



# Water Quality & Waste Management

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## ***Managing Construction and Demolition Debris***

### ***A Guide for Builders, Developers, and Contractors***

*Your construction company can save money two ways by reducing the amount of waste produced and by reusing and recycling waste materials. First, your costs for waste disposal will be lower. Second, you will not need to buy as many raw materials if your workers do not waste as much. In addition, by using fewer resources and reducing the amount of waste you send to landfills, you will enhance your company's image in the community.*

Solid waste management legislation adopted in 1989 and 1991 established a statewide goal of reducing the municipal waste stream. Waste must be reduced 40 percent by June 30, 2001, through source reduction (producing less waste), reuse, recycling, and composting. In 1993, new federal and state management standards were adopted for municipal solid waste landfills. Stricter requirements for landfill operation, design, and monitoring have increased the costs of constructing and operating new landfills, resulting in higher tipping fees at landfills (the charge for disposing of waste) and numerous landfill closings. Now, waste must often be hauled longer distances to operating landfills. As a result, your costs for disposing of construction debris will be higher. Your company can therefore benefit from adopting waste reduction practices.

Estimates indicate that roughly 11 percent of the solid waste produced in

North Carolina each year consists of construction and demolition debris. This debris results from construction, repair, remodeling, or demolition operations on buildings, other structures, and pavement. The construction and demolition waste stream can be broken into three basic categories - (1) wood, (2) rubble and asphalt, and (3) other materials. Various estimates indicate that about half of the debris is composed of rubble (which includes concrete, cinder block, stone, clay brick, and soil) and asphalt. Wood composes about 25 to 40 percent of the construction and demolition waste; and the remaining materials are metals, gypsum wallboard, asphalt roofing material, plastic, paper, and glass. Several experts claim that 90 percent of this waste could be eliminated by reducing waste production and by recycling, depending on local market conditions for the materials.

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**North Carolina  
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### Debris Management Regulations

The North Carolina Solid Waste Management Act of 1989 requires that construction and demolition debris be separated from the waste stream and segregated at sanitary landfills. To encourage recycling and reuse, regulations divide the waste stream into four categories: construction or demolition wastes, land-clearing wastes, inert wastes, and yard trash. The North Carolina Division of Solid Waste Management recommends the following methods for handling these materials:

- Construction and demolition debris should be separated into recyclable and nonrecyclable materials.
- Inert debris (defined by the state as concrete, brick, concrete block, uncontaminated soil, rock, and gravel) should be recycled and reused as clean fill material.
- Yard trash and land-clearing debris should be reduced, reused, or recycled as mulch or compost. (Yard trash was banned from municipal solid waste landfills as of January 1, 1993.)

### Reducing Waste at the Source

You can save money by reducing the amount of waste you create. Source reduction

- decreases disposal costs
- lowers labor costs because less material must be handled and cut
- reduces expenditures for materials because less is wasted.

Consider the following ways to reduce waste.

**Design.** Ask your architect for building designs that use standard material sizes - for example, wall sections that use 4-by-8-foot sheets of materials efficiently.

**Plan.** Plan ahead so that fewer emergency supply runs need be made to local suppliers. Also, store leftover supplies and materials for your next project.

**Reduce Packaging.** Ask suppliers to remove packaging before shipping materials to your site, wrap materials in reusable blankets or padding, or take back the packaging after the materials have been delivered.

**Include Waste Disposal Costs in Bids.** Require subcontractors to include the cost of removing their waste in their bids to give them an incentive to produce less waste.

### Reuse Scrap Materials

Consider reusing materials on site to reduce your disposal efforts and costs. Here are some options.

**Leftover masonry materials** can be crushed on site and used for fill or as bedding material for driveways.

**Joist off-cuts** can be cut up and used as stakes for forming or for headers around openings in the floor assembly.

**Leftover rigid insulation** can be used as ventilation baffles in attics or installed into house envelopes at joist header assemblies.

**Pallets** can be returned to the vendors.

**Salvageable materials** can be given to businesses (such as the Recycled Building Supply Center in Durham) that collect and resell used construction materials.

### Recycle Materials

Many construction and demolition wastes can be recycled into new materials. Keep in mind that local recycling options vary across North Carolina. You can obtain information about recycling opportunities in your project area from local solid waste managers, regional offices of state solid waste management agencies, and waste haulers. Segregated construction and demolition materials can be stored on the project site in compartmentalized dumpsters labeled for metals, wood, cardboard, plastics, and other materials.

**Scrap lumber** can be processed and used for landscaping, compost, animal bedding, boiler fuel, or engineered building products.

**Metals** such as aluminum, copper, steel, and brass can be sold to scrap metal yards. These are some of the easiest and most cost-effective materials to recycle.

**Cardboard** can be kept separate in cardboard-only dumpsters at the job site and picked up by a local recycling firm. Several communities have banned cardboard from landfills and others are considering it, so now is the time to be thinking about options.

**Gypsum drywall** can be ground up for use as a soil amendment or a substitute for lime on lawns. (If you consider this option, get approval first from the Solid Waste Section of the North Carolina Division of Solid Waste Management.)

**Rubble** (concrete, bricks, cinder block, and certain types of tile) can be crushed and sieved for use as an aggregate. For example, it can substitute for stone aggregate in nonstructural applications.

**Glass** can be recycled into fiberglass or used in place of sand in paving material.

**Asphalt shingles** can be used in asphalt paving and pothole repair.

**Other scrap**, such as plastic, fiberglass, and foam or other packaging materials can be recycled. However, it may not be cost effective to recycle the small amounts generated unless a local market exists. Check with a local or state solid waste manager for information on recycling markets.

**NOTE:** If you choose to recycle a material by using it as a soil amendment or beneficial fill material, contact the North Carolina Solid Waste Section first for guidance and approval.

As you consider these suggestions for reducing, reusing, and recycling your waste, take the time to analyze your operations. How can you increase efficiency and reduce your costs? How could you train employees to practice source reduction, reuse, and recycling? Again, consult local and state solid waste managers for assistance. They can provide advice and case studies, and they can put you in touch with other construction or demolition companies that are already practicing waste reduction.

## **Use Recycled-Content Construction Materials**

To help expand markets for recyclable materials, it is important to buy building supplies that contain recycled materials. Some of these materials have been used for years by the construction industry, but they have not been advertised as "recycled." There are also many new recycled-content building materials that you may not be aware of. Information about the products available and how to purchase them can be obtained by consulting some of the publications or offices listed here.

## **Sources of Additional Information**

### **Agencies and Organizations**

#### **North Carolina Cooperative Extension Service**

Contact your county Cooperative Extension Center or:

Biological and Agricultural Engineering Extension  
North Carolina State University  
Box 7625  
Raleigh, NC 27695-7625  
Attention: Rhonda Sherman  
(919) 515-6770

#### **North Carolina Office of Waste Reduction**

P.O. Box 27687  
Raleigh, NC 27611-7687  
(919) 571-4100 or (800) 763-0136

#### **North Carolina Solid Waste Management Division, Solid Waste Section**

401 Oberlin Road  
Raleigh, NC 27605-1350  
(919) 733-0692

**Local government recycling coordinators** -  
contact your local public works department.

#### **Triangle J Council of Governments Construction and Demolition Waste Task Force**

P.O. Box 12276  
Research Triangle Park, NC 27709  
(919) 549-0551

#### **The National Association of Home Builders Research Center**

400 Prince George's Boulevard  
Upper Marlboro, MD 20772-8731  
(301) 249-4000

#### **Builders for Social Responsibility (BSR)**

Chuck Reiss  
RRI, Box 1953  
Hinesburg, VT 05461  
(802) 482-3295

#### **Center for Resourceful Building Technology**

P.O. Box 3866  
Missoula, MT 59806  
(406) 549-7678

### **Publications**

#### ***Recycled Products Guide***

Federal Supply Service  
U.S. General Services Administration  
Centralized Mailing List Service  
P.O. Box 6477  
Mailing code RCPG-0001  
Fort Worth, TX 76115

#### ***The Official Recycled Products Guide***

American Recycling Market, Inc.  
P.O. Box 577  
Ogdensburg, NY 13669  
(800) 267-0707

#### ***Green Pages***

Earthways Green Builder Council  
3617 Grandel Square  
St. Louis, MO 63103  
(314) 577-9457

#### ***Environmental Building News***

RR 1, Box 161  
Brattleboro, VT 05301  
(802) 257-7300

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