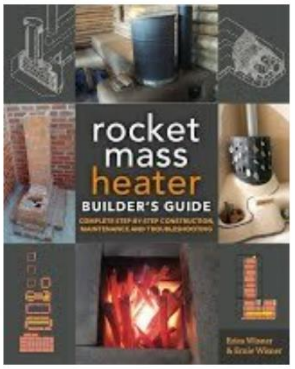
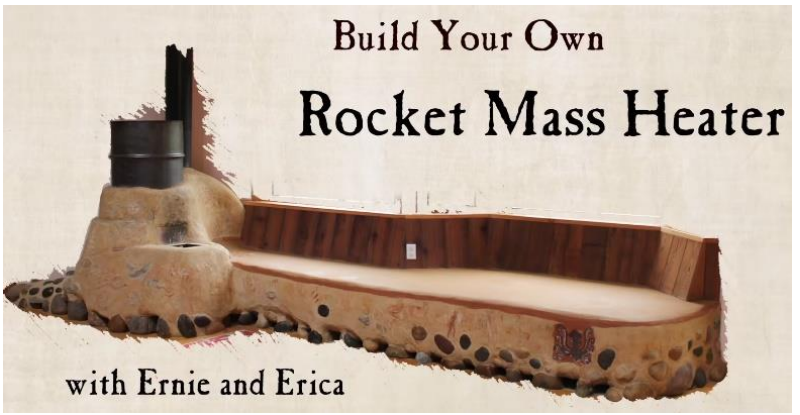


Ernie & Erica Wisner
Experts & Trainers in Safe & Efficient Rocket Mass Heating (RMH) Systems

https://vimeo.com/ondemand/rmh
https://www.ernieanderica.info/rocketstoves
https://www.youtube.com/watch?v=3mZQdu2wNi4&t=2813s



Cabin 8″ Rocket Mass Heater

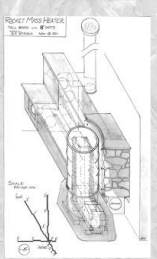
Heater Summary

Heat-exchange Mass:
Duct size: 8″ ID
Duct length: 20 feet in bench
Thermal mass: fieldstone and rubble with earthen mortars, 30″ to 36″ wide, 8 to 9 feet long, seat height 19″ with raised back 48″ to 60″ tall

Combustion Unit:
Heat riser height: 48″
Fuel feed height: 16″
Burn tunnel length: 24″
Firebox opening size: 7″ × 7.5″
Gap above heat riser: 2″
Gap in manifold: 3.5″
Manifold: two-barrel style, metal manifold form with field stone casing

Site Details

Project dates:
2011–2012
Location: Okanogan Highlands, Washington
Building size: 800 sf
Chimney height: 15 ft
Foundations: slab on grade



Chapter 4

Step-by-Step Construction Example

The first step in any installation is planning. All the chapters of this book are important for planning a successful rocket mass heater project. If you've skipped ahead to this chapter, please do read the rest of the book before doing anything permanent.

This chapter shows the steps from a finished design to a finished, operating heater. We selected a J-style firebox as our example installation because it's popular and reliable, especially for owner-builders on a budget.

Our example heater is an 8″ system; it uses 8″ ID (inside dimension) stovepipe, and brick channels that have the same cross-sectional area (CSA). The CSA, or flow area, for an 8″ diameter system is about 50 square inches.

The firebox is built of firebrick with refractory blanket insulation. The bell and manifold are 55-gal (200-liter) steel drums, about 23″ diameter. The bench has metal-pipe-lined heat-exchange channels set in monolithic earthen masonry (cob). The exhaust comes out near the bell, into a manufactured chimney about 20 feet tall.

Tool List

Measuring and Marking:
- Tape measures, pencil and pad
- Masking tape/chalk line
- Level (plumb line, optional)
- Squares/angle bevel

Masonry and Mortars:
- Buckets
- Shovel(s)
- Tarp(s)
- Mortar trays
- Paintbrushes (2″ to 4″ size)
- Water mister/sprayer
- Mason's trowel(s)
  - Concrete float
  - Plaster float(s)
  - Paint scraper or corner trowel
- Hammer: Framing/2# sledge
- Mallet or wooden handle
- Cold chisels/brick-set
- Wheelbarrow/dolly

Metal:
- Tinsnips/heavy cutters
- Crimpers for duct/stovepipe
- Pliers (brake or flat-seamer optional)
- Hacksaw or grinder
- Screwdriver and bits
- Wrench, pliers, gloves

Wood Work (Alterations):
- Saw (circular/flush-cut)
- Framing hammer

Cleanup and Safety:
- Safety glasses/goggles
- Gloves (rubber/leather)
- Dust mask(s)/respirator
- Hose/outdoor wash station
- Buckets
- Broom, mop, rags
- Vacuum cleaner (Shop-Vac)

Power Tools/Upgrades:
- Electric drill with paddle mixer for mortar, clay slip
- Wet-dry shop vacuum
- Circular saw, hand-held grinder, tile cutter, and/or table saw with blades for:
  - masonry (diamond grit blade)
  - metal (grinder/cutter)
  - roofing (site-specific)

Experienced operator for all power tools, especially if using larger equipment like a cement mixer, tractor, bobcat, or rototiller.