

THE KACHELOFEN: ITS TIME HAS COME, AGAIN

by Nadia Slawinski



Imagine that you are sitting in a room in your home, reading a good book, nestled right up against an oven whose clay-tile surface is keeping you warm. There is a built-in wood bench surrounding it, which encourages you to cozy right up against its wall. You realize that the entire day has gone by, and you have not added a single log to the firebox. It has maintained its consistent warmth for about twelve hours, and you are just now starting to consider adding three small logs into it so that it will keep you warm until you wake up tomorrow morning or later. For Jessica Steinhäuser, owner of Guelph, Ontario's Stonehouse Pottery, that image is a reality.

"Growing up in Nuremberg, Germany, we had a *kachelofen* [tiled stove] in our house and the memories of this easy, comforting heating method are what inspired me to expand my business to offer custom-built kachelofens," she explained.

In 1985, Steinhäuser apprenticed for three years at the Staatliche Fachschule für Keramik in Landshut, Germany. The school, founded in 1873 and offering a certificate program in all aspects of ceramics, is where Steinhäuser learned to make *kachels*, the hollow tiles used in the kachelofen's construction. Following her apprenticeship in Germany, the demand for Steinhäuser's unique earthenware pieces steadily increased, as did her technical mastery of the wheel over the next twenty years. This has culminated in a 2007 nomination for the YMCA/YWCA Women of Distinction Award for Steinhäuser's numerous contributions and advancement of the arts in her community.

The twenty-year anniversary of her ceramics studies inspired Steinhäuser to revisit an earlier dream of designing and building kachelofens. In 2005, she went to Austria to work alongside a master oven builder. "I went to Austria to get a better idea of how the oven builder puts it all together, so that I would know why I built the tiles the way I was taught, and consequently, to perfect the oven's overall design."

The kachelofen is making a comeback in Europe and gaining popularity in North America because of its environmental

Steinhäuser's kachelofen in her studio is a rectangular structure measuring about three feet wide, two feet deep and eight feet high, with a cast iron door fitted at the bottom.



The kachels laid out in the foreground are for the kachelofen pictured to the right.



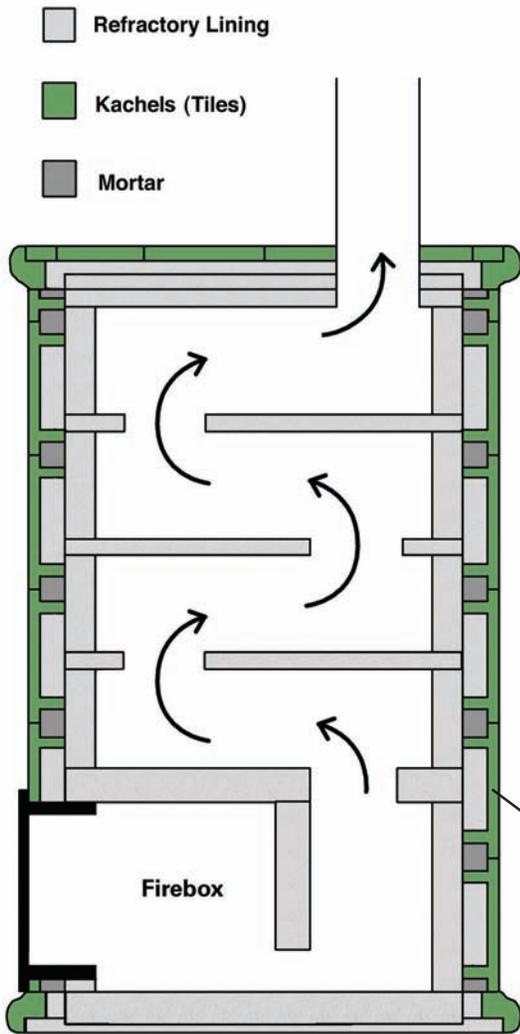
Kachels are set first with mortar (which is 25% grog and 75% clay) and wire "staples." The flue structure is built inside, layer by layer, from the ground up.



As the rows of kachels are set, Steinhäuser removes wooden spacers and finishes the outside mortar joints. Excess mortar is removed with a sponge.



Steinhäuser displayed this kachelofen this past June in an exhibition at the Rail's End Gallery in Haliburton, Ontario, with the help of an exhibition grant from the Arts Council of Ontario. The oven consists of a cylindrical body of square kachels that are set on top of a base with a bench. Including some sort of seating area is typical in kachelofen design.



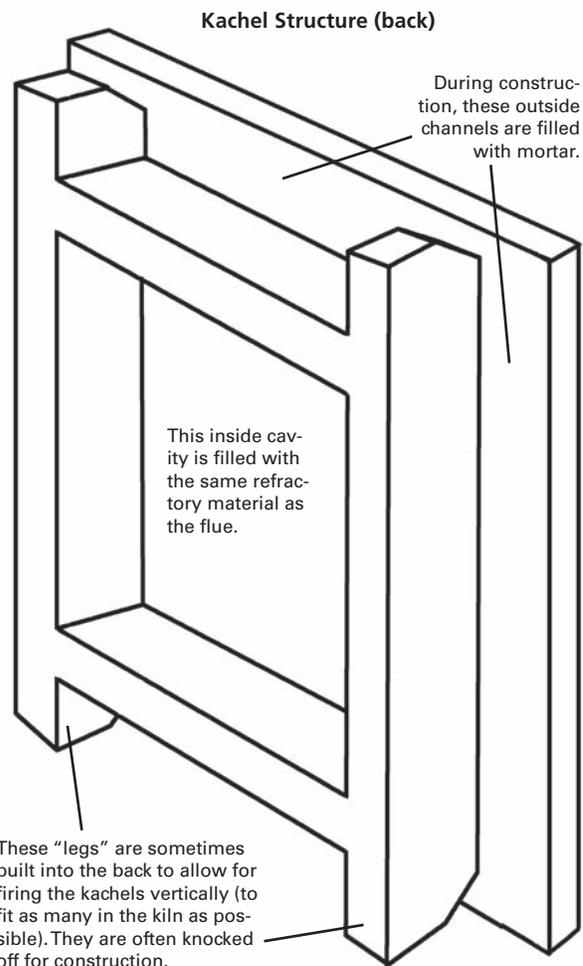
The Inside

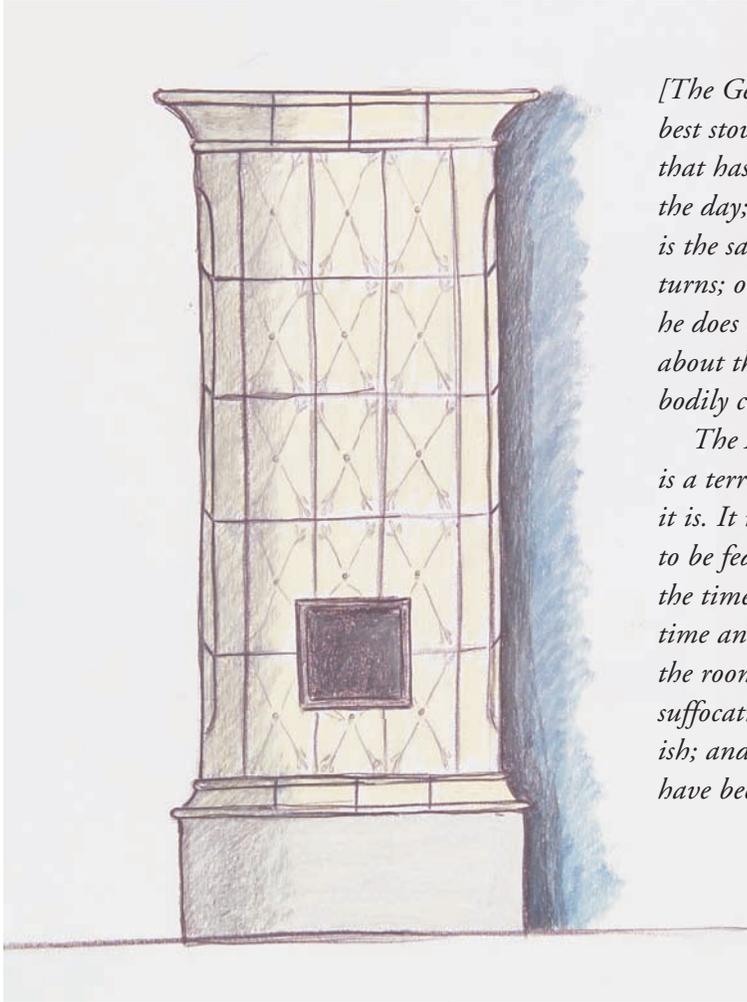
The inside of the kachelofen consists of flues built from special refractory brick. The fire chamber is quite small and sends the gases created by the fire on a slow and winding trajectory through the various flue channels. This process heats up the kachelofen's entire mass and enables the heat to evenly radiate long after the fire has died down. The diagram above shows a simplified approximation of a typical flue structure. The flue structure is custom built for each oven, which means employing a certified oven builder.

The Outside

A kachelofen is built from several kachels, or hollow brick tiles, which are mortared together. A kachel consists of a clay slab that has a hollow frame also made from slabs. In the later phase of construction, the kachel's cavity is filled with a special type of refractory brick. This increases both the mass and overall heat storage capacity of the kachelofen. The clay used to make the kachel is a low-fired clay with large amounts of grog mixed in.

The mortar used to build a kachelofen is made from a mixture of three parts clay and one part grog. To properly set the kachelofen, the kachel must be fully immersed into water. The two sides which adjoin the preset kachel then get rubbed with the mortar mixture. A roll of mortar is then added onto both of the "rubbed" sides, and the kachel is set in place. A *zwicker* (a broken piece of bisque-fired clay) is then pushed into the wet mortar. The *zwicker* will strengthen the entire structure and absorb the mortar's moisture, enabling it to set more rapidly.





[The German stove (Kachelofen)] is by long odds the best stove and the most convenient and economical that has yet been invented. One firing is enough for the day; the cost is next to nothing; the heat produced is the same all day, instead of too hot and too cold by turns; one may absorb himself in his business in peace; he does not need to feel any anxieties of solitudes about the fire; his whole day is a realized dream of bodily comfort.

The American wood stove, of whatsoever breed, it is a terror. There can be no tranquility of mind where it is. It requires more attention than a baby. It has to be fed every little while, it has to be watched all the time; and for all reward you are roasted half your time and frozen the other half. It warms no part of the room but its own part; it breeds headaches and suffocation, and makes one's skin feel dry and feverish; and, when your wood bill comes in, you think you have been supporting a volcano.

— Mark Twain, 1891

excerpted from "Some National Stupidities," from *Europe and Elsewhere*, Harper & Brothers, 1923.

friendliness and because of the rise in home energy prices. One fire, or three wood logs, delivers eight to fifteen hours of radiant heat. The oven's gases are non-toxic, and the dust-free heat makes this particular oven an excellent choice for allergy sufferers. The ovens are in such high demand in parts of Europe that there is, at times, a one-year waiting list to commission a master oven builder to design and erect an oven.

The kachelofen's sculptural beauty is matched only by its history and efficiency, which are interwoven. In various forms, these ovens have been heating houses in Europe for approximately 1500 years. Between 1550–1850, Europe underwent a period of extreme cold called the Little Ice Age. In that period, the harsh climate inspired several innovations which greatly improved the efficiency of European masonry ovens. Several governments and heads of state within Europe created incentives to build better ovens, including Frederick the Great of Prussia, who staged a competition in 1763 for the oven which could burn the least amount of wood. The ongoing refinement of these ovens has, through the centuries, paved the path of high efficiency for today's kachelofens.

Steinhäuser has worked hard on her dream to bring the kachelofen to Canada because "it creates a physical, as well as an emotional sense of warmth. It is the hearth, and the heart, of the family and the home it inhabits."

For more information on kachelofens, visit www.stonehousepottery.com.

Radiant Heat:

Because of the complex flue structure lined with a lot of thermal mass, kachelofens are able to radiate constant, even heat for 12–24 hours.

Lower Fuel Emissions:

The small, high-temperature fire of a kachelofen burns at 99% efficiency, which surpasses modern gas or oil heating systems in emission tests.

Versatility:

Kachelofens can be created to heat one or more rooms, installed with an oven and/or stove for cooking, designed to heat some of the home's water, or used in conjunction with solar panels.