D130 PRECUT BRICK OVEN KIT
Instruction Booklet
Our Wood Fired Brick Oven Kits are as authentic as you can get. With all the fire bricks cut to size, with custom formwork and tooling, building a quality Brick Oven has never been so simple.
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You really don’t need to be a skilled bricklayer to put this kit together - we have done all of the difficult work for you.

You get the fun part, of putting it all together.
Firstly, our congratulations and gratitude for the purchase of your D105 PreCut Brick Oven Kit! We have spent years crafting and perfecting our PreCut Brick Oven Kits, taking suggestions from customers and mentors, to create a product that we are truly proud of. We’re very blessed to say that we now have thousands of happy customers around the world, enjoying time with family and friends over meals cooked in the most authentic way possible.

That is what it’s all about in the end - you’re not just building a Wood Fired Oven. You’re building something that’s going to bring your family and friends together in a shared cooking experience. You’re building something that you will spend quality time with the people that you love around, where you are forced to slow down and just enjoy what you’ve built. You’re building something that you can use to love and serve others; it’s rare to see someone fire up their oven just to cook for themselves alone. It’s always about community, it’s about loving and dare I say, spoiling the people closest to you.

If there’s a piece of outdoor equipment that draws people together more than an authentic Wood Fired Oven, I’m yet to find it. May your oven bring you, your family and friends nothing but joy (and the occasional burnt crust) for many years to come.

BEN GUILFORD
DIRECTOR
COLD CLIMATES

If you’re building a Wood Fired Oven in a region that experiences ‘freeze-thaw’ conditions, where the frost is so severe that it penetrates deep into the ground, this is something that you need to be aware of when deciding on where and how to build your Wood Fired Oven.

The refractory bricks and insulation that make up our Wood Fired Oven Kits are very porous, so they will soak up rain or melted snow that falls on them. This is not a problem in itself - if you fire the oven up after the oven has absorbed some water, the heat will drive the water out and the oven will return to its original state. However, if your oven has gotten wet and experiences a deep frost, the water held in the fire bricks and insulation may freeze and expand, causing serious damage to the oven.

The sure way to prevent this is to build the oven into an enclosure that keeps it completely dry, so that when the cold weather comes, it will have no adverse effect on the oven at all. If this is not possible, an alternative is to fire the oven thoroughly before the end of Autumn, then remove the flue and protect the oven with a suitable weatherproof cover for the winter. The key is to keep the oven completely dry in deep cold conditions.

USING OUR INSTRUCTIONS

Building a Wood Fired Oven is a hugely enjoyable process, providing you take your time and pace yourself. The best way to prepare for the build is to first watch through the entire Instructional Video Series, from start to finish. Then, read through these instructions in full so that you have a clear understanding of the process.

When you actually start building, take 15 minutes and watch the video that covers the part of the build that you’re up to. These instructions are to help remind you of what you learned and give you more details where they are needed. Remember, there is information in these instructions that is not in the videos, and vice versa.

That being said, if you’ve watched the videos, read the instructions and still feel even a little bit confused about something, please call us right away. Part of what you’re paying for when you purchase one of our kits is quality customer service - we are here to make sure you succeed in your Wood Fired Oven Building adventure!
Notes & Updates

We are on a continuous search for ways to improve our products, so that we’re always giving our customers the very best product that we can. These changes are always small and incremental - tested by us before being rolled out to our customers. This is where we will make notes of these changes, where things have evolved since the instructional videos were recorded.

i. The Refractory Mortar used to lay all of the bricks in the dome of the oven is now a two-part mix (in the videos it was shown as a one part dry mix). This is to increase the shelf-life of the mortar, by keeping the active ingredient separate in another bag. Close the tops of these bags after opening to help them keep.

ii. The D130 PreCut Brick Oven Kit is a Commercial Spec Wood Fired Brick Oven. As such it has more of almost everything; 100mm of Calcium Silicate Subfloor Insulation Board, 100mm of fire brick as thermal mass for the Oven Floor and 75mm of Ceramic Fibre Blanket to insulate the brick dome.

We achieve the 100mm of fire brick in the oven floor by replacing the 25mm ‘Subfloor Castable’ layer seen in the videos with a 50mm fire brick tile. This means the process is slightly different to what you’ll see in the videos, but that is covered in detail in these instructions.

iii. As the D130 PreCut Brick Oven is typically used in commercial applications, we recommend that you use Refractory Castable for any large openings in the brickwork, rather than using the Refractory Mortar. For example, after laying course 6 you’ll find there are some large triangular gaps that need to be filled where Course 7 crosses the Entry Arch. In the instructional video series we fill these gaps with Refractory Mortar, for the D130 Brick Oven you need to use the Refractory Castable to fill these gaps.

Similarly for the ends of the brick courses - in the video series we used the Refractory Mortar to fill in the ‘keystones’ at either end of each course of dome bricks. For the D130 these gaps need to be filled either using fire bricks that have been cut/ground to size, or the Refractory Castable mixture.

This is because the D130 is likely to be pushed to much higher temperatures, much more often, than the other ovens in our range.
Safety Warning

A MAJOR CAUSE OF UNINTENDED OVEN-RELATED FIRE IS FAILURE TO MAINTAIN REQUIRED CLEARANCES (AIR SPACES) TO NEARBY COMBUSTIBLE MATERIALS.

IT IS OF THE HIGHEST IMPORTANCE THAT THIS OVEN BE INSTALLED ONLY IN ACCORDANCE WITH THESE INSTRUCTIONS.

IF THIS OVEN IS NOT PROPERLY INSTALLED, AN UNINTENDED FIRE MAY RESULT. TO REDUCE THE RISK OF FIRE, FOLLOW THESE INSTALLATION INSTRUCTIONS.

PLEASE READ THIS SET OF INSTRUCTIONS IN FULL AND WATCH THE INSTRUCTIONAL VIDEOS BEFORE INSTALLING AND USING YOUR OVEN.

FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN FIRE, CARBON MONOXIDE POISONING OR EXPLOSION LEADING TO PROPERTY DAMAGE, BODILY INJURY, OR EVEN DEATH.

IF YOU HAVE ANY QUESTIONS AT ALL REGARDING THE SAFE INSTALLATION OF YOUR OVEN, PLEASE DON’T HESITATE TO CONTACT US, WE’LL BE HAPPY TO ASSIST YOU.
Clearances to Combustible Materials

A major cause of oven-related property fire is failure to maintain the required clearances (air spaces) between the oven and combustible materials. When planning the location for your oven, ensure that you maintain clearances to all combustible materials, including but not limited to nearby walls, posts, ceiling structures and vegetation.

If the oven is being built in close proximity to a structure (eg. beneath a pergola), the clearance from combustible materials to the flue can be reduced by using a twin or triple skin ventilated flue system. If you’re planning to do this the flue must be specified and installed by a licensed professional to ensure that the flue system is compliant with the relevant standards and local laws for your area.

If in doubt, contact a qualified plumber or your local fire authority for more information.

MINIMAL CLEARANCE ARE AS FOLLOWS;

50MM CLEARANCE TO COMBUSTIBLES FROM ALL SIDES OF THE INSULATED OVEN DOME.

400MM CLEARANCE TO COMBUSTIBLES ABOVE THE INSULATED OVEN DOME.

750MM CLEARANCE TO COMBUSTIBLES FROM ALL SIDES OF THE STAINLESS STEEL FLUE (UNLESS A MULTI-SKIN FLUE SYSTEM IS INSTALLED).

700MM CLEARANCE TO COMBUSTIBLES FROM ALL SIDES OF THE VENT BRICKS AND PRECAST FLUE GALLERY.

COMPLETE CLEARANCE ABOVE THE FLUE, MAINTAINING THE 750MM RADIUS AROUND IT.

NON-COMBUSTIBLE FLOOR MATERIAL SHOULD EXTEND 1200MM FROM THE FRONT OF THE OVEN, FOR THE WIDTH OF THE OVEN DOME, TO PROTECT AGAINST FALLING HOT EMBERS.
Safe Installation Instructions

DUST EXPOSURE – RESPIRABLE CRYSTALLINE SILICA

Inhalation of airborne dust may cause irritation to the mucous membrane and upper airways. Symptoms can include coughing, sneezing and breathing difficulties. Repeated exposure to respirable silica may result in pulmonary fibrosis (silicosis). Silicosis is a fibronodular lung disease caused by deposition in the lungs of fine respirable particles of crystalline silica. Principal symptoms of silicosis are coughing and breathlessness.

The following materials in your Wood Fired Oven Kit may contain respirable crystalline silica and a suitable dust mask should be worn while handling them;

- Hybrid Refractory Bedding Mortar (marked Airset Mortar)
- Refractory Mortar Part A
- Refractory Mortar Part B
- Refractory Castable
- Fire bricks (when cutting or shaping them with a grinder)
- Perlite
- Calcium Silicate Board

While the Ceramic Fibre Blanket does not contain respirable silica, the fibers are very irritating to the respiratory tract and can cause irritation in the nose and throat, and chest discomfort. A suitable dust mask should be worn when working with the ceramic fibre blanket, until the first layer of Perlite Render has been applied to seal the ceramic fibre blanket from the atmosphere.

EYE PROTECTION

This is a very hands-on project and you are advised to wear safety glasses when mixing any of the materials or cutting/grinding bricks. This also applies to applying the ceramic fibre blanket insulation, which is irritating to the eyes. If in doubt, wear safety glasses!

SKIN PROTECTION

The mortar mixture that you’ll use to lay the fire bricks in your Wood Fired Oven Kit is quite alkaline, and repeated exposure to your skin can result in chemical burns. The same goes for the Refractory Castable and Perlite Render mixes. This is compounded by having to handle wet bricks, which (if done without gloves) makes your skin softer and more vulnerable to being attacked by these materials. **IGNORE THIS AT YOUR OWN RISK! THE AUTHOR HAS PERMANENT SCARRING TO REMIND HIM OF THE IMPORTANCE OF WEARING GLOVES.**

To avoid this, wear rubber ‘washing up’ gloves underneath ordinary gardening gloves to protect your skin. Rubber gloves alone may not work well for long, as handling the fire bricks can wear straight through them very quickly. There are some heavy duty rubber gloves available at some supermarkets and hardware stores that work very well by themselves, as you will see in the instructional videos.

The key is to keep your hands dry, and if you notice a hole in the rubber gloves you would be well advised to replace them immediately. Avoid rubber gloves with an elastic cuff at the wrist – these can rub your skin and leave it exposed to attack from the alkaline material you’re handling. If your hands get wet inside the gloves, remove the gloves, dry your hands and put on a new pair of gloves, turning the others inside out to dry so they can be used later. For this reason it’s worth having two pairs of rubber gloves.

The Ceramic Fibre Blanket can be irritating to the skin, with some people experiencing rash symptoms, so we have provided you with two large plastic gloves that loop over your neck and cover the length of your arms. Wear these when handling the Ceramic Fibre Blanket.
Safe Usage Instructions

WARNING: PLEASE READ ALL OF THE INSTRUCTIONS BEFORE INSTALLING AND USING YOUR WOOD FIRED OVEN. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN FIRE, CARBON MONOXIDE POISONING OR EXPLOSION LEADING TO PROPERTY DAMAGE, BODILY INJURY, OR EVEN DEATH. SAVE THESE INSTRUCTIONS.

If your oven is not installed properly, an unintended fire may result. To reduce the risk of such a fire, please follow our installation instructions carefully. It is critical to use only the materials specified and provided to construct the oven.

Contact your local Building Authority, or Fire Authority regarding local laws for installation of this oven in your area.

OVEN IS HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE WELL CLEAR. CONTACT WITH UNINSULATED PARTS OF THE OVEN INCLUDING THE BRICKWORK AND CHIMNEY FLUE MAY CAUSE SKIN BURNS.

DO NOT BURN FLAMMABLE LIQUIDS OR WASTE MATERIALS IN THE OVEN.

DO NOT CONNECT THIS OVEN TO A FLUE ATTACHED TO ANOTHER WOOD BURNING APPLIANCE.

Keep children and pets away from the oven when it is hot, DO NOT leave children near the oven unsupervised.

Use good quality firewood for burning only. DO NOT USE charcoal, pressure treated timber, sappy timber, laminated timber or any material other than well dried firewood. This does not apply to kindling.

DO NOT USE liquid fuel (firelighter fluid, gasoline, lantern oil, kerosene or similar liquids) to start or maintain a fire.

BEWARE of very high temperatures in the oven and use long oven mitts or welding gloves rated above 400°C to handle pots, pans and uninsulated tools.

DO NOT put any unprotected part of your body inside the oven while it is hot. The oven can remain hot without a fire.

DO NOT close the oven door fully while a fire is burning in the oven. Closing the door fully will cut off oxygen to the fire, causing the fire to flare up violently if the door is then removed. This does not apply to hot coals.

Dispose of ashes using a metal shovel and place in a metal bin with a snug fitting lid. The container should be stored on a non-combustible surface, away from all combustible materials. It is not necessary to empty the ashes from the oven each time it is used, empty as required.

Ensure the ashes are completely cold before disposing of them in an appropriate manner.

VERY IMPORTANT - BEWARE of sparks and embers flying out from the oven opening, as firewood can crackle and pop, sending embers flying. Ensure no combustible materials are within range of the oven at any time.

DO NOT use water to extinguish the fire or cool down the oven.

DO NOT fill the clearance spaces around the oven with sand, insulation or any other material.

Follow the instructions for Curing the Oven with care. Failure to follow these instructions may cause damage to the oven, poses a safety risk to those nearby, and can void the warranty.

FOR YOUR SAFETY do not store or use gasoline or other flammable liquids or vapours in close proximity to the oven.

Ensure that an able bodied person of suitable age, who's judgment is not impaired by alcohol, drugs or medication is present to monitor and control the fire from the time that it is lit to the time that it is extinguished.

Ensure that a suitable dry chemical or CO2 fire extinguisher is on hand when the oven is lit.

Inspect the flue regularly for any buildup of soot, and remove excess soot if it is found.

If the oven is being built indoors, check with your plumber to ensure that the building has adequate ventilation to feed the fire without lowering the quality of air in the room, or risking a buildup of carbon monoxide.
Limited Warranty

The Fire Brick Company, a manufacturer of wood fired ovens, warrants its ovens (henceforth referred to as the Oven) to be free from defects in materials and workmanship for a period of (1) one year from the date of purchase.

QUALIFICATIONS TO THE WARRANTY

The complete Product Warranty outlined above does not apply under the following circumstances:

1. The Oven was not installed in accordance with The Fire brick Company installation instructions and local building codes.
2. The Oven has been subjected to non-standard use, such as burning fuels with abnormal burning characteristics including but not limited to: driftwood, charcoal, plywood and material containing a binder that may burn at excessive temperatures and cause damage to the Oven.
3. This Warranty does not apply to normal wear and tear.
4. This Warranty does not apply to any cracking caused by over-firing or the failure to follow a proper curing schedule.
5. On parts that would be normally worn or replaced under normal conditions.
6. Normal cracking due to expansion and contraction stress relief in the brickwork, precast flue gallery, render or floor tiles.

LIMITATION ON LIABILITY

It is expressly agreed and understood that The Fire brick Company's sole obligation and purchaser's exclusive remedy under this Warranty, under any other warranty, expressed or implied, otherwise, shall be limited to replacement, repair, or refund, as specified above, and such liability shall not include, and purchaser specifically renounces any rights to recover, special, incidental, consequential or other damages of any kind whatsoever, including, but not limited to, injuries to persons or damage to property, loss of profits or anticipated profits, or loss of use of the Oven.

In no event shall The Fire brick Company be responsible for any incidental or consequential damages caused by defects in its Ovens, whether such damage occurs or is discovered before or after replacement or repair, and whether or not such damage is caused by The Fire brick Company's negligence. Some regions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. The duration of any implied warranty with respect to this Oven is limited to the duration of the foregoing warranty. Some regions do not allow limitations on how long an implied warranty lasts, so the above may not apply to you.

INVESTIGATION OF CLAIMS AGAINST WARRANTY

The Fire brick Company reserves the right to investigate any and all claims against this Warranty and to decide upon method of settlement.

HOW TO REGISTER A CLAIM AGAINST WARRANTY

In order for any claim under this Warranty to be valid, The Fire brick Company must be notified of the claimed defect in writing or by telephone to The Fire brick Company, Factory 11/167 Princes Hwy Hallam, Victoria 3803, Australia. Claims against this Warranty in writing should include the date of installation, and a description of the defect.
D130 Layout Drawing

- **115 mm** Fire Brick Dome Wall
- **75 mm** Ceramic Fibre Insulation
- **50 mm** Perlite Render Insulation
- **520 mm** Internal Dome Height
- **7 inch** Stainless Steel Flue
- **2x Layers 50 mm** Fire Brick Tile Floor
- **2x Layers 50mm** Calcium Silicate Board
- **1300 mm** Internal Diameter
- **1780 mm** Overall Width
- **1880 mm** Overall Length
- **790 mm** Oven Height
- **1050 mm** Flue Height
- **178 mm** Center of Flue
- **540 mm** ~170 mm

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**Dimensions:**
- **Internal Diameter:** 1300 mm
- **Overall Width:** 1780 mm
- **Overall Length:** 1880 mm
- **Oven Height:** 790 mm
- **Flue Height:** 1050 mm
- **Center of Flue:** ~170 mm
- **External Dome Height:** ~965 mm
All of the bricks come cut and ground to size. We provide you with templates, CNC machined formwork, a trammel tool, fibreglass dome form and much more. Your job is to assemble the kit like a big Lego set.
What's In the Kit

CALCIUM SILICATE BOARD
10 x Calcium Silicate Boards 1000x500x50mm
This is the insulation underneath your oven; two layers of ‘Calsil’ Board for a total of 100mm of insulation, double what we use in our domestic range. The printed paper templates and thumb tacks allow you to pin the templates onto the CalSil board and cut out the pieces you need, following the lines shown on the templates.

FIRE BRICKS - DOUBLE FLOOR TILES
The Floor Tiles are all cut to size and ready to lay; the center tile has a 3mm hole pre-drilled in the middle for the trammel tool to lock into. The fire bricks used in the oven floor are 38% Alumina, rated to 1350°C with an exceptionally hard wearing surface, and are 50mm thick. There are two layers of floor tiles in the D130, giving you 100mm of fire brick as the thermal mass for the oven floor - perfect for high turnover pizzerias.

FIRE BRICKS - OVEN DOME
All bricks for the Oven Dome are provided, carefully cut to keep the internal gaps on the inside face of the oven to a minimum. These fire bricks are 38% Alumina, rated to 1350°C and are 115mm thick.

REFRACTORY CASTABLE
1 x Novaref Refractory Castable 25kg bag and 1 x 6kg bag
Refractory Castable is premixed high temperature concrete, which you’ll use to fill any large gaps in your dome brickwork, and for pouring the dome keystone. The 6kg bag is extra, just in case.

FIRE BRICKS - ENTRY & VENT ARCHES
The bricks for the Entry and Vent Arches that form the mouth of the oven are all cut to size from 38% Alumina fire bricks rated to 1350°C, ready to lay.

The Entry Arch Bricks (the opening into the dome) are machine-ground on their back face to follow the curvature of the dome, to give you a smooth transition from the dome into the opening.

The Vent Arch Bricks are carefully selected as these will be on display at the front of the oven. They are all cut to size, and are designed to lock into the Entry Arch for strength and stability.

FORMWORK - ENTRY & VENT ARCHES
We provide CNC machined timber formwork with your kit to construct the Entry and Vent Arches around, to ensure that your brickwork is exactly as per our design. The Formwork is clearly marked to help you position the arches accurately, and has machined markings showing the location and thickness of each mortar joint.

TRAMMEL TOOL & DOME TEMPLATE
The trammel is a tool that you will clamp each dome brick into, which is fully adjustable. At the start of each row you will adjust the trammel to follow the CNC cut dome template, which follows our elliptical dome profile for perfect pizza cooking. It has a hardened pin in the base that fits into the 3mm hole drilled in the center tile.
What's In the Kit

FIBREGLASS DOME FORMWORK
To lay the last several courses of bricks in the dome you will use our fibreglass dome formwork, custom made to match the elliptical curve of the oven dome. It comes with a round timber support, to spread the load when you jack it into position.

HYBRID REFRACTORY BEDDING MORTAR
Dry Airset Refractory Mortar: 1 x 20kg bag
This is the mortar you will use to lay the fire brick tiles that make up the oven floor. Please be aware that you will need to mix the Airset mortar with General Purpose Cement, Lime and Washed Sand* in the ratio shown on the bag. This makes a smooth hybrid mortar mix perfectly suited to bedding down fire bricks for oven floors.

REFRACTORY MORTAR (TWO PART MIXTURE)
Refractory Mortar Part A: 3 x 25kg bags
Refractory Mortar Part B: 1 x 25kg bag
This is the mortar you'll use to lay all of the remaining bricks in the kit.

PRECAST FLUE GALLERY
The PreCast Flue Gallery is the molded section that fits over the brick arches at the front of the oven. Made from refractory castable and reinforced with stainless steel fibres, it's fitted with 7" Stainless Steel Flue sleeve, ready to attach the flue section onto. A brushed stainless steel ring covers the flue expansion joint.

CERAMIC FIBRE BLANKET
Three full rolls of 25mm thick Ceramic Fibre Blanket are provided, which will give you three full layers over your brick dome for 75mm coverage, which is 50% more than we use on our domestic oven range.

PERLITE RENDER
LiteFill Perlite: 3 x 100L bags + 1 x 50L bag
This is the material you will use to cover the Ceramic Fibre Blanket layer, which you will be mixing with GP Cement, Lime and Washed Sand* to make a high-build Render mixture. There is enough Perlite in the kit to build up a 50mm shell of render over the oven dome, with plenty left in reserve if some is wasted on accident.

STAINLESS STEEL FLUE & HAT
1 x 7" Stainless Steel Flue - 900mm Length
1 x 7" Stainless Steel Cowling

* Sand, Lime and GP Cement are available at most hardware stores and need to be purchased in addition to the kit.
What's In the Kit

**ACRYLIC ROLL-ON BASECOAT RENDER**
1 x 5L MAC 'Rustic Roll-On' Acrylic Render (White Basecoat)
This is the membrane coating that you will apply over the outer dome, once the oven has been completely cured and all moisture has been driven out. It gives the dome a good waterproof basecoat which can be rolled over with more roll-on render, or other similar exterior acrylic coating. It can be tinted at most paint stores.

**OVEN DOOR**
The final part of your kit is our Stainless Steel oven door, coated in a satin black finish. The handles are beautiful oiled hardwood, with solid stainless steel rings top and bottom. The door comes with a vacuum sealed temperature gauge accurate to 550°C (packed inside the bag of extras within the door box).

**EXTRA ITEMS PROVIDED**
- Plastic Formwork for Sub-Floor Heat Bank
- Plastic Strips to support the Timber Formwork
- 2 Rolls of Chicken Wire & Galv Tie Wire
- 24 x 125mm Nails
- 25 x 100mm Phillips Head Screws
- 2 x Long Sleeve ‘Vet Examination’ Gloves

**OPTIONAL EXTRAS**

**WATERPROOFING SYSTEM**
Roll of 150mm wide Aluminium Flashing and 1 x Cartridge of Sikasil High Temperature Silicone
To prevent rain being drawn into the oven from beneath the outer dome (the perlite render layer), install our waterproofing system around the oven perimeter prior to rendering. Only needed for outdoor installations.

**HIGH TEMP SPRAY PAINT FOR PRECAST FLUE GALLERY**
Spray can of PPG Temptec 328 in Satin Black. Great for painting the Flue Gallery to make it look sharp.

**OVEN WALL TEMPERATURE PROBE WITH THERMOWELL**
250mm Temperature Gauge with Stainless Steel Thermowell that can be mounted through the oven wall.

**POLISHED GRANITE LANDING**
Polished Granite sections cut to fit around the Vent area, giving you somewhere to pull out heavy roasting trays to check on your cooking. Also an important surface to allow you to use your Oven Door as a Draft Door.
Additional Tools & Materials Required

ADDITIONAL MATERIALS REQUIRED

- 5 x 20kg Bags GP (General Purpose) Cement
- 2 x 20kg Bag Lime
- 6 x 20kg Bags Washed Sand
- Household aluminium foil
- Masking Tape

We don’t put these items in the kit for several reasons – they add a significant amount of weight which increases the cost of freight, they’re available at all good hardware stores, and we find that some of our customers already have these materials on hand.

TOOLS REQUIRED

- Trowel
- Small Plastic ‘Flexi’ Tub for mixing Mortar & Castable
- Large Plastic ‘Flexi’ Tub OR a Wheelbarrow for mixing Perlite render
- Jigsaw with wood cutting blade
- Drill/driver for putting in screws
- Level
- Straight Edge (can be a straight piece of timber or metal)
- Stanley knife/scissors
- Car Jack
- Sponges, scourers & rags, old towel
- Angle grinder with masonry grinding disk

SAFETY GEAR REQUIRED

- Safety Glasses
- Ear Muffs
- Heavy duty rubber ‘washing up’ gloves (two pairs recommended, so that you always have a dry pair)
- P2 or equivalent rated Dust Mask
- Suitable clothing
- Safe access to climb onto your oven stand & fall prevention if working at height
1. Subfloor Insulation

The first step in building your oven is to prevent the heat in the oven floor from being conducted into your concrete slab, and from there into the surrounding air to be lost forever. We use Calcium Silicate (CalSil) board to do this, as it has excellent insulating properties, great compressive strength and is easy to work with.

1A: MARK CENTER LINE

Draw a line down the center of your top slab, this is used to make sure your CalSil board and ultimately your whole oven is positioned correctly, in the center of your stand.

1B: CUT OUT CALSIL BOARD USING TEMPLATES

Using the provided paper templates, cut out your CalSil board pieces using a jigsaw. We have provided you with thumbtacks to hold the templates to the CalSil surface. There are two layers of Calsil Board, so the parts are marked to help you identify the layer they belong to.

There is additional information on the templates to help you set out these pieces.

1C: LAY CALSIL BOARD PIECES ON THE SLAB

Using the center line on your slab and the corresponding line on the templates, position your CalSil board pieces on your slab. There is no need to ‘glue’ these pieces down as the weight of the finished oven will hold them in place.

If your concrete slab is flat and level, you can lay the CalSil directly onto the slab. If your slab is uneven use a thin layer of brickies sand to bed the CalSil down, to ensure that it’s uniformly supported. Brickies sand works well for this purpose as it has a fine clay through it, which helps to keep the sand together and stable.
1D - FIX CALSIL LAYERS TOGETHER

The two layers of Calsil are deliberately cut to overlap each other. Use the long screws to fix the two layers together to prevent them from moving around when you’re laying the floor tiles. Suggested locations for the screws are shown in the image in step 1E.

Once the floor tiles are laid, the sheer weight of the fire bricks will hold the Calsil board in place permanently.

1E - PLACE ALUMINIUM FOIL OVER CALSIL

Cover the top surface of the CalSil board with aluminium foil, taping the joints with paper masking tape. We use foil not for any insulation value, but to seal off the CalSil, ensuring that the Hybrid Refractory Bedding Mortar used to lay your floor tiles doesn’t dry out too quickly.
2. Laying the Floor Tiles

Fire bricks are very porous and will absorb a significant amount of water, so if you apply wet mortar to a dry fire brick this mortar will dry out and will not develop a good bond. To overcome this, soak your fire bricks in water for at least 10 minutes before you lay them. Take the bricks out of the water shortly before you need them, then when you grab a brick to lay, give it a dry on a towel or rag to remove any excess surface moisture.

You’ll be using the Hybrid Refractory Bedding Mortar mix shown below to bed the tiles down and get them flat.

Remember - WEAR RUBBER GLOVES. This mortar is alkaline and can cause chemical burns!

**HYBRID REFRACTORY BEDDING MORTAR MIXTURE**

- 2 PARTS AIRSET REFRACTORY MORTAR
- 2 PARTS WASHED SAND
- 1 PART GP (GENERAL PURPOSE) CEMENT
- 1 PART LIME

These measurements are by volume (i.e. 2 cups Airset, 2 cups sand, 1 cup lime, 1 cup cement). Mix well while dry, before adding enough water to make a smooth, thick mixture. Take a small trowel of the mortar and hold it upside down, it should stick to the trowel. The pot life of this mix is around 20 minutes.

Get all of your floor tiles soaking in water, and mix up some mortar. Only prepare one small area at a time, enough to lay a single tile. If you try to mortar a large area it will dry out before you have a chance to lay the tiles. Spread a layer approximately 10mm thick on the top of the foil. Use your fingers to notch this mortar mixture, to bed your tile into.

We designed the layout of the CalSil board to be about 20mm larger than the floor tiles all the way around the perimeter of the oven floor, so that there is some tolerance on the positioning of your floor tiles. The extra area extending around the dome of the oven will be covered by the insulating blanket and render layers, while the sections protruding under the front and sides of the oven floor can either be cut back using an angle grinder if you’re installing a trim to the exposed edges, or left in place and covered when a landing is installed.
2. Laying the Floor Tiles

STARTING TILE

FINISHED LAYOUT

STARTING TILE

FINISHED LAYOUT
2. Laying the Floor Tiles

Reminder - you need to watch the instructional videos to get a full understanding of the process, please don’t rely on these written instructions alone. Don’t feel like you need to watch them all at once - just watch the section that you’re about to do before you do it, so that it’s fresh in your mind.

**2A - LAY FRONT CENTER TILE OF FIRST LAYER**

Lay the front-center tile, making sure it’s level with your stand so that the other tiles can be laid flush and level with it.

**2B - CONTINUE LAYING FIRST LAYER**

Lay the remaining tiles for the first layer, working from the front to the back. The first layer of tiles are marked with chalk to help you identify them. As these tiles are for the sub-floor heat bank they will likely have some chipped corners and edges. These are being covered, so this does not pose any issue - and helps us to keep the cost of the oven kit down by using tile bricks that would otherwise have to be cut into other shapes.

**2C - LAY FRONT CENTER TILE OF SECOND LAYER**

Lay the front-center tile, making sure it’s level with your stand so that the other tiles can be laid flush and level with it. You will likely need to wet down the first layer of tiles to do this; a light spray with a hose or a wet sponge.

**2D - CONTINUE LAYING SECOND LAYER**

Continue the process and bed each tile down into the Hybrid Bedding Mortar mixture, ensuring that each is level and the edges are flush with each other (as close as you can). Make sure the tile marked ‘C’ is placed in the center, as this is where your trammel tool will pivot from. Keep the joints between the tiles as tight as possible, remembering that gaps of up to 2mm are normal and once they’re all laid, you can fill in the joints with the same mortar mix if you want (it’s
2E: GRIND HIGH EDGES

If there are any raised edges at joints between the tiles, these can be ground back using an angle grinder with a masonry grinding disc or sanding disc. Do this before you build the dome, while you have easy access. Don’t grind the tiles unless you absolutely have to! Only grind the high spots that you might catch your oven tools on. Refer to the video instructions for more detail.
3. Building the Dome

To lay the fire bricks for the dome and opening of the oven, you’ll use our two-part Refractory Mortar. Remember, fire bricks are very porous, so if you apply wet mortar to a dry fire brick this mortar will dry out immediately, and will not bond well to the brick. To overcome this, soak the bricks that you’re about to lay in water for at least 10 minutes before you lay them. Take the bricks out of the water shortly before you need them, then when you grab a brick to lay, if it’s soaking wet dry it with a cloth to remove the excess surface moisture.

The same issue applies to bricks that you laid earlier, maybe days or weeks before, which may have dried out. Wet down these bricks before you lay onto them, using a soaking wet sponge or a light spray with a hose.

*The Refractory Mortar that you’ll use from this point onwards is a two-part mixture, included in the kit.*

**Refractory Mortar Mixture**

- 3 PARTS ‘REFRACTORY MORTAR PART A’
- 1 PART ‘REFRACTORY MORTAR PART B’

These measurements are by volume (i.e. 3 cups of Part A to 1 cup of Part B). Mix well while dry, before adding enough water to make a smooth, thick mixture, like porridge. Take a trowel full of the mortar and hold it upside down, it should stick to the trowel. The pot life of this mix is around 30 minutes depending on the ambient temperature. Only mix what you can use in that time! Start with small batches until you get the hang of it.

This mix is ‘thixotropic’, meaning it will become more fluid (runny) when it is stirred, and very thick when it remains still. If your mortar becomes stiff in the bucket, stir it again with your trowel or mixing drill and it will become workable. **Do not add more water. This would greatly reduce the final strength of the cured mortar.**

After use, close the tops of these bags to stop the contents deteriorating and store them in a cool, dry place.

**Tips for Laying Fire Bricks**

Be careful not to ‘bump’ any of your brickwork as you build. This can break the bond between the mortar and the affected bricks. This is a big project, so take your time and be careful. Give yourself good access to your slab, you may want to make a step or use trestles to get better access once you reach the higher courses.

The mortar gap on the inside face of the oven should be kept to a minimum. Aim for brick-on-brick joints for the inside face of the dome where possible. The mortar gaps between each brick in your vertical columns that make up the entry and vent arches should be approximately 3mm thick. There are markings on the formwork to show you where each joint should be and how thick to make them. Make sure you completely fill every gap in your brickwork with mortar, from the inside to the outside face.

A rubber or ‘deadblow’ mallet is highly recommended to help you lay the fire bricks for the oven dome. A light tap before releasing the brick from the trammel helps to set the brick in place, and the mallet will be very useful for getting your Entry Arch and Vent Arch column brick joints thin and even.
3. Building the Dome

IDENTIFYING BRICKS FOR THE OVEN DOME

There are five different types of brick in your kit for building the oven dome. Our kits are shipped around the world, so we make sure there are more bricks in the kit than you need. You’ll have several left at the end!

**TYPE 1**
Type 1 Bricks are tapered in only one plane, with a rectangular front and rear face.
There are 160 Type 1 bricks in your kit.

**TYPE 2**
Similar to Type 1 bricks, but tapered in two planes, with trapezoidal front and rear faces.
There are 133 Type 2 bricks in your kit.

**TYPE 3**
Type 3 Bricks are tapered in two planes, and are about half the size of the Type 2 Bricks.
There are 39 Type 3 bricks in your kit.

**STAGGER BRICKS (LARGE & SMALL)**
Similar to Type 1 bricks, but smaller. Identified by a black line on the back face of the brick.
There are 30 stagger bricks in your kit.
3. Building the Dome

IDENTIFYING THE ENTRY AND VENT ARCHES

The bricks that make up the walls of the Entry and Vent Arch are shown below. Put these aside to avoid damage, as there are no spares for these. The Entry Arch column bricks are marked L1 to L5 and R1 to R5. The Vent Arch Column bricks are not numbered but should be easy to identify if you have seen the video instructions.

ENTRY ARCH FRONT

ENTRY ARCH BACK

VENT ARCH FRONT

VENT ARCH BACK

TIPS FOR BUILDING THE DOME

When laying the dome courses, start at the back in the center and work to the front. This keeps the brickwork you’ll see through the oven mouth neat and symmetrical, and keeps the stagger bricks hidden. Position your stagger bricks as per the course design, we have modeled the best possible spots for them.

When you reach the end of a row, there will be a gap that needs to be filled; the keystone for each course. Two options are available to you; grind a brick down to make it fit the gap, or fill it with the Refractory Castable. Remember, the D130 requires Refractory Castable to fill large gaps, not the Mortar shown in the videos.

The dome bricks butt up against the Entry Arch columns, but do not interlock with them. The joints between the dome brick courses will not line up with the joints in the Entry Arch columns - this is part of the design.

Once you have laid Dome Course 8 there is no longer any need to offset the vertical joints, besides aesthetics. Continue laying the dome courses starting at the back in the center; most of your visible joints will be offset.
3. Building the Dome

BUILDING THE DOME

You will build the dome one complete layer at a time, including the Vent and Entry Arch columns. You don’t have to complete a full row before you stop for the day, nor do you need to wait between courses. Build the dome at your own pace, taking your time and making sure you’re happy with the placement of each brick.

3A: DRAW OUT SET-OUT LINES

Position the trammel tool in the oven floor using the steel pin in the tool base. This pin fits into the hole in the center of the oven floor.

Use the trammel, along with a pencil, to mark out the continuation of the inside edge of the dome across the opening. Also mark a line along the center of the floor as shown.

3B: TEST FIT L1 & R1 BRICKS

Without using mortar, position bricks L1 and R1 with their curved edge in line with the arc you just drew. Use the formwork marked ‘1’ to set the gap between L1 and R1. The centerlines on the formwork should be on the centerline you drew earlier. Mark the position of these two bricks with a pencil on the floor tiles.

3C: LAY L1 & R1 BRICKS

Mortar the two bricks into place. Prop the #1 formwork on top of the two plastic strips provided. The reason for doing this is to ensure you can remove the formwork without damaging your arch. Leave the #1 formwork in place until you have finished this arch.

3D: LAY FIRST VENT ARCH BRICKS

Lay the two bricks at the front of the oven, using the formwork marked ‘2’ to set the gap between the two bricks, laying the formwork flat to get the bricks parallel. Again, make sure the centerlines on the formwork are lined up with the centerline that you have drawn. Allow approximately 5mm of mortar between the rear faces of these bricks and the L1 and R1 bricks.
3. Building the Dome

3E: COURSE 1 - SOLDIER COURSE

This course is special, in that it uses Type 1 bricks laid on their side as a 'soldier course' with their taper pointing into the center of the oven.

This course can be laid without the Trammel, using the floor tiles as guide for the inside face of the bricks. You can use the Trammel as a check, however it’s not designed to lay this course.

Fill the gap at either end with Refractory Castable.

3F: COURSE 2

Lay bricks L2 and R2, followed by the two bricks for the vent arch. You’ll need to set up the Trammel Tool to lay Course 2 - use the timber Dome Template and adjust the Trammel with a Type 1 brick clamped into the cradle, until the center of the brick is resting against the template. The instructional videos go through this in detail.

Lay Dome Course 2, starting at the back in the center. There will be a thick wedge of mortar between these two courses. Don't be concerned about staggering the vertical joints, lay a full course of Type 1 bricks as shown.
3G: ENTRY & VENT COLUMN COURSE 3
Lay bricks L3 and R3, followed by the bricks for next layer of the vent arch columns. This layer ‘keys’ into the entry arch columns, using special bricks which are easy to identify in your kit. Dry fit these bricks to ensure you have the mortar joints set correctly.
Don’t be concerned if you have a larger gap between the interlocking bricks and the L3/R3 bricks - these bricks are cut to allow construction tolerance and the joints will be virtually invisible once the brickwork is

3H: DOME COURSE 3
Lay Dome Course 3. This is made up of Type 1 bricks, and small stagger bricks will be needed as keystones at either end of the row. These may need to be ground back slightly with an angle grinder to fit neatly.

3I: ENTRY & VENT COLUMN COURSE 4
Lay bricks L4 and R4, followed by the two 25mm thick ‘split’ bricks for the next layer of the vent arch columns.

3J: ENTRY & VENT COLUMN COURSE 5
Lay bricks L5 and R5, followed by the two ‘springer’ bricks that complete the vent arch columns.
3. Building the Dome

OPTIONAL THERMOWELL INSTALL

If you purchased the optional Thermowell and Temperature Gauge to mount through the oven wall, take the Thermowell and lubricate the stem with vegetable oil (to prevent the mortar bonding to it).

Set it in the base of a mortar joint between rows 3 and 4 as shown. You may need to widen the joint, or grind the corner off a brick to allow room for the stem to fit.

Fill mortar around the stem of the Thermowell and make sure you’re happy with the angle it’s on. Continue the build. When the mortar has set hard, slide the Thermowell out and set it aside to be installed later, just prior to applying the Perlite Render.

3K: COURSE 4

Lay Dome Course 4. This is made up of Type 1 & Type 2 bricks, in an alternating pattern. Two small stagger bricks will be needed in the locations shown.

3L: ENTRY ARCH

Do a ‘dry-run’ of the Entry Arch, checking the gap between each brick.

Once you know the gap size, mortar the Entry Arch bricks over the #1 formwork, working from the outside in. With the full arch in place, the weight keeps the joints in compression and the arch becomes self supporting.
Allow at least 12 hours for the Entry Arch bricks to set. You can leave the formwork in place for longer, however you will need to remove it before you set up the fibreglass dome formwork. When you’re ready, pull the plastic strips from under the formwork, which will allow you to carefully remove it. If the formwork gets stuck, don’t panic! Just undo the screws that hold it together and gently tap the back piece out using a rod or similar through the holes in the front piece. With that gone, you can tap the front piece out and remove the side pieces.

3M: COURSE 5

Lay Dome Course 5. This is made up of Type 1 AND Type 2 bricks, in an alternating pattern. Small stagger bricks may be needed as keystones.

3N: COURSE 6

Lay Dome Course 6. This is made up of Type 1 and Type 2 bricks, in an alternating pattern. Four large stagger bricks will be needed in the locations shown.

You’ll need to use the Refractory Castable to fill the triangular gap left between the ends of course 6 and the Entry Arch.

If you find that the castable won’t stay troweled in place, you can temporarily ‘form up’ the inside face using a piece of plastic or cardboard propped in place as shown below.
3. Building the Dome

30: COURSE 7

Lay Dome Course 7.

This course is made up of Type 2 and 1 bricks.

INSTALL FIBERGLASS DOME FORM

At this stage we recommend you remove the Trammel Tool and use the Fiberglass Dome form to lay the remaining rows of bricks on. Put the fiberglass dome into the oven through the door or the hole in the top of the dome, and prop it in place using the circular plywood and a car jack. Some bluetack to hold the plywood support to the top of the jack is very helpful.

You can continue laying the dome bricks with the trammel tool if you choose to; it gives you more control over the final position of each brick, as you can see the inside face of the brickwork. You can't see the inside when using the Fibreglass Dome. The downside of the trammel method is that it's quite slow due to the angle the bricks are being laid on.

If you find that the bricks are starting to move once released from the tool, use this trick: soak your bricks in hot water rather than cold. The heat accelerates the chemical reaction in the mortar, making it set more quickly, so you don't have to wait as long for each brick to set before removing it from the trammel.

3P: COURSE 8

Lay Dome Course 8.

This course is made up of Type 2 bricks, with small and large stagger bricks in the locations shown.

Beyond this row there is no need to stagger the brick joints, we are now laying complete rings of brick and they're no longer visible from the mouth of the oven.
3Q: COURSE 9
Lay Dome Course 10.
This row is made up of Type 2 bricks.

3R: COURSE 10
Lay Dome Course 11.
This row is made up of Type 2 bricks only.

3S: COURSE 11
Lay Dome Course 11.
This row is made up of Type 2 & Type 3 bricks in an alternating pattern.

3T: COURSE 12
Lay Dome Course 12.
This row is made up of Type 3 bricks only.
3. Building the Dome

3U: THE KEYSTONE

You now have two options – you can cut fire brick keystones using the remaining bricks in your kit, or you can simply fill the keystone with Refractory Castable (not Refractory Mortar). You have the fiberglass dome mounted in the oven, so the form will leave a perfect dome shape on the inside of this castable keystone.

We prefer to use the Refractory Castable; it sets just as hard and strong as the fire brick, and it makes the perfect keystone because it has complete surface contact with the surrounding ring of bricks.

To make sure the fiberglass dome comes off cleanly, wipe the dome surface with a small amount of vegetable oil. Add a tiny amount of Lime to the castable if the temp is below 20°C (using the ratio of 1 tsp/25kg bag). Mix the castable to a thick consistency and pour into the void, vibrating the mix with your trowel to remove bubbles.

To prevent drying shrinkage cracking in the keystone, cover the wet castable immediately after the pour with cling wrap. Allow the keystone to set for approximately 12 hours, after which you can remove the fiberglass dome (it should peel off quite easily, and can then be pulled through the doorway). Check that the castable has set properly by tapping it with your trowel before you release the fibreglass dome formwork.

3V: CLEANING THE MORTAR JOINTS

Next you need to ‘point’ the mortar joints on the inside face of the oven, and remove any excess mortar that has bled through onto the fiberglass formwork. To do this, you will need to slide into the oven on your back...

Not much fun, but a very important part of the process! Take a small tub of wet mortar mix, several scourers, a sponge, a small bucket of clean water and a small metal paint scraper in with you. First scrape off as much of the excess mortar/castable as you can, then scrub any remnants off using the scourer.

Now fill in any holes in your joints using the wet mortar mix, and wipe off the excess (before it sets) with a damp sponge. Wash all of the brickwork with clean water and a sponge and dry with an old towel.

TIP: Don’t wait too long to get in and do this! If you wait for 12 hours after your keystone is poured, then remove the fiberglass formwork and get in there you’ll find it relatively easy to clean the dome. If you wait much longer than this, the mortar and castable will set very hard and will be quite difficult to clean off.
3W: LAYING THE VENT ARCH

You have reached the last step in your brickwork! Time to lay the Vent Arch – position the #2 Formwork at the very front of the oven, in line with the front edge of the two vertical columns. Remember to use the plastic strips which will help with removing the formwork after the arch has been laid. We recommend cleaning the oven dome before laying these bricks, to avoid damaging them when sliding into the oven.

Do a ‘dry-run’ of the Vent Arch, to check the gaps between each brick (they should be almost brick-on-brick). Once you know the required gaps, lay all of the Vent Arch bricks over the form, working from the outside in.

Leave the Vent Arch bricks to set for at least 12 hours, to avoid dislodging the bricks when the PreCast Flue Gallery is installed. Leave the formwork in place until you have the PreCast Flue Gallery mortared in position.

You’ll note that we followed a different order in the videos; laying the Vent Arch and fitting the PreCast Flue Gallery before cleaning the dome. This was due to the limited days we had for filming. If you’re not in a rush to finish the project then follow these written instructions, which reduces the risk of bumping your brickwork.

Please note the top of the Vent Arch bricks sit approximately 20mm higher than the Entry Arch bricks, this is part of the design. As a result there will be a 25-30mm gap between the Entry Arch and the Flue Gallery. You will soon want to try out your Oven Door - remember that it must be tilted forward to fit beneath the Vent Arch.
4. Installing the Flue Gallery

Now, it’s time to install the PreCast Flue Gallery. This is a job for two, due to the weight. Take your time and get this right, it’s hard to remove and do again. We recommend doing a dry run first.

4A: Wet the upper surfaces of the Vent Arch and Entry Arch bricks where the PreCast Flue Gallery is going to land. Also soak the underside of the PreCast Flue Gallery in water so that the mortar will bond properly to it.

4B: ADD SPACERS & DRY FIT

Put plastic packers 3mm to 10mm thick on top of your Vent Spring bricks and do a dry fit of the PreCast Flue Gallery to check the mortar joint thickness across the Vent Arch. You’re aiming for between 5mm and 10mm. The plastic strips that held your #1 formwork in place can be cut up to use for this purpose.

4C: APPLY MORTAR

Trowel Refractory Mortar around the packers and across the top of the Vent Arch bricks (you will fill the gap between the Entry Arch and the Flue Gallery next). Be sparing with the mortar, aim to apply just a little more than the final joint thickness, so that you don’t have to force much out when the Flue Gallery is installed.

4D: PLACE FLUE GALLERY

 Quickly, while the mortar is still wet, lower the Flue Gallery onto the mortar and ‘wriggle’ it into place until it rests on the packers. Leave the gap between the Entry Arch and the PreCast Flue Gallery for later.

Carefully remove the #2 formwork. Hold the base of the formwork in place while pulling out the plastic strips. If the formwork gets stuck, don’t panic! Just undo the screws that hold it together and tap the pieces until they loosen and come out.

4E: FILL GAPS WITH MORTAR

With the formwork removed you can fill the gap between the PreCast Flue Gallery and the Entry Arch with Refractory Mortar, smoothing off the inside face.

Remove the plastic packers and fill in the resulting voids with mortar. Scrape off any excess mortar on your Vent Arch brickwork and fill in any voids.

Congratulations - the brickwork is complete!
5. Insulating the Dome

You'll now wrap the Oven Dome in Ceramic Fibre Blanket, which is the insulation material to prevent heat escaping from your brick dome. We provide you with green ‘Vet Exam’ gloves to protect your arms from the itchy fibres, also remember to wear the appropriate safety equipment. See the instructional videos for more details on the easiest way to install the Ceramic Fibre Blanket.

5A: CERAMIC FIBRE BLANKET LAYER 1

Take the full roll of Ceramic Fibre Blanket and wrap it around the base of the dome, resting it on top of the heat bank layer. You'll need to cut ‘V’ sections out of the top of the blanket as shown to allow the blanket to wrap tightly against the dome surface.

5B: CERAMIC FIBRE BLANKET LAYER 1

Now run a section of blanket from the back of the PreCast Flue Gallery to the back of the dome, then trim pieces to fill in the gaps. Providing it’s not too windy, the blanket should remain in place. Remember to wear a good quality dust mask and goggles when working with the Ceramic Fibre Blanket.

5C: CERAMIC FIBRE BLANKET LAYER 2 & 3

Repeat 6A & 6B, but this time the horizontal section will rest on your concrete benchtop, insulating the edge of the heat bank layer. Don’t throw any offcuts away until you have the dome fully covered, there is just the right amount of blanket in your kit!

Repeat this step once more, so that you have a total of 3 layers of Ceramic Fibre Blanket over the dome.

OPTIONAL WATER BARRIER SYSTEM

If your oven will never get rained on, you can skip to step 5D. If not, we recommend that you install our water barrier system. This minimises rain water soaking into the oven base from beneath the render. When rainwater runs down the oven dome, it pools on the stand surface and can be drawn in by capillary action if the render isn’t well sealed against the stand, which is difficult to do as the render dome expands and contracts under use.

Run the aluminium flashing around the oven perimeter, including the front, and attach it using the 100mm screws, pre-drilling holes in the flashing. Don’t over-tighten the screws going through the blanket. Fold down the high sections around the floor tiles. Once you’ve completed 5E, clean the stand surface with a solvent like methylated spirits, then seal between the flashing and the stand surface with the high temp silicone. Silicone around the screw and nail holes as best you can, as well as the overlapping joint at the end of the flashing.
5. Insulating the Dome

5D: TIE WIRE

Use the 125mm nails, hammering them into the CalSil board around the perimeter, 25mm above the base at roughly 300mm spacing. Leave about 20mm hanging out, as a fixing point for your tie wire.

Use the heads of the nails as tie points to lash the blanket down against your dome using the tie wire provided. Pay extra attention to the sections to either side of the vent arch brickwork.

5E: CHICKEN WIRE

Run the chicken wire from one side of the dome across the top, to the other side, securing it at the base using the nails that you installed earlier.

You will find that the chicken wire tends to bulge out, away from the dome. You can ‘scrunch’ these sections down, which will pull the chicken wire back in against the blanket.

Run the next layer of chicken wire around the perimeter of the dome, hooking it onto the screws around the base, and fold/scrunch down the areas that are bulging away from the dome. Continue until you have covered the entire dome with chicken wire, running right up against the back of the flue gallery, and in behind the Vent Arch columns. Then, use more tie wire to lash the chicken wire down against the blanket.

Check the dome for loose wires that are poking out more than 25mm and fold them down; they may interfere with applying the Perlite Render.
Before you render the dome, finish the top of your concrete slab with tiles or stone, and seal off the exposed CalSil board at the sides and front of the Vent area using either our Stainless Steel Wrap, or an Oven Landing. If you do this now, it will be much easier to cut the tiles to fit as they don’t have to be cut very accurately.

If your stand isn’t deep enough for a landing, we have a 2mm thick Stainless Steel Wrap to cover the front and sides of the Vent area available as an optional extra. To install the Stainless Steel Wrap, tuck the lip on the base of the wrap underneath your CalSil board, and tap the wrap into place using a rubber mallet, or hammer using a piece of timber to spread the blow. Use a long nail on the left and right through the holes in the S/S Wrap to secure the sides to the CalSil board. If you have installed the Water Barrier System you’ll need to cut through the silicone along the front edge of the CalSil in order to get the lip to slide underneath the CalSil board.

If you have the space, we highly recommend fitting an Oven Landing. Landings have two key benefits; it’s a very useful area to pull large dishes onto to check how they’re cooking, and it’s also a platform to rest the Oven Door on so that it can be used as a ‘Draft Door’ (see our instructional videos on firing your oven for more details).

Polished granite is one of the best materials to use; it resists high temperatures, it’s easy to keep clean and will last practically forever. If you want to keep the landing area and tiles around your oven looking neat, use non-porous materials that won’t be easily stained by the oils from all the delicious food you’ll be cooking.

To install a landing, you’ll build an ‘upstand’ to bring up the stand height around the vent area. We use 20mm thick polished granite for the oven landing, so we build the upstand to a height approximately 25mm below the oven floor height (allowing 20mm for granite and 5mm for tile adhesive). Normal building bricks work well for this, you can lay them using mortar or good quality tile adhesive. We recommend using tile adhesive to glue the granite landing in place. There will be a small gap to fill on the left and right between the floor tiles and the granite landing, which you can fill with tiling grout or Refractory Mortar.
7. Perlite Render

To render over the Ceramic Fibre Blanket you’ll be using LiteFill Perlite – this is a lightweight aggregate that you’ll use to make an insulating render mixture. The Perlite render layer serves two purposes – it forms a thick, hard shell over the insulation blanket, and it provides additional insulation to your oven dome.

If you’re installing the optional Thermowell and Temperature Gauge, this is the time to install it. Drill a hole through the wall of the oven, approximately halfway up the dome, then slide the Thermowell rod into the hole. Use masking tape to cover the internal threaded section of the Thermowell to keep the Perlite Render out.

Leave the Thermowell sitting well off the insulation blanket, then once you have some wet render around it, you can gently push it into the render, nestling it in until you’re happy with its position.

**PERLITE RENDER MIXTURE**

- 5 PARTS LITEFILL PERLITE
- 1 PART GP CEMENT
- 1 PART LIME
- 1 PART WASHED SAND

Mix up a wheelbarrow (or large tub) of render, combining the Perlite, cement, lime and sand while dry, then add water. Mix thoroughly, adding water as you go until you’ve achieved a thick, stodgy consistency. You should be able to make a ball with this mixture, throw it up and catch it without it running through your fingers.

The Perlite Render should be put on one layer at a time; for the first layer you’ll work the wet mixture into the chicken wire using your hands. Start around the base, then cover over the top. This layer will only be around 15 to 20mm thick. Leave to set for 12hrs, covered in wet sheets or plastic to minimise drying shrinkage cracking.

Before applying the next layer, wet the surface of the existing render so the new mix will bond to it. You may need to cover the existing render with old towels and soak them with a hose in order to get enough moisture into the existing render layer, particularly if it’s been drying more than 24 hours. Trowel the next layer on, using the curved polystyrene float to help shape it. You’re aiming to build up around 15 to 20mm in each coat.

Again, let this layer cure under covers for at least 12 hours before applying the final layer. Repeat the step above, using the float to shape the surface of the Perlite Render and to show you where the high and low spots are. Stand back and look at the curve of the dome to see how symmetrical it is. We recommend that you bring the perlite render in behind the vent arch columns, then your render layer remains thick and strong.

*Pro Tip - If you’re very familiar with using render, and have a mixing drill available, it’s possible to build up the full 50mm of Perlite Render in one hit. It’s critical that the render be mixed very thick and sticky to achieve this. Please don’t try this unless you’re 100% confident.*
If you’ve built your oven outdoors and the flue will be well clear of any combustible materials as per the diagram on page 9, you can install the standard flue for the oven following the steps detailed below.

8A: INSTALL THE FLUE

Place the flue cowling (hat) on the plain end of the flue pipe, this is meant to be a snug, tight fit.

Now, fit the crimped end of the flue pipe section into the stainless steel sleeve protruding from the flue Gallery. Remove the plastic film from the stainless steel ring that covers the flue expansion joint.

8B: SECURE PIPE FOR WINDY AREAS

The flue is quite stable with only one length but if you live in a particularly windy area you may want to secure your flue using stainless steel screws or pop rivets (screws if you intend to remove the flue in future). With either method you will have to pre-drill the holes.

If you use three screws/rivets at equal spacing around the flue, this will be sufficient to hold it level.

If your installation involves anything more complex than the basic setup that we provide in the kit, you must engage a suitably qualified plumber to supply and install the flue for you. Your local fireplace store should have several professionals they can recommend. Your oven can reach extreme temperatures, to the point where the flue glows orange.

This is important, if you go down the path of installing your own flue system and somehow, your oven causes a catastrophic fire, your home insurance may be null and void. Put this in the same category as working with high voltage electricity - the risks massively outweigh the rewards. Don’t risk it, use a licensed plumber.

You may want to change the colour of the flue - let’s say you wanted it black, for example. Don’t try to paint the stainless steel flue - there is no paint available that can withstand the full range of temperature that this flue can reach. Rather, get a ‘twin-skin’ flue system, and have the external flue pipe (the second ‘skin’) painted in a high temp coating. This will also require you to purchase a ‘twin-skin’ cowling to lock the two flue pipes together at the top. These flue systems and other, more complex flues are available at good plumbing supply stores, and most wood heater retailers. Your plumber will source these components for you.

The flue should be installed whenever the oven is fired. Without the flue, most of the smoke will come out of the oven mouth and cover your brickwork with soot. Leave the flue installed unless the oven is being covered for a long period of time (eg. to protect the oven from freeze-thaw during winter in a very cold climate).
EXTENDING THE FLUE

It's very common to need to make your flue higher, and there's no problem with that, in fact it will make the flue draw even better!

Something to consider is how you will support the extra lengths. They will need to be riveted together, but even then two or more lengths of flue will not be stable, and need to be secured with struts or cables.

BENDING THE FLUE

You may have installed your oven with the mouth under the pergola and the dome outside, so that you can cook in any weather. This might mean you’ll need to ‘bend’ the flue back, to get the necessary clearance from the roof.

Having a bend is fine, but don’t angle it more than 45° as this will prevent the flue from drawing properly.

CLEARANCE ABOVE THE FLUE

You must have nothing whatsoever above your flue, just clear sky. It’s possible to build a fire so big that your flue glows orange, and flames roar from the top. You would never do this of course (we’re sure you’re very responsible), but maybe someone slightly less responsible is left in charge of the oven for a while...

Never position your flue such that it terminates beneath something, even if it’s several meters below it. Remember, nothing but clear sky.

CLEARANCE AROUND THE FLUE

Referring to the diagram on page 9, you’ll see you need at least 750mm clearance to combustibles from the flue. If you need to reduce the clearance, that’s easy! A ‘twin-skin’ flue reduces the clearance by a lot, and a ‘triple-skin’ flue brings it down to almost no clearance at all.

This of course, is the realm of the professional. A qualified plumber can assess your installation and advise you on the flue system you need.
9. Curing the Oven

CURING THE OVEN

Regardless of the weather conditions during your build, when you are finished your oven will still be holding water. Each brick was soaked before being laid, so your oven will be holding water in the walls, floor and CalSil board. If you lit a large fire in the oven now, this water will vaporise and cause significant damage! You need to slowly dry the oven out, or ‘cure’ it before you start lighting serious fires. Before you start your curing fires, you need to wait long enough to allow all of the refractory materials to set properly before getting heat into them.

THE SEVEN AND TWO RULE

Your Refractory Mortar needs to set for at least 7 days before you light the first curing fire.
Your Perlite Render needs to set for at least 2 days before you light the first curing fire.

EXAMPLE 1:
You’re an oven building machine, and you complete the dome bricks, insulation and render all on the same day. You would then wait for 7 days, giving the mortar and the render both enough time to set.

EXAMPLE 2:
You build the oven at a more enjoyable pace; you completed the brickwork two weeks ago, and just today you’ve put your final coat of Perlite render on. You would now only have to wait for 2 days, as the mortar has already had plenty of time to set good and hard, you just need to allow the render time to set.

Before you light your first curing fire, clean the stainless steel flue to remove any marks or fingerprints left on it from installation. Use a solvent such as methylated spirits, thinners, acetone or rubbing alcohol to wipe the surface down, then wash with soapy water before drying with a soft cloth.

**It is critical that you watch the instructional video that we’ve made for Curing your Oven. While it’s not rocket surgery, it’s something that is much more easily communicated by video than in these written instructions. Head to our website or YouTube channel to find this video, which takes you through the process.**

CRACKING

Please note that it is completely normal to see some hairline cracking in your oven, in fact we can guarantee that you will! This is because you’re heating up a rigid, ceramic structure to extremely high temperatures, which creates thermal stress in the brickwork. To relieve this stress, the oven will develop several small cracks, usually around 1mm in width. It’s common to see a crack starting at the base of the dome that runs all the way up to the keystone, as well as some fine cracks in the mortar joints of the Vent Arch, and around the Flue Gallery. You’ll also see some cracks in the Perlite Render radiating from the junction with the Flue Gallery.

Don’t let these cracks concern you at all. You should be expecting them. This cracking is normal and there’s nothing that you can do to prevent it. Cracking is and always has been a part of owning a Wood Fired Oven. What’s important to know is that they won’t get worse over time, they’re just there as thermal stress relief.

If you get a large crack in your mortar (over 2mm width) then we have repair materials that can be sent out to you, however this is rare, and is usually due to the oven being over-fired early in the curing stages. Any cracking in the Perlite render will be covered by the roll-on acrylic coating that you’ll apply once the oven is fully cured.
10. Painting

PAINTING THE FLUE GALLERY

The PreCast Flue Gallery comes in the kit in a plain cast finish, which is a light grey colour. You can leave it in this finish if you want a more natural look, or coat it with high temp paint which sets it off against the bricks. Make sure the oven is fully cured before you paint the flue gallery, to avoid blistering when the oven is fired.

There are a range of high temperature paints available, however there are very few colours to choose from. We have tested almost all the available high temp paints and the best performing paint we found was PPG Temptec 328, which we have available as an optional extra in spray cans coloured satin black.

Mask off the edges of the brick work with masking tape and paper. Ensure the surface is clean and free from dust, wipe the surfaces down with a solvent such as mineral turps or paint thinners to remove any traces of oil and allow to sit for one hour before painting. Apply the paint in several light coats leaving at least 30 minutes between coats and allow to dry for at least 12 hours prior to firing the oven again. Please note that while you can spray paint the flue gallery before you install it and touch it up later, we recommend that you wait until it’s installed and cured with the oven, to minimise the chances of blistering in your coating. There is plenty of paint in the can, keep the remainder - if you get any small blisters these can be sanded back and resprayed.

ACRYLIC ROLL-ON RENDER

Once you have cured your oven, you need to apply at least two coats of Acrylic ‘Roll-On’ Render over your Perlite layer, as the perlite render is very porous and will absorb almost all of the rain that falls on it.

Acrylic Roll-On Render is essentially a thick, elastomeric paint with a fine aggregate similar to sand mixed through it for texture. This creates a stretchy water resistant membrane over the dome of the oven. There is a 5L tub of this render included in your kit in pure white. You could have this tinted to a different colour at your local paint store, or coat the dome in white and use another roll-on render coating over the top.

Wait until the oven is completely cured and dry before you put it on, or you will get bubbles forming in the acrylic layer from escaping steam. This means doing the full 7 days of curing and at least four major firings. Wait for a day of good weather with no chance of rain to apply the first coat, nice and thick, allowing at least 12 hours for it to set before applying the second coat. The key is to make sure that the roll-on render doesn’t get even slightly wet for a minimum 48 hours after the last coat is applied. Any rain or dew on the roll-on in the first 48 hours can cause serious issues. Use a normal paint roller or brush to apply the roll-on render.

You’re not limited to just leaving the oven in a rendered finish – you could cover the dome with tiles, slate, river pebbles or even another layer of bricks. What you do from here is up to you! Once you’ve driven all the water out of your oven, the render will only get mildly warm from being fired, so there are a wide range of materials you could cover the dome with. Get creative!
Examples
Examples
Summary

Time to get cooking!!

We hope that you have enjoyed the process of putting your oven together as much as we’ve enjoyed developing the kits to the stage they’re at today. The time you have put into building your Wood Fired Oven is going to pay for itself many times over in the years to come, as you sit around the oven spending relaxed, quality time with your family and friends, enjoying food that’s been cooked by a real wood fire.

From the whole team at The Fire Brick Company, thank you for choosing us. You’re not only a customer, you’re now a part of The Fire Brick Co. family and we’re here to support your wood fired endeavours in whatever way we can. We have a number of videos and other resources to help you with using your oven, now that you have it built, and will be adding to them on a regular basis. If you have any questions at all about using your oven, don’t hesitate to reach out to us, we would love to hear from you.

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