

Building a pizza oven

1. Introduction

Building a pizza oven for entertaining family and friends makes a satisfying and challenging DIY project. This leaflet gives guidance on the selection of materials as well as providing step-by-step instructions on how to construct a pizza oven for home use. This oven is not intended for the constant use required for a commercial enterprise.

The material quantities given are for an oven of the dimensions listed below. While 'scaled down' versions are possible, sufficient space is required for the fire and to enable the pizzas to be turned during cooking. This size has proved to be effective.

2. Materials

The pizza oven described here is constructed of burnt clay bricks with cement mortared joints.

Throughout this leaflet, 'cement' means a common cement complying with SANS 50197-1/SABS ENV 197-1, strength class 32,5 or higher and carrying the SABS mark.

2.1 Bricks

Use well burnt solid clay bricks. Dimensions, especially thickness, should be as uniform as possible. Although it is not necessary to use face bricks, they are more uniform and look more attractive, especially if the dome is not plastered. Cement bricks are not recommended for the dome since they do not withstand heat as well as clay bricks. Use of refractory (fire) bricks is not necessary and will only add to the cost.

Always pre-soak burnt clay bricks before building with them.

2.2 Mortar

A mortar of fine sand, preferably a building sand, and cement is suitable.

Use a common cement complying with SANS 50197-1/SABS ENV 197-1, strength class 32,5 or higher and carrying the SABS mark.

It is not necessary to use high-alumina cement which is expensive and not readily available from retail outlets.

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. Dimensions

Foundation slab diameter 1,8 m
Suspended slab diameter 1,6 m
Dome inside diameter 1,2 m approx
Dome outside diameter 1,4 m approx
Door opening, width 440 mm approx
Door opening height 260 mm approx

4. Quantities of material used

4.1 Base slab

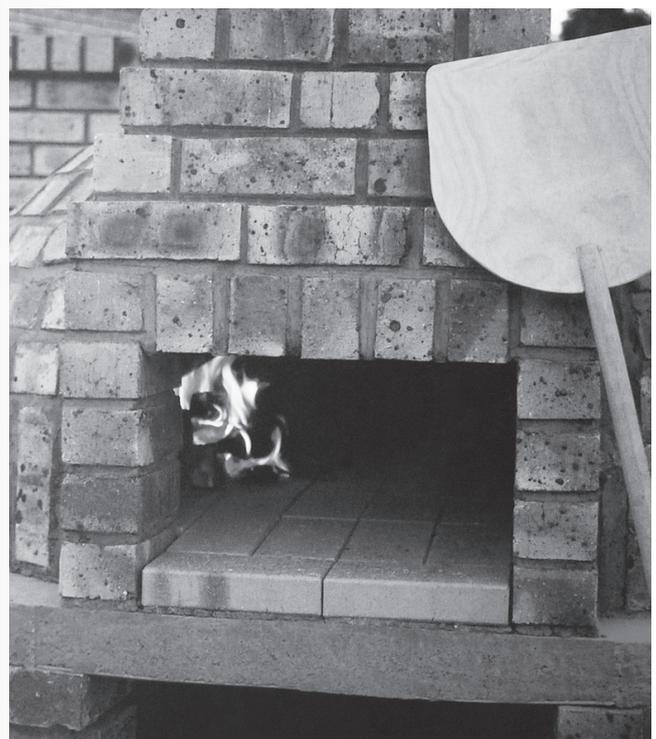
2 x 50 kg bags of cement
3 wheelbarrows of concrete sand
2 wheelbarrows of 13,2 or 19 mm concrete stone (13,2 mm stone produces a concrete that is easier to place)

4.2 Base

150 clay bricks (222 x 106 x 73 mm)

Mortar

1 x 50 kg bag of cement
2 wheelbarrows of building sand



4.3 Suspended slab

1,5 x 50 kg bags of cement

1,5 wheelbarrows concrete sand

1,25 wheelbarrows of 13,2 or 19 mm concrete stone (13,2 mm stone produces a concrete that is easier to place)

30 m of 6 or 8 mm diameter steel reinforcing rod

Support for concrete slab – strong board is required as formwork on which to cast the slab. Suitable boards are 19 mm shutter board or shutter ply.

5 m x 75 mm strips of 4 to 6 mm plywood, masonite or other suitable flexible material for the side forms to support the fresh concrete.

16 x 1,8 m precast concrete lintels (only if used as an alternative to casting the suspended slab)

Note: These quantities were for a 1,6 m outside diameter round base with a 106 mm wall.

4.4 Dome, chimney and oven floor

200 clay bricks (222 x 106 x 73 mm) for the dome and chimney

2 wheelbarrows of building sand

1 bag of cement

35 litres of small (5 to 10 mm) crushed stone for the insulation layer under the paving bricks

1,5 m² of clay paving bricks

9 m² of 4 mm masonite or plywood to be used as temporary dome support

5. Tools

Spade and pick

Tape measure

Spirit Level

Trowel (brick laying)

Angle grinder (230 mm)

Masonry cutting disks (5 x 230 mm)

Wheelbarrow

Wood float

Jigsaw for cutting board to support the dome

Marking pen for marking bricks and boards for cutting

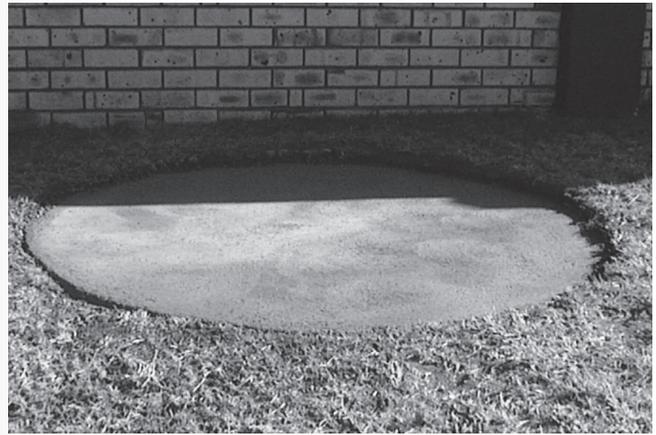
Rubber gloves. Work with mortar is very 'hands on' and gloves protect from hand damage

Pointing tool (to finish mortar between bricks after laying)

Broomstick, pick handle, 38 x 38 mm length of timber or similar, to compact concrete

Straight edge – any flat-edged plank, piece of steel tubing etc can be used

Black plastic sheet for curing



6. Construction

6.1 Base Slab

- Mark out a 1,8 m diameter circle on the ground. This can be achieved by using two nails and string. Tie one nail to the end of the string and tie the other nail so that it is 900 mm away from the first nail. It is best to use a piece of string that does not stretch easily. Secure one of the nails in the centre and use the other nail to scribe a circle around it.
- Excavate the area within the circle to a depth of 75 mm. Use a spirit level to ensure that the surface is level. Compact the area well and wet the ground before placing concrete.
- Cast a 75 mm thick slab in the excavation using medium strength concrete.

Base slab approximate material requirements:

2 x 50 kg bags of cement

3 Wheelbarrows of concrete sand

2 Wheelbarrows of 13,2 or 19 mm concrete stone (13,2 mm stone produces a concrete that is easier to place)

Use a tin or bucket of convenient size for batching all the solid ingredients.

The following mix proportions should be used:

Medium strength concrete	Mix proportions by volume		
	Cement	Sand	Stone
	1	2,5	2

- Compact the concrete well by tamping it all over using a broomstick, pick handle, a length of 38 x 38 mm timber or similar object. Finish the surface off using a straight edge and spirit level to ensure the top surface is level and flat. After the surface has been levelled, leave the concrete to stand for a while until the surface water evaporates and the concrete stiffens slightly. Use a wood float to finish the surface.

The concrete can now be covered with a plastic sheet to prevent moisture loss and ensure effective curing. Keep the slab covered for 7 days.