

# BRICKLAYING

MADE EASY WITH



## OHORONGO cement

- If the product comes into **contact with the eyes**, immediately wash out thoroughly with water and **medical advice should be sought**.
- **Always wear protective clothing** to prevent skin irritation or caustic burning, which may result from prolonged contact with cement.
- The use of **dust masks is recommended**.
- To **avoid back injuries** when lifting cement bags, **bend the knees** while **keeping the back upright**.



## 1. MATERIALS

The properties and quality of mortar mixes in both fresh and hardened states depend to a large extent on the properties of the materials used. This section provides guidance on the selection of the required materials.

**CEMENT** Use Ohorongo **CEM II B-LL 32.5N** cement or Ohorongo **CEM II A-LL 42.5N** cement, depending on the purpose and function of the mortar.

**AGGREGATES: SAND** As sand is the major constituent of a mortar mixture, its quality has a significant influence on the performance and material cost of the mortar mix.

- Use only clean pit sand with particles ranging in size from dust to 2 mm; the sand particles should not be too uniform in size;
- Sand with high clay content is unsuitable for bricklaying

**WATER** Use clean, drinkable water.

## 2. MIXING MORTAR

When mixing mortar, always consider the final purpose of the mortar and choose the appropriate proportions. Refer to the section overleaf for the recommended mix proportions.

Machine mixing is preferable to hand mixing. However, if the mortar is mixed by hand, special care should be taken to follow these instructions:

- Ensure you have the correct proportions of cement, sand and water at hand;
- Mix the mortar on a clean, hard surface such as a concrete floor or steel sheet;
- Spread the sand in a 10 cm thick layer on the floor or sheet;
- Spread the cement uniformly over the sand;
- Blend until the cement and sand mixture are of a uniform colour;
- Add the clean water in small quantities, mixing after each addition until the mixture is soft and flexible;
- The mixture should stick to the trowel but spread easily; Cover the mixture with a wet cloth or plastic sheeting to protect the mortar from drying out too quickly.

**Warning:** The mortar mixture should be used within a maximum of 90 minutes of being prepared, depending on weather conditions. If the mortar has hardened and is no longer workable, the mortar has to be discarded. Do not add water to restore the workability of the batch, as this reduces the strength and properties of the mixture.

## 3. APPLICATION

- Carefully consider the current moisture content of the bricks to be used. Water being absorbed from the mortar mix does not reduce its strength. It would actually increase its strength due to the lower water/cement ratio. What does however happen is that the mortar mix dries out due to less water and this then leads to cracking.
- The foundation on which the bricks will be laid needs to be strong and secure. If the foundation is not secure, the newly-built wall will crack as it settles over time.
- Lay one brick at both ends of the foundation, level them and secure a fishing line so that it runs precisely along the back top edge of these two bricks. Place additional bricks along the line.

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### 3. APPLICATION (CONTINUED)

- Load your trowel with mortar and place enough of it onto the foundation to lay two or three bricks at a time. Drag your trowel along the length of the mortar in order to make a deep hollow along the middle of the mortar load.
- Prior to placing each brick, coat the end of each new brick with mortar and place it firmly up 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 between the bricks as you work.
- Once you have laid the bottom bricks, begin building up the corners. As you fill in the brickwork between the corners, adjust the height of the fishing line by moving it up one row of bricks at a time, stretching the line tightly between the end bricks of each layer at the two corners at either end of the wall. The back top edge of each brick laid should line up exactly with the fishing line. Brick force should be used every 3rd layer or according to Engineers' specifications.

## QUANTITIES - BRICKS & MORTAR

### 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> (single leaf wall) |
|----------------------|------------------------|-------|--------|---|--|
|                      | Length                 | Width | Height |   | Per 1000 units                                       |
| Brick/<br>Block Size | 222                    | 106   | 73     | 52  | 0.32   |
|                      | 222                    | 104   | 100    | 36  | 0.32   |
|                      | 390                    | 90    | 190    | 13  | 0.53   |
|                      | 390                    | 140   | 190    | 13  | 0.83   |
|                      | 390                    | 190   | 190    | 13  | 1.12   |

### Interior - Quantities for masonry units - interior/ dry

| Masonry Unit type    | Masonry unit size (mm) |       |        | 50kg bags of CEM II B-LL 32.5N / CEM II A-LL 42.5N Cement per 100 units | Cubic metres (m <sup>3</sup> ) of building sand per 1000 units |
|----------------------|------------------------|-------|--------|---|--|
|                      | Length                 | Width | Height |   |  |
| Brick/<br>Block Size | 222                    | 106   | 73     | 2.1   | 0.4  |
|                      | 222                    | 104   | 100    | 2.1   | 0.4  |
|                      | 390                    | 90    | 190    | 3.5   | 0.7  |
|                      | 390                    | 140   | 190    | 5.5   | 1.1  |
|                      | 390                    | 190   | 190    | 7.4   | 1.4  |

## PROPOSED MIXED PROPORTIONS

| CEM II A-LL 42.5N / B-LL 32.5N   |  | Sand  | Stone  | Volume m <sup>3</sup> |
|--|---|--|---|-----------------------|
| <b>EXTERIOR / DRY MORTAR AND PLASTER</b><br>Mortar and plaster exposed to dampness - mix designs are based on the use of good quality sand     | 1   | 2  | -   | 0.1                   |
| <b>INTERIOR / DRY MORTAR AND PLASTER</b><br>Mortar and plaster not exposed to dampness - mix designs are based on the use of good quality sand | 1   | 3  | -   | 0.14m <sup>3</sup>    |

The volume of the wheelbarrow is 60 litres



SANS 50197-1  
EN 199-1



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