

# NEED A HOME? DIVE A DUMPSTER!

by Brad Lancaster

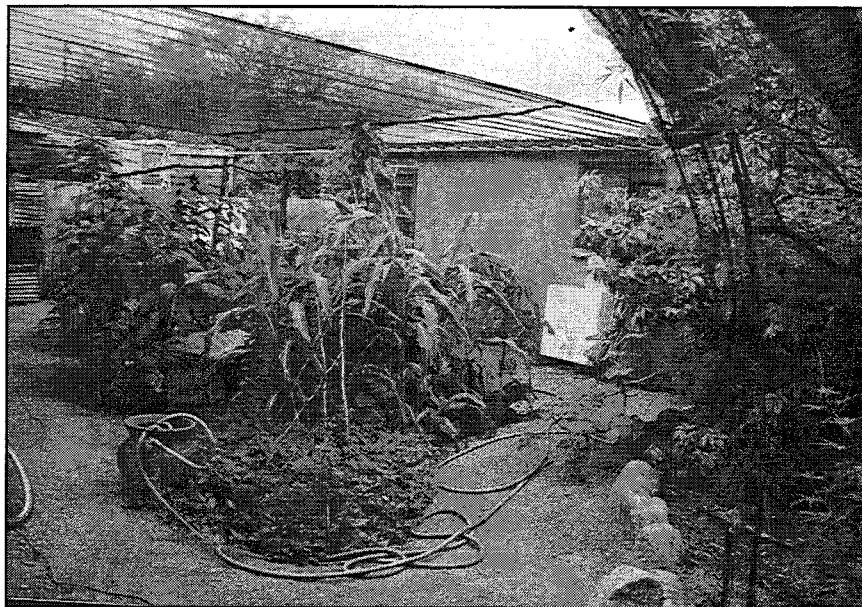
Two years ago, while looking through other people's garbage for salvageable junk, I came across one heck of a find. There, on the corner of 9th and University, just north of downtown Tucson, stood a decaying adobe bungalow. Built in 1919, the 746-square-foot house cut the one-eighth acre lot in half leaving a good amount of yard space. Since the house was situated on an east-west axis, solar aspect was good. A separate one-car garage on the north edge of the property offered storage, and there were even a sour orange tree, a pomegranate, a white sapote, and three small chaste trees. It felt good, so I talked with my brother, Rodd. Together we made an offer on the house, and we bought it.

What we didn't get were water, electricity, sewer, heating or cooling, functional doors and windows, ceilings, a decent roof, floor, toilet, telephone, or fresh linen. This wasn't so much a house as a humdinger of a fixer-upper on the waiting list to be condemned. As it turns out, it was to become more than the largest salvage operation we'd ever undertaken, and also, an incredible classroom.

When we started our project, we lacked real experience and knowledge in such areas as roofing, electrical, plumbing, and carpentry. While friends read novels, we read how-to manuals. We also asked plenty of questions. Friends like carpenter John Andrews, network mama Barbara Rose, and others were indispensable. Rodd and I were to do 90% of the work on the house ourselves. We'd be saving money and learning the entire way.

The summer monsoons came and wreaked havoc around town. Streets were flooded and winds blew down over-irrigated ocotillos in landscaped gravel yards, along with the occasional telephone pole. Chaos? No, harvest! Rodd and I pounced on these free resources. We took down the chain link fence around our property and planted

*55-gallon drums harvest water from the garage roof.*

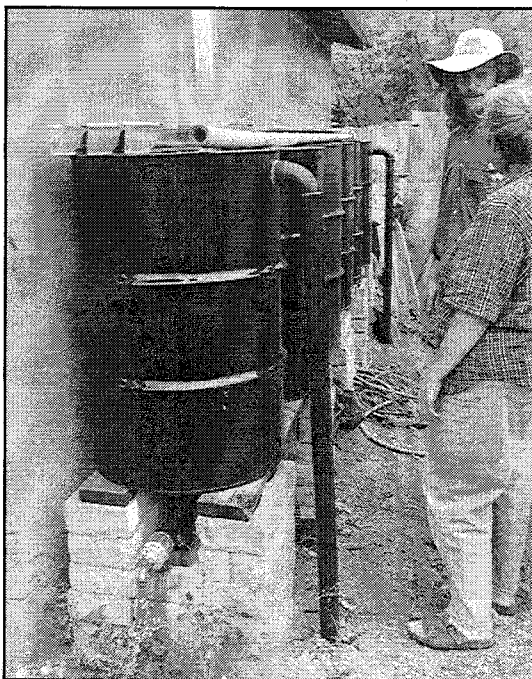


*Shade cloth stretches over planting beds dug in caliche.*

a living fence of ocotillo canes and agave flower stalks (see PDJ #22). On either side of the fence we started planting a 10-foot wide noise, pollution, light, and privacy buffer that doubled as wildlife habitat. The native plants used had medicinal, food, habitat, bee forage, and nitrogen-fixing value. The saguaros, barrels, and cholla cacti were salvaged from areas slated for clearing.

We traded the chain link fencing at the salvage yard for used 2 x 4's to extend the overhang on our gabled roof, which further protects our walls from rain and summer sun. To complete the job we replaced multiple layers of toxic asphalt with a corrugated steel roof for rain water harvesting.

Neighbors were starting to notice. Actually, they couldn't help but notice as we would wave enthusiastically at anyone who ventured by to show we were friendly and neighborly. We discovered we have great neighbors and have received physical help, security, advice, plants, hot meals, and beer as we plugged away. Gary from across the street came to inspect our progress and offered us his sagging carport/ramada if we'd be willing to dismantle it. The carport became a lumber rack, work bench, and bicycle ramada. There wasn't quite enough wood for the ramada roof; I rounded up a few plywood signs from the recent election and the roof was done,



making for a great sleeping platform and rainwater catchment. An old pallet became the ladder and scavenged steel railing became the bike rack.

The temperature was dropping so we turned to our heater — the sun. Our gas water heater was removed and a pantry took its place. We called Tobin Schneider and Bill Cunningham who had designed a passive "bread box" water heater that needed testing. One-inch duct board insulation heat taped to a double thickness of 2 inches makes the box. Tempered double-glazed patio door glass set at a 45 degree angle (for maximum solar gain in the winter) seals the box. Inside is a stripped down gas water heater tank painted black. The black tank absorbs and stores the sun's heat. The box rests on a cradle of sheet metal stripped from the tank. City water pressure moves the water through the whole system. There are no moving parts. We have no back-up source of heating water so the City required us to build two boxes to meet code.

When it comes to heating the house, we really get complex: we use our south-facing windows. Seventy-five percent of the windows were termite ridden and rotten. Most we replaced with double glazed windows. The old glass was saved for solar ovens and cold frames. To cut down on summer heat gain we got rid of all west facing glass except for the kitchen window (shaded by our neighbor's house three feet away, on which my other brother Mark painted us a view). All windows can be opened for maximum ventilation. Our extended roof overhang keeps direct sunlight from penetrating our south glass, yet in winter the sun is low enough on the horizon to enter and warm us — especially in the south-facing Arizona room.

In the Arizona Room, Rodd uncovered the only concrete slab in the house. It was an awful surface. Rather than refloor, he cleaned it and stained it with ferrous sulfate (available at any agricultural store). Improvement! The floor looked great and now the darker concrete mass was still exposed for better storage of the passive solar heat. *(The process is as follows: Mix two parts water to one part ferrous sulfate. Brush it on the floor, let it sit one week and then rinse it off. Oil the floor with one part boiled linseed oil to one part turpentine. Let it dry and wax it. That's it, although I hear red wine can be used instead of iron.)*

To further boost winter heat gain, we built a low, sloping retaining wall of local granite rocks facing the Arizona room (the house sits two and a half feet lower than the south half of the property). We collected the rocks for free when we visited our parents, as a developer had formed a rock pile when blading the desert nearby. We avoided using cement in the wall by sloping it and keying the rocks well into each other. The rock wall stops erosion, creates microclimates for a greater diversity of plantings and acts as a high mass heat bank for our home.

This is a great feature for winter, but not summer, so we put in a rounded rebar trellis (see article by Silvia Rayces and Laurence Cohen, PDJ, March 1994). To do this, 1/2-inch rebar is stuck 1-1/2 feet deep in the ground and bent into a curve before attaching it to the roof overhang. The 6-inch concrete mesh we bought for scrap is attached to the rebar, completing the trellis structure. There we grow edible annuals such as Magdalena Big Cheese Squash which cover the

trellis in the warm months. The transpiring vegetation shades and cools the house while providing food. The season's first frost kills the squash, giving us mulch, and clearing the trellis to allow full solar heat gain in the winter.

The squash is watered by a 1200 gallon cistern which collects rain water off our roof. It's an oval, ferrocement septic tank elevated two feet above the highest point of our property with earth and rock. This allows us to water by gravity feed — no pumps, no maintenance, no moving parts. The cistern is located along the fence line where our neighbor has a rental cottage. In this location, the cistern acts as a fire break, a privacy screen, and a temperature moderator for our orange tree just to the north. The tree shades the cistern and drops leaves for mulch.

Organic droppings and prunings from around the yard and neighborhood were mixed with manure delivered to us free from an overflowing stable. All was composted and then spread as a one-foot deep mulch in all planting areas. This alone cut all watering needs by two-thirds.

Rodd replumbed the house and I rewired it. A low-flush toilet was installed to meet code and we could now read on porcelain of our own rather than that of the public library down the street. However, I still don't feel comfortable yellowing city drinking water via the toilet, so the yard plants usually receive my water. We are also researching composting toilet designs we can implement to give the trees and ornamentals a little humanure too.

Toilet aside, our bathtub was also being filled with water, and it pained us to watch it all go down the drain. That water had to be harvested! Problem was, the tub drain was lower than the rest of the property. So we ran a 1/2-inch vinyl tube through the window jam, with one end suction-cupped to the bottom of the tub and the other end lying under the winter-deciduous black mission fig which shades the bedroom in the summer. A simple hand pump gets the siphon going and that's it. If I want to use the tub water on the north side of the house, I hook the hose to an old half-inch irrigation line which deposits the water on a couple of Asian pears and a loquat.

Back inside the house we chipped off what remained of the crumbling plaster ceilings and walls. Rather than using dry wall we cleaned the existing wood lath and patched with new plaster by grooving mortar joints a quarter to a half inch — no chicken wire was needed! We then replastered with dual-purpose gypsum (it's easier to work with as it has a slower setting time than other gypsum), mixed at 3 parts mortar sand to one part gypsum. Once the plaster dried we put in baseboards, trim and shelves fabricated from wood salvaged from nearby dumpsters. The walls were primed eggshell white and then washed with paint we made on the advice of Barbara Rose. Paint recipe: equal parts boiled linseed oil and turpentine mixed with concrete pigments, and then washed on with rags or a sponge.

All that remained was the old Douglas fir floor. Layers of old carpet and linoleum had been peeled up to find lots of termite damage. As it turns out, the floor joists of our floor were resting on dirt. So we crawled under the floor and started digging. We excavated a 2-3 foot crawl space under the entire floor. This provided us with a cool storage for our

home brew, and the termites were denied direct access into the house. We also applied beneficial nematodes which eat termites, but not earthworms.

We used the soil from the subfloor excavations to build the base for the cistern, and to build berms to both block some of the noise coming from the bordering street and to harvest rainwater. The termite damaged flooring was then replaced with flooring our neighbor had just ripped out of his house. The flooring was sanded then oiled with a mix of 1 quart boiled linseed oil, 1 pint white vinegar, and 1 quart turpentine. Once dry, the floor was waxed.

We moved in and hooked up our ceiling fans, our sole source of mechanized cooling. My partner, Marci, and I then made exterior window shades from hemp vine and salvaged hesperaloe flower stalks from the university research fields. We built more rebar trellises on which we're growing grapes and bougainvillea. We shaded the perimeter of the house even further by extending a shade cloth (blocking 47% of the sun) from the house to the garage. We took support poles from our old chain link fence and bolted them flat against the ends of the rafters on each structure, and stretched shade cloth between them with clothesline.

Under the shade cloth we dug sunken garden beds through solid caliche earth and built raised paths around our mini-orchard with the dug-up caliche. This, in turn created sunken planting basins that would harvest water runoff. Caliche acts like decomposed granite as it doesn't get muddy or blow away. The beds dug through the caliche were then partially filled with good soil and salvaged composted manure. The surrounding soil was graded to drain all rainwater from the north of the house and the south of the garage into the garden. The north side of the garage is guttered, with rainwater diverted to a 330-gallon cistern of six sal-

vaged 55-gallon barrels we got from a bakery. The barrels are elevated by bricks we pulled from a torn-down store.

We incorporated an herb spiral into our kitchen garden, watered by submerged, unglazed ollas. A rock lid cuts evaporation loss while water seeps through the sides of the olla and is delivered right to the root zone of the plants. The chipped and damaged ollas we bought were cheap. The herb spiral sits next to our worm/compost pit which is covered with an old carpet.

A basic principle of permaculture — turning waste into resource — enabled Rodd and me to buy our house, and then to fix it up! Diving through dumpsters for materials, reusing resources on site, and repairing this old adobe ourselves has saved us a bundle while giving us skills, knowledge, and a confidence we didn't have before. We now have far more than we would have had we somehow purchased a new property, and all for a fraction of the impact on the earth. Is that dumpster starting to smell good yet?



*Upper right: Planting beds dug into caliche, filled with compost and soil.*

*Right: The recycled ramada sleeping platform and work area.*

*Below: The site in progress, viewed from ramada roof. Horno oven under construction on right.*

