

milkwood

[Video](#)[Resources](#)[About us](#)[Permaculture?](#)[Contact](#)

« Funky Urban Permaculture Designs by VEG

Rocket Stove Water Heater Redux

Pasture Cropping Workshop Debrief »



Hey there! We teach skills and share resources that enable simple, low-impact living. Birds in the sky, hands in the earth.



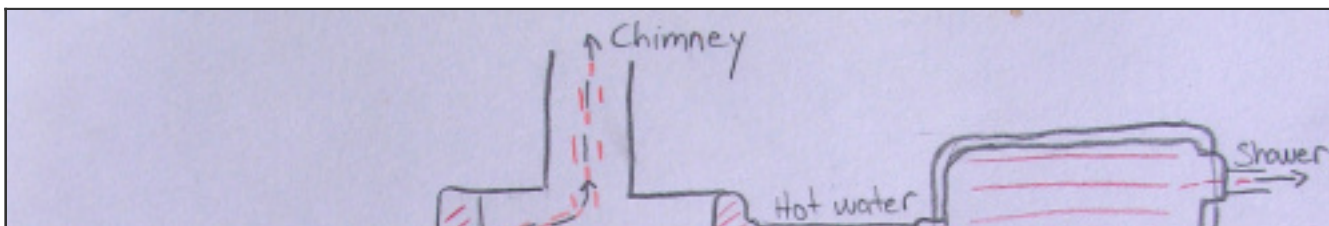
Join our newsletter for a weekly hit of great articles, tips & tricks...

Upcoming courses...



Rocket stoves are awesome, experimental, and a knowledge stream in flux. Or ours is, at any rate. Our rocket stove water heater has been doing its thing for nearly 3 years now, so we decided to take it apart and do a full examination of how it had fared.

So Nick and our current **permaculture interns** set to work completely dis-mantling the rocket stove water heater and examining all its components. We made new discoveries and adjustments, put it all back together, and then covered the whole thing with mud.



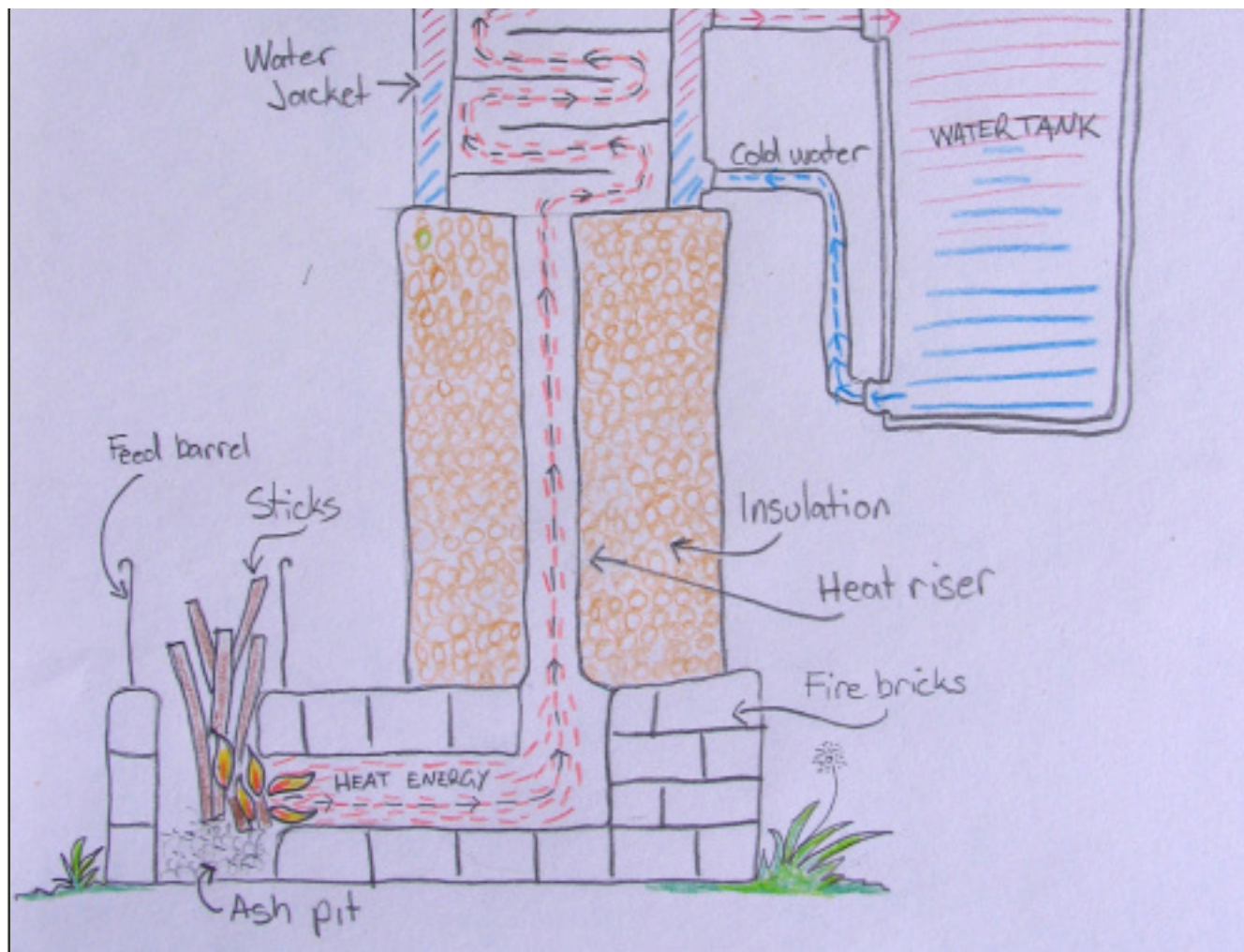


Diagram of our rocket stove water heater's internal workings





The rocket stove water heater prior to redux, after 2.5 years hard labour. Working, but not as well as it might.

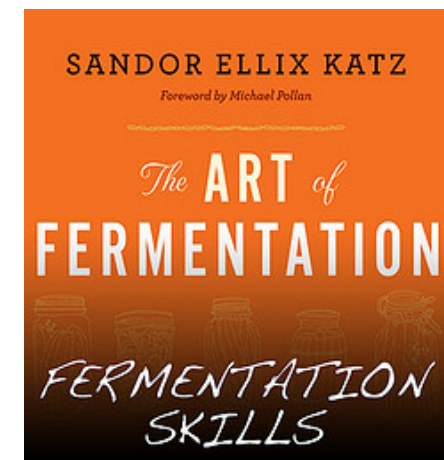
For a short history on our much beloved rocket stove water heater, see the [original article here](#) and our [2.5 year assessment here](#). This setup has definitely done good service, but it wasn't functioning as efficiently as it used to. Time to see what was going on.

After taking the heat riser and the water jacket off, two things became clear. The first was that the vermiculite that we used as insulation in the heat riser had settled, leaving a 10cm gap at the top of the heat riser chamber. So that was decreasing the efficiency of heat transfer.

We chose to switch from vermiculite (which would continue to settle over time) to some left over



earthwool insulation we had left over from the [tinyhouse](#) build. As earthwool is made from spun rock, it's a good choice as it won't burn or shift under the temperatures employed in our rocket stove.



Subscribe for farm-fresh posts by email...

Subscribe for farm-fresh posts by email...

Sign me up!



Settled vermiculite insulating the heat riser. 2.5 years ago, this was full.



Adam suits up to install earthwool as the new insulative layer in the head riser.



Popular posts & pages:



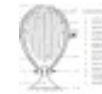
Why Movable
Greenhouses are a
Great Idea



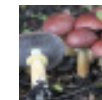
2014 Permaculture
Calendar is Out!
Would you like one?



Rocket Stove Water
Heater Redux



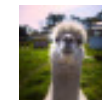
The Sun Hive:
experimental Natural
Beekeeping



Making a wood chip
mushroom garden



Vertical Garden meets
Aquaponics



Insert optimistic
metaphor for new life
here



Resources



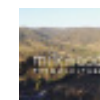
Growing mushrooms
in a laundry basket



Installing earthwool into the heat riser. Non-settling insulation that won't burn, made from offcuts of another project.

The second thing we looked at was the water jacket heat exchanger. The internals of it were filthy. While you would expect any chimney to be filthy (in a wholesomely sooty way), there was so much creosote build-up on the walls that we could scrub it off in massive flakes.

This meant that there was a thick layer of stuff between the hot air from the fire and the metal



About us

All our posts about...

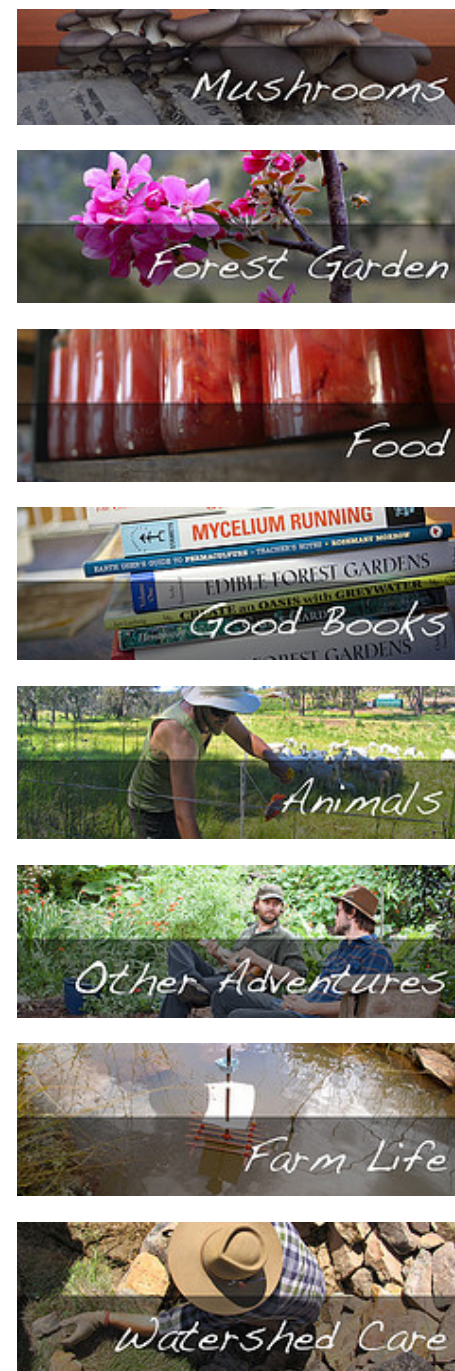


lining in which the water waited to be heated. Which is not what you want for efficient hot-air-to-hot-water transfer. So we scrubbed it out.

This creosote is coming from the eucalyptus sticks we burn in the rocket stove. It's a natural byproduct that you're going to have to live with, if your available wood source contains large amounts of it. So until we get our super year-round-willow-coppice-sapling-stickwood supply sorted, we've got lots of creosote. Fair enough.



The junction of the burn chamber and the heat riser. Quite a bit of creosote here!



Search Milkwood for:



Olivier tests the toot-ability of the water outlet pipe on the heat exchanger

go!

Posts by Category

Select Category

Posts by Tag

Allsun Farm animals

aquaponics Art

Basecamp beekeeping

biofertilizer **books**

chickens community

compost dams david

holmgren design earthbag

earthworks education

food food forest

forest garden fungi

gardening gleaning

greywater holistic-

management **how-to**

humanure hydrology

interns internships joel-

salatin keyline kitchen



Inside the heat exchanger. Lots more crud-like creosote preventing good heat transfer.



garden mapping market
 garden Milkwood
 Farm milkwood
 permaculture
 mushrooms
 naturalbeekeeping natural
 beekeeping Natural
 Building pasture-
 cropping PDC permablitz
 permaculture
 Permaculture Design
 pigs pig tractor plants
 preserving RegenAg
 regenerative-
 agriculture Resources
 review s rocket-stove rocket
 mass heater Rose
 roundhouse school garden
 seeds seed saving soil
 sustainability swales sydney
 tinyhouse trees urban



We tested we still had the desired 'suck' within the burn chamber, before cobbing back over it.

Once we'd cleaned everything out, we made a couple of other small improvements, one of which involved sacrificing one of my salvaged stainless steel bucket-things for a new and improved feed chamber surround.

I wasn't entirely happy about this but i suppose all those future hot showers will be worth it.

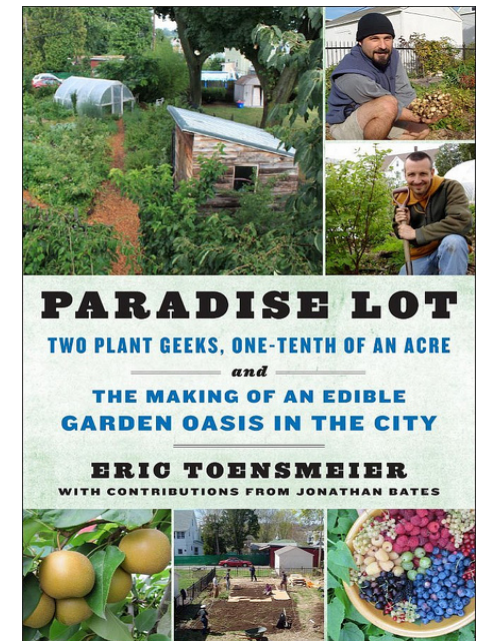
Then it was time to cob. We had previously cobbled around the firebricks and feed barrel, but due to inadequate roofing (long since fixed) the cob eroded early in our rocket stove's life. Now it was

urban
permaculture
Video warre water
water harvesting watershed
restoration weeds

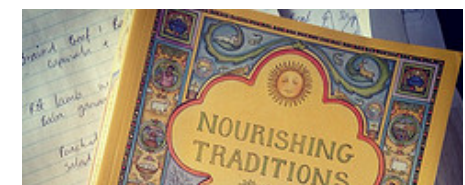
Post archive

Select Month

What we're reading



Paradise lot: Eric Toensmeier



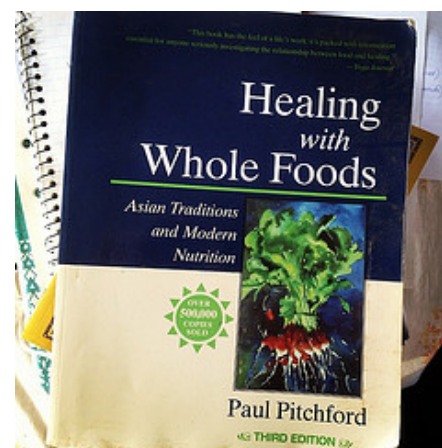
time to get serious. A layer of cob from top to tail, all in the name of mud.



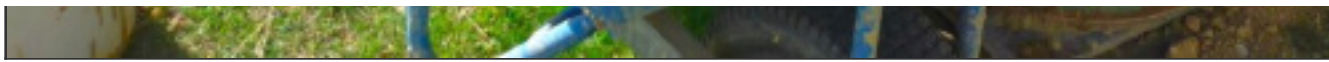
Nourishing Traditions - Sally Fallon



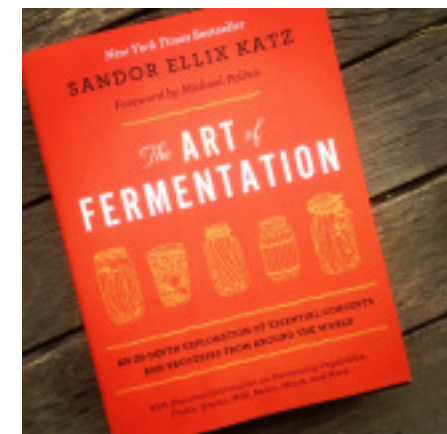
Farm Anatomy - Julia Rothman



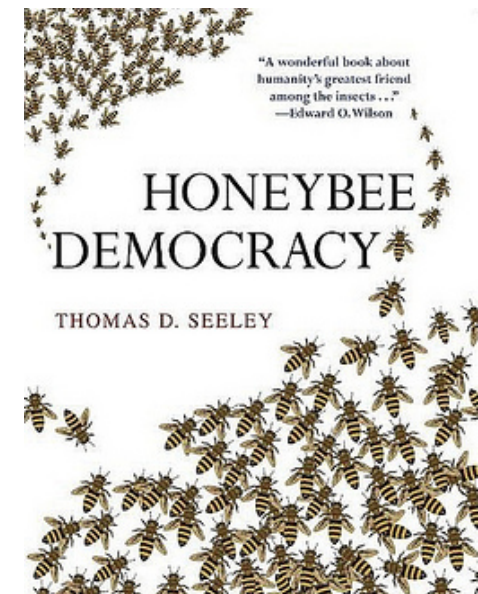
Healing with Wholefoods - Paul Pitchford



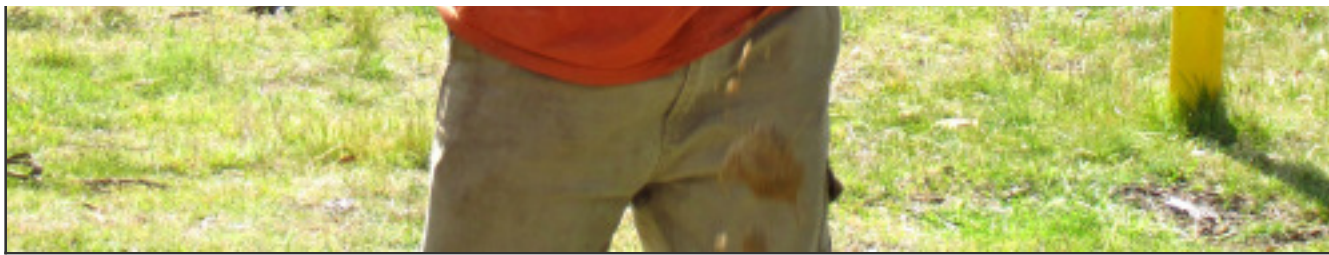
Jurgen mixing up some mud for the cob



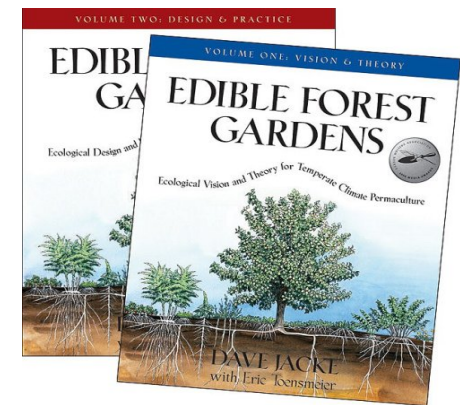
*The Art of Fermentation -
Sandor Katz*



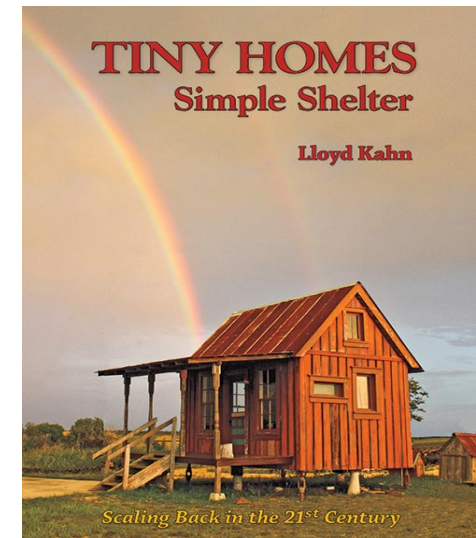
*Honeybee Democracy - Thomas
D. Seeley*



Nick tests the consistency of the straw-and-mud cob mixture. If you can juggle with it, it's ready...



Edible Forest Gardens - Dave Jacke & Eric Toensmeier



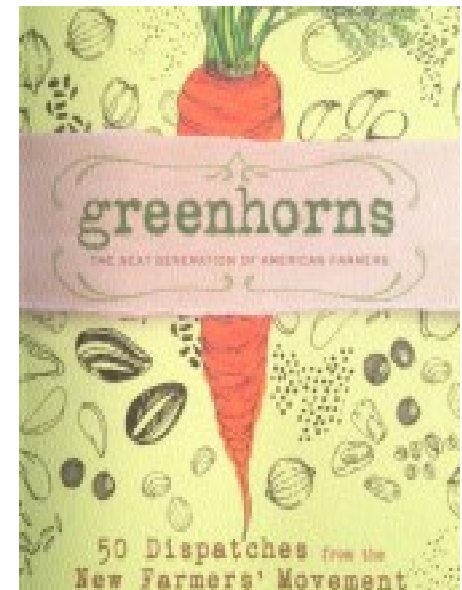
Tiny Homes, simple shelter - Lloyd Kahn



Making a surround to prevent air bleed into the bottom rim of the heat riser.



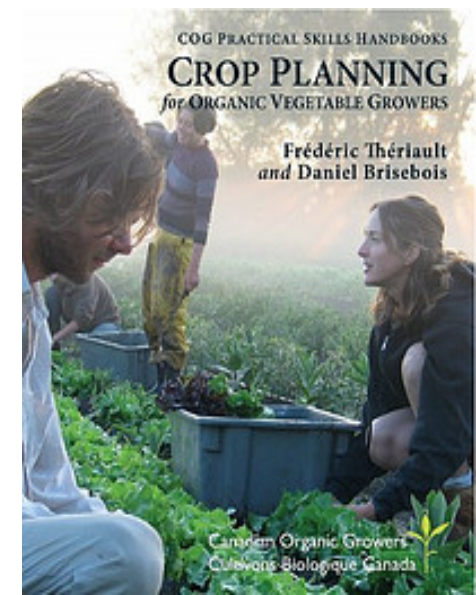
Beekeeping for All - Emile War



The Greenhorns - 50 dispatches from the New Farmers movement



Heat exchanger and heat riser re-installed, Ashely starts in on the first layer of cob.



Crop Planning for Organic Growers - Frederic Theriault and Daniel Brisebois



Search

Find

RSS Feeds

All posts

All comments



Meta

[Register](#)

[Log in](#)

Nearly ready to put the feed chamber back on





New feed chamber, made from one of my prized steel containers. Sigh. Oh well.





Feed chamber in place, and ready to cob





The maiden burn upon completion. And it's working better than ever!

All finished and time to fire it up for a nice hot shower. And our rocket stove water heater worked! Much better than it had for a long time previously! Huzzah!

Finally, i think the creosote issue is something that we'll just have to address on a yearly or bi-yearly basis. I'm ok with that, especially as this is an outdoor, experimental system, and so we may be looking at breaking down the system every 1-2 years to clean it.

Hey, two years of zero-footprint hot showers for one day of tinkering and slapping mud on stuff? Sounds ok with me.





Rocket stove water heater all cobbled and ready for another 2 years of active service.





Sabina showing off her muddy farm shirt

Thanks to our fabulous [interns](#) for doing a great job on this project and for taking so many silly pictures of each other smeared in soot and mud. Cheers to Adam, Olivier and Claire for the pictures.

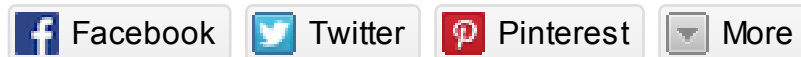
Rocket Stove resources:

- [Rocket Stoves overview](#)
- [How to make a mini rocket stove](#)
- [Rocket Mass Heaters \(book\)](#)

Possibly related posts

- [Our rocket stove water heater: 2.5 years on](#)
 - [The rocket powered shower](#)
- [Mud, glorious mud: rendering the tinyhouse](#)
- [Compost toilet specifics: the wheelie bins](#)

Share the goodness:



This entry was written by [milkwoodkirsten](#), posted on October 28, 2011 at 6:00 am, filed under [Rocket Stoves](#), [Uncategorized](#) and tagged [cob](#), [interns](#), [rocket mass heater](#), [rocket-stove](#). Bookmark the [permalink](#). Follow any comments here with the [RSS feed for this post](#). [Post a comment](#) or leave a trackback: [Trackback URL](#).

40 Comments



1. **themolesworthdiarist**

Posted October 28, 2011 at 9:15 am | [Permalink](#) | [Reply](#)

Fantastic, I've always wondered how rocket stoves work – thanks for sharing the pics and info 😊



• **milkwoodkirsten**

Posted October 28, 2011 at 10:31 am | [Permalink](#) | [Reply](#)

you're welcome. They're great fun and quite easy to get going on as a project...



2. **Martin Mikush**

Posted October 28, 2011 at 10:14 am | [Permalink](#) | [Reply](#)

Great Job!

If you somehow cover the heat exchanger with a layer of dense ceramics (fireclay) you could lessen the creosote condensation. By this height of flame not all burnable gases are burned. Maybe if avoid such premature contrast between metal water and fire...

Peace and prosperity!



• **milkwoodkirsten**

Posted October 28, 2011 at 10:30 am | [Permalink](#) | [Reply](#)

thanks for the tip, Martin! Will look at that...



3. **Rick Sherman**

Posted October 28, 2011 at 2:23 pm | [Permalink](#) | [Reply](#)

We are living in geodesic design yurt in Montana. We built it from thinning slash, discarded bill board tarps and rigid insulation. We are heating it with a rocket hybrid stove. We never could get it to work correctly as a down draft system. I suspect that the long, radiant heat floor, run is the problem. We built a small burn box that works well burning horizontally. The down side is that we need a fan to pull rather than the draft pushing on its own. The up side is that the mass is working well as a heat battery. The temps are in the low twenties here now and the 300 sq foot space is still about sixty in the morning and still quite warm after all day with no fire. Check us out at sundogecovillage.org. I just uploaded the yurt project onto our site.



4. **himalayanfarmproject**

Posted November 2, 2011 at 12:15 pm | [Permalink](#) | [Reply](#)

Can you give us the sizes of the drums that you have used to make the rocket stove. Winter is on its way and we want to make one at the Himalayan Farm Project.



• **milkwoodkirsten**

Posted November 2, 2011 at 4:36 pm | [Permalink](#) | [Reply](#)

Sure – the heat riser is a standard 44 gallon drum (used world-wide) and the heat exchanger is approx 30cm cubed. Any metal worker could whip you up one, they're very simple devices. The feed chamber is about 20cm in diameter at the top, and about 30cm top to bottom. The firebricks used were just standard insulating firebricks (you could use DIY sawdust/cement combo bricks also) and the chimney is about 1.5m tall above the heat exchanger... good luck! Lots more links to rocket stove plans of all shapes and sizes here: <http://milkwood.net/2011/06/14/rocket-stove-roundup/>



5. **Nicofrog**

Posted November 14, 2011 at 4:17 pm | [Permalink](#) | [Reply](#)

Hey if you use red lava, and wet it, roll in powdered clay, then mix it in a mix of sawdust and clay 3/1 you can have a cob insulation that is fireproof, effective and much more permie than this old world worm killing lung cancer causing rock

wool, fiberglass, and perlite.

As you may have noticed, cob projects often like to be cut up and re-designed, usually with kids and pets around PLEASE consider staying away from the dangerous irritants they cause permanent, irreparable damage to both the environment, and you.

Nico California cob educator



• **milkwoodkirsten**

Posted November 15, 2011 at 9:49 am | [Permalink](#) | [Reply](#)

Hi Nico, yep we hear you, but as we already had the material on-farm, and everyone was very well protected during its install, we still think the earthwool was a good call. The heat rise barrel is capped at top and bottom independent of the rest of the system so no need to re-jig the earthwool aspect of this system in the future. We're always learning new and better ways of doing things here, but we also work with our available resources, in order to make sure things keep moving forwards in a timely fashion... any links to this fireproof insulating cob mix of which you speak? and wouldn't a 1/3 clay mix mean it was 1/3 thermal mass, and therefore not as good insulation? just wondering...



• **ploni**

Posted November 28, 2011 at 12:01 pm | [Permalink](#) | [Reply](#)

Don't understand the problem here, Nico.

Can you re-phrase, please, in reference to this project at Milkwood?

Is the cob used here is a problem or is the earthwool product a problem?



• **milkwoodkirsten**

Posted November 28, 2011 at 12:16 pm | [Permalink](#)

I think Nicofrog is saying that a lava/cob combo would be more ideal as an insulator (from a footprint and potential safety when installing) perspective in the head riser than earthwool.

Which i agree with, but we had leftover earthwool on site at the time and no red lava (which would need to be imported, and also still needs to be mined), and we were very careful during the install of this aspect of our system (earthwool (spun rock) has small particulates which need to be considered). But a great ide and once that we'll look at in the future should it become viable!

•  Nicofrog

Posted November 30, 2011 at 11:38 pm | [Permalink](#)

Don't understand the problem here, Nico.

Can you re-phrase, please, in reference to this project at Milkwood?

Is the cob used here is a problem or is the earthwool product a problem?

Ok I'm regretting posting here, ther is NO problem,Natural building is FUN

I don't want to Debate anything with anyone

I have been a potter for 60 years and a natural builder for 12

all I was saying is there are alternative insulation materials to Rock wool, fiberglass, and perlite. which are all energy intensive to create and available used for sure, but the dust is pervasive and harmful.

the heater here is PERFECT AND BEAUTIFUL and I am NOT criticizing it in any way.

If you disagree, that's fine to just let me out of the boxing ring ok??

Thanks May the midwinter lights shine BRIGHT in your home.. N

6.  nicofrog

Posted November 18, 2011 at 12:28 pm | [Permalink](#) | [Reply](#)

No the clay and sawdust just acts as filler/mortar for the red lava, which is quite adequately insulating. I use this on cob ovens
we used ashes in one rocket stove, but they tend to compact..

the clay is minimal
Just enough to act as glue...Nico



• **milkwoodkirsten**

Posted November 19, 2011 at 9:40 pm | [Permalink](#) | [Reply](#)

yes we'd heard that ashes tend to settle, hence why we didn't use them for insulation (tho I love the immediacy of using ashes in a rocket stove for insulation). Cheers for the lava idea – will keep it in mind.



7. **Daniel**

Posted November 19, 2011 at 2:56 pm | [Permalink](#) | [Reply](#)

Please excuse my cold water but ... there are several misconceptions here. Rockwool, resined fibreglass (and fibreglass per se), as well as perlite have never been attributed with lung cancer (particularly rockwool) ... unlike asbestos (and asbestosis) ... though it is wise to minimize the inhalation of any small non-biodegradable fibre, for obvious reasons. Secondly ... this is not ZERO FOOTPRINT! This system releases CO2 as a by-product just like any bushfire, which is taken into account by the government calculations for CARBON EMISSIONS. It is close to zero cost though (provided you have fuel trees nearby) and duplicates the systems used in years gone-by, which was placed in the bottom of fireboxes as opposed to the incinerator (Rocket-Stove) that is being used here. My oppologies but you're stating a wheel is round again!



• **milkwoodkirsten**

Posted November 19, 2011 at 9:33 pm | [Permalink](#) | [Reply](#)

Thanks for your points Daniel. No need to shout tho..

We're not trying to re-invent the wheel, we're just describing the system that heats our water, and which works for us. I do agree that this system is not zero footprint per se, but in comparison to fossil fuel based water heating alternatives, I think it's pretty darn responsible and appropriate for our particular situation, which is what I was trying to get at.

Best, k.

8.  **Nicofrog**

Posted November 21, 2011 at 11:28 am | [Permalink](#) | [Reply](#)

Hi Daniel;

thanks for your intelligence on the subject,I never mentioned cancer;

Its enough for me that worms hate the stuff.

and if you want your Kids breathing Glass Rock fiber or perlite.that your choice, the occupational hazard folks have pretty good readouts on the hazards of kiln fired material in Lung tissue.

the microscopic forms of red lave are courser,and don't tend to lacerate tissue,look at microscopic photos of fiberglass and perlite.

as to footprint issues, lobby against S.U.V.s and enjoy burning wood.

or sit around watching Hollywood blow everything to bits on t.v. and wonder why you worried about a little wood! in California,Natural wildfire way out numbered auto carbon emissions for centuries.. Oh well to civilization

9.  **Daniel**

Posted November 23, 2011 at 9:56 am | [Permalink](#) | [Reply](#)

Hi everyone,

I think you've missed the point, even if I didn't state it explicitly. The type of insulation isn't the issue. Small black poly-pipe (over a good area) exposed to the sun or reflector type water heaters (aluminium foil wall-papered over paper-mache or fired mud, formed in a satellite reflector or a continuously curved section or similar) can be constructed for next to nothing and using rockwool, pearlite, or fibre-glass for the holding tank insulation is far more superior (though significantly 'hot water' is only available after a few hours of radiant heating). It is

considerably more innovative (particularly when complemented, if absolutely necessary, by a CO2 producing “Rocket Stove” (read incinerator) for prolonged overcast periods)! I thought the site was about sustainability and permaculture?

Oh Nicofrog ... there is nothing wrong with SUV's (that's just a body type) ... it's the fuel ALL vehicles burn that's the issue (particularly our reliance on road as opposed to rail transport). The significantly big polluters are coal and nuclear electricity generators anyway. But if we need to get lobbying it should be about switching to a Hydrogen powered economy which is not based on a Carbon carrier like methane, ethane, propane, butane, etc (in all their forms eg. methanol, ethanol, etc) ... not car types. Zero emissions (or carbon footprint)! That's sustainability ... that's responsibility.



• [milkwoodkirsten](#)

Posted November 23, 2011 at 10:28 am | [Permalink](#) | [Reply](#)

Daniel, thinking back to your last shower, how was that water heated? Would you share that info?

this is a site about our farm, and what we do here. The rocket stove works for us. The insulation was surplus and better to use than to leave in a shed (in my opinion).

We get ‘significantly hot water’ from this system after 20-30 minutes under normal conditions, not hours and hours.

Right now as I speak, we’ve had 4 days of rain and 40+ people showering here on a daily basis. The rocket stove is a good solution for our needs (tho more dry sticks right now would be great!).

The polypipe solution of which you speak would be great for a small family who wanted warm (not hot) showers – I’ve used them, they’re great, but i dont thinkthey could handle a load of 12+ people, especially on a not-sunny day.. I know some permaculture farms who just shrug and say ‘sorry guys, no hot water this week’ but we’re not one of them.

I’ve had plenty of compost and solar polypipe heated showers in my time, and for us, this is a

better solution to get everyone on the farm warm and clean in a timely fashion. It's people care.

If you have a better solution for providing 12-45 people with hot showers every day in all weathers and daily temperatures, I'd love to hear it!

If you are living a truly zero-footprint life and showering daily with a no-cost polypipe system I applaud you and wish you all the best! But if you're just telling us off for not being up to your perception of ultimate sustainable standards, maybe let it rest now. We'll keep doing our best, and I hope you'll keep doing your best.



Nicofrog

Posted November 23, 2011 at 2:18 pm | [Permalink](#) | [Reply](#)

Daniel: OH whomever you are right right right and I am wrong wrong wrong, I'll bet you win a lot of debates! weeee bye N



10. Quemao

Posted November 29, 2011 at 6:53 pm | [Permalink](#) | [Reply](#)

Great Job!

I just wonder...if you take a pot with i.e. about five liters of water, heat it above a fire and take a shower or use it to do the washing...wouldn't it be the same? or are you using the water to heat up the house?

Not trying to put down your job at all.

Fantastic and beautiful design.

jose



11. Wendy

Posted January 5, 2012 at 6:49 am | [Permalink](#) | [Reply](#)

I love this rocket stove design and have been following its fortunes for a while. I'm planning

something similar for our winter bathroom water heating. I was intrigued – though also more than a little apprehensive – at the use of earth/rockwool insulation. Not for any of the reasons in the comments above, but because despite it being rated to withstand high temperatures, my experience with it in these situations hasn't been too promising.

I've used it to create a stove-top oven for a cast iron woodstove: it surrounds a large aluminium saucepan encased in a strong cardboard box which is then turned upside down on the stove top. The oven works well but the rockwool that came in contact with the stove top was getting singed, so I used a layer of crumpled aluminium foil between the rockwool and the stove surface, since when it's been fine.

I've also used it to insulate between inner and outer stainless steel flue pipe sections 2m up from the stove. Here again the rockwool in contact with the inner flue has got slightly singed and has lost volume as a result. Maybe I got a sub-standard product, but it wouldn't be my choice of material for the intense heat of a rocket flue heat riser.

12.  Bob Grenier

Posted February 19, 2012 at 7:32 am | [Permalink](#) | [Reply](#)


Do you have to pump the water through the heater or is convection enough to fill the tank with hot water. Nice work. Thanks for posting. I am working on a rocket stove brewery and considering replacing my water heater.



• [milkwoodkirsten](#)

Posted February 20, 2012 at 10:00 am | [Permalink](#) | [Reply](#)

Hi Bob, convection does the job – no pumps involved in this system... all the best with your projects

13.  chuck green

Posted April 6, 2012 at 10:25 am | [Permalink](#) | [Reply](#)

hey guys, great ideas. i really need more info on the construction phase of the water heat exchanger unit. i was also wondering if you could maybe have used a small(10-20 gallon), water heater tank as your exchanger? just a thought. keep up the good work.



14. **Jan Laan**

Posted April 8, 2012 at 5:33 pm | [Permalink](#) | [Reply](#)

About the creosote build-up; the thicker the layer the poorer the heat transfer and the hotter the outer layer creosote gets. At a certain point it will catch fire and flake off on its own in the process. The fact that it you lasted 3 years unattended and still functioned seems to indicate that it is not deserving of attention and is probably self-regulating.



15. **Joe blow**

Posted May 21, 2012 at 2:06 pm | [Permalink](#) | [Reply](#)

Hello, I have found that you really do not need the heat riser in a vertical flue setup, My unit is firebrick 3diameters high below the heat exchanger, and I still have a damper in the chimney to prevent overdraught, the height between the fuel feed hole and flue outlet must be over half a metre



16. **kylewilliamsnobaddays**

Posted May 30, 2012 at 1:38 pm | [Permalink](#) | [Reply](#)

great design. thanks so much. My question: I understand the convection flow of the cooler water out the bottom of the tank to the heat exchanger and back to the tank. The part I am missing is how do you get the water from the tank to the shower head? Is your whole system pressurized like a traditional home? do you have any ideas how to accomplish a similar design without a pressurized system?



• **milkwoodkirsten**

Posted June 1, 2012 at 10:09 pm | [Permalink](#) | [Reply](#)

hey kyle, the water is gravity fed from a header tank up the hill so there's gravity fed pressure. Mm not sure who you'd do it otherwise but i'm sure a little research would reveal a solution?



• **Kyle Williams**

Posted June 2, 2012 at 4:49 am | [Permalink](#)

thanks, that is what i suspoected. without overall system pressure, i guess i would have to perhaps use an airpump to pressurize the tank, or hand pump hot water into a bucket over my head. its all good.

17. Boab in Turkey

Posted December 1, 2012 at 4:55 am | [Permalink](#) | [Reply](#)

Amazing construction, and highly efficient it appears.

Just to lower the tone a little though – does it ever get mistaken for a high back W.C.?



• **milkwoodkirsten**

Posted December 1, 2012 at 6:20 am | [Permalink](#) | [Reply](#)

Ha! Not as yet, thanks to our education programs 😊

18. Sundial

Posted January 1, 2013 at 8:20 am | [Permalink](#) | [Reply](#)

This is a very good straight forward idea. I'd like to use it for an outdoor bathtub since I love to soak. I think the tub could be filled cold and recirculate just like your tank. Question: That water jacket. You mention that you got it at a garage sale. Was is hand made or can you buy one?? Any way to know how to size it???



19. **Derek**

Posted January 15, 2013 at 11:15 am | [Permalink](#) | [Reply](#)

Have you guys considered making your own charcoal for use in the rocket stove ? Burning charcoal should eliminate deposited creosote, resins and a lot of soot inside the stove. It will also cut down on smoke.

Derek

20.  hope


Posted January 20, 2013 at 11:53 pm | [Permalink](#) | [Reply](#)

Hi guys. I am very interested in building this type of rocket stove water heater but am still puzzled at how to make the water jackets as i cant get it locally in my country. please advise. thanks.
hope

•  Lucky

Posted February 7, 2013 at 3:34 am | [Permalink](#) | [Reply](#)

Following Hope question a drawing with size and dimensions of the water heater would help. Also, I would like to know where does the cold water enter the system ?
is it at the water heater or at the water reservoir ?
JP

21.  Badger

Posted March 1, 2013 at 11:33 pm | [Permalink](#) | [Reply](#)

Hi Kirsten,

I've got an observation/question. Won't you have less problems with creosote in your heat exchanger if you create a gap between the burn chamber and the heat riser, to introduce some fresh oxygen so all those nice hot gasses can combust? That's the feeling I'm getting when I'm looking at your setup. There's a lot of heat, but also a lot of unburnt gasses (that creosote is just unburnt fuel) and if you introduce some oxygen at that point, I reckon you'll get an ever bigger heat return, and in the long run less problems with the creosote.



• John B

Posted August 21, 2013 at 8:06 am | [Permalink](#) | [Reply](#)

Badger Your point is well taken. I have an older Vermont Castings wood stove with a catalytic burner in the top. Have to wait for temp to get hot enough(400 degrees F) to ignite the fire byproducts(smoke) but then the stove top will climb to 1100 to 1200 degrees F. the stove has a second air inlet with a screw disk to close to the inlet down. A little adjusting initially was the only time it has been adjusted and the opening is small-small-small.



22. Brian McCutcheon

Posted March 26, 2013 at 3:17 pm | [Permalink](#) | [Reply](#)

Can you help ? I built a rocket wood heating fire, followed all the direction, or believe I did. But when you lite it, has a back draft, but then fills the room with smoke. I know this is a shot in the dark and asking a lot without seeing it. We moved the fire box as close as well could, seems to have the right clearance at the top of the drum, which we cut down in the end, but know change at all. We are stumped. Any ideas ? Appreciate any help. Kind Regards Brian



• Brian McCutcheon

Posted March 28, 2013 at 10:08 pm | [Permalink](#) | [Reply](#)

Okay, Ripping it out tomorrow and going back to a slow combustion wood heater. Thank you anyhow.

8 Trackbacks

1. By [Our rocket stove water heater: 2.5 years on](#) « Milkwood: permaculture farming and living on October 28, 2011 at 9:28 am
[...] *Update* – Since writing this article, we've deconstructed, improved, reconstructed and cobbled this rocket stove. Have a look here. [...]
2. By [fluidinfusion.net](#) on November 15, 2011 at 4:21 am

Cold Weather Outdoor options...

Just because the weather is cold, does not mean that all the lovely pool must end. There are several ways to continue to enjoy your pool, especially if you are lucky enough to live in areas where the climate is mild throughout the year. With a few twea...

3. By [Home Improvement](#) on November 29, 2011 at 1:06 pm

Easy Way to Get Boilers Hawaii...

As you live in this world, you may get some works to do in this life. Sometimes you may do some easy works but at other occasion, you may need to do some difficult works. When you must do some difficult works, you will need the tool to give the assista...

4. By [josef's Blog](#) on December 12, 2011 at 1:02 pm

[...] rocket stove powered water heater *<http://milkwood.net/2011/10/28/rocket-stove-water-heater-redux/> Like this:LikeBe the first to like this [...]

5. By [The Rocket-Powered Shower « Milkwood: permaculture farming and living](#) on January 24, 2012 at 5:14 pm

[...] there's an update to this system! Read our Rocket Stove Water Heater Redux to have a look at this system, 2 years [...]

6. By [The Earlwood Farmers go to Milkwood Farm | Earlwood Farm](#) on March 2, 2013 at 7:49 pm

[...] huge gum trees and transportable structures housing chickens and geese. We cleaned up in a rocket powered shower and spent the days in an incredible short course that helped us get serious about the future of [...]

7. By [To Save Ten Million Lives... | Deadlydad's Blog](#) on May 23, 2013 at 2:41 am

[...] http://www.permies.com/permaculture-forums/3352_0/alternative-energy/rocket-stove-water-heater <http://milkwood.net/2011/10/28/rocket-stove-water-heater-redux/> http://www.permies.com/permaculture-forums/4052_0/alternative-energy/rocket-swimming-pool-heater [...]

8. By [Rocket Stove Water Heater | Slow Natural Living](#) on August 27, 2013 at 8:25 pm
[...] [Rocket Stove Water Heater](#) [...]

Leave a Reply

Enter your comment here

Blog at WordPress.com. | [Customized Sandbox 1.6.2 Theme](#).

Follow

Follow “Milkwood:
homesteading skills for
city & country”

Get every new post delivered
to your Inbox.

Join 8,448 other followers

Enter your email address

Sign me up

Powered by WordPress.com