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University of Illinois

Formerly Waste Management Research Center (WMRC)

Residential Construction Waste Recycling Demonstration Project in Cook County, IL

Summary

Cost Savings: \$736

Project: Residential
two-story LEED-H
home
(2,675 sq. ft.)

Waste Reduction:

- 87.64 % at substantial completion.
- 34.10 tons of inert, wood, metal, and cardboard reused or recycled.
- 4.82 tons hauled to landfill.

Work Site: Urban

Completion:
March 2009

Construction and Demolition Waste Reduction

This case study is one in a series developed by Illinois Sustainable Technology Center at the University of Illinois to highlight techniques for saving money and protecting the environment through reuse and recycling of construction and demolition debris.

Project Description: Yannell Residence, Chicago, IL

Goldberg General Contracting was the lead contractor for the two-story 2,675 square foot home that was built to LEED-H Platinum requirements. The home incorporated a variety of site-related green products including 100% pervious paving, two green roofs, solar panels, and a zero-turf landscape design. Goldberg General Contracting recycled or reused 34.10 tons of the 38.92 tons of mixed construction and demolition waste generated for a waste reduction of 87.64%. Only 4.82 tons of waste material was hauled for landfill--the equivalent of one of the 12 roll-off boxes hauled from the site. Reuse and recycling volumes included the demolition of an existing two-story home on the site that dated from 1908.



Yannell House - Cook County

Spotlight: Advantages of Commingling Construction Waste

Due to the site restriction, it was not possible to have more than one roll-off box on site. As a result, the builder contracted with a recycling facility for hauling and recycling of commingled waste, which, with the exception of food waste, could all be placed in a single roll-off box. The commingled construction waste was hauled to the recycling facility for material sorting and recycling. The major advantages to commingling construction waste are that trade contractors do not need to alter their job-site practices, which in turn eliminates the need for (a) recycling signage and associated costs, (b) training trade contractors and delivery personnel as to site recycling practices, and (c) monitoring the roll-off box for content contamination.

Cost Savings Accrued to Through Recycling

Material	Tons	Recycling Cost/ton	Avoided Disposal Cost*/ton	Savings
Inert	4.26	\$10 - \$14	\$18 - \$50	\$133
Metal	0.94	(\$50 - \$250)	\$ 0 - \$50	\$165
Wood	24.79	\$18 - \$ 35	\$25 - \$50	\$273
O.C.C.	4.12	\$10 - (\$40)	\$ 0 - \$50	\$165
Total Saving				\$736

*Costs that would have been paid if material were landfilled. Savings calculated on the average disposal cost for material based on local rates in 2008. Savings accrued to the Recycling Service and not the builder.

Keys to Success for Commingled Construction Waste

As opposed to source separation of construction waste, contracting with a recycling service provider to haul commingled waste off-site for sorting is relatively problem-free. Still there are a number of steps the builder can take to assure success.

- In the planning phase, inform all trade partners of the recycling goals and procedures, and their responsibilities in making recycling and waste reduction successful.
- Recycling procedures should be reiterate periodically as work progresses.
- Food waste cannot be commingled with construction waste. Place a garbage can on-site specifically marked for food waste.
- Place the roll-off box as conveniently as possible to work, but out of the traffic pattern.
- If not already required by the jurisdiction, consider tarping the roll-off box at the end of the work day to minimize illegal dumping of household trash.
- Contract with haulers for larger hauls of full containers “on-demand” rather than regularly scheduled pickups when containers might not be full.

Project Team

Architect: Farr Associates, 53 W. Jackson Blvd., Suite 650, Chicago, IL 60604; Contact: April Hughes, Project Manager, (312) 408-1661

General contractor: Goldberg General Contracting; 3510 N. Elston Ave. Chicago, IL 60618, contact: Jeff Berry, Vice President, (773) 279-9600

Recycler: Recycling Systems Inc, 3152 S California Ave, Chicago, IL 60608, contact: Cal King, Manager, (773) 579-1999

Research Team: Illinois State University, Department of Technology, Normal, IL 61790-5100; Contact: Richard Boser, Principal Investigator, (309) 438-3661.

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