

US EPA ARCHIVE DOCUMENT

Onsite Source Reduction: Cutting the Scrap

By minimizing construction inputs, buying recycled products, and using salvaged building materials, building projects can achieve substantial cost savings. Eliminating waste at the source, known as *source reduction*, saves money and valuable landfill space.

There are many opportunities to implement source reduction strategies on construction sites. The total waste generated by a project can be greatly reduced by considering waste generation during the design phase, employing conservative purchasing practices, and by reusing excess materials at the jobsite.

Designing to Prevent Waste

Materials can be reduced during the design phase by planning for efficient framing techniques, use of standardized lumber sizes, and incorporation of prefabricated or modular materials. Value engineering focuses on maximizing resources while maintaining construction value. This results in a finished project that performs the required functions while utilizing the least amount of resources.

Framing lumber can be a significant expense in new construction and it is one of the largest components of the wastestream. The techniques below can reduce costs and prevent waste:

- x Increase the spacing of joists and studs, or use 2x4s instead of 2x6s; extra insulation can be used in other areas to make up for decreased wall thickness.
- x Use a computer assisted design (CAD) program to optimize plywood and drywall use.
- x “Advanced framing,” used primarily in residential construction, is a system that combines increased spacing of floor joists, reduced headers, and expanded placement of studs (24” on center instead of 16”). This system requires less material and uses sized lumber more efficiently (*Cost Effective Home Building* by the National Association of Home Builders provides descriptions of alternative framing techniques, see back page for contact information).
- x Use standard lumber sizes in building design to minimize cutoff waste. The use of modular and prefabricated wall sections and trusses can also reduce on site waste by eliminating cuttings.
- x Use steel framing members as an alternative to wood. In addition to being recyclable, steel is stronger and lighter, reduces construction time and costs, and provides greater seismic tolerance.
- x Many modern buildings make a statement by exposing structural elements. Take advantage of a “less is more” design approach as an opportunity to reduce waste. Additional benefits include decreased costs and opportunities for improved daylighting and indoor air quality.



Bright Ideas

The public is becoming increasingly concerned about resource conservation and the environment. Let the community know about your efforts to reduce waste and purchase recycled content building materials. Promote your company’s resource efficiency with signage at the site—make building “green” part of your marketing strategy.

Additional Information

The C&D Waste Reduction and Recycling series consists of 9 fact sheets, each focusing on a different aspect of waste management. Factsheets in this series include:

- What’s in a Building: Composition Analysis of C&D Debris
- Onsite Source Reduction: Cutting the Scrap
- Setting up a Jobsite Recycling Program
- Deconstruction: New Opportunities for Salvage
- Calculating Effectiveness: The Waste Management Plan
- Reducing Waste for Building Owners
- Waste Recycling Through Commingled Recovery: the Summerland Heights Residential Development
- Deconstruction on Commercial Renovation Projects: the Victoria Street Presbyterian Sanctuary
- Source Reduction in Residential Remodeling: the Las Alturas Adobe

Other resources:

<i>Environmental Resource Guide</i> , American Institute of Architects	(800) 365-2724
<i>Environmental Building News</i> and <i>GreenSpec Product Directory</i>	(802) 257-7300
<i>Environmental Design & Construction Magazine</i>	(847) 291-5224
<i>Deconstruction</i> (video), Materials for the Future Foundation	(415) 561-6530
<i>Builder’s Field Guide</i> , National Association of Home Builders	(202) 822-0200
<i>WasteSpec: Model Green Building Specifications</i> , Triangle J Council of Governments	(919) 549-0551
<i>Sustainable Building Technical Manual</i> , U.S. Green Building Council	(202) 828-7422

Visit these web sites for downloadable publications, listserv information, and links to other green building sites:

www.ciwmb.ca.gov	www.tjcog.nc.us/dcwaste.htm	www.EDCmag.com
www.epa.gov/greenbuilding	www.buildinggreen.com	www.materials4future.org
www.aia.com	www.oikos.org	www.usgbc.org

The C&D Waste Reduction and Recycling Series is a joint project of the Santa Barbara County Solid Waste and Utilities Division, The Community Environmental Council, and The Sustainability Project.

For more information please contact the U.S. EPA, Region 9 Office of Solid Waste and Pollution Prevention at (415) 972-3282.

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Reusing Existing Buildings & Materials

Reuse can range from saving an entire structure, to readapting select assemblies and systems, to the selection of specific materials or items. Conduct an inventory of materials that can be reused and allow time to salvage as much as possible. If there are many valuable materials or items in the structure, this will be well worth the effort. The extra time invested can result in the salvage of old growth lumber, valuable appliances, light fixtures, hardware, architectural millwork and other custom accessories.

Consider using materials salvaged from other jobs. Don't assume that your clients will be opposed to the concept of conserving resources (and saving money!).

Although some materials can be reused, there are many that will need to be removed. Donating unused and salvaged building materials can be accomplished through material exchanges or nonprofit organizations.

Consider setting aside reusables and advertising them on materials exchange listings. The Santa Barbara County Contractor's Association and the News Press offer a materials exchange listing for Santa Barbara residents. Materials can be listed for free and are advertised in a column in the classified section every Wednesday. CALMAX lists materials in a statewide monthly publication that can also be accessed on-line (www.ciwmb.ca.gov/calmax). This service is free of charge.

Some organizations will pick-up salvaged building materials. Habitat for Humanity in Ventura and Santa Maria accept donated materials (an online listing of national affiliates can be accessed at www.habitat.org). Materials are resold to benefit low income housing projects and donations are tax deductible.

Postconsumer versus Post Industrial Recycled Products: What's the difference?

Postconsumer recycled content indicates that materials have been purchased once already and have been used by consumers, falling within the strictest definition of "recycled." Products with a high percentage of postconsumer recycled content are very resource efficient.

Post industrial recycled content indicates that manufacturing waste has been cycled back into the production process. These products do not represent the significant resource savings that post consumer products do, but are usually preferable to those that use virgin materials.

It's a good idea to set goals for including recycled content in construction inputs; include target percentages when specifying building materials. Visit the EPA website for a listing of recommended recycled content minimums for many materials (www.epa.gov/cpg-00.pdf).



Purchasing to Prevent Waste

Many established building materials already contain recycled content, and innovative technologies result in the development of new products and improved packaging every year. These products are usually competitive in price and quality. Buying recycled content building materials supports manufacturers that use recycled feedstocks in their production. This stimulates markets for recycled materials (such as those being collected at residences and jobsites) and "closes the recycling loop."

Recycled Content Buiding Materials

There are a range of materials currently available, and the list is growing. Some examples of recycled content building products available include:

Aluminum windows	Concrete	Garden edging	Patio block
Asphalt	Copper shingles	Glass pavers	Plastic lumber
Bathroom partitions	Ductwork	Glassphalt	Plastic seating
Bike racks	Exterior sheeting	Insulation	Plastic shingles
Building panels	Fences/posts	Lumber	Roofing
Carpet and pads	Fiberboard	Metal doors	Shower Dividers
Ceiling tiles	Fill material	Metal frames	Structural Steel
Cements	Flooring	Paint	Tile
Compost	Floor joists	Paperboard	Underlayment
Counter tops	Floor mats	Parking stops	Wallboard

Contact your local government for a listing of sources for recycled content building materials.

Work with Suppliers to Streamline Purchasing

- × Inform suppliers of your interest in purchasing recycled building materials (request that they make these available).
- × Request that come with minimal or no packaging.
- × Purchase previously used or salvaged items (most building owners will welcome the opportunity to save money while conserving natural resources).
- × Determine where existing policies and procedures might represent a barrier to purchasing used or recycled materials.
- × Keep a binder of information on product specifications and prices and check back with manufacturers regularly for updates.
- × Obtain verification of recycled content percentages from the manufacturer. The higher the postconsumer recycled content, the better.
- × Document product performance, especially when materials exceed expectations or require special handling; establish a "feed-back loop" with the manufacturer by reporting usage information to them.
- × Ask suppliers to take back or buy back damaged or unused materials and packaging
- × Streamline supply estimations; make sure orders do not exceed your requirements.

Check out the websites listed on the back page for more information about ordering recycled content building materials. The time you invest in learning about buying recycled will more than pay off in the long run.

