# Living with a Masonry Stove

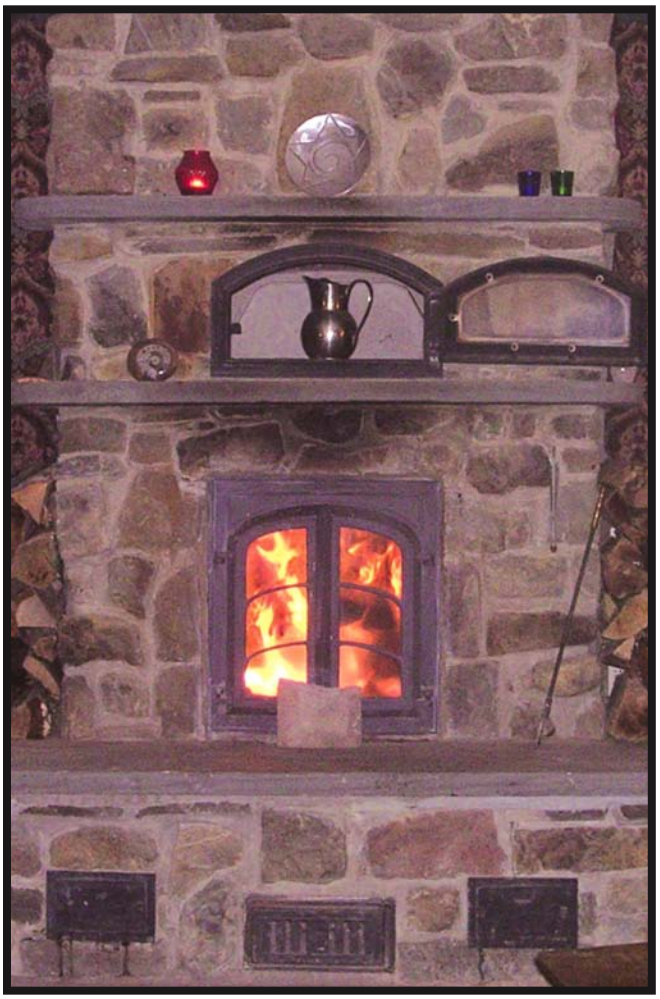
**Kate Mink**



In some climates, the only shelter people really need is a roof to keep off the worst of the sun and rain. For most of us, however, shelter means not only some sort of enclosure, but also some means of moderating the environment inside. Shelter takes a lot of our resources, and it's worth our time to consider how we can best provide ourselves with comfortable nests.

Since you're reading *Home Power*, your definition of "best" probably includes some measure of efficiency and sustainability, as well as safety and perhaps beauty. After a lot of thought and research, I decided a few years back that for me, the best fit for all of these criteria was a masonry, or Russian, stove.

This was a big decision, in many ways. Masonry stoves are expensive—US$5,000 and up. And they are big—they weigh a few tons, and require a hefty foundation and a lot of floor space. It would be an ongoing embarrassment to end up with a mistake that big crouching in my living room!



**This masonry stove is the focal point of the author's living room and provides soft radiant heat long after the fire is out.**

Well, for me it wasn't a mistake—I love the thing. Still, as with the people, the books, or even the foods that I love, I can see that a masonry stove might not be for everyone. So here is a brief report of my experiences that I hope will help you judge for yourself.

My masonry stove has a core of special precast pieces, a facing of local stone, and a conventional masonry chimney. The core came from Masonry Stove Builders of Shawville, Quebec, Canada. Norbert Senf, the owner, is very knowledgeable, helpful, and enthusiastic, and was a delight to work with. He can design stoves of widely varying sizes, shapes, and amenities. He included doors, foundation and chimney specifications, and all of the directions that my local mason needed to finish the stove. Ellis Brothers of Binghamton, New York, built the shell and chimney.

## It's Still a Stove

A masonry stove is not a furnace with a thermostat. You have to light and stoke the fire; you have to clean out and haul away the ashes. You *can* hide a masonry stove in the basement, or even in its own building, and run forced air or hot water heating ducts or pipes from it. However, that loses its major advantage—thermal mass. It's far more efficient and comfortable to have it radiate directly into your living space.

For many of us, the big appeal of a wood (or coal, or pellet) stove is the radiant heat. To have a place in the house that is genuinely, even extravagantly warm, where we can take off our sweaters and bask, even when it's below zero and howling outside…ahhh! If this is what you're looking for, a masonry stove is the best.

You get not only the direct heat when the fire's burning, but also long-lasting, steady warmth from the rock—it stays noticeably warm for 12 to 24 hours after a fire. You can use that warmth to dry and heat your bath towels, boots, and gloves; to dry food; to dress by; and to sit on or lean against. Our cats spend a lot of time loafing on that warm rock, and so do we.

## It Needs Wood

A masonry stove has some hassles that are common to any device that burns wood—wood storage, wood bits everywhere, and ashes. Some people are just not up for dealing with wood at all. Sometimes, I can't blame them a bit, such as when I've just dropped a log on my foot.

Wood is a great fuel if you live in a low-density area and are up for a certain amount of physical labor. Otherwise, it's probably not a good choice, and any book on wood heat will make that pretty clear. So, assuming wood's a good fuel for you, when is a masonry stove the best way to burn it? For me, the critical factors were these.

**Fuel.** I live where it's easy to cut or buy wood. For financial and environmental reasons, I prefer to burn it as efficiently as possible.

**Ambiance.** I love the feel and features of a woodstove, from drying socks to gazing at the flames.

**Opportunity.** I was able to design a new house around the masonry stove, providing space for stove and wood, decent insulation, and an open plan that makes good use of a central heat source.

**Convenience.** I have a day job. I'm not home to feed a regular woodstove all day. With this stove, I only need to make one fire in the morning and one in the evening.

**Safety.** I have a child and cats, and have lost a wooden house to fire. Except for the firebox door, the surfaces of my masonry stove never get too hot to touch; they rarely get too hot to lean against. Combustion in this stove is so complete that creosote is not deposited, so you don't run the risk of chimney fires. (Nonetheless, you should have your chimney inspected annually—it's worth it to be sure.)

**Aesthetics and sentiment.** My stove is faced with rocks from my own land that I picked and washed. This saved me a little money, but more important, it was fun and deepened my connection to the land we live on. My stove is very much on the down-home side. You can see lots of sleeker, more upscale examples at many builders' Web sites, including Masonry Stove Builders and Temp-Cast.

**The author's daughter Lexa demonstrates efficient basking behavior, warming herself against the warm (but not hot) thermal mass of the masonry stove.**

## Building the Fire

Here's the routine I follow through the winter in using the masonry stove. Every evening, and mornings if it's cold enough, I scoop out ashes if there are a lot of them in the firebox, and put them in a small, covered, metal ash can. About once a week, I also open a front access door and pull accumulated ashes from under the firebox. Then I build a fire.

This is a three-step process. First I crumple four or five sheets of newspaper in the bottom, add a couple of pieces of cardboard or heavier paper, and then three or four pieces of kindling (about 1 to 2 inches; 2.5–5 cm in diameter), alternating the cardboard and kindling. Then I put a couple of wedges of larger wood (3 to 4 inches; 7.6–10 cm) on that at right angles to it, and some more cardboard pieces between these. I light this, and close the doors.

In ten minutes, I come back and put a few logs on. Ten minutes after that, I fill the firebox with logs, close the doors again, and I'm done. If I'm running two fires a day, I can put all the logs on as soon as the kindling's well caught.

This is truly a simple process. My ten-year-old does it reliably and safely with supervision. If you actively enjoy fussing with fires, and pride yourself on your skill in building them, this kind of stove may not be for you, because unless the stove's cold and the wood's

## Thermal Mass Comparison

Metal

Soapstone

Tile

Masonry

Less Mass → More Mass

Tile photo courtesy of Sun Spot Solar, 570-422-1292, www.sssolar.com.
Masonry photo courtesy of Temp-Cast Masonry Heaters, 800-561-8594, www.tempcast.com

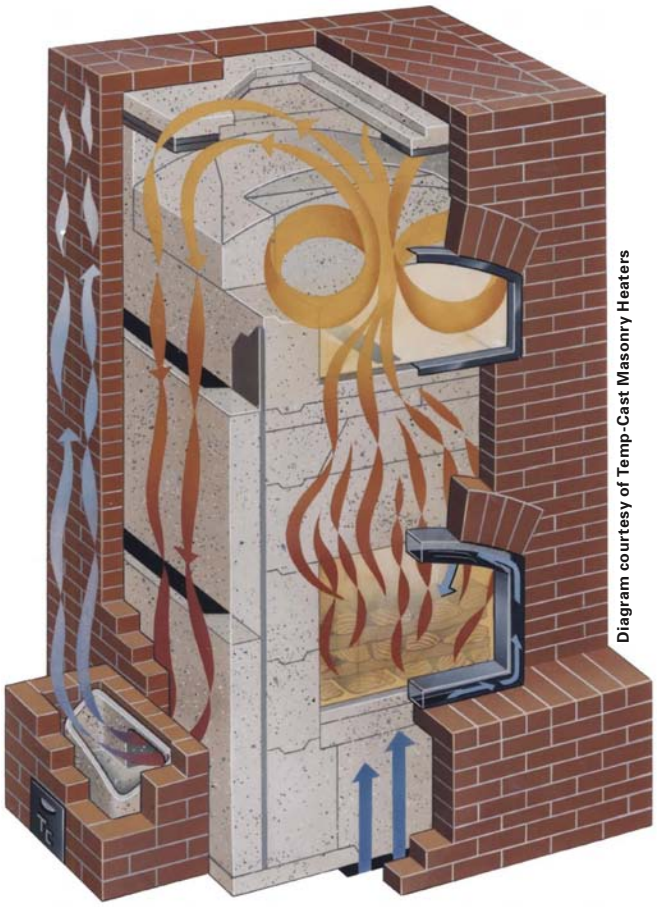


Diagram courtesy of Temp-Cast Masonry Heaters

**Serpentine air flow through a typical masonry stove helps warm the large thermal mass for efficient and comfortable heat.**

wet, there's just no need for virtuosity. Fires seem to catch better if you stack the logs end-on to the door, as opposed to crosswise, because the air flows from front to back, but even that's not critical.

You do use a lot of kindling, compared to a stove where you rarely let the fire go out. If you buy wood, it's worth making sure that you get all sizes in a load. If you cut wood, you can use up a lot of small branches. Once or twice a week, I use a wheelbarrow to bring in wood from various outdoor stacks to indoor storage. This takes fifteen minutes to half an hour. I have room to keep about a week's worth of wood inside.

## Hot Water, Dried Fruit, & Baking

My stove has a baking oven in it, over the firebox. This is a "white" oven, which means that the hot fireplace gases don't go through it, but around it. (There are also "black" ovens, which gases go through; these can't be used while the fire is burning—they bake with residual heat only.) I use the oven several times a week, for everything from keeping a pitcher of water hot to drying gloves.

The keys to successfully using this oven, learned from harsh experience, are:

- Keep an oven thermometer in the oven, so you don't try to bake when it's not hot enough.
- Keep a rack on the floor of the oven; don't put things directly on the floor, which gets very hot.
- Never shut the oven door when there's anything in it other than food. Sooner or later, you'll forget that there's something there, start a fire, and end up with singed socks or melted gloves. Yuck.

A few times a year, I cook in this oven, usually roasting a chicken or baking bread. It works fine, and gives me that smug, self-sufficient feeling that is one of the little joys of living with renewable energy. I have to bake a couple of hours after I start the fire, and it helps to rotate bread once (otherwise it becomes lopsided because the heat isn't perfectly even). Allegedly, it can get hot enough to make a really good pizza crust (600°F; 316°C), but I've never seen a temperature above 400°F (204°C).

## Heating the Home

We do have a backup heating system—hot-water baseboard heaters fueled by propane. We almost never use it, because its pump is a steady consumer of electricity. I'll turn it on occasionally on a cold, sunny day, but most of winter here is cloudy. When I get my wind generator back on line, I'll have the capacity to run this system more, but I still won't be fond of using gas for heating, and anyway, I've proven that we don't need it.

**Handy tools for working with a masonry stove: metal ash can, clean-out hoe, dustpan and brush, poker, gloves, and door opener.**

## Maintenance Schedule

| Frequency | Task | Time |
|---|---|---|
| Once or twice daily during heating season | Clear ashes & build fire | 10–15 min. |
| Once or twice weekly during heating season | Bring in wood | 15–30 min. |
| | Empty ashes from main clean-out | 10 min. |
| Once monthly during heating season | Clean glass doors | 10 min. |
| | Brush off or vacuum stove | 10 min. |
| Once a year | Clean whole exterior | 30 min. |
| | Have chimney inspected | 30 min. |
| | Do any required maintenance | 0–3 hrs. |
| | Order wood | 5 min. |
| | Stack wood outdoors (summer & fall) | Several hrs. |
| Every few years | Vacuum out secondary clean-outs | 30 min. |

We've lived here and used the masonry stove since the fall of 1998, which has included a couple of mild winters and a couple of fierce ones. The house is 3,000 square feet (280 $m^2$), concrete, and half underground. It's well insulated, but not super-insulated. Concrete is great for thermal mass—we have about 550 tons of it—but it doesn't provide much insulative value. We get that from rigid foam board outside the concrete shell.

It's a long, one-story (no basement, no attic) almost-rectangle, which is not the best shape for heat distribution. But the living room, dining area, and kitchen are all connected and adjacent to the stove. My winter bedroom abuts the back of the stove. There are a lot of big windows and five skylights, and until this winter, none have had storm windows or curtains, which has surely been the biggest heat loss factor. I'm now working to add both interior magnetic storm windows and window quilts all around. I hope to report on that in a future article.

**A homemade wooden hoe can be used to pull ashes out of the main clean-out. Kate empties two or three dustpans each week.**


Here in upstate New York, winters are fairly long, dark, and cold. I need to heat the house from October through late April. It's generally below freezing for December through March, and we have lows down to -25°F (-32°C). We're on a hillside and get plenty of wind, which pulls heat off the front (not earth-sheltered) half of the house.

### Long-Term Comfort

Given all that, we use 6 full cords of wood each winter, for which I pay US$600-700, delivered. I like to be warm: the main living area runs at 68 to 72°F (20–22°C)—and even warmer right by the stove. My library, where I sleep in the winter, is a steady 72°F. To my surprise and delight, the furthest back bedroom stays above 62°F (17°C). This setup would be even better for people who like to sleep in a cool room. Alternatively, a house that was rounder, more open, or equipped with a few fans would be still more evenly heated.

I started out figuring that if I wanted some kind of fireplace, and could afford it, a masonry stove would be safe, efficient, clean as woodstoves go, and something I could manage with my day job. This has proven to be true, and I'm very satisfied with it.

Living with a masonry stove suits my values, especially that of designing things for a very long, useful lifetime. In actual warmth, versatility, and absence of anxiety, it provides a level of comfort that's even more than I originally hoped for. I hope this little tale has given you an idea of what it might be like to live with one yourself.

### Access

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Temp-Cast Enviroheat, PO Box 94059, Toronto, ON, Canada M4N 3R1 • 800-561-8594 • Fax: 416-486-3624 • staywarm@tempcast.com • www.tempcast.com • Masonry stoves

"Masonry Stoves," by the Gimme Shelter crew, *HP51*, page 42