

Building

a pizza oven

1. Introduction

The temperatures in a pizza oven do not harm well burnt clay bricks but do tend to weaken sand-cement mortar, especially at and near the inside surface of the oven.

An oven built as described relies on mechanical interlock and friction between bricks and mortar for long-term strength and stability. This is the reason for using narrow joints of medium-strength mortar.

Brickwork expands as it is heated and contracts as it cools. If contraction is restrained, the brickwork may crack. To allow the oven to contract freely, a slip-layer of paper is provided between the oven floor and the supporting slab.

This note gives guidance on the selection of materials and important points in the construction of a pizza oven.

2. Materials

Pizza ovens are constructed of bricks with mortared joints.

Bricks

Use well burnt solid clay bricks. Dimensions, especially thickness, should be as uniform as possible. It is not necessary to use bricks of face quality.

Mortar

A mortar of fine sand (preferably a building sand) and cement is satisfactory. Cement should be a masonry cement complying with SABS ENV 413-1. Failing this, use a cement complying with SABS ENV 197-1, strength class 32,5. Note that it is illegal to sell cement which does not bear the SABS mark.

The mortar must not be too strong: use 5 buckets of loose damp sand to 1 bucket of cement and enough water to make a plastic mixture.

3. Location

The oven should preferably be protected by a roof.

4. Structure

The oven consists of a brick floor and a brick dome. The dome must have an opening for access, an outlet for the smoke and a chimney. (See Figure 3 overleaf.)

The access opening must be at oven floor level and be big enough to make the fire and work with the pizzas. Do not make this opening unnecessarily big because this will cause heat to be lost while the oven is working.

Do not place the smoke outlet at the highest point of the dome because such an arrangement causes the oven to lose heat too quickly.

5. Building

Mortar joints must be as thin as possible. Try to keep joint thickness about 4 mm or less. Joints must however be properly filled with mortar.

When laid, bricks should be saturated with water, but dry on the surface.

Support for the floor

The oven should rest on a concrete slab, about 1 metre above the ground, with the top surface level and trowelled smooth.

Floor

Build the floor of bricks laid in a herringbone pattern (see Figure 1). This pattern ensures that no joint is longer than one and a half times the length of a brick and is therefore less likely to crack across its width.

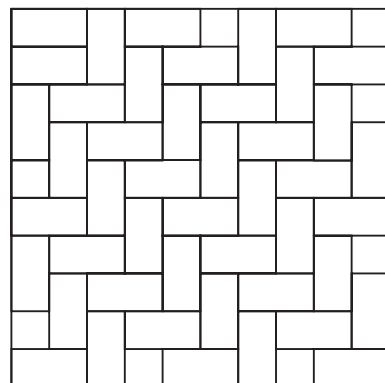


Figure 1: Bricks laid in herringbone pattern

The floor should be laid on two or three sheets of newspaper placed on the concrete slab. (This forms the slip-layer referred to in the introduction.)

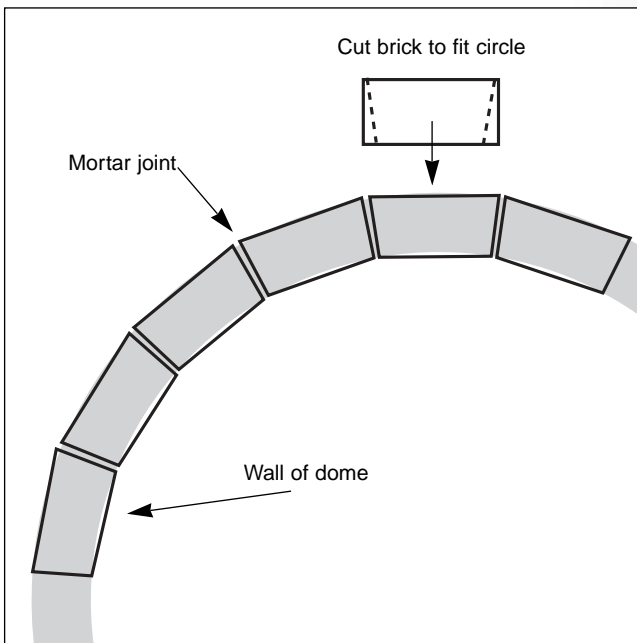
The shape of the floor may be square or, by cutting bricks, it can be the same as the outline of the dome.

Dome

Starting with a bedding joint, build the dome on the floor.

Cut the bricks to a tapered shape to form the curved shape of the dome (see Figure 2). Use a bolster and hammer or preferably a masonry saw. Work accurately to ensure that all joints are thin ie 4 mm or less.

Figure 2: Bricks cut to tapered shape



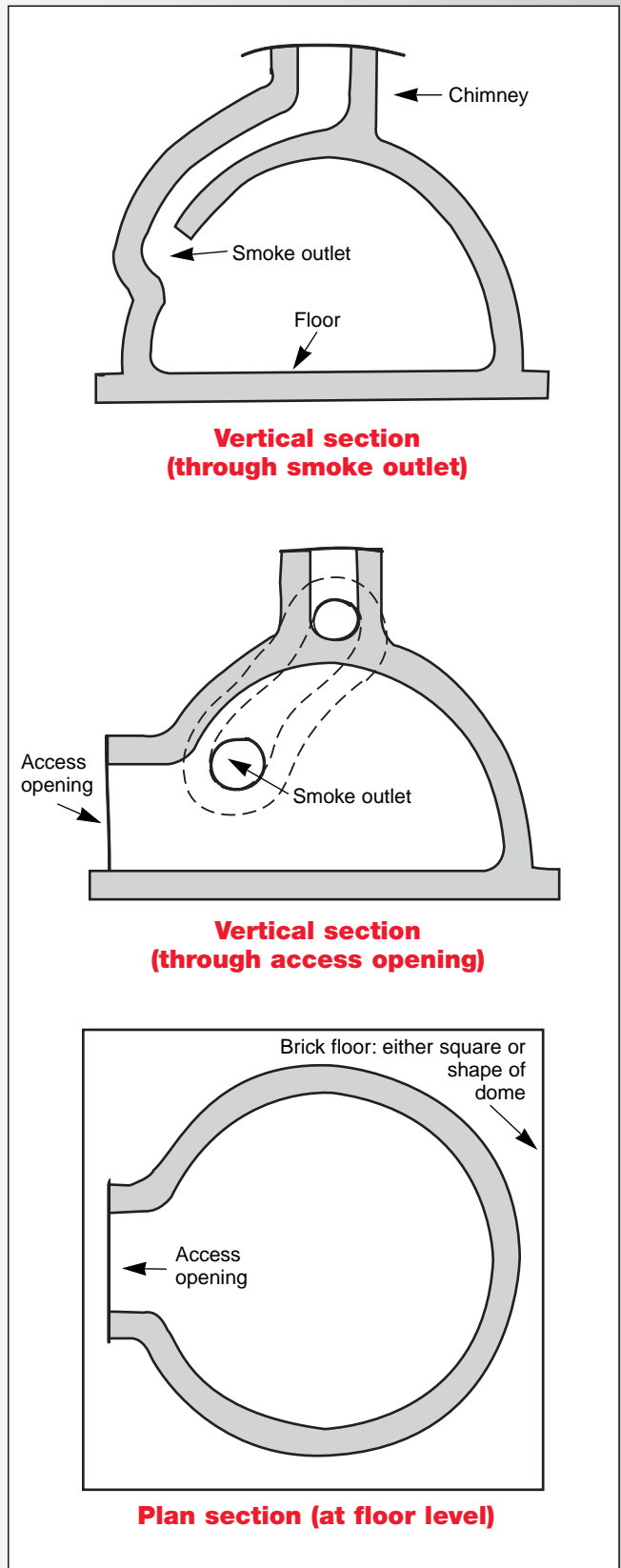
To avoid unnecessary cutting, lay the bricks horizontally in courses. The underside of the dome will be stepped at each course but this is not important. Steps in the outside of the dome should be filled in with pieces of brick cut to shape (where steps are big enough) and mortared in.

The dome will need to be supported while it is being built. A convenient method is to use damp sand that is placed and compacted as the brickwork proceeds. This sand is raked out once the dome is completed and the mortar has had a chance to harden.

Do not plaster the inside of the dome. The outside of the dome may be plastered to improve the appearance.

Allow the brickwork to dry completely before using the oven.

Figure 3: Structure of oven



Cement & Concrete Institute

PO Box 168, Halfway House, 1685
Portland Park, Old Pretoria Road, Halfway House, Midrand

Tel (011) 315-0300 • Fax (011) 315-0584

e-mail cnci@cnci.org.za • website <http://www.cnci.org.za>

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