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 bricks, `butter 'the end of each brick with mortar and place it firmly against the previous bricks.
- Place your bricks onto the top of the mortar and tap in to place until the top edge of each bricks lines up exactly with the fishing line.
- Scrape off any mortar that has been squeezed out from bricks as your work.
- Once you have laid the first course, begin building up the corners ,Stretch the fishing line, tightly between the ends 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 bricks 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 learning 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 156mm).
- To ensure that the wall is weatherproof, points the joints if the wall is not plastered.

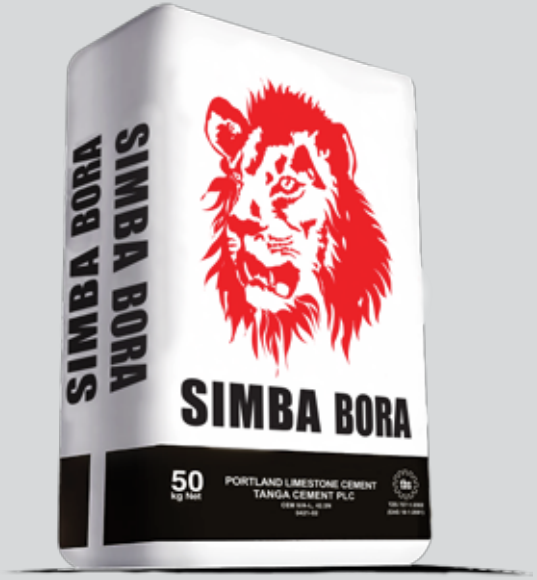
- With block work, bed only the inner and outer shells in mortar, this reduces water penetration since the water cannot travel along the mortar to the inner wall.
- When building with weak buildings units, use a weak mortar.

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 life time. For further assistance, Please contact Tanga Cement PLC customer service centre.

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 Cement & Concrete Institute.*



For further assistance, please contact Tanga Cement Customer Service Centre.

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SIMBA CEMENT
STRENGTH WITHIN

Your Guide to

Concrete Brick Making

Quality products from Tanga Cement Public Limited Company

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

Selecting materials:

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

Cement:

All Tanga Cement PLC cement products comply with TZS 721-1:2001. Our all purpose and Eco Building Cements are recommended for making high-quality mortal mixes. Refer to our products' brochures for instruction.

Sand:

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

Lime:

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

Mix proportions:

The proportions of each material in the mix should suit the work being done. Strength classes and corresponding mix proportions are given in certain of our brochures.

In general terms, there are two classes of mortar:

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

Mortar compressive strength requirements as per SANS 2001:EM.

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

Class II-Mix A

Exterior/Exposed to dampness.

Batching by Wheelbarrow

All purpose Cement	Building Sand	Approximate Yield
2 Bags(1=50kg)	4 1/2Wheelbarrows	0,28m

Mix B

Interior/Dry

Batching by Wheelbarrow

All purpose Cement	Building Sand	Approximate Yield
2 Bags(1=50kg)	6 Wheelbarrows	0,3m

Quantities:

Exterior:

Quantities for masonry units-exterior/damp.

Masonry unit type	Masonry unit size (mm)			Masonry unit per m2 (Single leaf wall)	Mortar required m^3	
	Length	Width	Height		Per 1000 Units	Per 100m3 of walling
Standard brick	222	106	73	52	0,3	1,66
Max Brick	290	140	90	34	0,55	1,87
Common blocks	390 390 390	90 140 190	190 190 190	13 13 13	0,53 0,83 1,12	0,69 1,08 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
Max Brick	290	140	90	3,6	0,7
Common blocks	390 390 390	90 140 190	190 190 190	3,5 5,5 7,4	0,7 1,1 1,4

Tips remember:

- Do not use mortar if the setting process has begun (usually two hours after mixing).
- To reduce wastage, rather mix small batches at a time as they 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 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 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 mixed until the colour uniformed.
- Water is added in small quantities at a time, mixing each time.
- Mix until mixture is soft and flexible (The mix should be 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 important as the mixing and use of mortar.
When you work area and materials are properly prepared, you have a great chance of producing a good job.

- Clay bricks should be wetted down before you start the job (they tend 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're 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 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