



Tons of Trash Turn to Treasure in the Overture Project

by Garrick Maine with guest contributor, Sonya Newenhouse, Ph.D. (Madison Environmental Group, Inc.)

Flad & Associates partnered with WasteCap Wisconsin, a nonprofit that helps businesses with waste reduction and recycling, to investigate reuse and recycling for the now completed deconstruction phase of the Overture Project. The construction waste management process developed by Flad and implemented by Findorff, the contractor, and WasteCap is a historic event for Madison, and now, as the latest numbers show, a highly successful one as well. As a result, 74% of the buildings deconstructed were recycled (70%) or reused (4%).

After conducting a volunteer site visit to identify recycling and reuse opportunities, WasteCap presented their recommendations to the Overture team, at which both Findorff (the general contractor) and the Overture Foundation agreed to pursue.

The building materials targeted for recycling included carpet, ceiling tile, concrete, and metal, all chosen based on market potential and quantities.



Through WasteCap's network of recycling professionals, interested parties were found for the carpet and the ceiling tiles, which were deconstructed and source separated by Findorff. In the end, 7 tons of carpet were hauled to Dupont and 8.8 tons of ceiling tile were hauled to Armstrong. This was the first time ceiling tiles had been recycled in Wisconsin, and one of the first times carpet had been deconstructed for recycling in Wisconsin.



Finding a market to recycle 4,919 tons of concrete was easy, even though concrete is not often recycled. It was hoped that some of the crushed concrete could be reused as aggregate in the new concrete work, but this was not possible for structural and logistic reasons. As a result, the salvaged concrete will find new use as clean fill material in projects around the city.

A local salvage company recycled 166 tons of scrap metal, comprising approximately 2% of the total waste stream of the Overture project. Because scrap metals are inherently valuable, they are typically recycled in standard demolition practice. Without the construction waste management effort devised for Overture they would likely have been the only material salvaged.

It is interesting to note that labor expended to remove these materials often occurs regardless of intentions for recycling, such as in the removal of asbestos or light fixtures that need to be managed properly. Thus, labor costs for recycling are not necessarily higher than simply hauling the materials to a landfill.

Reuse efforts provided 22 tons and \$18,131 of reusable building materials to local

nonprofits such as Habitat for Humanity and St. Vincent de Paul. Two "Reuse Days" were organized to tag and donate the reusable building materials. Findorff then stored them in separate piles on the site ready for loading and transport to their new homes. More than 1,000 items were donated, including 80 solid oak doors, hundreds of light fixtures, oak flooring, cabinets, counter tops, drinking fountains, bathroom soap dispensers, 18 large boxes of wooden hangers, and more.

A unique feature of the reuse efforts included the meticulous care taken in the research and removal of the stone façade of the deconstructed Bank One Building, designed by Frank Riley.



University of Wisconsin Extension Solid and Hazardous Waste Education Center staff researched the 267-ton Indiana limestone façade reuse efforts. Prior to deconstruction, each stone was labeled and the façade was mapped and professionally photographed, so that it could be erected on another building. Findorff removed the stone piece by piece and placed it in protected storage; it is currently for sale. An attempt to incorporate much of the stonework into the new Dane County law courts project is current being pursued.

Madison Environmental Group, Inc., an environmental consulting company, was hired to coordinate and document the reuse and recycling efforts. In addition to quantifying the tons of materials that were saved from being hauled to the local landfill, photographs and interviews were also used to document and evaluate the process. The details can be found in a report, Documentation for Responsible Waste Management Overture Foundation Deconstruction Phase, located on the WasteCap Wisconsin website at www.wastecapwi.org, and the Madison Environmental Group website at www.madisonenvironmental.com. Please contact Sonya Newenhouse if you would like specific information on replicating these efforts for your next deconstruction project. Madison Environmental Group, Inc. can be reached at (608) 280-0800 at info@madisonenvironmental.com.

Both organizations are very willing to share information about “green” deconstruction processes. WasteCap Wisconsin can be reached at (414) 961-1100 or wastecap@wastecapwi.org.

Flad has recently made its construction waste management specifications and waste audit tools available for downloading at the

WasteCap Wisconsin website (www.wastecapwi.org). Flad has also partnered with WasteCap in pursuit of Wisconsin DNR grant monies to monitor and record the continuing waste management efforts on the Overture and new AEI office building projects. The goal is to help develop a statewide database of waste management practices, including waste diversion rates and recycling costs that will encourage others to participate.

The following link shows images from a tower cam of construction of the Overture site with a panoramic view of downtown Madison as well.

http://www.video-monitoring.com/findorff_madison/pics/d15/aug1501m/g211145j.jpg

10 Green Things for Landscape Architects to Do All of the Time

by Maxine Austin, Bob Hodgson, and Sue Payne

1. *See Bill Bibo's 10 things for Architects in Issue 1* - They apply to landscape architects as well.
2. *See the Big Picture* - What we do in terms of building siting, earthwork, paving, planting, and all other things affects not only the specific site, but also surrounding watersheds, biomes, sensitive habitats, etc.
3. *Plan for “rain gardens” on all sites* - Onsite percolation fields to reduce run-off, recharge the groundwater, and beautify the site.
4. *Use native plant species* - Think about alternatives to turf grass, reduce irrigation (or use gray water or collected storm water), reduce fertilizer, pesticides/herbicides, increase bio-diversity (flora and fauna).
5. *Go for a walk* - Think about what you see and how to do it better.
6. *Look at storm water management and erosion control as an integral part of planning* - Do it in a green way: infiltration, collection and reuse, bioengineered solutions rather than hard.
7. *“Challenge Complacency”* - Educate yourself, clients, contractors, and team members.
8. *Think long term* - Maintenance, life cycles, etc.
9. *Believe that dirt is your friend* - Treat it as a limited resource and a living organism. Don't waste it. Don't kill it.
10. *Save the trees* - Keep or transplant what you can, avoid disturbing sensitive habitats, plant new trees correctly.
11. *Ask the experts* - While we do know a lot about caring for the earth, we don't know everything, so assemble a team of consultants who understand the issues: hydrologists, soil scientists, arborists, civil engineers.
12. *Use onsite materials* - Balance cut and fill, use found materials, recycle pavements, etc.
13. *Learn about and try new technologies* - Such as gray water trenches, bioswales, green roofs, etc.
14. *Be involved in siting and orientation of buildings* to maximize benefit of daylighting and energy conservation, while still protecting sensitive environments.
15. *Never stop at 10!*

Green Team Goal: *Our ultimate goal is to ensure our own obsolescence.*

This requires a commitment on all levels within Flad to make well informed and thoughtful choices.

Energy Conservation and DOE2

by Garrick Maine

Good energy management should be the goal for each of us. The U.S. accounts for just 4% of the world's population but consumes over 25% of its energy. Over the past decade, electrical energy use alone in the U.S. has averaged a growth rate of 2% per year. This equates to a 25% increase in energy use since 1990. The DOE predicts a similar rate of growth through 2020.

Only 7% of our annual energy needs are met by renewables, with hydroelectric providing the greatest share. The bulk of our energy needs is being met by swiftly diminishing fossil fuels, oil, gas, and coal, and nuclear energy. Nearly 2/3 of this nation's oil and nearly half of its gas has already been burned in just a century. And, because of concerns over nuclear power plant safety and the lack of a reasonable resolution to nuclear waste storage, no new nuclear plants have been ordered since 1977 and none are currently planned.

Today, buildings in the United States consume 35-40% of our annual energy budget and contribute 35% of the greenhouse gases. They represent our single greatest opportunity to reduce our energy demand and atmospheric pollution.

On Thursday, August 16, David Eijadi of the Weidt Group, a Minneapolis based environmental consultant, presented a demonstration and workshop of DOE2, a whole building energy simulation program developed by the U.S. Department of Energy. Also presented was a comparative analysis spreadsheet, developed by the Weidt Group, that permits architects and their clients to

quickly assess the DOE2 calculation results.

Macros built into the spreadsheet permit participants to select from a menu of energy efficiency options once DOE inputs have been made. Energy strategies are individually selected and combined, or "bundled," to display an aggregate energy performance which is then compared against a base case that is just code compliant. The number of strategies included within each "bundle" is at the discretion of the participant and can be altered at any time. Instantaneous calculations provide a running tab of first costs, annual energy savings (in dollars) and simple payback. Programs like DOE2 are increasingly in demand because of the impetus of the U.S. Green Building Council's LEED rating system.

Typical architectural practice produces buildings that are routinely 10-15% better than code. Projects in which the Weidt Group have been asked to assist demonstrate an additional 15-60% energy savings with an across the board average of 30% better than code. The average payback for a building 30% better than code is typically 1.4 years according to their analysis. To achieve these results they typically perform 70-100 DOE2 runs over a period of six weeks during the schematic design phase.

The DOE analysis translates to a consultant fee of about \$0.15-0.22/square foot. Therefore, a 100,000 square foot building would

incur a design fee cost of \$15,000 to \$22,000. Payback of the design fee through operational savings typically is around six months.

Whether we utilize consultants like the Weidt Group or develop our own energy analysis capabilities, the "math" is inescapable. The world is not running out of oil and gas, it's running out of cheap oil and gas. As the noted author Paul Hawken has pointed out: "the Stone Age didn't end because we ran out of stones."

Green Materials

by Amy Doyle

Nearly 60 sponsors showcased their environmental products and services at this year's EnvironDesign conference (reviewed last issue). While many of them offer quality products, I have compiled a "Top Ten" list of companies that have proven themselves in their products and their services. In no particular order, they are:

Anderson-Tully
DesignTex
Dodge-Regupol
Forbo
Innovations in Wallcovering
Interface Fabrics
Shaw Contract Carpet
Studio eg Furniture
USG Corp.
Wicanders Cork Flooring

Here at Flad, several manufacturers with binders in our library have completed our Materials Evaluation Questionnaire (used to assess a material's "greenness"). If you are

"Before I learned to ask sustainable questions it was easier to order food in a restaurant or buy a pair of shoes. Now it's more difficult, but in the end I eat the sweetest fruit and walk in comfort."

- Phaedra Svec, AIA, BNIM Architects -

interested in seeing copies of any of the responses, please contact me.

Forbo - Bulletin board
Koroseal - Vinyl WC
DesignTex - McDonough
Collection; TerraTex panel fabric
ArcCom Textiles - Panel Fabric - recycled content
Vecta & Wilkhahn - Furniture
Marley Floors - Matrix sheet vinyl
Dinoflex Sport Floors - Sport mat
Bonded Logic - Ultra Touch natural cotton fiber insulation
Mannington Carpet - Broadloom Carpet; Vinyl-backed carpet
Broadside Veneers Ltd. - Alpi veneer
Lanark Vinyl Wallcovering - Vinyl wallcovering
Versa - N'Viro wallcovering
Hunger Douglas - Luxalon metal ceilings
Rulon Company - Wood ceiling and wall system
Steelcase - Answer, Kick and Leap product lines
Permagrain Products - Permagrain series: acrylic impregnated solid wood; Timeless 3: acrylic impregnated multi-ply flooring; UltraTec: hardwood with TecCore core; Genuwood 2: vinyl bonded wood veneer; Finewood: prefinished hardwood flooring; Armstone classic cast marble; Armstone confetti cast marble
To Market - Atmosphere rubber flooring; Luxica envinyl flooring

AEI Green Team Update

by David Odegard, AEI

AEI...

Has joined the U.S. Green Building Council and has three LEED certified designers on staff.

Has developed the ability to run the DOE2 energy analysis software.

Is helping six clients pursue green design including Memorial Sloan Kettering in NYC.

The AEI office building began construction in July with completion scheduled for March 2002. It is anticipated that it will achieve a "Certified" rating, making it the first LEED certified building in Madison. Vogel Brothers, the general contractor, is partnering with WasteCap Wisconsin in pursuit of a DNR grant to track the construction waste management portion of the project much the same as they've done for the Overture project. Grant announcements will be made November 1. When completed it will be Flad/AEI's second LEED rated project.

Upcoming Events

Greening the Built Environment
Oconomowoc, Wisconsin
October 17, 2001
www.wgba.org

Laboratories for the 21st Century
Washington, D.C.
October 2-4, 2001
www.epa.gov/labs21century

Green Links – Links to Websites Related to Sustainable Architecture

www.sustainableabc.com
(Sustainable Architecture, Building, and Culture)
www.reddawn.com (Residential Environmental Design)
www.aloha.net/~laumana
(Sustainable Architecture)
www.lib.berkeley.edu/ENVI/Green

All.html (Environmental Design Library)
www.interfaceinc.com (Recycled carpet)
www.e-architect.com/pia/cote
(AIA's Committee on the Environment featuring Earth Day Top Ten Green Buildings)
www.buildinggreen.com
(Environmental Building News)
www.greendesign.net (GreenClips)
www.eren.doe.gov/buildings/highperformance (DOE list of over 100 high performance commercial buildings)
www.sustainable.doe.gov (DOE's Center of Excellence for Sustainable Development)
www.oikos.com (green building news, products, and companies)
www.sbicouncil.org (Sustainable Buildings Industry Council)

Do you have any links you would like to submit? Send them to sara_graham@flad.com.

Flad Sustainable Design Contacts

Practice and Design

Mark Jenssen, Garrick Maine
Design process and analysis, materials recommendations

Research and Education

Amy Doyle, Bill Bibo, Sara Graham
Building material research, education, brown bag lunches, newsletter

Business and Marketing

Jodi Cofer
Promotion and publication, community involvement