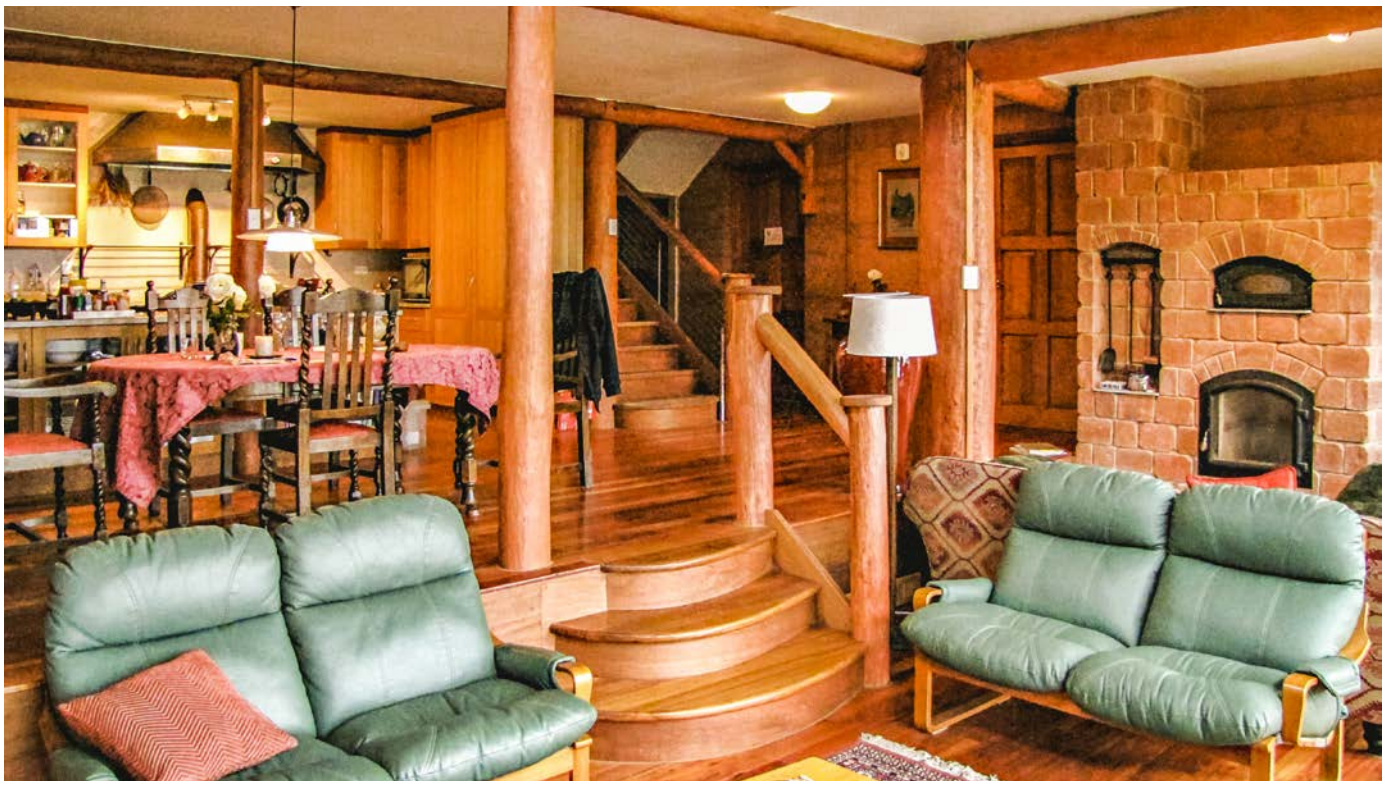
Masonry heater magic



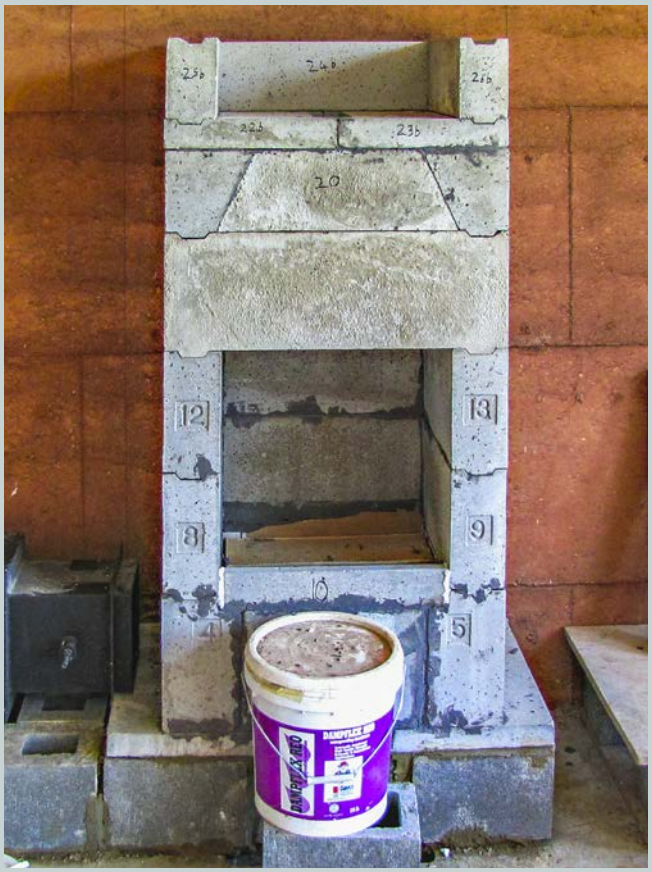
BY ALAN BURDON

Seven winters have passed since we installed our masonry heater. I have written about masonry heaters in previous issues of *TOB*. About how they had been warming the residents of the northern hemisphere for 500 years while never making it to Australia; how efficient, clean and easy to live with they are; and above all, what wonderful heating they provide. This better way fits all our 21st century needs, where less labour, reduced fuel consumption and cleanliness of our internal and external environments have become of paramount importance to us.

So how has our heater stood up to these seven years of use? Our firebox and glass door are still perfectly clean; the walls remain undamaged, unlike the firebricks of a slow-combustion heater where logs are being constantly thrown in; and there are no smuts in our home, as you don't repeatedly open the door to stoke the fire. The fire, if properly laid with clean, dry wood, will produce heat of up to 1000 degrees at the peak of its two-hour burning time. This means that everything that is available in the wood as fuel is turned into heat rather than being wasted as smoke, soot, creosote or as lost, unburned gases. Thus, the firebox has stayed clean, as has the whole flue system; I have not been near the flue with a brush. Maybe in a few years' time, I will run one down to check, but a properly burning masonry heater will leave few deposits in the system, and very little ash.

Trickle effect

We have fallen into a pattern when we burn our fire; the evening meal goes on the table and the fire is lit. The top-down fire takes about an hour to become fully developed, by which time we are sat in front of it, perhaps reading while sipping a glass of wine, and enjoying the fearsome blast of heat coming through the big glass door.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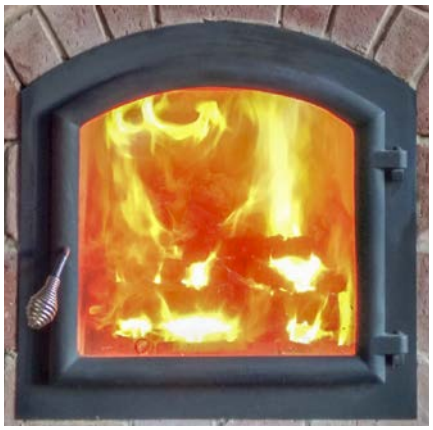

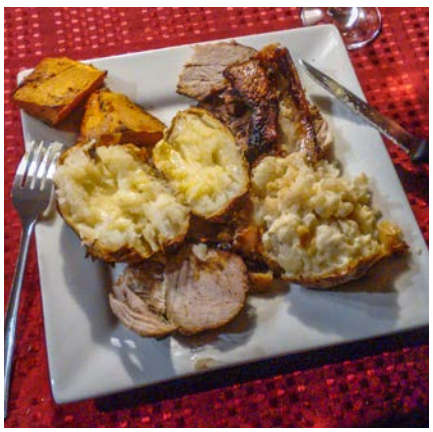

Many times, Fiona will be sitting leaning against the fireplace with her laptop on her knee because the brickwork remains safe to touch.

Immediately, you feel the heat that comes through the glass door, then as the fire's heat dies down, the warmth that has been accumulating in the masonry mass of the heater begins to make itself felt. About an hour after the fire has gone out is the time of maximum radiation from the surface brick (or stone) work, then all through the night that heat trickles gently outward, migrating through the house. As a result, breakfast is in a warm home, with the heater still radiating like a sun-warmed rock in the desert. And with not a molecule of pollution having been emitted overnight.

Meanwhile, many slow combustion heaters have been stoked up for the night and then starved of air to keep them smouldering, with the inevitable consequences of creosoted flue pipes and choking neighbourhoods. And how many of their owners still find themselves shivering around in their dressing gowns trying to breathe life back into the fire and some warmth into their homes?

Cooked dinner

Choosing as we did to add the pizza oven option to our heater, we will sometimes break our routine to do a bit of baking. This took me a little time to come to terms with. A masonry heater oven cannot be turned up or down; you work with the temperature that it holds at any particular part of the cycle. Being a 'black oven', where the combustion gases pass through the oven to heat it, the baking can only be added after the fire has died down, so if we want to cook dinner in it we will fire it up earlier in the afternoon. Care is required. My first pizza burned to a crisp in minutes and I have since measured over 450 degrees at the culmination of the burn. One customer held a (literal) house warming and her son-in-law cooked pizza for sixty people in an hour.

Experience has given us new possibilities. I cooked a full roast dinner as an experiment. Fiona put a beef casserole in a full twelve hours after the fire was out. Hours later it was slow-cooked to perfection. She has even used a two-day old burn to dry herbs; for we don't need to light it up very day.

Self-controlled input

Our home is well-insulated (straw bale) with excellent thermal mass (rammed earth internal wall), so can maintain a comfortable temperature with the gently lowering input of the heater adding to the daily solar gain.

48 hours after a fire has gone out, the average surface temperature of the heater will still be a few degrees above ambient. In all that time the heater has been offering a self-controlled input to the house. In comparison, when the surface of a steel-box heater gets to a couple of hundred degrees, it tries to make the room that temperature too. Elementary physics demands that the rate of transfer of heat between two objects is proportional to the difference in temperature between them.

Our masonry heater offers an average surface temperature, measured at sixteen points, of 45 degrees or so at maximum; thus the temperature gradient is low. If the room cools down it will give more heat; if the room heats up it will hold it back. Yet it keeps on pushing that heat gently out into the surrounding space. We believe that this explains why even remote rooms are warm on winter mornings.

Are we happy we installed it? Yes. Would we do it again? Yes. In the seven years of living with our masonry heater, our enthusiasm for this way of burning wood to heat our home has not dimmed; indeed, it has flared so brightly that we now spend many days of our time touring the field days of Australia to introduce others to this wonder through our company, *Heavenly Heat*.

Are our customers happy with their masonry heaters? Yes. Everyone we have spoken with or visited has found that it has performed better than expected. ◆

Alan Burdon is an owner builder who included a masonry heater in his own build (TOB 177 Jun/Jul 2013, TOB 181 Feb/Mar 2014** and **TOB 202 Aug/Sep 2017). He and his wife, Fiona, now operate** Heavenly Heat**, through which they import and sell** Temp-Cast **fully modular masonry heaters.

Links & resources

◆ **Heavenly Heat**
Efficient, low emission wood burners.
02 6493 6080
www.heavenlyheat.com.au

◆ **Temp-Cast**
Fully modular wood-fired masonry heaters.
www.tempcast.com