

Making the American Dream Affordable



A Texas builder tackles affordable housing with recycled materials, job-site waste and minimum-wage crews

BY DAN PHILLIPS

The fever to own a home is as primal an instinct as humans can have. It is the American dream. So how is it that 10% of the average landfill waste stream in America is usable building material when we have millions of families that do not own homes? I build low-income housing for about \$30 per sq. ft. using free, salvaged and recycled materials. I call what I do aftermarket building. My minimum-wage workers first come to me unskilled but will eventually compete for higher-paying jobs because of the skills they develop. While I must follow all the rules—building codes and the laws of physics—the city inspectors have all been cheerleaders. I probably could increase the profit if I were to take less time working on design details, but I like the work and have a waiting list of buyers.

Much building waste can be used

Few other industries in the United States have a sadder record of exploiting their refuse than does the building industry. In practically all other sectors of the economy, aftermarket industries thrive. In construction, however, leftovers, cutoffs, mismatches and mistakes are routinely taken to landfills or simply burned. There probably isn't a contractor in America who doesn't grieve about the usable materials that are discarded. In the meantime, low-income families must either rent or buy inflated American-dream look-alikes with vinyl-covered foam door casings, cheap carpets and thin walls.

The reasons for the waste are evident enough. First, labor is disproportionately more expensive than materials. If it's faster or easier to pick up a new 2x4 than to pull nails out of an old one, we grab the new one and throw away the old one. Second, most building activity follows standardized strategies, so if a particular thing is not standard—for instance if that old 2x4 is a full 2 in. by 4 in. instead of 1½ in. by 3½ in.—it goes to the landfill. Third, specialization and “cost-plus” business concepts typically include a 10% slippage to allow for culls and mistakes. Anything left over, while ultimately charged to the home buyer, eventually goes to the trash. After all, the home buyer doesn't know what to do with two lengths of #4 rebar.



Rescued from the landfill. Perched on a pile of salvaged scraps, the author (photo facing page) poses in front of his latest project. Virtually everything in this kitchen (photo above) was recycled. The cabinets are plywood scraps, clad in cedar, and the island counter is a glulam cutoff.

Besides these market-driven factors, there is a deep predilection in our DNA that demands unity; all doors must match, and all ceramic in the bathroom must be the same color. Odd things go to the landfill.

After I asked a few local companies about materials and a few people had stopped by the work site to ask what I was doing, donated materials started flooding in. Now, I get a call at least once a week from someone want-

ing to give me something, from vanity sinks, dishwashers and bidets to pallets of granite, stoves and windows. I have developed a fairly large network for material acquisition. I buy very little at full price.

Materials are everywhere, by the truckload and often absolutely free. And people support me with contributions because it is clear that I put the material to good use. Weyerhaeuser of Houston saves its culls, cutoffs



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and damaged returns for me. McCoy's, a Southwest building-supply chain, lets me have Weyerhaeuser's loads delivered to their local outlet because I don't have a forklift. They off-load, reload their trucks in manageable quantities and deliver the materials where I need them (photo above). Other lumber companies send me 18-wheeler loads, charging \$200 a load for shipping. T&T Lumber of Kendleton gave me four full truckloads—siding, lattice, scaffolding, oak boards—gratis. After only three years of doing this, I have so many materials that I desperately need a warehouse. In fact, the first house I built this way required cutting only one tree, a southern yellow pine, for new lumber.

Design grows from the materials

I design houses around the materials I have, finding ways to meet or exceed code while also supporting a design idea. Walls do not need to be 2x4 studs, spaced 16 in. o. c.; and roofs do not need to be asphalt shingles. Anything that sheds water and will last can be roofing material: old tin, license plates or discontinued highway signs, for instance.

After consulting an engineer, I constructed the exterior walls of one house entirely from 22-in. rough-sawn cutoffs of western red cedar 2x6s, 4x6s and 6x6s—stacked, nailed and glued together into 6-in. thick blocks that we laid up like bricks, gluing and toenailing each one to the bricks both below and next to it. A continuous sill and top plate lock each wall into a frame. Interior walls in-

tersect the outer walls at least every 16 ft., forming buttresses that address lateral load.

Having accumulated a pile of Weyerhaeuser's Parallam (engineered parallel-strand lumber, or PSL) planks, 22 in. long, I used 9-ft. spans of cast-off I-joists for the main floor joists, bumped them out to 22 in. o. c. and had a 1³/₄-in. thick PSL subfloor—enough beef to hold a cement truck.

If I have 100 of these and 300 of those, their repetition can produce a pattern and enhance design. Repetition is crucial. It doesn't make any difference what “these” and “those” are. Slices of osage orange with accents of black-walnut slices form the rosette blocks over interior doors in one house. I have used hickory nuts for decorative fretwork and eggshells as molds for larger “buttons” on corbels (inset photo, p. 98). Of course, first I had breakfast. Then I simply filled an eggshell with Bondo auto-body putty, painted the egg, drilled pilot holes and nailed it up. There isn't a person in the world who would say, “Honey! Stop! That man has chicken eggs on his house.” No one is the wiser, and those things are nearly free. Researching the availability of commercially marketed appointments often takes more time than a quick homespun solution.

Some designs are interesting enough to merit extra time. I built a bathtub from 2x4 scrap (top photo, p. 99). After gluing and nailing short pieces into the shape of a tub, I ground off the corners, filled the voids with auto-body putty, applied two coats of fiber-

glass and then two coats of epoxy paint. Voilà! A bathtub.

Sliding-glass patio doors go to landfills by the thousands. The later models are double-insulated, tempered panels—pricy stuff. I framed a patio door into the roof (13-in-12 pitch) for a skylight. Not only is it double-insulated and tinted, but it is impervious to ultraviolet rays, unlike plastic skylights. Other materials found alternative uses throughout the same house. An antique shoe last, used for shaping leather shoes, became the pedal on a foot-activated laundry chute (bottom photo, p. 99). I used a glulam cutoff for a butcher-block counter (photo p. 95). Left-over plywood formed the carcasses for the kitchen cabinets, with cedar cutoffs as a covering. Hickory nuts serve as door handles and drawer pulls (center photo, p. 99).

Make the inspector's job easy

Of course, in any type of building, structural concepts must take a front seat. Because local building codes do not cover alternative building strategies and because there is no way to grade salvage material, I overcompensate. It must be absolutely clear to my inspector that the house will not fall down.

There is no substitute for an engineer's stamp on plans submitted to a municipal building department. City engineers quickly evaluate standard plans and strategies, but they cannot be expected to have knowledge of alternative approaches. If worked out in advance with an engineer and explained in a



A basket-weave turret. The curved walls of this turret are made of 2x4 cutoffs, such as those shown on the facing page, stacked up like bricks. The stairs leading to the turret were salvaged intact from another house and delivered for \$20.



Fine home, low impact. Having recycled so much material, the author estimates that constructing this home required cutting only one new tree for lumber. The larger buttons on the corbels (photo left) are auto-body putty molded in eggshells. The smaller buttons, as well as the fretwork over the porch, are hickory shells.



set of plans, particular tactics sail through the permit process with minor tweaking.

Building inspectors gladly answer questions and are usually willing to help sleuth out solutions to knotty problems. But like city engineers, building inspectors are at a disadvantage. Their job is to pass judgment on building strategies not covered in the code, so if structural integrity is not obvious, the building won't pass. I do whatever the inspector tells me to do, cheerfully, even if I disagree. And I get a bonus when I ask for an inspector's advice. He gives it to me. Free.

I have more freedom than most architects and builders

The house that I am currently building is based on a Budweiser can. It won't look like

a can of beer, but the color scheme and design takeoffs are unmistakable (photo p. 94). The house is red, white, blue and silver, with the barley and hops design worked into the front gable. There will be an Anheuser-Busch eagle on the front door. The design of the corbels will be lifted directly from the can. Maybe I'll put a lizard somewhere, maybe not.

The intended owners of this house like that design, but the buyers on my waiting list have little dominion over the design, a condition that is made absolutely clear in the beginning. A family can specify the number of bedrooms and baths, but that is pretty much it because the design grows out of the materials. If they don't like the house, they don't have to buy it. I simply go to the next family

on the list. Very few architects or contractors have such a degree of freedom.

One minimum-wage crew does it all

I hire only unskilled workers, but that doesn't mean that they are ineffective. With proper tutelage, skills come quickly, along with the ability to make decisions and make do. Workers are constantly forced into stretching dwindling materials for the task at hand. That encourages them to develop resources they might not otherwise be aware of and to anticipate continually where they're headed with what they have. That kind of skill is of service on any job.

My crew develops a wide range of skills, from concrete and tile to framing, cabinet work, roofing and awareness of design and design opportunities. Unskilled workers are not tainted by "procedural precedent." They simply don't know that "it's not done that way." Although often enough that gets in the way of efficiency, equally as often it's a bonus; new ideas are born from naiveté and experimentation. Keeping control of the design helm is paramount, but input from the crew is always welcome. After a year on my crew, workers have a good bit they can offer contractors for higher pay. Any contractor can freely raid my crew for workers, provided he is offering permanent work at higher pay.

Work with families to arrange financing

My clients have the home-owning fever just like everyone else. They are willing to pay a fair price for value received and are surprisingly able to do so if they can just get over the down-payment barrier. So when I offer to build them a house with monthly payments that are equal to or less than their rent, with no down payment, a waiting list accumulates quickly.

Parents working three jobs who still find time to read to their kids and fix their plumbing—they are the people I want to build for. If they have character resources well beyond whatever a credit report would indicate and have that peculiar fever, together we can make it happen. The price of the house is whatever a certified appraiser says it's worth. As the builder, my risk is betting that I can complete a project sufficiently be-



Not your average fiberglass tub. With a shell of 2x4 cutoffs, the author ground off interior edges and smoothed the surface with auto-body putty in preparation for two layers of fiberglass and epoxy paint.



Waste not, want not. Hickory nuts and blocks of cast-off wood form door handles and drawer pulls.



More materials laundered for reuse. The cedar-lined laundry chute opens with a step lever fashioned of found wood and an antique shoe last.

low its appraised value to make a profit. I have to decide how much time a particular project is worth, psychically and financially.

If a family can qualify for institutional financing, I help to arrange the financing and guarantee the down payment as a second lien. If I carry the note, the rate is 10% because I am not a bank. The note is handled as a lease with an option to buy, and all payments made are applied to the price of the house. Such an arrangement defers closing costs until a family is in a stronger position to manage them. In the meantime, I can use the property as collateral for a loan to fund the next project. They must exercise their option to

buy within three to five years, which encourages discipline. A family that did not initially qualify for a loan usually can after three years of steady payments. If they drop the ball three months in a row, the contract is void, and the house goes to another family on the list after a reasonable transition period.

But there are many ways to carry a note. A bank would have a hard time processing payments in chickens, for instance. I can accept chickens. Most of the money has to be there, but I accept site cleanup, materials acquisition, even child care for my workers' children. The crew can in turn repay me. Bartering is wildly successful, centuries old and time-honored. My clients may not have much money, but ask them to dispatch a wild, feral pig from the East Texas woods for a barbecue, and their account suddenly becomes current. Get them to gather a basket of wild dewberries or pecans, or give them a job they can do in their living room, like painting fretwork, and they shine.

So the road from sharecropper to homeowner does not need to be a rocky one, fraught with red tape and institutional barriers. It can be as simple as builders exploiting the detritus of their industry and asking a high-school dropout if he wants a job. Ask any sharecropper if he'd like to own a home for his family, and notice what crosses his face. The fever in his eyes will make you think twice about the arrogance of throwing something away. □

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