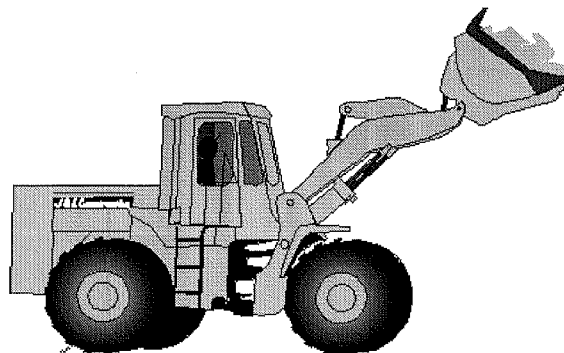


RETHINKING DEBRIS

The Industry: Construction and Demolition Waste Reduction and recycling Tips

An Opportunity

There is money lying virtually ignored on the ground at construction and demolition sites across Wisconsin. Second-hand wood flooring, odd cut lumber, siding scraps, used asphalt shingles, surplus drywall, spent corrugated cardboard and other materials typically labeled waste have value that only a few enterprising companies appreciate. If your business builds, renovates or remodels anything from hospitals to single-family homes, furniture or playground equipment, read on. Find out how to put that money on the ground into your pocket, while helping to conserve natural resources.



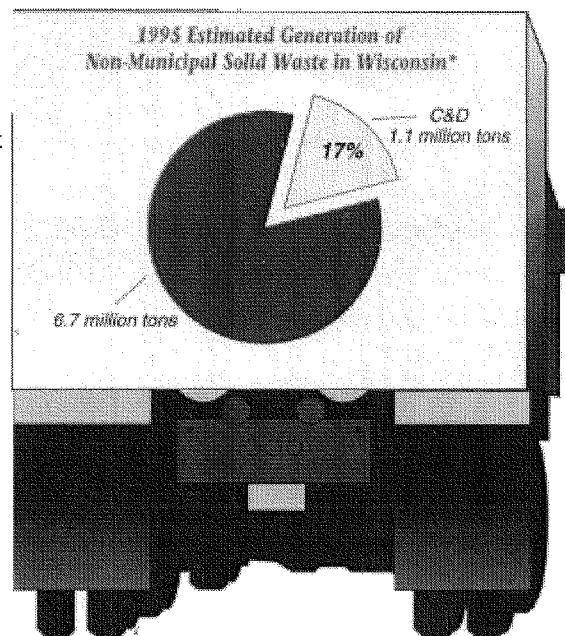
Wisconsin's Wastestream

Precise figures are hard to come by, but industry experts estimate that construction waste and demolition debris (C & D) may account for more than a quarter of our nation's entire wastestream. In some areas of Wisconsin, such as Dane County, analysts estimate that up to 45 percent of all landfilled waste is construction and demolition debris.

As disposal costs increase, businesses that divert more of their construction waste and demolition debris from the wastestream by reducing, reusing and recycling can save money and help stimulate markets to handle their wastes. In addition to profits, there is also the law to consider.

The Waste Reduction and Recycling Law

Wisconsin's Waste Reduction and Recycling Law, signed by Governor Tommy Thompson in 1990, was created to help change the state's throw-away habits. Items banned entirely from state landfills and municipal solid waste incinerators include: major appliances, used motor oil, lead-acid vehicle batteries, yard wastes, corrugated cardboard, office paper, magazines, newspaper, aluminum, steel, bi-metal and glass containers, plastic containers (PETE/#1 & HDPE/#2) and waste tires. Several of these items typically appear at construction and demolition sites.



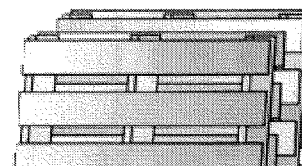
The Big Four

Wisconsin construction and demolition companies are already doing a good job recovering asphalt and concrete rubble for reuse or recycling. Four other materials that consistently appear in large quantities as construction and demolition debris are wood, drywall, paper and metals. Keeping them out of the wastestream is a matter of planning and ingenuity. Here are a few tips. (Source: Walther, Robert 1993. *Builders' Guidebook to Reducing, Reusing and Recycling Residential Construction Waste in Wisconsin*. UW-Madison Enterprise Center.)

Wood

Conserve lumber, pallets, packing crates, particleboard, plywood, and other wood products by:

- Designing floor plans to make efficient use of whole 4'x 8' panels ar



for framing contractors and crew to reduce wood waste.

- Ordering in large quantities that can be custom cut to fit unusual designs.
- Coordinating with suppliers to take back or buy back unused wood, pallets and crates.
- Shipping pallets/packing crates to a pallet recycling for rebuilding.
- Chipping unpainted, untreated wood waste for use as yard mulch or boiler fuel.
- Using recycled wood or wood alternatives.

Drywall/Gypsum

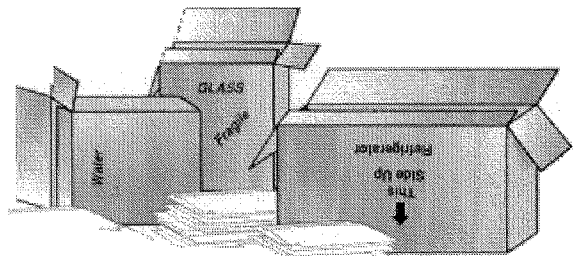
Reduce drywall waste by:

- Designing interiors to make efficient use of whole 4'x 8'drywall sheets.
- Keeping all drywall cut offs in a central, dry location that is easily --- accessible to workers until every room is fully drywalled.
- Donating scrap drywall to low income housing, or trading it to other businesses through materials exchanges.
- Asking suppliers to haul scrap drywall back to their plant and recycle it into new drywall.

Paper

Cut down on corrugated cardboard, boxboard, brown wrapping paper, office paper and other paper waste by:

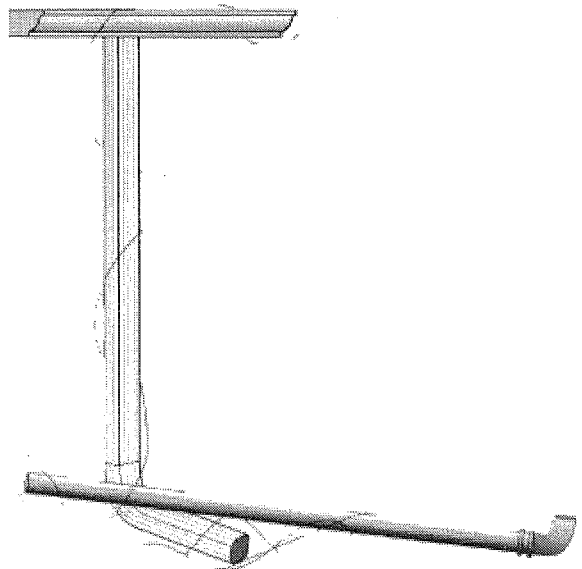
- Asking manufacturers to reduce unnecessary paper packaging on the materials you buy from them.
- Convincing manufacturers to deliver items in reusable packaging that can be hauled back to the manufacturer for reuse.
- Separating corrugated cardboard and office paper for selling to a recycler or pickup by municipal recycling program.
- Buying materials, such as ceiling tiles, made from recycled paper fibers.



Metals

Most sub-contractors already recycle or reuse high-valued metals such as copper, solder and brass, but some lower-valued metal products such as steel duct work, nails, pipes and aluminum siding still wind up in landfills. Reduce metal waste by:

- Designing floor plans to make efficient use of standard lengths of heating duct materials, metal pipes, wiring, siding and gutters.
- Asking homeowners if they would like to keep scrap for their own future projects.
- Removing the metal parts of damaged construction materials and reusing them on other construction materials.
- Training employees to save unused metal items for future use.
- Coordinating with manufacturers to take or buy back unused metal products. Contacting local scrap/salvage yards to ask if they can accept your unused metal.
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Industry Success Stories at a Glance

Building Nature-Friendly Homes
Windsor Home
FROM THE TREES TO THE KEYS

The philosophy at Windsor Homes, Inc. is to use natural resources wisely in building affordable housing. The company's commitment to waste reduction covers every facet of its work. Color-coded containers for specific reusable or recyclable materials are located throughout the office, plant and yard. Subcontractors are required to comply with all Windsor Homes recycling specifications.

"We build with as much reusable product as possible," says company president Len Linzmeier. "This includes bridging, splicers, wall components, filler, scabs and spacers all made from reusable material. Products that cannot be reused are collected for recycling. We have use for everything that is eight inches or longer."

A 1994 recipient of the Governor's Waste Reduction and Recycling Award, Windsor Homes has written a recycling booklet to help educate both employees and potential customers. "We think it's important for customers to realize the building materials they pay for are used and reused, not wasted," says Linzmeier. "This saves them money."

Windsor Homes cut its own disposal costs from \$10,000 to \$5,000 per year by following a strict reuse and recycling policy, according to Linzmeier. The company earns additional revenue by selling recyclable materials and products made from scrap lumber. Excess scrap lumber also goes to a farmer who chips the wood and uses it for animal bedding.

"What we've done to reduce waste could be done by any other builder," says Linzmeier. "It takes a lot of time and work to set up a successful program, but the pride and satisfaction we've gotten from it is worth it."

Windsor Homes, Inc. (608) 241-2185

Salvaging Materials from Demolition Sites

DeConstruction Inc.

Robert Walther's main task at Deconstruction, Inc. is to take a long, hard look at the buildings his company plans to demolish and pull out anything worth salvaging. On any given day, this might include doors, oak flooring, plumbing and lighting fixtures, and heavy structural timbers.

"There is a huge amount of material that is worth saving and selling at any given demolition site," says Walther. "But a lot of people don't seem to realize that. Once they know what items are for sale, I almost never have difficulty selling the salvaged items."

Deconstruction, Inc. has gone beyond salvaging waste building materials to recycling them into new products. The company, with partial funding from the Wisconsin Department of Natural Resources, has begun an experimental project to mix concrete debris with used asphalt shingles to make base material for road and building construction.

"We've had a problem collecting enough shingles from roofers to make our mix," says Walther. "They're used to just throwing the old stuff away"

Deconstructin, Inc.(608) 244-4332

Moving (and Reusing) Mountains in California

After a major earthquake devastated the Los Angeles area in January, 1994, the county faced a gargantuan task. What to do with the mountains of wire, wood, concrete, brick, asphalt, wallboard, carpeting and yard waste left in the earthquake's wake?

The Los Angeles County Sanitation District and the Public Works Office of Solid Waste Management responded quickly. With funding support from the Federal Emergency Management Agency, they hired two area haulers to manage source separation and process the debris and later brought on a third hauler to help them collect an average of 5,000 tons of debris per day

Using screens, trommels and slashers to process the debris, the contractors separated out logs and lumber to be sold as firewood. Scrap metal was sold to processing companies, fuel grade wood was chipped and sold to electric utilities and

landscapers. Materials such as wallboard and yard debris were combined with other municipal solid waste for composting and landspreading. Crushed asphalt was recycled as roadbase material.

"To date, we have processed 202,000 tons of material," reports Janet Coke, a senior civil engineer with the Sanitation District. "Ninety-two percent of that material has been recovered for recycling."

Los Angeles County Sanitation District (310) 699-7411

Setting up a Construction and Demolition Debris Recycling Program*

1. Research possible markets for reusable and recyclable materials. (Contact DNR area recycling staff for help.)
2. Talk with co-workers and contractors to drum up interest.
3. Develop specific salvage, reuse or recycling guidelines for subcontractors to follow as part of contract.
4. Set up a monitoring system with haulers and subcontractors to track the program's effectiveness.
5. Find a hauler to handle the job. Clearly mark and locate bins.
6. Provide monthly reports to owner/contractor on amounts of materials salvaged, reused or recycled and money saved.
7. Establish a recognition program to encourage employee's participation.
8. Develop a troubleshooting plan. Check in with haulers to discuss project. Visit site periodically.

**Source: River City Resource Group, Inc. Portland, OR.*

Get the Lead Out

When recycling construction and demolition debris, be aware that wood containing lead paint may not be chipped and spread for landscaping. State law also prohibits the sale or transfer of any fixture or other object containing lead-bearing paint that might be placed upon any surface of a dwelling which is ordinarily accessible to children.

Watch out for other contaminants, such as asbestos and certain adhesives. Contact your local solid and hazardous waste specialist for guidance.

Where to Go for More Info

Wisconsin Recycling Markers Directory - This three-ring binder, published by the Wisconsin Department of Natural Resources, lists more than 400 Midwestern companies that buy or accept recyclable materials. Also comes on diskette. Call 608/267-7566.

Materials Exchanges - These Wisconsin Department of Natural Resources and University of Wisconsin-Extension fact sheets explain how businesses can find markets to sell, barter or buy surplus products and unspent material. Call 608/267-7566.

Starting or Expanding Recycling, Reduction and Reuse Efforts - The University of Wisconsin-Extension offers a wide range of expertise and printed information for businesses seeking help with recycling and waste reduction, including an industrial market directory. Call 414/465-2707.

Builders' Guidebook to Reducing, Reusing and Recycling Residential Construction Waste in Wisconsin - This twenty-two page handbook, a joint project of the Wisconsin Builders Association and the UW-Madison Enterprise Center, focuses on construction waste in Wisconsin. It contains tips for cost-conscious, environmentally concerned builders. Call Wisconsin Builders Association at 1-800-362-9066.

Resource for Environmental Design Index (REDI Guide) - This computer diskette, updated annually, lists up to 1,000 companies that sell building materials made out of recycled, low toxic, natural and sustainably harvested forest products. Call Iris Communications, Eugene, OR, at 800/346-0104.

Guide to Resource Efficient Building Elements - Published annually by the Montana Center for Resourceful Building Technology, this book contains a national listing of 400 companies that manufacture recycled building materials and resource efficient materials such as engineered lumber approved for structural use. Call 406/549-7678.

Construction and Demolition Debris Recycling Facilities: An Introduction to Siting - This six-page fact sheet, published by the Wisconsin Department of Natural Resources, serves as a general guide for companies applying to the agency for construction and demolition debris processing facility permits. Call 608/267-7566 (publ. #SW 383-95)

Building Permits and Recycling Space Requirements - A Wisconsin Department of Natural Resources fact sheet that explains the Department of Industry, Labor and Human Relations' (DILHR) requirements for separation and temporary storage of recyclable materials in new or remodeled buildings. Call 608/267- 7566 (Pub# IE-183-95REV). Or call DILHR for more information at 608/266-1970.

Light Bulb Recycling and Disposal - A Wisconsin Department of Natural Resources fact sheet for companies that handle light bulbs containing toxic heavy metals. Call 608/267-7566 (Pub# SW 195-95REV).

Industry and Government Contacts

Wisconsin Builders' Association	608/242-5151
Building Owners & Managers Association	414/278-7557
Association of Builders & Contractors	608/244-5883
Associated General Contractors	608/221-3821
University of Wisconsin-Extension	608/262-0385
Wisconsin Department of Natural Resources	608/266-2111
Council on Recycling's C&D Subcommittee	608/267-8815

