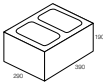



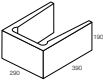
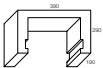
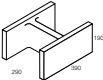

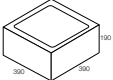

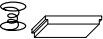
200mm Series 2 hour insulation FRL (f'uc = 15MPa unless noted)

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	20.01	Standard	390x190x190		13.29	108
	20.02	Three Quarters	290x190x190		9.4	144
	20.03	Half	190x190x190		7.3	180
	20.04	Quarter	190x190x90		4.4	360
	20.09	Full Control Joint	390x190x190	1 pallet = 72 x 20.09 and 20.10 (Sold in pairs)	14.2	72
	20.10	Control Joint Half	190x190x190	1 pallet = 72 x 20.09 and 20.10 (Sold in pairs)	8.5	72
	20.13	Half Lintel	190x190x190		8.2	220
	20.18	Deep Lintel	390x190x190		12.5	125

200mm Series 2 hour insulation FRL ($f'_{uc} = 15\text{MPa}$)




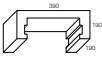

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	20.20	Knockout Bond Beam	390x190x190		13.55	108
	20.21	Knockout Bond Corner	390x190x190		13.63	108
	20.22	Seven Eighths	340x190x190		12.74	108
	20.25	Three Quarter Lintel	290x190x190		10.0	165
	20.40	Half Height Sill	190x90x190		4.48	360
	20.42	Channel	390x190x190		13.09	108
	20.45	Cleanout	390x190x190		11.62	108
	20.48	H Block	390x190x190		11.73	108
	20.60	Bonded PR	390x190x390		17.9	60
	20.71	Standard Half Height	390x90x190		7.3	216
	20.140	Standard	390x140x190		11.0	108
	20.748	Squint	290x190x190		10.2	90
	20.925	Single Core	390x190x190		16.6	108
	50.31	Capping Tile	390x40x190		5.7	270
	50.45	Biscuit & Spring			4.1	120

300mm Series 2 hour insulation FRL (f'_{uc} = 15MPa unless noted) or insulation FRL (f'_{uc} = 15MPa)

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	30.01	Standard	390x190x290		18.9	72
	30.02	Three Quarter	290x190x290		14.3	80
	30.03	Half	290x190x190		9.4	144
	30.04	Quarter	290x190x90		6.7	240
	30.18	Deep Lintel	390x190x290		17.1	85
	30.45	Cleanout	390x190x290		16.65	60
	30.48	H Block	390x190x290		14.52	72
	30.925	Standard	390x190x290		17.5	72
	40.925	400 Pier Block	390x190x390		23.9	54
	50.31	Capping Tile	390x40x190		5.7	270
	50.45	Biscuit & Spring			4.1	120




Heavy Duty

Heavy Duty available up to a 50Mpa strength rating

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	20.01	Standard	390x190x190		13.29	108
	20.02	Three Quarters	290x190x190		9.4	144
	20.03	Half	190x190x190		7.3	180
	20.13	Half Lintel	190x190x190		8.2	220
	20.22	Seven Eighths	340x190x190		12.74	108
	20.45	Cleanout	390x190x190		11.62	108
	20.48	H Block	390x190x190		11.73	108

Speed Blox

Speed Blox - Perp Free Block

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	20.03SB	Half	200x190x190		7.1	165
	20.21SB	Full Length Corner	400x190x190		14.8	90
	20.48SB	H Block	400x190x190		13.1	90

Find detailed information and download more guides at our website - www.nationalmasonry.com.au





National Masonry Designer Range: Charcoal - Polished



National Masonry Designer Range: Charcoal Shot Blast

Core-Fill Reinforced Retaining Walls

Designer Range colours and textures or standard grey blocks

Core-fill Block

For construction of reinforced masonry retaining walls and loadbearing walls requiring increased robustness characteristics.

Available in standard grey or Designer Range colours.

Available with smooth, honed, polished, shot-blast and split face textured finishes.

Introduction

National 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, Polished or Shot-blast

Which colour

Available in 9 unique and contemporary colours. Customised colours 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 Range 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.

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 National Masonry for further details.

Smooth, Shot-Blast, Honed and Polished Face

Image	Product	Name	Dimensions LxHxW	Available Finishes	Available Colours	Weight per unit (kg)	Units per pallet
	20.01	Standard	390x190x190	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	16.2	108
	20.02	Three Quarter Length	290x190x190	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	11.5	144
	20.03	Half Length	190x190x190	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	9.0	180
	20.42	Channel#	390x190x190	Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	15.9	108
	20.48	H Block*	390x190x190	Smooth Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	13.2	108
	20.71	Standard Half Height	390x90x140	Smooth Face, Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	7.6	216
	30.01	Standard*	390x290x190	Smooth Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	20.82	72
	30.48	Standard*	390x290x190	Smooth Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	17.0	72
	30.925	Standard#	390x290x190	Shot-blast Face, Honed Face, Polished Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	20.27	72

Split Face

Image	Product	Name	Dimensions LxHxW	Available Colours	Available Finishes	Weight per unit (kg)	Units per pallet
	20.121	Standard	390x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	17.5	108
	20.123	Half Length	190x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	11.1	180
	20.127	Standard Half Height	390x90x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	8.75	180
	20.139	Corner Return Half	390x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	18.9	90
	20.141	Half Length	190x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	12.3	180
	20.142	Full Length Channel	390x190x190	Split Face	Alabaster, Pearl Grey, Platinum, Charcoal, Wilderness, Terrain, Coco, Paperbark, Almond	17.0	108



Core-fill block - Standard Grey Block Series 150, 200 and 300

Introduction













National masonry 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. The vertical steel rods are tied to the starter bars, and then the clean-out blocks are covered with formwork, ready for grouting. 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.












150mm Series 2 hour insulation FRL ($f'_{uc} = 15\text{MPa}$)

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	15.01	Standard	390x190x140		10.9	144
	15.02	Three Quarter	290x190x140		8.9	160
	15.03	Half	190x190x140		5.7	240
	15.09	Control Joint	390x190x140		10.4	120
	15.10	Control Joint Half	190x190x140		8.6	240
	15.12	Lintel	390x190x140		16.2	120
	15.20	Knockout Bond Beam	390x190x140		10.6	120
	15.22	Seven Eighths	340x190x140		9.7	125
	15.25	Corner Return	390x190x190		12.9	105
	15.42	Channel	390x190x140		10.5	144
	15.45	Cleanout	390x140x190		9.9	120
	15.48	H Block	390x190x140		11.4	144

150mm Series 2 hour insulation FRL ($f'_{uc} = 15\text{MPa}$)

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	15.703	Thick Wall Half	190x190x140	Not sold separately	8.5	n/a
	15.709	Thick Wall	390x190x140	Pallet contains 10 x 15.703	15.3	120
	15.71	Standard Half Height	390x90x140		5.0	288

200mm Series 2 hour insulation FRL ($f'_{uc} = 15\text{MPa}$)

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	20.01	Standard	390x190x190		13.29	108
	20.02	Three Quarters	290x190x190		9.4	144
	20.03	Half	190x190x190		7.3	180
	20.04	Quarter	190x190x90		4.4	360
	20.09	Full Control Joint	390x190x190	1 pallet = 72 x 20.09 and 20.10 (Sold in pairs)	14.2	72
	20.10	Control Joint Half	190x190x190	1 pallet = 72 x 20.09 and 20.10 (Sold in pairs)	8.5	72
	20.13	Half Lintel	190x190x190		8.2	220
	20.18	Deep Lintel	390x190x190		12.5	125
	20.20	Knockout Bond Beam	390x190x190		13.55	108
	20.21	Knockout Bond Corner	390x190x190		13.63	108
	20.22	Seven Eighths	340x190x190		12.74	108

200mm Series 2 hour insulation FRL ($f'_{uc} = 15\text{MPa}$)

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	20.25	Three Quarter Lintel	290x190x190		10.0	165
	20.42	Channel	390x190x190		13.09	108
	20.45	Cleanout	390x190x190		11.62	108
	20.48	H Block	390x190x190		11.73	108
	20.60	Bonded PR	390x190x390		17.9	60
	20.71	Standard Half Height	390x90x190		7.3	216
	20.140	Standard	390x140x190		11.0	108
	20.748	Squint	290x190x190		10.2	90
	20.925	Single Core	390x190x190		16.6	108




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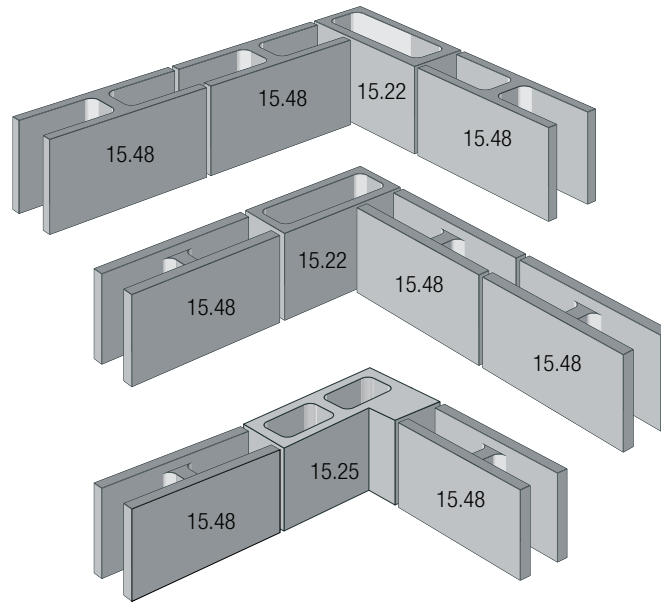
300mm Series 2 hour insulation FRL (f'_{uc} = 15MPa unless noted) or insulation FRL (f'_{uc} = 15MPa)

Image	Product	Name	Dimensions	Notes	Weight per unit (kg)	Units per pallet
	30.01	Standard	390x190x290		18.9	72
	30.02	Three Quarter	290x190x290		14.3	80
	30.03	Half	290x190x190		9.4	144
	30.18	Deep Lintel	390x190x290		17.1	85
	30.45	Cleanout	390x190x290		16.65	60
	30.48	H Block	390x190x290		14.52	72
	30.925	Standard	390x190x290		17.5	72
	40.925	400 Pier Block	390x190x390		23.9	54

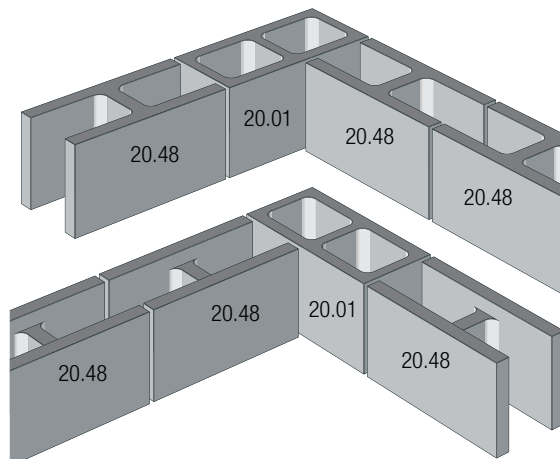
Speed Blox - Perp Free Block

Image	Product	Name	Dimensions LxHxW	Notes	Weight per unit (kg)	Units per pallet
	20.03SB	Half	200x190x190		7.1	165
	20.21SB	Full Length Corner	400x190x190		14.8	90
	20.48SB	H Block	400x190x190		13.1	90

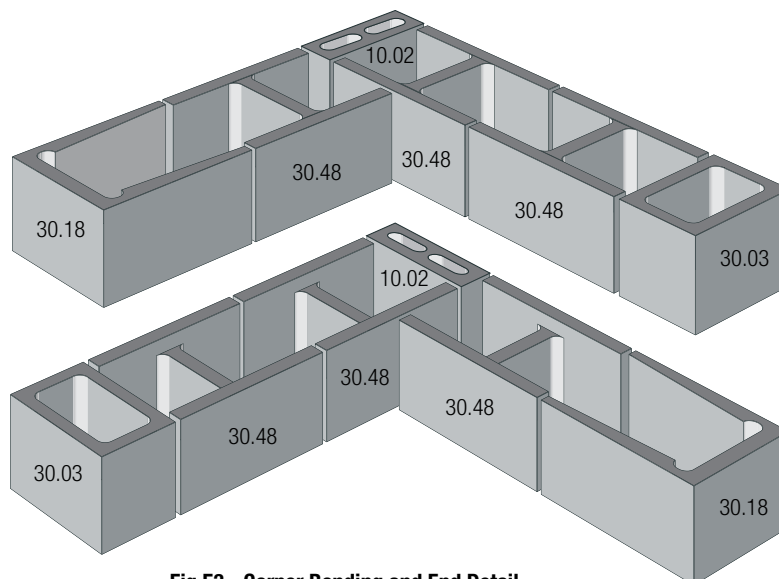
Typical Component Usage - Core Filled



**Fig E1 — Corner Bonding Detail
for Series 150 Core-Fill Block**



**Fig E2 - Corner Bonding Detail
for Series 200 Core-Fill Block**



**Fig E3 - Corner Bonding and End Detail
for 300 Series Core-Fill Block**

Concrete Bricks

Introduction

National Masonry® Concrete Brick is a 162mm height block which equals two courses of standard height brick (including mortar) making these blocks ideal for use in conjunction with standard height face brick veneer construction.

Concrete Brick combines strength, durability and ease of construction to provide highly cost effective solutions for every-day construction applications.

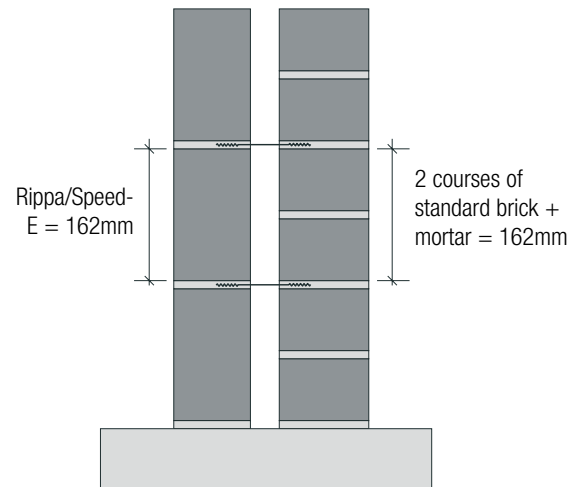
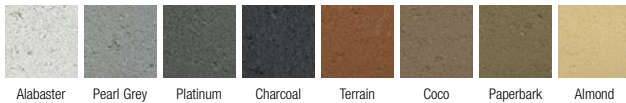
Applications

Concrete Brick is generally used to construct one leaf of a masonry wall in conjunction with standard height face brick veneer.

Colours

Concrete Brick is available in Natural Grey, and can also be made-to-order in any of the Designer Range colours. For colour information, refer to the Designer Range section of this guide.

ULTRA Brick available in 8 colours.





Additional Information

Please refer to National Masonry Design Guide - Structural, Fire and Acoustic performance information.


Availability

- No minimum order quantities apply to Natural Grey Bricks.
- Lead time 0-2 weeks.
- Contact National Masonry® for further details.

Natural Grey Bricks

Image	Product	Name	Dimensions LxHxW	Series	Notes	Weight per unit (kg)	Units per pallet
	12.715	Speed-E Common	230x76x110	Bricks		3.4	600
	12.796	Speed-E Double Height - Loadbearing	230x162x110	Bricks		6.9	250
	12.796	Speed-E Double Height - NON Loadbearing	230x162x110	Bricks	Non loadbearing	4.4	300
	12.162.01	Standard Rippa	390x162x110	Bricks		9.25	180
	12.162.11	Universal Rippa	390x162x110	Bricks	(1 in 5 with 12.162.01)	8.0	180

Smooth, Shot-Blast, Honed and Polished Face

Image	Product	Name	Dimensions LxHxW	Available Finishes	Available Colours	Weight per unit (kg)	Units per pallet
		ULTRA BRICK	230x76x110	Smooth, Honed, Shot-blast, Polished	Alabaster, Pearl Grey, Platinum, Charcoal, Terrain, Coco, Paperbark, Almond	3.8	500



All pallets remain the property of National Masonry®

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Call to Arrange Pickup



Use our Pallet Collection Form on our website.

Call your local branch during office hours.

www.nationalmasonry.com.au

1800 066 089

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