

How to Build your own Pizza Oven

Agnes Outdoors DIY Pizza Oven Assembly Guide

We have built this kit so you can build a pizza oven easily, even for the most unpractical DIYer!
Please also see our video tutorials found on our website, for any additional assistance please contact a member of our team.

Location Preparation

The Agnes DIY pizza oven kits are semi-permanent structures with an approximate weight upon completion of 420kg. The Agnes pizza oven stand or custom concrete stands can be used, however, both require a solid level foundation.

Custom stands must meet a minimum footprint requirement of 1200mm x 1200mm and we recommend a height of 1050mm.

Once built or positioned, using a spirit level, ensure that it is level.

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Step 1 | Initial Assembly

1. Lay the three-floor sections together and push them together tightly and aligned.
2. Lift the flue gallery section onto the front, ensuring it is flush with the mouth of the oven.
3. Assemble the 6 larger matching segments around the base to form an igloo-like shape starting from the flue gallery, ensuring the smooth side is facing towards the centre inside the raised rim of the floor. This is a temporary measure to aid in the firebrick floor assembly.
4. The firebrick floor needs laying, to do this we add the six outer segments and flue gallery but then remove them after just to make sure we have the floor fitted into the right position.

PPE Required: Gloves

Equipment Needed: Spirit level and tape measure



Step 2 | Firebrick Floor

1. Mark a centre line from the mouth to the back of the oven.
2. Starting from the front, position two uncut bricks such that they meet in the centre, followed by a single brick along the centreline. Continue to alternate until you reach the back of the oven. Once completed, add the remaining cut bricks such that it aligns with image 1.

Make sure that the bricks have no high spots in the joints that you would hit your pizza peel on when cooking pizza, there can be slight discrepancies (1/2mm) in the bricks so you may need to move them around slightly. The middle of the floor is the most important area. (From the back, rows 3 to 6 want to have very little lips).

3. Use a screwdriver to make sure there are even gaps down each side and the bricks are all firmly together. Gaps on the edges are intentional to allow for slight expansion/contraction.

4. You can now remove the six segments and using the heatproof sealant from the kit, go round the very edge of the firebricks and lay a small bead of sealant to stop the bricks from moving. Do the same for the flue gallery.

Use a maximum of half a tube of sealant for this.

Equipment Needed: Screw driver

PPE Required: Gloves



Image 1



Step 3 | Framework Assembly

1. Slot the flue gallery on flush with the floor front and then add the six matching segments starting from the front like you have done before. Make sure the six lower segments are all matching the angle of the front flue section.
2. Starting at opposing sides, use two top segments to pin in the cap (Image 2) and then slot the rest in.
3. Once all the segments are in, the top cap can be removed to help align the 8 upper segments ensuring that gaps are all evenly distributed.
4. Once aligned, return the cap, it is expected that this should protrude a few millimetres.
5. Check that the metal faceplate fits tightly around the mouth of the oven, however, remove this before the next step.

PPE Required: Gloves



Step 4 | Sealing the Joints

1. Using the remains of the first sealant tube, run a pea-sized bead of sealant starting at the bottom and work up and across the joints. If there are any small chips fill those holes with more sealant.
2. Once you've gone along every joint, wearing gloves (disposable if you have them) push the sealant into the joints so all the airgaps are sealed.
3. Double-check that the metal front fits on correctly and central.
4. Add sealant to the front of the flue gallery creating a surface for the metal to stick to. The back of the metal front has a channel in the middle, add sealant in and then push on to the flue gallery so it is aligned.
5. Insert the flue into its position in the hole on the flue gallery with the flue seam facing the rear of the oven, twisting the flue as it goes in to get a snug fit. Use the sealant to bond the flue in its hole.

Allow 1-2 hours to set depending on the weather.

Equipment Needed: Stanley knife and sealant gun

PPE Required: Gloves



Step 5 | Insulating the Dome

1. Cut a length of insulation 2.7m long.
2. From the mouth, wrap it around the oven above the floor ridge until you reach the same position on the opposing side.
3. Using a knife cut triangles out of the material to enable you to remove the creases.
4. Cut segments of insulation and cover the remainder of the structure until all outer surfaces are sufficiently covered with an approximate depth of 50mm (2 layers) apart from the very peak which wants just 1 layer.
5. Cut lengths of insulation to a width of 300mm and run insulation around the mid-section of the oven symmetrically. Avoid creases by removing excess material.
6. For the exterior part of the floor section, tear the insulation in half so its thickness is 10/15mm and 300mm wide; run that around the exterior of the oven floor in insulation (Image 3).

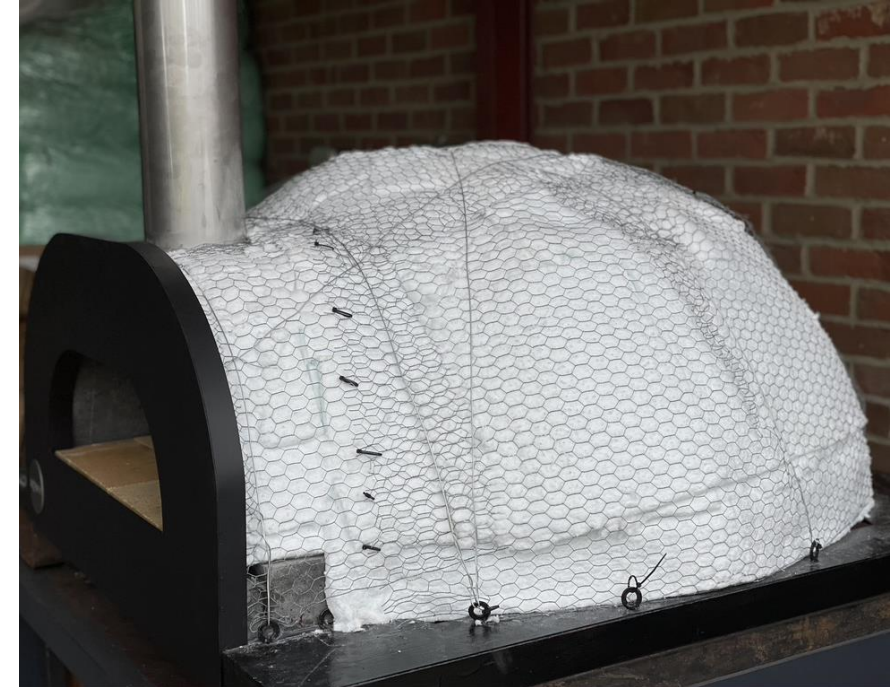
Don't worry if any insulation is slightly loose as we will tie it down with the mesh and tie wire.

Equipment Needed: Serrated or stanley knife and tape measure
PPE Required: Gloves, glasses, disposable overalls and facemask



Step 6 | Fitting the Mesh and Tie Wire

1. Cut a length of mesh at 2.9 metres and using the cable ties attach the mesh to one side of the metal front and bottom washers.
2. Working from the side you have attached to the metal front, pulling the mesh as tight as you can away from the front to the washers on the bottom. Keep attaching cable ties to the bottom washers and work the entire way round to the other side of the oven and reconnect up to the metal front.
3. Once you've gone the entire way around and reconnected at the front we can now look at cutting the creases out in the mesh just like we did with the insulation.
4. To do this, cut down the mesh 200/300mm from the top so you can fold it over itself and use cable ties to hold the position.
5. Using the remains of the mesh, cut a shape to fit on top of the insulation currently uncovered and work it so it's intertwined with the existing mesh. Once you've got the mesh tied down with cable ties, we can get ready to tie wire.
6. Now with the tie wire, looping it diagonally through the washers, pull the wire tight over the mesh on the oven so it's firmly pulled into the oven going from one side to the other and front to back.



Equipment Needed: Tape measure and wire snips

PPE Required: Gloves, glasses, disposable overalls and facemask

Step 7 | Mixing the Render

1. If you've got a cement mixer or paddle mixer use that otherwise a shovel and trug or wheelbarrow will do. Make sure you measure and mix it out of the wind as the perlite can go everywhere.
2. Using household scales and a bucket, measure the quantities below. Combine these components thoroughly until all are mixed.
3. Once completed, create a small well in the centre of the dry mix and add a small amount of the water. Keep mixing and adding water until the correct consistency is achieved, we used around 9 litres of water but this can vary depending on slight discrepancies and mix quality.
4. Mix it to a relatively dry consistency, to check this you can pick up a handful of mix and drop it on your other hand with fingers open and it shouldn't go through them.

Equipment Needed: Shovel, bucket and wheelbarrow
(Optional: Cement mixer or paddle-mixer)

PPE Required: Gloves, glasses, disposable overalls and facemask (for mixing)



Individual Measurements per mix:

Sand 6.5kg

Lime 3kg

Water 9 litres (Approximately)

Perlite 1.5kg

Cement 6.5kg

Step 8 | First Render

Note: Wipe off any render from the metal front and flue as you go to avoid permanent marking.

You'll need to make this mix twice for the first scratch coat.

Follow the mixing render guide.

1. Using a good pair of waterproof gloves, pick up the render and starting at the bottom, get a thick coat of render worked into the mesh working around and up. This coat wants to be rough but cover all the insulation.
2. Don't smooth off the coat once finished applying the render so that the next coat has something to adhere to.
3. Make the render mix twice to get a good first covering then allow to semi-dry (12 hours) so that the render is firm but not completely dry.

Equipment Needed: Shovel and bucket/ wheelbarrow (Optional: Cement mixer or paddle-mixer)

PPE Required: Gloves, glasses, disposable overalls and facemask (for mixing)



Step 9 | Final Render

Note: Wipe off any render from the metal front and flue as you go to avoid permanent marking.

1. Reproduce a render mixture of step 7.

The primary focus of the final render is shaping.

2. Using the render mixture, ensure an even coating across the entire oven and continue to add additional render until the desired shape is achieved adding in the low spots.
3. Leave to dry for approximately an hour and, using a sponge or a wet brush smoothen the render until you achieve an acceptable finish.
4. Leave for at least 24 hours to dry before starting curing.

Equipment Needed: Shovel and bucket/ wheelbarrow (Optional: Cement mixer or paddle-mixer)

PPE Required: Gloves, glasses, disposable overalls and facemask (for mixing)



Step 10 | Curing & Painting

Now that you have finished the build of the oven, give it 24 hours and we can look at starting the curing process. Check out our videos for the curing process.

Don't paint the oven until the oven is fully cured after at least four long fires. When you do paint the oven you can use any exterior masonry paint.

You have now completed our 'How to build a pizza oven' guide.

Send us photos of your finished wood-fired oven!

