The Cottage Industry Kiln

This kiln was built for a cottage-industry level of production. Internally, it is a 30” diameter octagon about 28” high, with both the inlet and exhaust at the floor level. The 6” diameter stack is controlled by a damper, and is about 12 feet high.

It is well insulated in order to minimize the amount of fuel needed. The walls and lid are 10” to 12” thick, and are a combination of clay, sand, a little cement, and about 30% to 40% vermiculite (a high-temperature insulating material made from mica).

A wooden form for the lid was built inside the kiln, and the lid itself was cast with pieces of sheet metal to divide it into four sections. The wooden form was burned out after the casting had dried and cured for about a month – probably more time than necessary.

The fire box is an 8” pipe that feeds the wood vertically into a small intense fire at its base. The principle and technology of this style is detailed in the section titled “Basic Stove”.

The 6” flue is visible taking off at an angle immediately to the right of the “muffin.” By looking closely, you can see a ¾” diameter hole in the top surface of this pipe, about a foot from the kiln. This was used for inserting and igniting flammable materials to initialize the draft. This hole was covered by a small wad of mud once the draft was established. Just out of the picture to the right, the flue goes vertical to a total height of about 12’, and is topped by a spark arrestor made from ¼” hardware cloth.

In the photo below you can see the come-along hanging over the lid sections. This was suspended from a frame of galvanized steel tubing (“top rail” used along the tops of chain link fences) to assist in manipulating the lid pieces. These pieces weigh approximately 150 lbs apiece, and even though you may be brute enough to manage them, such tools make things a lot safer.

A hole was drilled through the segment, a rod inserted, and a toggle fixed to it on the underside. It would have been easier to simply cast a steel handle in each segment of the lid, but that would have created a problem. Steel expands with temperature at a much higher rate than concrete, so with the

temperatures involved here, a steel hook would almost certainly have fractured the surrounding cement. It might still have worked however, if it had first been wrapped with cardboard.

After feeding the fire all night and half the next day, the kiln (and my youngest son) took a day off to rest and cool down. When it was opened not one of the twenty-five pieces had been damaged.

In the photo below you can see where the fire enters through the floor on the left, and the flue exhaust exiting the floor to the right. By having both source and exhaust in the floor, the temperature stays relatively even throughout the chamber.


A second burn used a 12-inch diameter piece of stainless-steel, a supply of forced air, and applied a flow of used crank-case oil for the final stages (The kiln was heated by wood until the final 2-1/2 hours).