

# OPERATING MANUAL FOR WOOD-FIRED BRICK OVENS

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This PDF manual is intended to assist the new or experienced brick oven baker in getting the most out of the effort and care which is the fun of wood-fired cooking in brick ovens.

Recommendations and techniques, if followed with common sense, should produce similar results as I have experienced in the many firings and bakes in the ovens I've built and used.

This free download contains excerpts from True Brick Ovens' blog as well as information added for the purpose of clarity. Questions from readers are welcome and answers may appear as future parts of this PDF.

Thanks to all the masons, bakers, gourmets, and especially customers who have contributed thoughts, questions, and techniques to this manual.

Disclaimer: Fire is fire. Contained properly in a brick oven it will do wonders. Otherwise it is very hot and has been known to burn food and other flammable things.

Contained here are chapters on:

1. Before you Start the Fire
2. Curing the finished oven
3. Test-firing the oven
4. Strategies for heating a brick oven
5. Gauging the Fire
6. Ready to Cook
7. Live Fire
8. Fuel
9. The Four Seasons



## BEFORE YOU START THE FIRE



Most current brick ovens have a throat and flue in front of the baking chamber. The front hearth is below the flue and is where the first fire is built. BUT before you ignite a pile of dry kindling, it is wise to check the draft. Chimneys above six feet in height should have a natural draft that can be detected by holding a candle in the mouth of the oven. Taller chimneys create enough natural draft to perceive with your hand. The draft should be going UP. If you find that there is no draft a damper may be closed. If the draft is coming into the room it may be the fault of some over-powering exhaust fan in the room itself.

You'll want dry hardwood for firing the oven. Hardwood contains many more BTU's than softwood (conifers) and burns to coals rather than ash. Dry firewood makes using a brick oven easy. If you can allow the firewood for the oven to air dry for a couple of years you should be all set. Otherwise, skip to the FUEL page of this manual.

## CURING THE FINISHED OVEN



No matter what kind of oven you have, the mortar and other refractory materials need to be 'cured'.

Following construction of a brick oven, many quarts of water from mortar and cutting brick are left in the masonry. This water needs to be driven out slowly otherwise high-temperature steam, trapped in the middle of the masonry

may explode,

not ending the world, but causing some structural damage.

Your first firing needs to be slow and long.

Start with a little kindling fire under the throat.

This warms the chimney and improves the draft or smokes out and up the face of the oven if there is no draft or in the case of cob ovens, no chimney. Once the kindling is burning well it can be moved backward a few inches at a time. The addition of small sticks of wood will keep it going. The goal is to have a small fire burning brightly in the center of the oven.

Eventually an infrared thermometer shot at various points (not the flames) should show



350F. Then it's time to stop and let the moisture move outwards. You will see or smell this steam. This is good and will continue for some hours.



## TEST FIRING THE BRICK OVEN



A test firing is the first time you bring your new oven up to baking temperature. If your goal is pizza, then this will be about 750F. Expect to drive most if not all of the leftover water from the masonry. Again, it is best to go slowly. In the future, you will be able to run the fire hot and attain high temps in less than two hours but for this firing, six to eight hours of leisurely stoking will serve the new oven better.

Start the fire as you did the curing fire. When you begin to move the fire backwards, add large chunks of split, dry hardwood and allow it to burn nearly to coals before adding more.

Get the fire to the middle of the oven and continue adding large pieces of wood, not often enough to produce billows of smoke and flame. The interior of the oven will be black with soot. At some point, the edges of some bricks in direct contact with the flames will lighten as the carbon is burnt away. Gradually, the whole oven will lighten. Visually, this is around 600F.



This is a good temperature to try your first baked item (small pizzas recommended). Push the coals to the rear (or side) of the oven, sweep the floor clean, and measure the floor temp. The infrared thermometer will read high where the fire sat.

Let the temp drop to 700F and try sliding a small pizza on the floor in the middle. Be prepared for the crust to puff and brown quickly. If all goes well, the cheese will have melted and the crust browned in about 90 seconds. Test firing is over.

# STRATEGIES FOR HEATING A BRICK OVEN

There are a number of methods for getting your oven to temperature.  
Straightforward firing, Spiking, and Soaking.



The **straightforward** method is to start the fire in the front, move it backwards, burn off the carbon, and begin cooking

**Spiking** the oven is done when you want to cook just a few items

quickly. This can be accomplished in as little as half an hour for pizza. A hot fire is built and fed with small wood, filling the chamber with flame. You are heating only the first half inch of masonry surface on the interior of the oven, just enough to get the job of baking a few pizzas, or a pan of mussels, or a fillet of fish on a cedar plank.

**Soaking** the oven is necessary when you want to bake for a long time. It is no more difficult than any other method but takes longer. Heat travels from the interior surface of the oven to the depth of the solid masonry. Hopefully, the exterior of the masonry is insulated so that the heat doesn't continue outwards indefinitely.

By taking a long time to heat the oven, the interior masonry is more evenly heated to a high temperature. It is soaked with heat.

A soaked oven will cook food, at descending temperatures, for days. I have had my oven still too hot to touch the floor 60 hours after a pizza firing and after five meals had been prepared and consumed.





## GAUGING THE FIRE



A brick oven fire passes through a number of stages evidenced by the way the wood burns. Early fires are like campfires, lively and a bit smoky. As the oven heats up, introduced firewood catches more rapidly making feeding the fire feel effortless. Towards the upper temperatures the wood will release secondary volatile fuels producing extraordinary quantities of heat. So go easy on feeding the fire when

the oven is past the carbon burn (600F).

I have found a hand-held infrared thermometer useful in measuring brick oven temperatures over the course of heating and eventual cooling. The thermometer has also been a good training tool, teaching me how my oven is behaving.



Back in the year, the oven temperature was gauged by sprinkling cracked grain sprinkled on the hearth.

The rate at which it browned (or charred) informed the baker.



A French baker I know uses a piece of crumpled newspaper held on the peel by a stone to measure the oven temp. Paper burns at 451F and this baker watches the paper. He also slides a test loaf in the oven before forming the other 60 loaves that he bakes and sells every Tuesday.

## READY TO COOK

A wood-fired brick oven is the ultimate cooking device. It is possible to cook food from about 15 minutes after starting the fire up to three days after the heating fire has gone out.



Here's a list of cooking styles and time after lighting fire for cooking:

1. Grilling 15 minutes
2. Pan Roasting Vegetables 30 minutes
3. Broiling fish 45 minutes
4. Searing meats 60 minutes
5. Pizza 90 minutes 750F  
Fire done...door shut...

6. Pies and Breads (later) 500F
7. Frittata (next morning) 400F
8. Roast Dinner (next evening) 325F
9. Beans or other casseroles (overnight) 300-250F
10. Slow ribs or brisket (all day) 200F
11. Dehydrate fruit (next 48 hours) 140F-100F

Any of the rising temps can be interrupted to use the oven for roasting or smoking food. For example: When oven is at 425F, I have pushed the coals back with an apple wood log,



placed a butterflied turkey on a rack in a pan inside the oven and closed the door.

The turkey came out 90 minutes later browned and deeply smoked.



## LIVE FIRE

Foods that require a broiling or roasting flame are cooked with what is known as a live fire.

The door is left off for this, the fire and coals are pushed to the back of the oven (I recommend an curved iron bar to be inserted and used to hold back the coals), and small sticks of hardwood are introduced with the peel so that a lively flame curls across the top of the oven.

The live fire is standard for pizza making.



Once you have finished making food with a live fire, the oven door can close the chamber preserving the heat of baking for many hours or days



## FUEL



Brick ovens assume the use of wood as fuel. Hardwood (oak, maple, ash, birch, hickory, apple, pecan, almond, etc.) is preferred. These woods are available for purchase depending on the region of the country or world. Heavily wooded regions have easily available firewood in quantity and cheaply.

Dry wood is essential. Firewood that sizzles as it burns does not produce much heat (and many boy scouts will attest). Air-drying firewood is easy given some advance planning. An alternative drying method to time-seasoned wood is oven-dried wood. Following the first oven firing, when the interior temperature is below 350F, firewood placed in the oven will dry very well. This quantity of wood should be sufficient for the next firing and the process repeated.

In other regions of the world by-products of agriculture are used to fuel the oven. Grape vine prunings, broken branches of trees, nutshells. In the Perigord region of France, I know a baker who uses walnut shells (quantities of which are available after each walnut harvest season) to fire the majority of his oven cycle. Following the initial wood startup of the oven, a paper bag filled with walnut shells is pushed into the oven. The ensuing walnut oil-fueled flames are intense.



The important factor is finding a fuel that is renewable as well as containing ample BTU's to heat the masonry.

Fuels such as propane, coal, peat, and dung are alternatives but may have downsides.

## THE FOUR SEASONS

The external temperature of the space the oven is in doesn't affect the interior temperature dramatically. Outdoor temps are more likely to affect the cook and the food.

Mid-winter in New England outdoors can take the fun edge off of brick oven baking. I recommend three-season or indoor installations.

In the old country, the foods cooked in brick ovens followed the seasonal harvest.  
Root vegetables roasted in a brick oven in October taste better than one can believe.



Winter: Use your indoor brick oven to make food all week.



So, to every season...

Spring:  
stack firewood  
to dry over the summer for next year's baking.  
Summer: Have lots of parties. Make pizza dough and invite friends to bring toppings.  
Fall: Roast meats, bake pies and breads, even Thanksgiving dinner (in U.S.) and have parties.

