

DON'T THROW MONEY AWAY: RECYCLING CONSTRUCTION WASTE

I N F O R M

By Eric Truelove, Assoc. AIA

According to WasteCap Wisconsin, our state generates 1-million tons of construction and demolition waste each year, over 360 pounds per resident. Given an average lifespan of 72 years, each resident will generate 26,000 pounds of construction and demolition waste, enough to fill the average living room, floor to ceiling, with compressed trash. In addition to taking up space in our landfills, much of this waste consists of valuable resources that can be recycled for cash, including steel, aluminum, and copper. In addition, any refuse diverted from landfills can save on transportation and tipping fees. Therefore, building owners can also save by diverting concrete, wood, paper, cardboard, ceiling tiles, glass containers, wall-board, insulation, doors and plumbing fixtures from the waste stream. Taken together, these recycling efforts can reduce construction and demolition waste by 75%, with no additional up-front cost to the owner.

cost for this facility, built in Wisconsin will be about \$3,800. However, if 75% of the waste is diverted from landfills and either reused on site or sent to a recycling center, the cost of disposal can be cut in half. Savings can be used to put recycling containers on the site and allot extra time for the site superintendent to supervise recycling, making this a net zero cost add for the project.

RECYCLING AND LEED™

USGBC recognizes the benefits of recycling as an alternative to landfilling and gives credit to buildings through their Leadership in Energy and Environmental Design (LEED™) program, Materials and Resources, Credit 2 - Construction Waste Management. One point is awarded for diverting 50% of the waste from landfill and a second point is awarded for diverting 75% of the waste.

LEEDING BY EXAMPLE

Two facilities in Madison, submitted for LEED™ certification on the USGBC web site, Wisconsin Electrical Employee Benefits Fund (WEEBF) Office Building and the RenewAire Renovation are currently being built with plans to recycle 75% or more of the construction waste at both sites.

The WEEBF Office Building is a new 12,000 square-foot facility. From the beginning of construction in October, 2004, through April, 2005, the following construction waste was diverted from landfill and reused or recycled:

- 7,000 pounds of concrete
- 3,500 pounds of metal
- 2,700 pounds of wood
- 1,000 pounds of cardboard

The RenewAire Renovation is a complete rehabilitation of an existing 33,750 square-foot fitness center to provide needed manufacturing and office spaces. Athletic equipment was recovered for reuse. Pieces of insulation were removed and reused as acoustical treatment above suspended ceilings. Interior glazing systems were removed and will be reused in office areas that overlook the manufacturing areas. Conduit, electrical boxes, a punch card system, exit lights and wood studs were carefully removed and given to the Habitat for Humanity ReStore.



THE COST OF TOSS

In Wisconsin, a typical fee for hauling and landfilling a 30-yard dumpster containing six to seven tons of waste is \$350 to \$450, half of which is a tipping fee. If this same dumpster contains clean, separated concrete and is delivered to a concrete recycler, the cost drops to about \$50 to \$200. If this same dumpster contains clean, separated metals, the cost can drop to \$0 since metals recycling facilities typically pick up the metal at no charge. These costs vary greatly depending on the location of the job site and current market for recycled materials. Nevertheless, when planning for recycling, the following rules of thumb can be applied to construction and demolition jobs carried out in 2005:

30-Yard Dumpster Hauled To	Cost Range
Landfill	\$350 to \$450
Cardboard Recycler	\$150 to \$200
Wood Chipper/Recycler	\$150 to \$200
Concrete Recycler	\$50 to \$200
Metals Recycler	\$0 to \$100

According to the United States Green Building Council (USGBC), commercial construction generates 2 to 2.5 pounds of solid waste per square foot of floor space. Therefore, construction of a 50,000 square-foot building will yield about 10, 30-yard dumpsters of waste. If all of this waste is landfilled, total disposal

SEPARATION IS THE KEY

If recycling saves on landfill space and doesn't increase cost, why isn't it a standard on all construction jobs? The key is in the separation. Once waste is commingled, it becomes difficult to separate and many people opt to send it to landfill rather than take the time to sort it. You can make recycling successful at almost any site by following this procedure:

- Put recycling requirements and goals in the design specifications for general, mechanical and electrical work.
- Hire a waste hauler who has experience with recycling. Have them provide suitable containers and follow up paperwork so you can track the success of your recycling efforts.
- Make the site superintendent responsible for establishing an area for recycling construction debris, preferably near the job trailer.
- Mark each dumpster clearly indicating what it is dedicated to contain: Wood Only, Cardboard Only, Concrete Only, Wallboard Only, Metals Only, and General Waste.
- Place smaller, well-marked containers throughout the site at convenient locations and empty them, every day, into dumpsters. Cover and lock the dumpsters at night.

- Remind the subcontractors about recycling at every construction meeting. Follow up with foremen if recyclables appear in the general waste or contaminants appear in any of the recycle bins.

Successful recycling is 10% inspiration and 90% perspiration; but, it is good for the community, good for the environment, and can be done without adding any cost to the job.

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For additional information about recycling in Wisconsin, contact any of the following agencies:

- WasteCap Wisconsin, www.wastecapwi.org
- University of Wisconsin – Extension, Solid and Hazardous Waste Education Center: www.engr.wisc.edu/news/ar/2000/centers/shwec.html

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