

## Placing the mortar and bricks or blocks:

- Bricks or blocks should be laid on a prepared solid foundation.
- Start by laying your first course along the concrete slab and foundation.
- Lay one brick at either end, level them and secure the fishing line so that it runs precisely along the back top edge of these two bricks. This will guide you in placing the rest of the bricks.
- Load your trowel with mortar and place enough onto the foundation to lay two or three bricks at a time. Drag your trowel along the length of the mortar to make a deep hollow along the middle of the mortar.
- Prior to placing each brick, 'butter' the end of each brick with mortar and place it firmly against the previous brick.
- Place your bricks onto the top of the mortar and tap into place until the top edge of each brick lines up exactly with the fishing line.
- Scrape off any mortar that has been squeezed out from bricks as you work.
- Once you have laid the first course, begin building up the corners. Stretch the fishing line tightly between the end bricks of each course at the two corners at either end of the wall. For large scale brickwork, profiles are used to set up corners and support the fishing line. The back top edge of each brick laid should line up exactly with the fishing line.
- As you fill in the brickwork between the corners, move the fishing line up one row of bricks at a time.
- Use the spirit level often to check that the row of bricks is level and that the corners are exactly vertical and not leaning in or out.
- Do not use a thick layer of mortar between the bricks or blocks as this is wasteful and may lead to cracking (ideal thickness is about 10mm to 15mm).
- To ensure that the wall is weatherproof, point the joints if the wall is not plastered.
- With blockwork, bed only the inner and outer shells in mortar. This reduces water penetration since the water cannot travel along the mortar to the inner wall.
- When building with weak building units, use a weak mortar.

## Mixing:

Provided sufficient attention is paid to the selection of materials, mix proportions, placing the mortar and bricks or blocks, the result should be strong, durable, look good and last a lifetime. For further assistance, please contact AfriSam customer service.

Every effort has been made to ensure accuracy of data and information presented and no liability is accepted for errors or omissions.

Acknowledgement: "How to make concrete bricks and blocks", published by the Cement & Concrete Institute.



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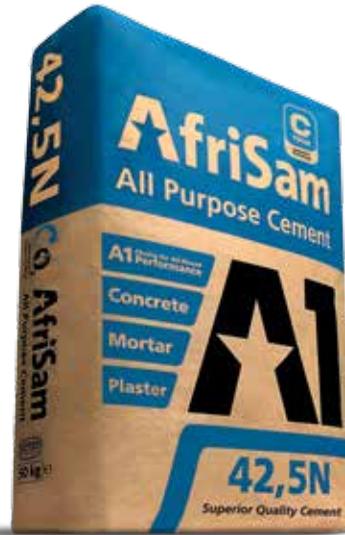
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## Your guide to BRICKLAYING



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30/05/2014



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Mortar binds bricks and blocks together to give strength and stability to a wall. Freshly mixed mortar must be soft and flexible so that it spreads easily and makes good contact, without becoming too strong in its hardened state. If a mortar is too strong, it may crack, leading to waste.

### Selecting materials:

The properties of mortar, either in a fresh or in a hardened state depend, to a large extent, on the properties of the materials used. Here is a guideline on selecting your materials:

#### Cement:

All AfriSam cement products comply with SANS 50197-1. Our All Purpose and Eco Building Cements are recommended for making high-quality mortar mixes. Refer to our product brochures for instructions.

#### Sand:

Sand is a major component of a mortar mix and has a significant influence on its performance and material cost. It should always be of good quality and clean; free of any foreign matter such as grass, leaves, roots and should not contain too much clay.

#### Lime:

The limes used in South Africa do not have cementing properties. Therefore, they cannot be used to replace cement, but rather as an addition to cement.

### Mix proportions:

The proportion of each material in the mix should suit the work being done. Strength classes and corresponding mix proportions are given in certain of our cement brochures. In general terms, there are two classes of mortar:

Mortar Class	Minimum compressive strength at 28 days (MPa)	
	Laboratory tests	Works tests
I	14,5	10,0
II	7,0	5,0

Mortar compressive strength requirements as per SANS 2001: EM1.

### Class I Highly stressed masonry:

Incorporating high-strength structural units, as used in multi-storey load-bearing buildings and walls exposed to severe dampness.

#### Batching by wheelbarrow

All Purpose Cement	Building Sand	Approximate Yield
		
2 Bags (1=50kg)	4 wheelbarrows	0,22m <sup>3</sup>

### Class II - Mix A

Exterior/Exposed to dampness.

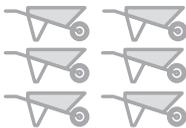
#### Batching by wheelbarrow

All Purpose Cement	Building Sand	Approximate Yield
		
2 Bags (1=50kg)	4½ wheelbarrows	0,24m <sup>3</sup>

### Mix B

Interior/Dry.

#### Batching by wheelbarrow

All Purpose Cement	Building Sand	Approximate Yield
		
2 Bags (1=50kg)	6 wheelbarrows	0,3m <sup>3</sup>

### Quantities:

Exterior:

Quantities for masonry units - exterior/damp.

Masonry unit type	Masonry unit size (mm)			Masonry units per m <sup>2</sup> (single leaf wall)	Mortar required in m <sup>3</sup>	
	Length	Width	Height		Per 1000 units	Per 100m <sup>2</sup> of walling
Standard Brick	222	106	73	52	0,32	1,66
Maxi Brick	290	140	90	34	0,55	1,87
Common Blocks	390	90	190	13	0,53	0,69
	390	140	190	13	0,83	1,08
	390	190	190	13	1,12	1,46

Interior:

Quantities for masonry units - interior/dry.

Masonry unit type	Masonry unit size (mm)			50kg bags of All Purpose Cement Per 1000 units	Cubic metres of building sand per 1000 units
	Length	Width	Height		
Standard Brick	222	106	73	2,1	0,4
Maxi Brick	290	140	90	3,6	0,7
Common Blocks	390	90	190	3,5	0,7
	390	140	190	5,5	1,1
	390	190	190	7,4	1,4

### Tips to remember:

- Do not use the mortar if the setting process has begun (usually two hours after mixing).
- To reduce wastage, rather mix small batches at a time as they are required.
- A builder's wheelbarrow is a convenient measure for large batches. It has a capacity of 65 litres. Steel drums with a capacity of 20 or 25 litres and buckets can be used for small batches.

### Mixing:

Mixing can be done either by hand or by machine but machine mixing is preferable. However, in the absence of one, hand mixing is acceptable.

Here are things to remember when mixing:

- Hand mixing should be done on a clean hard surface (such as a concrete floor).
- First spread out the sand about 100mm thick, then spread out the cement uniformly over the sand.
- Sand, cement and lime, if used, should be mixed until the colour is uniform.
- Water is added in small quantities at a time, mixing each time.
- Mix until mixture is soft and flexible (the mix should stick to a trowel but spread easily).
- If mixture is left in the sun before use, it should be covered with a plastic sheet or a wet sack.
- Any mortar that has stiffened should be discarded and must never be retempered by adding water as this will reduce the strength.

### Preparation:

Preparation is as important as the mixing and use of mortar. When your work area and materials are properly prepared, you have a greater chance of producing a good job.

- Clay bricks should be wetted down before you start the job (they tend to absorb moisture from mortar and this may weaken it in the process).
- Cement bricks and blocks should not be wetted down as they do not absorb moisture in the same way as clay bricks.
- Make sure that you are laying bricks on a strong foundation. If the foundation is not secure, your wall will crack as it settles over time.

### Tools required:

Make sure that your tools are clean and in good working order.

Here is a list of some of the tools you may require:

- A wheelbarrow.
- A bucket.
- A spade.
- A strong grade of fishing line.
- A pointed bricklaying trowel.
- A straight edge (wood or steel).
- A spirit level (+/- 900mm long).
- A set of pointing tools.