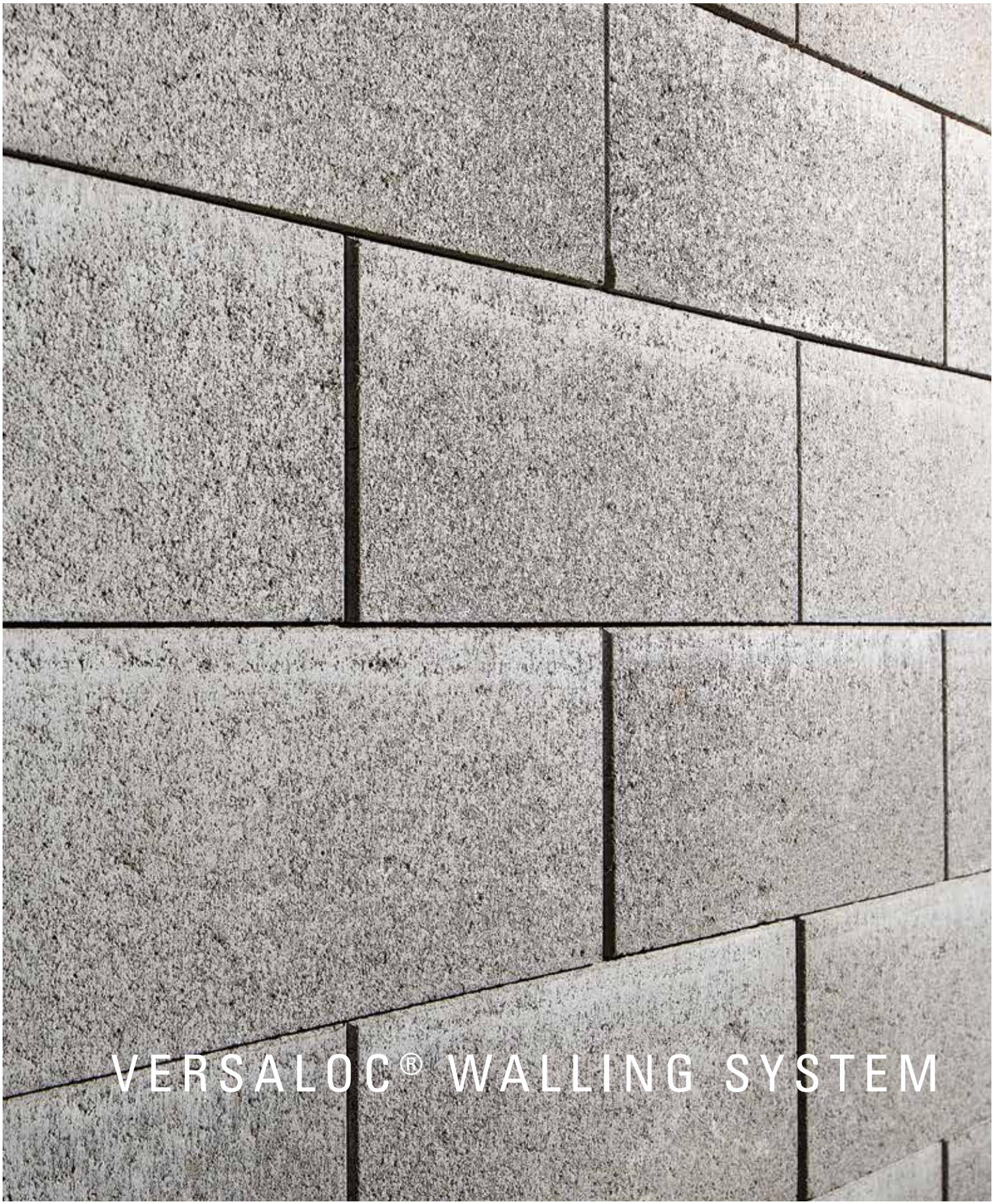
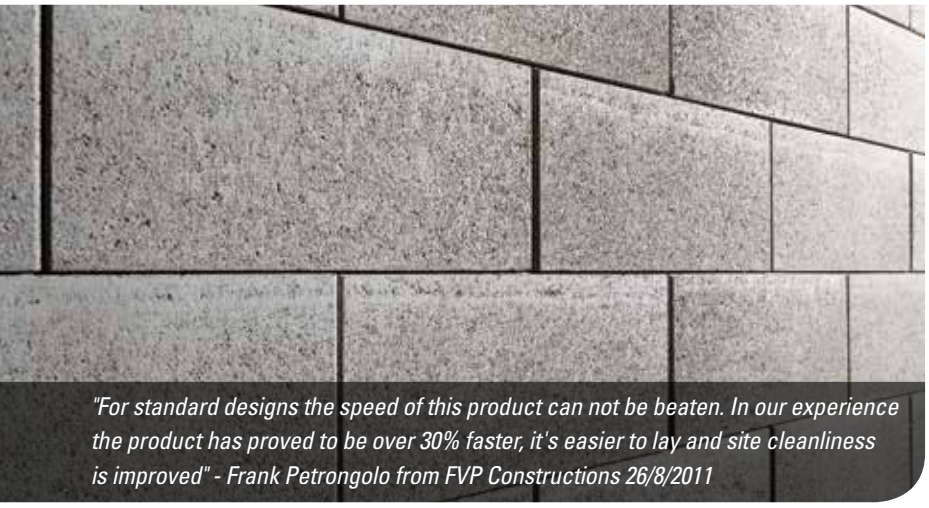
adbri MASONRY



VERSALOC® WALLING SYSTEM

VERSALOC Walling System

The Versaloc® Walling System is a new Dry Stack walling system from Adbri Masonry which creates significant productivity gains, by allowing units to be stacked together without the use of mortar.



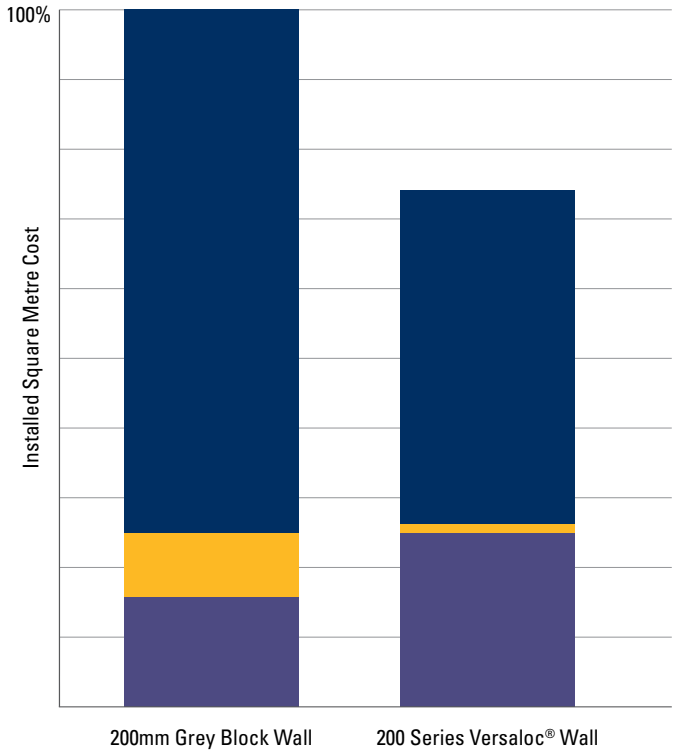
"For standard designs the speed of this product can not be beaten. In our experience the product has proved to be over 30% faster, it's easier to lay and site cleanliness is improved" - Frank Petrongolo from FVP Constructions 26/8/2011

This innovative patent pending system is the output of years of research and design work to create a revolutionary Dry Stack walling system. The Versaloc® system has many advantages over traditional block work, other Dry Stack products, tilt panels and other walling systems.

The biggest advantage of the Versaloc® system is the productivity gains that are delivered to builders and installers. Genuine time savings translate into bottom line cost savings and more profit for your business. These time savings mean you can finish projects sooner or take on extra work with your existing labour force.

Increase productivity and profit by utilising the Versaloc® Walling System in your next project.

INSTALLED SQUARE METRE COSTS OF A 200MM GREY BLOCK WALL AND A 200 SERIES VERSALOC® WALL.



"The Versaloc® Walling System can deliver savings of up to 45% compared to traditional masonry blockwork."

Key

- Blocks / Versaloc® Units
- Mortar and Cleaning
- Labour

This data is for comparative purposes only and should not be used for project estimating. You should seek independent pricing for all product analysis.

Note - Savings dependent upon project type.

▲

The Versaloc® Walling System promotes rapid construction times with minimal bracing and formwork required.
The Versaloc® Walling system is adaptable for use in both large scale commercial construction projects as well as residential developments that require flexibility and versatility in a walling solution.

VERSALOC Walling System

ADVANTAGES OF THE VERSALOC® WALLING SYSTEM

- Dry Stack system
- Rapid construction
- 3 hour fire rating*
- No formwork needed on first course
- Construct during inclement conditions
- Unique interlocking design
- Significantly reduces mess on site
- Detailed bevel provides shadow lines
- Eliminates the need for termite control products
- Ready to build
- Maximum flow for improved core fill
- Increased unit to unit interlock
- No need to hose out cores

** 3 hour fire rating for Versaloc® 200mm series.*

FEATURES

Interlocking tongue and groove joints

Self locating top lugs

Clean wall with shadow lines

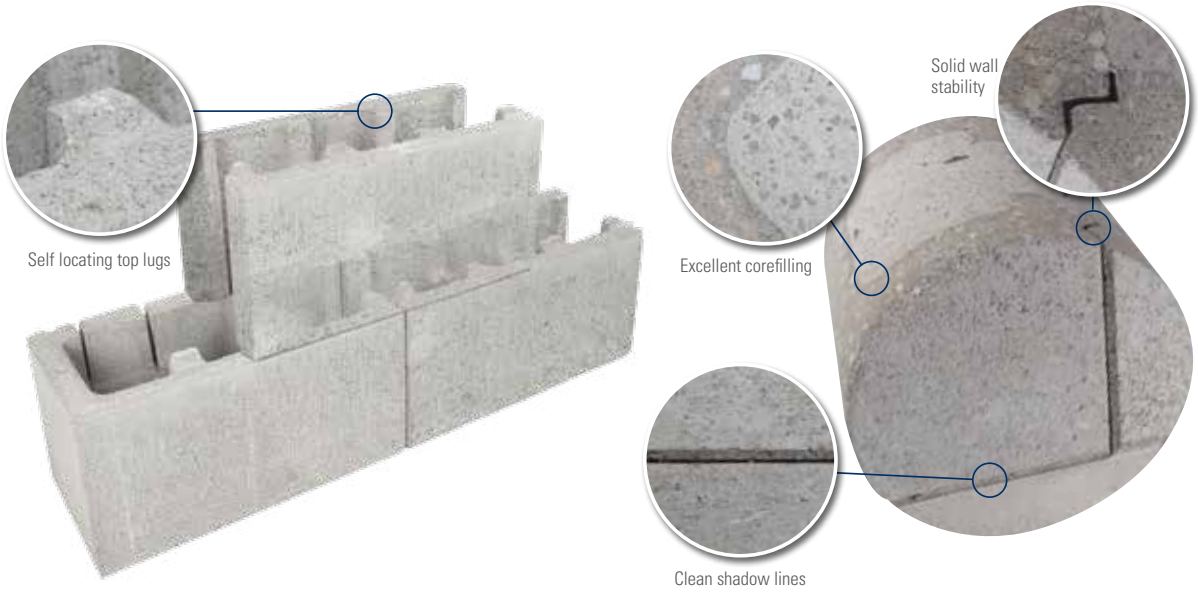
'A versatile dry stack walling system that makes construction quick and easy'

The Versaloc® Walling System was developed in consultation with masonry construction stakeholders with an aim of reducing labour time required for concrete masonry walling.

The Versaloc® Walling System is designed in accordance with the Concrete Structures Code AS3600 and is suitable for all forms of unit work in commercial, industrial and residential construction.

HOW THE SYSTEM WORKS

Versaloc® walling units feature eight self locating lugs on the top of each unit. When the units are stacked on top of each other, the four lugs on each side of the unit will interlock with the bottom of each of the units above. These lugs remove the need for mortar which reduces materials required on site and delivers significant time savings for installers. There is also a tongue and groove joint on the end of each unit which improves unit to unit interlock and provides a number of benefits such as greater wall stability during the laying, reinforcing and core filling stages of construction.



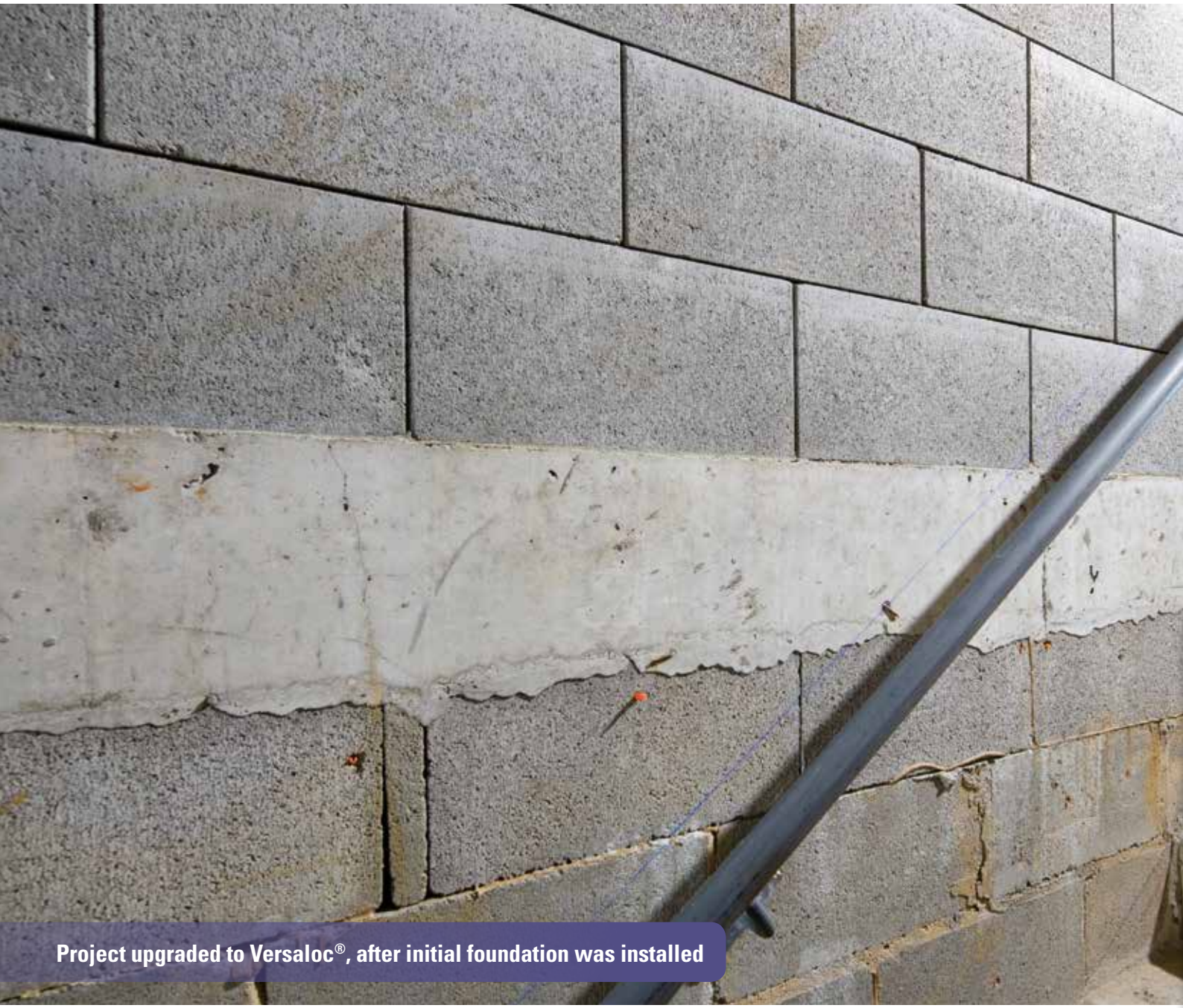
Quality is not compromised for productivity gains in any way. The units achieve a 20MPa rating and when reinforced and core filled with 20MPa concrete, completed 190mm walls achieve a Wall Grouted Compressive Strength (f'mg) of 11MPa. This complies with the requirement of the BCA as well as the ratings achieved by competitive products.

REQUIREMENTS WHEN USING VERSALOC® WALLING SYSTEM

Requirements	Versaloc® Walling System	Traditional Mortared Unitwork
Mortar	Bottom course only	Required for all courses
Labour (units laid per day)*	400	200
Steel reinforcement	Yes	Yes
Corefill and pump	Yes	Yes
Formwork for cleanout	No	Yes
Bracing	Yes	Yes

* This is an estimate only. Requirements will vary depending upon application.

VERSALOC Walling System



Project upgraded to Versaloc®, after initial foundation was installed

"We started the project using standard blocks and our guys were laying between 250 and 300 blocks per day. When we switched to Versaloc®, our gang of 3 were laying over 2000 units per day. The system is clean, quick and easy." - *Peter Zeolla, Director, Pro Wall 08/09/2011*

Steel framing created service channels for this internal wall before it was finished with plasterboard.

Unique self locating lugs, tongue and groove joints and speciality corner units make corner construction quicker and easier than ever before.

ST HELEN'S HOSPITAL - HOBART

To see a complete time lapse video of the construction of this 5 story building, with very limited access, using Adbri Masonry's Versaloc Walling System, **visit adbrimasonry.com.au**

VERSALOC Walling System

HOW TO BUILD THE VERSALOC® WALL

Preliminary

- Excavate to a satisfactory foundation.
- Arrange for supply of materials to the specifications given previously.

Base and starter bars

- Form the base to the required dimensions and levels as shown in details.
- Place the base reinforcement as shown in the diagrams. Fix the starter bars for the vertical reinforcement (Y-bars) at the correct cover specified in the drawings from the back face of the wall (i.e 50mm) and in the correct positions relative to the block cores to be reinforced. Place horizontal bars in the center on the cross webs.
- Place the base concrete, preferably using ready-mixed concrete, and compact thoroughly by rodding, spading or vibrating. Wood float finish any surface to be exposed permanently. Take care not to dislodge reinforcement.
  Note: First reinforcement bar is placed at 60mm from the end (to avoid cross web).

Block laying

- Block laying procedure follows that of the normal practice but without the need to mortar the blocks together.
  Note: The first layer of blocks should be mortared to the concrete base in the normal way to provide line and level for the remaining block courses.
- The blocks are laid with the shallow recessed cross webs at the top (refer diagram 1.12.1). During construction, it is important to keep debris off the bed joint plane; otherwise the wall may begin to develop vertical curvature. In addition, as a unit is positioned, some small particles of concrete may be rubbed off the units and fall on the bed joint surface. Usually the force of placing the block will crush these particles. Otherwise, rubbing the block back and forth along the joint will wear down the material. If a joint is visibly open, the unit should be removed and the debris removed.
  Note: Small plastic wedges can be used under blocks to achieve vertical alignment.
- Provided the construction is started on a level surface, use of a line and spirit level should be all that are required to keep the wall aligned vertically and horizontally. In instances where the wall is accidentally laid out of line, this can usually be corrected by using a piece of wood to protect the wall and a heavy hammer to knock the wall back into line.
- At the end of walls, Half End blocks may be glued to the block directly below using an appropriate adhesive to increase stability. (eg 2 part epoxy or equivalent)
- Blocks should be laid in running bond with head joints aligned vertically every second course. Exact overlapping by half of a block will ensure that the webs and cells are aligned vertically.
- Weepholes can be provided by passing 50mm diameter upcs pipes through holes in the wall at 1200mm centres.
- Reinforcement for wall stems must be positioned accurately, and tied securely before placing concrete or grout. Vertical reinforcing bars (X bars), including starter bars (Y bars), shall be placed to provide 50mm cover to the backface of the wall and bars shall lap 700mm.

Bracing

- During grouting of Versaloc® walls, it is recommended that suitable bracing be used to support the wall.
- Temporary bracing of partially built Versaloc® walls is also recommended and especially during windy conditions.

Corefilling

Versaloc® blocks have large cores inside to allow for adequate flow of corefill and ensuring complete coverage of reinforcing steel bars. As Versaloc® requires no mortar above the first course, there are no mortar dags on the steel, allowing adequate flow of the corefill and minimal chance of voids in the wall. The corefill must be sufficiently fluid to fill all the voids, bond together adjacent masonry units, bond steel reinforcement into the cores, and to unify the wall into a single structure. It is therefore important that the cores are filled with corefill which meets the specifications listed in the following section.

Product	$1m^3$ of grout will fill approx	Approx No. of blocks per m^3 of corefill
Versaloc® 300 series	$5.7m^2$ of wall	71
Versaloc® 200 series	$10.2m^2$ of wall	130
Versaloc® 150 series	$13.8m^2$ of wall	175

Corefill Specifications

The corefill specifications are performance based. Adbri Masonry recommends the corefill supplier determine an appropriate mix design to meet the following performance requirements. The performance details are as follows:

01) Flow Characteristics

Versaloc® Block 150 Series - f'uc = 20MPa
Versaloc® Block 200 Series - f'uc = 20MPa
Versaloc® Block 300 Series - f'uc = 20MPa
Concrete Base - f'c = 25MPa
Reinforcement Corefill - Grade 500N
f'c = 20MPa with a pourable consistency (200-250mm slump) and a cement content not less than $300kg/m^3$

Where possible, use ready-mixed corefill and specify when ordering that it is for filling blockwork. If the corefill is mixed on site, use the following proportion:

Cement - 1 part

Hydrated lime - Up to 1/10th part

Mortar sand - 3 parts

10mm aggregate - Up to 2 parts

10mm aggregate should be rounded gravel if possible. Grout should be mixed in a tilting mixer and should flow freely without separating aggregate.

Notes - For grout specifications please refer to the Versaloc Technical Brochure.
- The minimum MPa requirement can increase to 25 MPa or 32 MPa depending upon proximity to the coastline and application for product.

02) Strength Grade

Following testing by CSIRO on behalf of Adbri Masonry "grout cover" to steel requirements used with the Versaloc® system can be less than required by AS3600 - contact Adbri Masonry for test report details.

03) Other

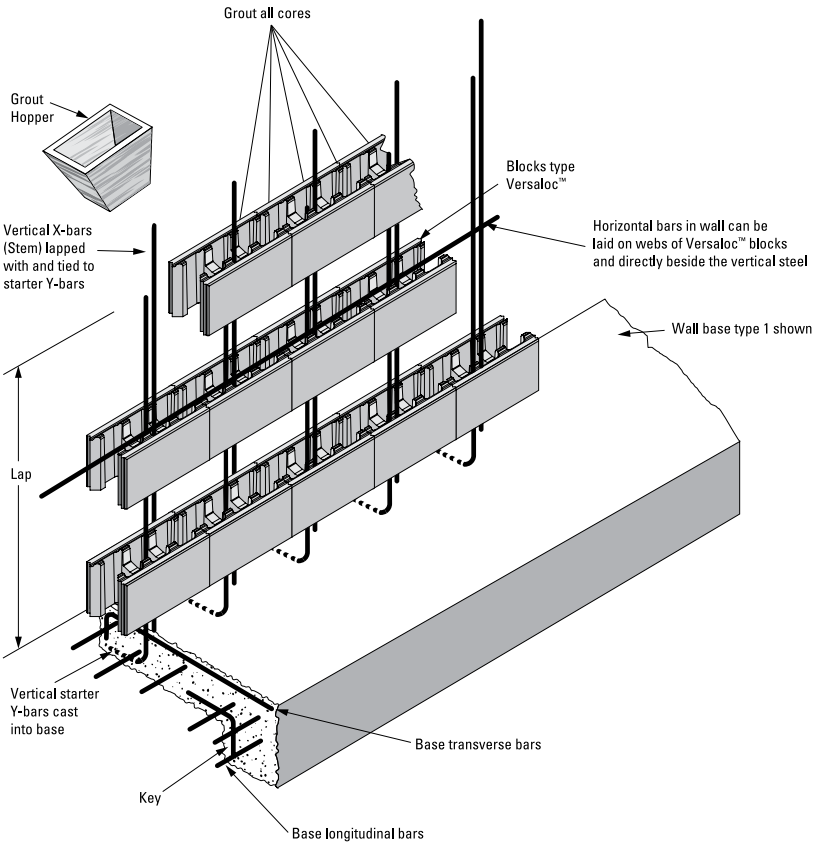
Maximum aggregate size shall be 10mm (for 190mm block) and 7mm (for 140mm block). The grout shall be free of contaminating lumps larger than 15mm (this may require a screen over the pump hopper). The grout shall be smooth, free-flowing and cohesive.

Notes

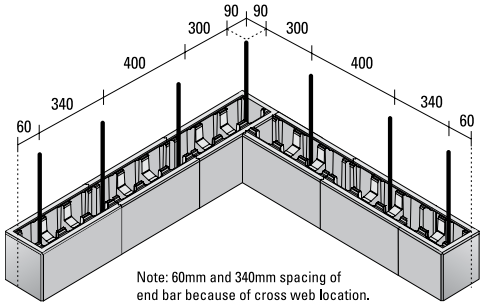
- A 'cohesive' mix is one which has no tendency to segregate when pumped down into the Versaloc® cavity. The concrete supplier should use a high-quality superplasticiser to achieve the flow characteristics required.
- Due to hydrostatic pressure build up by the fluid core-fill grout, a maximum filling height between pours of 1.8m (i.e. 9 courses), is strongly recommended.

EXPLODED VIEW OF CONSTRUCTION

Walls up to 2600mm high using 200 series and 1600mm high using 150 series blocks



Typical reinforcing steel layout



VERSALOC Walling System

APPLICATIONS

The Versaloc® Walling System is suitable for many residential, commercial and industrial applications such as:

- Soil retaining walls
- Basement walls and exterior walls*
- Swimming pool walls*
- Constructions where a cyclone rating is required*
- High strength load bearing walls
- Multi story commercial and residential construction
- Common dividing walls and boundary walls*
- Underwater stormwater detention tanks

*Note: External Versaloc® walls need to be weatherproofed. See below for further details about finishing Versaloc® walls.

FINISHING OPTIONS

All external Versaloc® walls need to be weatherproofed. This requirement can be achieved by using one of the following wall finish options.

Paint

Versaloc® walls are weatherproofed by applying 3 coats of acrylic paint to the walls surface. With an endless selection of paint colours available, painting is a simple option for applying an aesthetic finish to Versaloc® walls.

Render and Paint

Rendering and painting will also ensure Versaloc® walls are weatherproofed. Painting provides an unlimited array of colour options for finished walls.

Clear Sealing

Face walls can be weatherproofed by applying a clear sealer such as Bostik Aquashield SB40 to Versaloc® walls. This cost effective option means the natural shadow lines created by the bevels on each unit are maintained for a premium wall finish. Walls can also be waterproofed by the use of an appropriate additive to the core fill grout. Consult Adbri Masonry for further information.

Note: *For Versaloc® Walling Systems used as a retaining wall, walls should be "tanked" using various proprietary tanking methods.*

Concrete masonry products will have colour variations due to natural variations in the raw materials used in the production process. These changes are natural and therefore not considered defects. Adbri Masonry accepts no responsibility for natural colour variations in concrete masonry products.

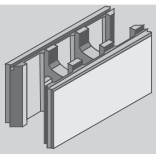
COMPONENTS IN THE VERSALOC® WALLING SYSTEM

The Versaloc® Walling System features a number of specifically designed units to reduce the need for cutting on site making wall construction even quicker.

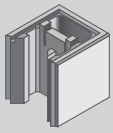
New to the range is the Pier Unit which utilises the innovative Versaloc® design to allow for the easy construction of engaged piers.

150 Series (VIC only)

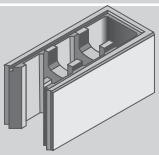
Standard Unit
400mm x 200mm x 150mm



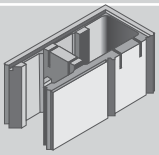
Half Unit
200mm x 200mm x 150mm



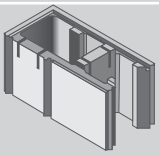
End Unit
400mm x 200mm x 150mm



Righthand Corner Unit
350mm x 200mm x 150mm

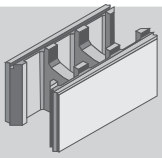


Lefthand Corner Unit
350mm x 200mm x 150mm

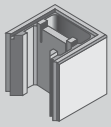


200 Series

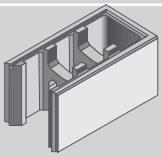
Standard Unit
400mm x 200mm x 190mm



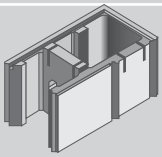
Half Unit
200mm x 200mm x 190mm



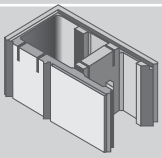
End Unit
400mm x 200mm x 190mm



Righthand Corner Unit
390mm x 200mm x 190mm

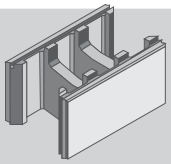


Lefthand Corner Unit
390mm x 200mm x 190mm

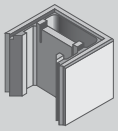


300 Series (VIC only)

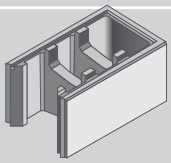
Standard Unit
400mm x 200mm x 290mm



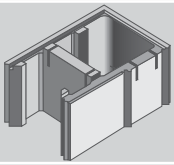
Half Unit
200mm x 200mm x 290mm



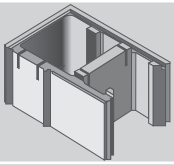
End Unit
400mm x 200mm x 290mm



Righthand Corner Unit
490mm x 200mm x 290mm

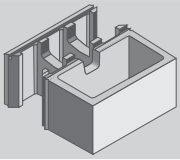


Lefthand Corner Unit
490mm x 200mm x 290mm

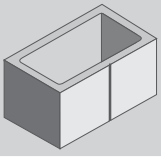


Pier Units

Full Pier Unit
400mm x 200mm x 400mm



Half Pier Unit
200mm x 400mm x 200mm



Product	FRL Rating	Unit characteristic unconfined compressive strength	Grouted masonry characteristic unconfined compressive strength	Average weight (standard unit)	Average no. sq/m (standard unit)	Average no. tonne (standard unit)
Versaloc® 300 series	240/240/240	20MPa	10.2MPa	19.3kg	12.5	51.9
Versaloc® 200 series	180/180/180	20MPa	10.2MPa	15.6kg	12.5	62.5
Versaloc® 150 series	90/90/90	20MPa	8.5MPa	14.5kg	12.5	69

Versaloc® Walling System products are tested in our N.A.T.A. Accredited Testing Laboratory.

BRICKS | BESSER® BLOCKS | PAVERS | RETAINING WALLS

Contact Us

adbrimasonry.com.au **1300 365 565** enquiries@adbri.com.au technical@adbri.com.au

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Pallets remain Adbri Masonry property. Please telephone us for collection of pallets and keep pallets empty and stacked in a safe and accessible area for collection.

Adbri Masonry Pty Ltd
ABN: 31 009 687 521

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