



THE HALF-ACRE HOMESTEAD

46 YEARS OF BUILDING & GARDENING
Lloyd Kahn & Lesley Creed

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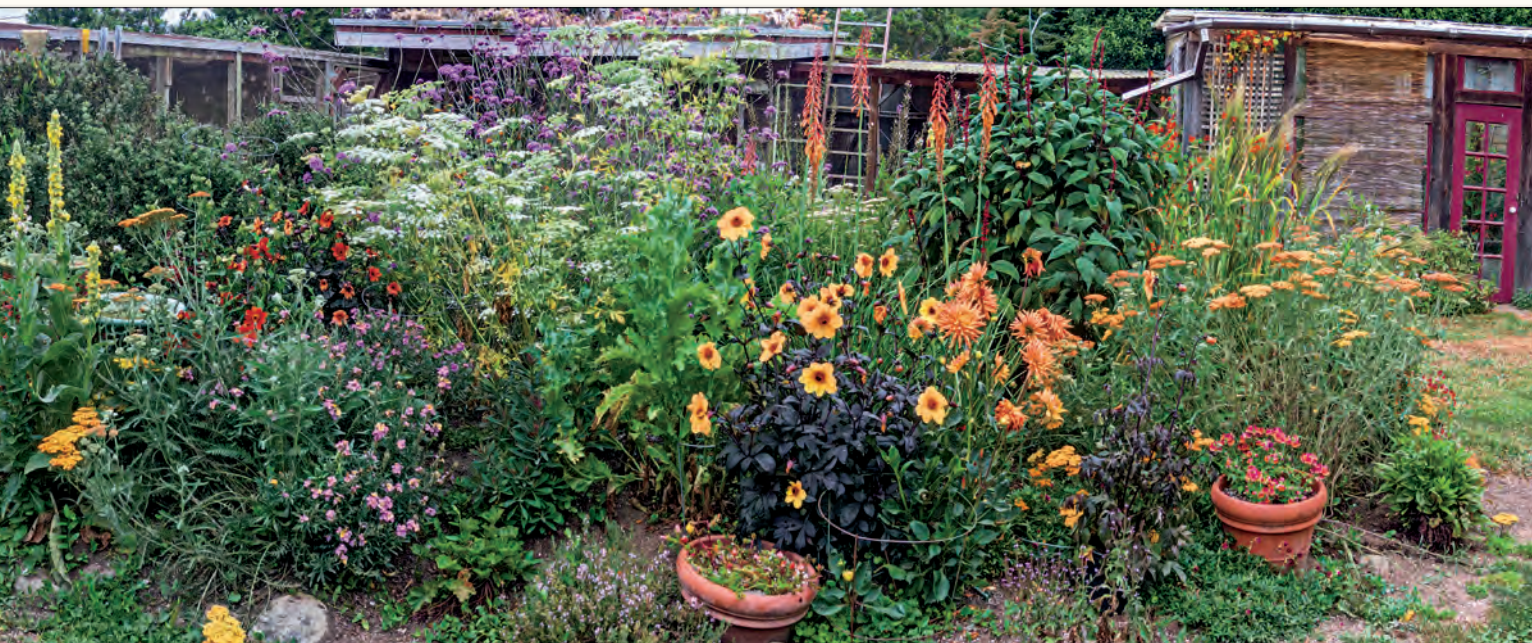
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The House



In the early '70s, I had just come off a five-year period of building geodesic domes (a friend of mine called it “circle madness”), and had concluded that they didn’t work—for a variety of reasons.* Before that, I had built post-and-beam houses. Nothing as simple as stud-frame construction, which I discovered in 1971. Eureka! Rectangles!

Notes on Design

After years of experimental building, I realized that building a home shouldn’t be a “trip,” at least not for me. A dome, a 7-sided building, a sculptural design—building a home from an abstract idea—is not sensible for most people, in my opinion. It’s going to take much longer, and cost a lot more money.

Our aims We started relearning skills that had been abandoned by our parents and grandparents. We felt that modern life had lost touch with the practicalities. We felt that homes being designed by architects had nothing to do with the kind of life we wanted to lead.

We wanted a home with versatile, useful space, a place to cook, eat, get warm at night, to sleep, to heal, to listen to music and sit around the table and talk, where we’d be able to work on projects, dry clothes on a rack, put up guests comfortably, and have the necessary practicalities (water, heat, kitchen, lighting, plumbing, etc.) functioning well. We wanted it to be built of materials that felt good to be around, to be colorful, and to have good *Feng Shui*.

*I published two books on dome building before giving up on domes.
For a more complete account, see www.shelterpub.com/domes.





Skylights

In all our various buildings, we have more than a dozen very simple skylights, using double-walled polycarbonate greenhouse panels. This is a very strong plastic similar to Plexiglas, guaranteed for 10 years (although some of ours are still fine after 15 years). They provide 80 percent light transmission and a measure of insulation. (*See p. 104 for use of these panels in our greenhouse.*)

The panels are cut to size and slipped into the roofing material like a big shingle. The method is pretty foolproof, but I would bet they're not legal under current building codes.

They provide a lot of light, save on electricity, and are especially welcome on cold, overcast days.

You can get these panels at Tap Plastics, or shipped from Farmtek, a great source of greenhouse and agricultural products in Iowa: www.farmtek.com

Insulation

I used aluminum-backed fiberglass batting because it was the only viable option 40 years ago. I didn't want to use polyurethane foam for a variety of reasons. These days, there are a number of non-toxic insulation materials available, such as recycled denim, sheeps' wool, hemp products, or soybean foam.

Heat loss I averaged things out in various reports to the following: In an *uninsulated* stud-frame house, 30 to 35 percent of heat is lost through the roof, 21 to 31 percent through the windows, and 18 to 25 percent through the walls. The remainder of heat loss is through the floor and air circulation.



Production studio shows built-up skylight on shallow roof at right, and three simple shingle-style skylights at left.



Shingle-type skylights on shop

Septic System

There are over 25 million homes in North America utilizing septic systems. They are in areas where there are no sewers. The process is called “onsite wastewater disposal,” and it means that wastewater is treated adjacent to the home.

It’s a simple and highly ecological system, and the systems generally work so well that homeowners are hardly aware of the process going on.

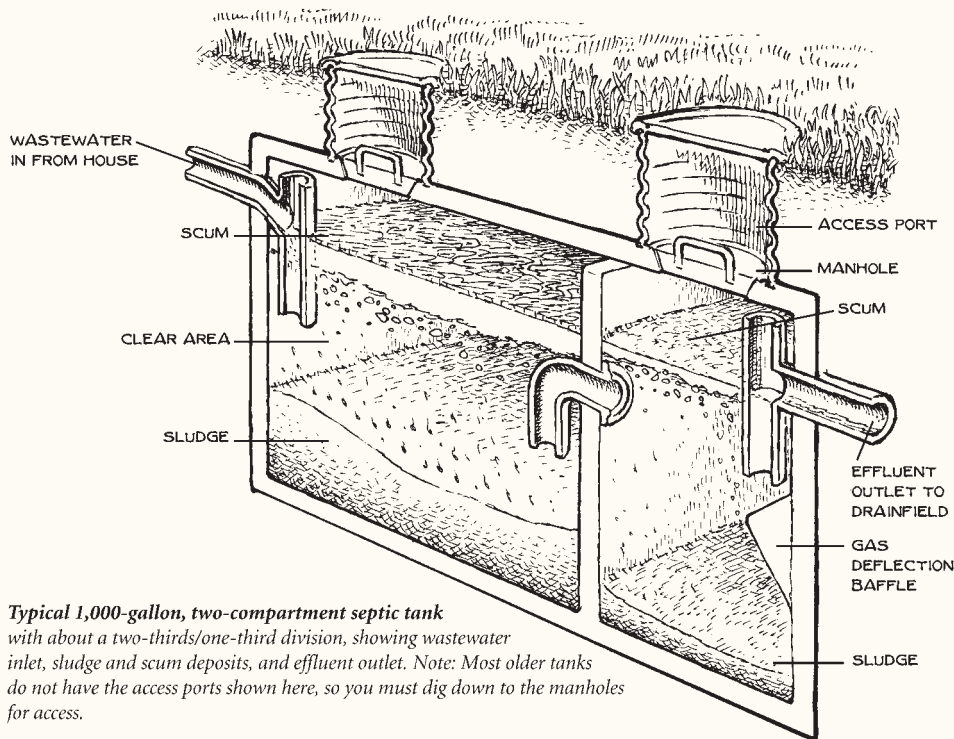
The conventional (non hi-tech) septic system is powered by gravity. No motors. If functioning properly, wastes are treated and purified by microorganisms in the soil. A marvelous system.

I built my first septic system in Big Sur in the ‘60s. It consisted of a 600-gallon circular tank and a leach field with pipe and gravel. It was a do-it-yourself kit, consisting of lightweight, semi-circular concrete blocks and a concrete top. I laid the blocks with mortar, made a tank bottom with several sacks of readymix concrete, slid the top on, had a backhoe dig the trench, installed pipe and gravel, and *voilà* — wastewater disposal.

The system is still working, I hear from the present owners of the house, over 50 years later.

For our present house, I had a 1000-gallon septic tank with adjacent drain-field installed 47 years ago, for about \$3,000, and with periodic inspections and occasional pumping out of solids, it has worked fine to this day.

The miracle of gravity-fed septic systems is that no power is used in the process of wastewater disposal.



Typical 1,000-gallon, two-compartment septic tank with about a two-thirds/one-third division, showing wastewater inlet, sludge and scum deposits, and effluent outlet. Note: Most older tanks do not have the access ports shown here, so you must dig down to the manholes for access.

Drawing by Peter Aschwanden from The Septic Systems Owners' Manual

I became fascinated with septic systems in the ‘90s, and ended up writing *The Septic Systems Owners' Manual*, which explains what a septic system is, how to maintain it, and what to do if things go wrong. (Drawings for the book were done by Peter Aschwanden, the illustrator of John Muir’s *How to Keep Your Volkswagen Alive: The Idiot’s Guide*). If you have a septic system — and pardon what the Car Talk guys called “shameless commerce” — I highly recommend this book. You can save yourself a lot of grief if you understand the process going on and how to inspect and maintain your system.

Note: While working on the septic book, I discovered what is in effect a plot against gravity-fed septic systems. Engineers and inspectors have colluded in much of the country to require homeowners to install complex septic systems (such as mounds) that are expensive, (in fact) ecologically destructive, and often unnecessary. (The more expensive the system, the higher the engineering fees and the permits, which is fine with the engineers and regulators.) In 2014, I testified before the Ohio senate in Columbus, Ohio, about corruption in the American septic industry. Don’t get me started!

I wrote an article in *The Mother Earth News* in 2008, titled “The Truth About Septic Systems,” viewable at shltr.net/septicmother.



Solar Electricity

In 2015, we had a 5.23 kW photovoltaic solar system installed (by American Solar) that provides most of the electricity for our home and office. It consists of 16 32" by 62" Sunpower 327W panels. We installed new roofing under the panels. The electricity is fed into the PGE grid via an SMA Sunny Boy 6000 inverter.

It's a great thing to see PGE bills where we're generating more electricity than we're using — especially since it's powering not just our home, but our publishing operation — a half-dozen Mac computers, copy machines, printers, and other office equipment.

ENERGY STATEMENT	
Account No. 20000	Statement Date: 11/11/12
www.pge.com/MyEnergy	Due Date: 12/11/12
OR:	Your Account Summary
APPLICATIONS	Credit Balance on Previous Statement
R	Payment(s) Received Since Last Statement
94924	Outstanding Credit Balance
	Current PG&E Electric Monthly Charges
	MCE Electric Generation Charges
About your bill?	CREDIT BALANCE - NO PAYMENT DUE
1-877-743-4112 M-F 8-5	
743-0335	







I built the pantry when we were milking goats. A concrete floor to keep things cool and a two-compartment, commercial stainless-steel sink for washing milk buckets and bottles. An adjacent room with outside ventilation through screens for grain and other foodstuff storage. We live about an hour from a main shopping area, so we stock up on basics and store them in the pantry.



Foraging, Fishing

Seaweed

I pick up clean seaweed on the beach or harvest it in the waters of the ocean or bay. I dry it (we have an electric dehydrator with 10 trays, which we use for seaweed, as well as mushrooms; in years past we've used it for drying apples).

Once dry, I grind it in the Blendtec blender (*see p. 32*) and then sprinkle it on many types of food. It's a great source of vitamins, minerals, and protective antioxidants.



Mushrooms

I've been hunting for mushrooms for about 10 years. There are four edible types of mushrooms that I'm sure of: chanterelles, porcinis (*Boletus edulis*), blewits (*Clitocybe nuda*), and candy caps.

We have to watch out in our part of the world for the *Amanita phalloides*, or "death caps," among the most poisonous mushrooms in the world, which destroy the liver and kidneys.

I'm lucky to have my friend Tomás (at right), a botanist and fungus hunter *extraordinaire*, to consult on all the different species I gather. Lesley cautions me not to eat any mushroom unless I've run it by him. He invariably knows the Latin name and edibility of anything I find.

It's a great pastime in many ways: walking in the woods, getting exercise, the hopefulness of the hunt, the thrill of finding a robust bunch of them.



On this page:
Boletus edulis,
(King Bolete),
or porcini;
prized for
its flavor,
fresh or dried.



Spinning and Weaving

Lesley: I've been spinning and weaving over the last 10 years. There is still much to learn; I consider myself a beginner. I make simple, useful shawls and blankets, mostly with commercial alpaca and merino wool.

Lately, I've been starting from scratch, taking fleece sheared from the sheep, sorting and washing it, carding it (brushing the fibers parallel), and then spinning it on my upright spinning wheel. I dye the resulting yarn with either natural or commercial dyes.



I do most of my weaving these days on a 42"-wide, four-shaft Gilmore jack loom.

There is always something new to discover. It's thrilling to be part of the long tradition of fiber work.



Gardening for Two People

Lesley is the gardener, the family farmer, as well as the landscape designer. My main contribution is tending the compost pile. I don't do 5 percent of the gardening these days.

Lesley: I like the fresh air and exercise, listening to the birds, watching butterflies, attracting wildlife, seeing things improve over time, producing delicious food and beautiful flowers, and the peace and tranquility of spending time in the garden.

We don't grow all our own vegetables, but even two to three kale plants will provide frequent greens for a large part of the year. The challenge in a small garden for just a couple of people is to grow small amounts — and of course it's great to share excess with friends.

We have a simple plan to take advantage of our coastal California weather. Hot weather crops are a bit of a struggle here, but we can grow greens year round.



The **basic vegetable garden** consists of: lettuce, chard, spinach, broccoli, and kale; garlic, leeks, and onions; beets, chives, parsley; potatoes, zucchini, peas, pea pods, and green beans. Asparagus and artichokes. Various herbs, including basil, dill, cilantro.

We grow corn every year or two. Parsley, rhubarb, Brussels sprouts, fava beans (for both the beans and to dig in for green manure).



This last year Lesley had success with small cantaloupes in the greenhouse. Each year she also grows tomatoes, cucumbers, and various peppers in one of the greenhouses.

Berries

Raspberries (a fairly large, old stand), lots of wild blackberries, a few bushes of blueberries and red currants, and periodically some strawberries.



The Well

In 1980 we decided to dig a shallow well for watering the garden. The father of one of our friends, Bob Scott, was visiting one day and said that he knew something about dowsing. He broke off a piece of coyote bush so that it was like a large wishbone. He held it in both hands and walked around the garden. At a certain point, the tip bent down forcibly. "There's water here," he said.

I had seen a method of dowsing described in the book *Secret Discoveries Behind the Iron Curtain*, using a reconfigured coat hanger, and I got the same results at the same spot; the wire dipped dramatically.

Bill Tacherra dug the well for us with his backhoe. It was about 15 feet deep by 10 feet in diameter. Bill took a 15'-long piece of 8"-diameter ABS pipe, cut saw kerfs in it (for water infiltration), placed it upright in the middle of the hole, filled the hole in with gravel, then backfilled in the soil. I installed a Dayton ½-HP shallow-well jet pump and a 1¼' piece of 1¼" PVC pipe down the middle of the 8" pipe, and an 80-gallon pressure tank.



Well house

It's worked well for some 35 years. In years of low rainfall, it dries up for maybe two months in October and November, but recently it's worked throughout the year.

About three years ago I installed a new pump and a new pressure tank.

Greywater

The easiest way to utilize greywater is to divert washing machine water into a barrel, which has a hose you can move around in the garden. With other sources of greywater — bathroom sink, bath/shower — diverter valves can be installed. For details on many approaches to utilizing greywater, go to Art Ludwig's www.oasisdesign.net.



Rainwater Catchment

We started adding rainwater-catching containers as time went by. An inch of rain, when collected off a broad expanse of roof, can provide many gallons of water.





Greenhouses

Main Greenhouse

The rear wall is built of adobe bricks that I made with a Cinva Ram, a “third world” device for making compressed earth blocks. I made the bricks in 1980 with earth dug out for the well. (See p. 84.)

They consist of 12 parts soil and one part cement. The mixture is loaded into a mold, which is then compressed, and the result is a stabilized adobe brick. (By the time you’ve made the bricks, carted them to the building site, and laid the wall, it’s a lot of work!) The mass of adobe holds the heat generated each day.

I salvaged the windows in the front from a remodeling project at my brother’s house. The greenhouse as it now stands was completely remodeled by our friend Tom about 10 years ago

The first roof I installed consisted of corrugated vinyl panels from Home

Depot. This turned out to be a terrible material and was discolored after only a few years.

Next I installed corrugated fiberglass panels; they lasted for maybe 10 years until they were discolored from the sun and algae.

Finally, I used what I should have used in the first place: * double-wall polycarbonate panels. Expensive, but the light coming through this material is beneficial for plants, the double wall provides a measure of insulation, and they have a 10-year guarantee. I got the panels and the connectors (via UPS) from Farmtek, a large farm equipment company in Dyersville, Iowa (www.farmtek.com). You can also get these panels from Tap Plastics. I highly recommend this material for greenhouses or skylights.



Simple cold frame built by David Shipway on Cortes Island, BC, Canada

**Sign in the San Marin Lumber yard office: “If you didn’t have time to do it right in the first place, how come you have time to do it over?”*
Story of my life.



The Shop

The first shop I built became what is now our production studio. Then I built a very simple 14' by 20' shed roof structure with a concrete slab floor. Funny, it's at the northern end of our property, facing south, and in retrospect would have been the best site for the house.

The shop is stuffed with tools and materials I've gathered over the years.

In the back is an outdoor work area, and my "corporation yard," where lumber, pipe, and plywood are stacked in racks — a solution to having a small area.

For all these years, I've saved nuts, bolts, and washers, and just about anything that might be useful some day. I got into doing this when I lived in Big Sur, an hour's drive on winding roads to the closest lumber yards and hardware stores, and I couldn't just run down to the store and get a needed item.



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From the publishers of *Shelter* and *Tiny Homes*

ISBN: 978-0-936070-81-0



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