

My husband and I have been building a house out of mostly recycled materials for the last four years. We chose to build with salvage because we couldn't afford to do otherwise and because we enjoy the hands-on work that it takes. Also, though the house itself isn't located in the city, we are close enough to metropolitan Phoenix that its rich sources for salvage are readily available to us.

Although the house still isn't finished, we've already held permiculture classes in it, and the building work is ongoing with help from our friends as time and money permit. This article is a distillation of various tips and tricks I've learned for making salvaging and building an enjoyable and rewarding process.

Building with salvaged materials has many potential advantages. First, salvaged materials are usually less costly than new materials, and they may be of better quality (e.g., well aged wood that doesn't shrink, crack or twist). Salvaging is also a process that invites the serendipity of unexpected finds of special or beautiful things you couldn't obtain or afford otherwise. For example, we ran across a solarium that we salvaged; we liked it so much that we redesigned our whole house around it.

As you begin salvaging materials, you develop a network of sources that you can use for later work; not only that, you meet many people in your area. And of course, you feel all the satisfaction of recycling our earth's resources instead of having them end up in the landfill. Finally, you can end up, after lots of work but moderate cash outlay, having a home you love without a huge monthly mortgage payment for years and years. This can be an excellent way to build, especially for the many people who don't have a full-time job.

Before deciding to build this way, however, there are disadvantages to consider as well. For one thing, it takes a lot of time. Building, in and of itself, requires more time than you ever think it will; and that's not including the time it takes to locate, salvage, clean and transport your own building materials. There will be times when you need to go pick up something NOW, no matter how busy you are with other tasks, or it will be gone. And, the long time it can take to finish a large project can be stressful on relationships. Be sure to plan for time off from building; it will help you and every one else involved to avoid burnout. Also, if you work full-time, think very carefully before taking on such a project; it may be too time-consuming for you.

Keep in mind that it can take a lot of (potentially hazardous) hard work to tear down, load and unload things. To store things, you will need an indoor area and possibly a secure outdoor area, located where it won't bring complaints from neighbors. You will also need a work space and tools to de-nail, cut, clean, take apart and refinish your salvaged materials. (A friend and I filled three standard garbage cans with pulled nails—whew!)

Finally, you must design your house around what you have or what's available (the flip side of serendipity!); and, it's easy to buy things at too high a price, if you don't consider or can't do all the extra work involved.

Despite these possible disadvantages, in our case the decision to

build with salvaged materials was clear. If you think building this way is for you, read on!

### Labor

Before you get started, learn as much as you can. Read "how-to" books. Talk to professionals and people who have done their own building as well; consider volunteering to help them on a project. In fact, it's always a good idea to volunteer to help others on their projects; you learn a lot that way.

Both when salvaging and when building, be sure to get help, especially for heavy work! You don't want to hurt yourself, and it's discouraging to work by yourself all the time. Many people enjoy hands-on projects, so put together a work party. Be sure to provide food, tools, and opportunities to take breaks. You'll have more fun, get to know nice people, and perhaps build community, while you're at it. Also, don't overlook the tremendous value of machinery for saving time and labor on heavy work.

Another possibility, especially when you actually get to the building stage, is to barter with friends, neighbors, and professionals for labor. If you hire help, seek out professionals who will let you help them, show you how to do things, and cheerfully work with secondhand materials.

### Transportation

You will need a truck or trailer (your own or a friend's) to haul things. You may also need to hire a flat-bed trucker to have big or heavy stuff moved (e.g., roof tile, beams, glulams, large amounts of plywood and trusses). Moving materials on pallets can be a big help, if you have access to a forklift.

### Money

Even though you can save a lot by building with salvaged materials, it still takes a LOT of money to build. Be prepared!

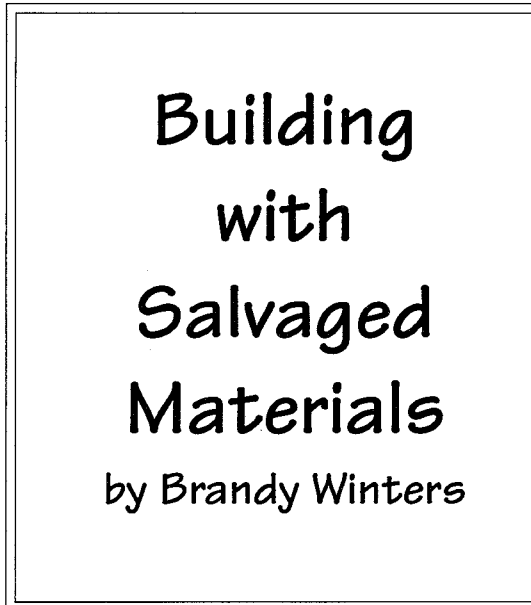
### Sources

Decide approximately what you need before looking. Always have a notebook with you to keep track of costs, write down dimensions, and list addresses and phone numbers of sources (see Sources and Types of Recycled Materials, pp. 20 and 21).

Start close to home. Ask friends, neighbors, relatives and others if they might have what you need; if they don't, ask them to keep their eyes open for these things and call you if they run across them. You can also ask them if they have a favorite source for various materials.

There is a lot of satisfaction in salvaging and building. You can set an example of how building can be done on a different level than just hiring contractors and paying huge amounts on a mortgage. You can be proud of your resourcefulness. You and those who work with you will gain skills you can all use on future projects; you will be more self-sufficient and able to advise and help others. Your building project will have more charm, uniqueness and beauty because of things you found and used. And, I can guarantee that you'll have lots of good memories when you look at that building—you are really a part of it.

*I want to thank J. Smith who taught me almost everything I know about building and salvage. We all say, "Thank you, J.!"*



# sources and types of recycled materials:

## Places to Look

**Garage sales:** also yard sales, benefit sales; want ads.

**Local bulletin boards:** Post your ads, too.

**Auctions:** Be sure you know approximate new costs of what you want. It's easy to get carried away.

**Demolition sites:** Stop and ask what's available.

**Demolishers:** Talk to the companies that do this. We bought most of our used wood and a lot of other miscellaneous stuff as a flat rate for tearing apart a restaurant. Be aware that these people have deadlines, and that you may need equipment, a crew, experience, and bravery to attack such a big undertaking. However, there are often smaller jobs that you can make an offer on, too.

**Demolition and salvage yards:** Here, materials which have already been ripped out of buildings are stored in a yard where you can see, price and bargain. You can also put your name and phone number on a list so they'll call you when certain items come in. Otherwise, keep in touch, and keep asking.

**Building or remodeling sites:** Stop and ask what's available, but be aware that often they don't want you on the site for liability reasons. Offer something for extra leftover materials.

**Trash bins, dumpsters and surroundings:** Drive around on trash pickup days (or the day before) and see what's on the curb.

**Landfills:** Sometimes they have great stuff, but they won't always let you take it away. Check to see what the policy is.

**Road margins:** Keep an eye out; sometimes there's great stuff that's fallen off vehicles.

*Once you have your list of wishes and resources, and some time and transportation, you can get to the real fun! The following is an extensive list of the types of materials we've had the most luck in salvaging.*

## Foundation Work

Picks, shovels, pry bars

Rebar (lots of it)

Bags of cement (check if soft)

Cement finishing tools

Lime for drawing lines on the earth

Heavy wire fencing for slab reinforcement

"J" bolts for fastening sills or all-thread (you'll need lots of them)

## Walls

Used block (for foundations too): May need to be cleaned. Consider total work and transport cost carefully; having new block delivered can be well worth the money. Ask about new seconds that can be half-price.

## Wood

Studs for framing

2x10s or 2x12s for lintels above doors/windows, and ceiling or porch joists

2x12s for built-in bookshelves

Trusses for roofs

Beams

Glulams

Plywood

Tongue and groove lumber

Paneling

Wainscoting

Trim

## Doors and Windows

*If you have these before you build, you can plan your project around them. If you are storing windows, lean plywood against the outside of the stack to protect the glass.*

## Doors

Hardware

Trim molding

Pre-hung doors: try to salvage the hardware and the surrounding jamb as well. To buy new trim for doors is very expensive.

Sliding glass doors: Only safety glass is to code. Check for excessive wear on floor jamb, and get ALL the parts.

## Windows

Double-glazed if possible

Try to get the screens that belong with them.

Make sure you have a way to get them home without breakage.

Masonry windows and wood-frame windows are different—be careful to get the right type for your project.

## Roofing

Seconds at roofing supply stores are often 1/2 price.

Partial cans of roofing mastic

Rolls of roofing paper

Shingle materials or tile

Beams, glulams, trusses: Figure out ahead of time how to transport these.

Heavy plywood for roof sheathing

Fascia boards

Roofing nails: You can sometimes find these new at yard sales, etc.

## Insulation

Fiberglass batting: When dealing with these, be sure to use a respirator mask, wear long-sleeved shirts and gloves, and wash up as soon as possible.

### Plumbing

Black ABS plastic pipe and fittings for septic, sewer and graywater lines  
White plastic pipe and fittings for water pipes  
Hose bibs that work  
Copper pipe and fittings  
Toilets: Consider this carefully, since most older ones use a lot more water than new ones do. Old toilets may also be sluggish in flushing because of mineral buildup in the smaller orifices  
Bathtub: Make sure it faces the correct way for your layout!  
Shower pans: Choose carefully, as older fiberglass may be rough and hard to clean  
Shower plumbing and fixtures  
Bathroom vanities with sink (or with place for one)  
Kitchen cabinets with sink (or with place for one)  
Countertop with sink (must fit with cabinets)  
Bath and kitchen sinks and fittings (if your cabinet/vanity/countertop finds didn't include sinks)  
Laundry sinks, washing machine spigots and drains  
Water tanks for rainwater collection and water storage  
Water pump and pressure tank: Useful especially in situations when you won't have municipal water pressure. Water pumps can be rebuilt; research good brands before you go looking.

### Stone and Block Work

Stone: Look at local resources—your own place, washes, roadsides. You can collect flat rocks for walls, desert masonry, or dry walls for landscape and garden terraces.  
Flagstone: Stone cutting yards have lots of odd and smaller pieces. One yard near us lets you take a truckload—any size truck—for a flat \$25 fee.  
Marble and granite: Custom shops have lots of scraps; good for making mosaic counters, floors, and shower walls.  
Block: Sometimes block yards will have closeout sales of odd sizes, architecture over-run orders, etc. (We bought the block for our house for about 15 cents apiece.) Ask for seconds. You might also ask a mason for leftovers from jobs. It's possible to salvage block from a building, but consider this option carefully—don't forget to factor in the extra work, cost, and transportation needed to get it to your site.  
Cement: Broken bags are often 1/2 price or for free.

### Miscellaneous

Nails, screws, sheetrock screws, roofing nails  
Tools to build with  
Sawhorses  
Wood trim  
Mirrors  
Paint  
Chicken wire for stucco  
Metal water pipes for building railings

### Electrical

Boxes, receptacles, outlets, switches  
Boxes of wire  
Dimmers  
Light fixtures  
Thermostats  
Ground Fault Circuit Interrupters: These are needed for outside boxes and interior boxes installed near water (i.e., bathroom and kitchen sink). They are very expensive new!  
Ceiling and bath fans  
Conduit fittings, conduit, Romex connectors  
Ground rod, #6 solid copper ground wire

*If you have questions concerning electrical components or installation, often your local electrical store will be glad to help. A home electrical how-to book is indispensable if you are doing your own wiring. Look for these books at garage sales, second-hand and new bookstores, or borrow one from your local library or from a friend.*

### Appliances

Stove, refrigerator, washing machine, water heater  
Kitchen hoods  
Evaporative coolers: Choose carefully; badly rusted pans can't usually be fixed well. You might approach a cooler/AC store and put your name in for slightly damaged units which can be bargains.  
Fireplaces: Try to design your house so that solar power does almost all of the heating. New codes require new fireplaces that cut down on pollution; older ones usually don't meet these requirements.  
Chimney sections for fireplaces: There are lots of different diameters out there, so know what you need.  
Chimney caps and screens  
Furnaces

### Landscape Needs

Fence posts, rolls of fencing, attaching hardware, fence post pounders  
Screening materials  
Hoses, drip irrigation supplies and fittings; hose bibs that work  
Terracing material: railroad ties, stone, block, treated wood  
Plants: Get cuttings or starts from friends, neighbors, relatives. Stop at houses, knock on the door and admire plants, ask for starts; some people say no, but many say yes and you can meet nice people that way! Be sure to have digging tools, containers and gloves with you.