Living Energy Farm

May - June - July 2015 Newsletter

Lots of New Workshops Starting THIS WEEKEND, see bottom of newsletter.

Kitchen Grand Opening

We had a fantastic grand opening party at our new kitchen building in May. We saw lots of new faces. We had an amazing spread of food, lots of good music and good times. Thank you very much for all the people who helped out!

LEF in the News

We are very pleased that LEF has been getting some media attention. Cville Weekly, a newspaper in Charlottesville VA, just did a story on LEF. The story is well written, with some good photos. (See the http links for this and other stories at the end of the newsletter.) There are also two short videos on youtube, as well as one on vimeo. Some time ago, Alexis also produced a longer slideshow about living without fossil fuel, which can be found on youtube.

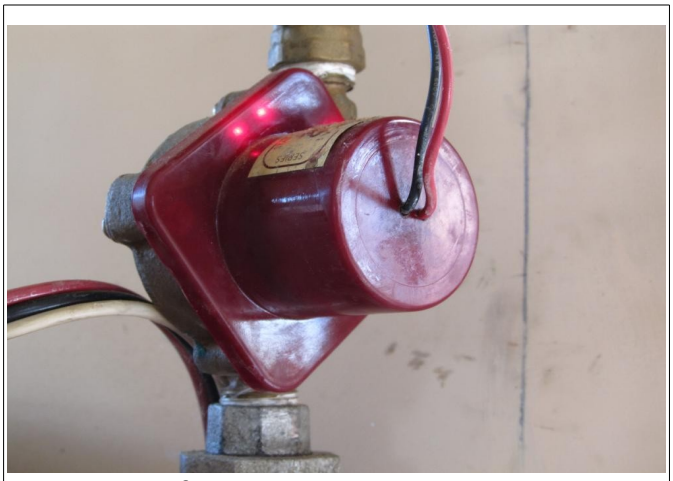
Elegant Solar Hot Water Systems

We thought long and hard about the design of LEF. We wanted to be careful to make the whole community function as smoothly as possible, as cheaply as possible (so others can replicate our ideas). There are a near infinite number of trade-offs to be considered.

Wood heat is cheap and available, but dirty to burn, a lot of work to cut, and can lead to deforestaion. Considering this, we have tried to maximize the use of sunshine as a energy source. It falls from the sky with no effort on our part. The limitations of solar are that sunlight is not very concentrated, and it is intermittent. Solar devices that can concentrate heat, store heat, and use heat at lower temperatures compensate for these weaknesses of solar energy. The simplest of solar hot water heaters are batch collectors. These are made by by putting a water storage tank inside an insulated box with a transparent cover (glass often). You simply bring pressurized water into the tanks from whatever source you have (well, city water, etc) and the hot water comes out the top and on to the tap, shower, etc. (or to a water heater for a boost if the temperature is not hot enough). There are more batch collectors that any other kind of hot water heater on the Earth. Ours pictured here. This one humble little batch collector can provide all the hot water a dozen volunteer campers need at LEF for 6 or 7 months out of the year.

Solar Batch Collector

The limitations of batch collectors are that they loose heat at night, particularly on cold winter nights, and they cannot go much further north than Virginia or they will freeze up in winter. To overcome these problems, one can use flat plate solar collectors on the roof with a pump to bring heated fluid (water or antifreeze) down to warm the water in a storage tank. Such flat plate systems are much better in cooler climates. Because the heat is in an insulated tank, it stays warm for days. Many people use AC based pumps with temperature sensors and a little computer to control it all. At LEF, we have "close loop" DC systems that are much simpler. A small DC pump is connected to a small solar electric (PV) panel placed next to the hot water panels. When the sun warms the hot water panels, it also shines on the PV panel, and makes the pump spin. No computers, no temperature sensors. It's a very simple system, and we like it.



El Sid Pump for Closed Loop Flat Plate Hot Water Systems

Out little pump is called an El Sid. This little pump is the size of an orange, runs on a whopping 20 watts, and probably will save about 3 chords of firewood per year. The photo here is the El Sid in our new kitchen building. We have made upgrades to our water system now so that we reliably have water "on tap," hot or cold, winter or summer, whether or not we are irrigating the fields or the sun is shining, all solar powered. We simply charge up our (largish) storage tanks once or twice a day. The little El Sid does its work, and presto, reliable solar hot water.

Buidling the Solar Roof at EarthHeart, the Main House at LEF

Solar heat is ideally suited for space heating because, unlike frying an egg, you don't need high temperatures. It is also fairly easy to incorporate thermal mass into a building so it can hold heat, and thus compensate for the intermittency of sunshine. If these principles are combined with good insulation, then heating needs from fossil fuel or wood can be dramatically reduced. Passive solar is no more difficult that putting windows on the south side of a building. Passive solar buildings are so

EarthHeart Solar Roof Construction Begins

Tom, Erin, Pawel, and Shua Putting Up Foam

much more comfortable, pleasant, and well-lit than conventional buildings, it is a wonder that all buildings in cooler climates are not passive solar. It doesn't cost any more at all, but American building design is based on appearance and pretense, so most houses are designed to look large and face the street while solar concerns are disregarded. At LEF, our buildings are designed to make use of passive solar, as well as active solar (pumped heat).

In keeping with our design principles, and not wanting to have to cut gobs of firewood by hand, we have made our buildings with hot air collectors on the roofs. This hot air is pumped under the floor where heat can be stored for days. The system on the kitchen is complete and running. It was a bit of a headache to build, so we modified the design for the main house, EarthHeart.

Solar Roof Sealed In, Ready for Glass and Ducts

We started by poking holes in the roof to vent heat (solar air collectors can go above ignition temperature). We put some metal trim at the bottom to hold the foam in place. Then we prepared for the blitz, to try to put up the solar roof, at least to the point of being weathered-in, in a day. We got polyisocianurate (nonflammable, don't use styrene!) reclaimed from an industrial deconstruction (contact insulationdepot.com). We put up the foam, then the black metal trimcoil. We switched from the currogated black metal that we used on the kitchen to flat trimcoil to make it easier to build. Then we put the aluminum rails over the trimcoil that will hold the glass, and screwed them down. Apart from a couple difficult hours while a thunderstorm blew by, we got the whole things assembled in a day and a half. Much better than the kitchen design! Now we poke the vents through and mount the glass, and we have an amazing solar heating system on the main house.

The Most Incredible Food Dryer Ever

We can call our solar hot air system amazing because the one on the kitchen is already operational (see previous newsletter for photos), and it works really well. In designing LEF, we spent some time pulling our hair over how we were going to store food. Drying food is great, but small solar dryers don't work all that well. A larger dryer with lots of warm air blown about by a fan would be fantastic. But such an elaborate food dryer would be so much trouble and expense to build, and on top of everything else, it just didn't seem like we could do it. And then we realized - duh! - that our solar heating system makes massive amounts of hot air, and it has a VERY LARGE blower, DC powered right off the solar PV panels. So we built a room around the solar blower in the kitchen. We put a diversion in the ductwork so hot air can blow into the room (instead of being forced down into the radiant slab) and a shutter in the wall that can be opened to let the air blow out. Debbie has been ever-so-

Veggies Drying in Our New Solar Drier

gingerly constructing the shelves in the drying room while the kids nap. Now it's harvest season and we have started drying food and -- this is the most amazing solar food drier on the planet! Imagine a machine that blows as much hot air as several commercial laundromat driers combined, all day every day, all solar powered! This thing works really, really well. So well we think we will start selling dried veggies next year. Stay tuned!

New, Bigger, Better Seed Barn

EarthHeart, our main house, is at the stage where it needs lots of work on ducts, pipes, and wires. Not the stuff interns can help with all that much. So we asked our interns to help expand our seed barn, which was rather cramped. Off they went, collecting cedar poles, and in no time, we have an amazing, twice-as-big-as-it-used-to-be seed barn, complete with skylights! (Glass caulked on the roofing metal.) This is a good thing because we are growing more than twice as many seeds as last year.

Expanded Seed Barn with Skylights

Pedal Powered Washer

There are a few really interesting designs on the internet about how to build various kinds of pedal-powered washing machines. We ignored all those (too much work!) and took an old front-loader washer and fixed it up. Just bolt a sprocket onto the pulley that turns the washer drum, add an exercise bike and a couple BMX chains, and presto, off we go.

Thanks to our Interns!

This year will probably set a record for the number of people coming out to intern at LEF. We have been pleased to welcome the famous, infamous, and oh-so-serious crews that help us out.

Tom, Emmet, Brianna, Chris, and Spruce

Pedal Powered Washer

Workshops
Note, workshop locations and fees vary. For ALL workshops, please RSVP to livingenergyfarm@gmail.com Timely questions at 540-205-0433, otherwise please email. Workshop dates are subject to change (if we have to). If you are driving some distance, check in a few days before.

Community Building Through Participatory Music Making, (AKA, drumming) Sat, August 8, 3 - 6 PM, at LEF, 1022 Bibb Store Road, Louisa VA. We are celebrating getting our solar roof closed in (why not?). Percussion technique will be taught, with a focus on community drumming. No charge -- just bring your own good energy! The organizer says: Percussion is universally recognized as music we can all create, on instruments of our own invention, without needing amplification, that can be danceable and energizing, powerful and moving, or even meditative and relaxing. There is no wrong way to add your drum voice to the mix. So please join us in a celebration of our cultural influences that speak through the drum.

Seed Saving, Sat, August 22, 1 - 4 PM at LEF, 1022 Bibb Store Road. Learn how to save your own vegetable seeds from the experienced seed growers at LEF. $25 suggested donation, but no one turned away for lack of funds.

Plant Propagation Overview at the Heritage Harvest Festival at Monticello, Sat, Sept 12. check the HHF schedule for time and place. Every year Alexis does a one hour overview of plant propagation techniques at HHF. We will look briefly at growing form seed, rooting cuttings, and grafting. We instructed the organizers at HHF to keep this a free event, in a big tent. You have to pay to get into HHF, but we have made sure you don't have to pay twice to come and see how to propagate fruit trees.

Wild Foods, Sat, Sept 19, 1 - 4 PM. Learn how to eat wild foods! We will walk around and see, taste and talk about all the wonderful foods that grow in the fields and forests around LEF, including leafy plants, roots, nuts, and berries (We're not chasing any bunnies.) $25 suggested donation, but no one turned away for lack of funds.

Carpentry 101, Course 1, Sat, Oct 3, 1 - 4 PM, Magnolia House, 217 Fredericksburg Ave, Louisa VA. This workshop will focus on basic carpentry technique, how to use power tools and hand tools safely. $25 suggested donation but no one turned away for lack of funds, $50 flat fee lets you take home a set of sawhorses that you build! This workshop is intended for people who have little or no carpentry experience. We will progress slowly through the workshop.

Orchard Planning With Michael McConkey and Alexis Zeigler, Sat, Oct 10, 9 AM to 4 PM, at 912 Woodfolk House, Charlottesville VA, 22902. Michael McConkey is famous for his “Edible Landscaping” nursery that focuses on fruiting plants that grow without toxic chemical spray and with little care. ***Participants will be able to look at and taste many of the plethora of fruits that grow without pesticides***, as well as discussing organic orchard management techniques for conventional fruits. The Orchard Planning workshop that Michael and Alexis conducted in the spring was very popular. We had to close registration on the spring event to limit the number of participants. $50 flat fee. If you feel like can help others from learning this information, but cannot afford $50, please email us and explain why, and we may allow some folks in at reduced fees. (This workshop is focused on the home grower, not commercial orcharding. If you think you want to grow conventional fruits -- apples,

peaches, plums, cherries -- on an organic commercial orchard in VA, we will suggest that you don't.)

Carpentry 101, Course 2, Sat Oct 17, 1 - 4 PM, Magnolia House, 217 Fredericksburg Ave, Louisa VA. This workshop will focus on basic carpentry technique, how to use power tools and hand tools safely. You may come to this workshop even if you cannot come to Course 1. $25 suggested donation but no one turned away for lack of funds, $50 flat fee if you to take home a set of sawhorses that you build! This workshop is intended for people who have little or no carpentry experience. We will progress slowly through the workshop.

Old Projection TV?
Do you have an old projection TV that you don't want? We are looking for a fresnel lens or two (they are in projection TVs). Let us know. We want to experiment with solar cookers made with fresnel lenses.

Links for Media Articles About LEF
Cville weekly in Charlottesville VA
http://www.c-ville.com/off-grid-model-environmentalism-made-easy/#.VcHobF054yo
First video on youtube
https://www.youtube.com/watch?v=ppTBO8d6jhY
Second video on youtube
https://www.youtube.com/watch?v=wdSX_TIYkD4
Video on vimeo
https://vimeo.com/128744981
Slideshow produced by Alexis a while ago
https://www.youtube.com/watch?v=4x_C3iScoAw

Living Energy Farm is a project to build a demonstration farm, community, and education center in Louisa County that uses no fossil fuels. For more information see our website www.livingenergyfarm.org, or contact us at livingenergyfarm@gmail.com. Donations to the Living Energy Farm Education Fund are tax deductible.