

Construction Waste Reduction and Recycling Demonstration Project

J.H. Findorff & Son, Inc.
Final Grant Report
for the Wisconsin Department of Natural Resources
March 1, 2004



Prepared by:

Jenna Kunde, WasteCap Wisconsin, Inc.
Amanda Fuller, Madison Environmental Group, Inc.
Sonya Newenhouse, Ph. D, Madison Environmental Group, Inc.



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Introduction

Construction of the 385,000 square foot Overture Center in Madison, Wisconsin, began in June 2001 and the first phase of construction will be complete in July 2004 (Figure 1). Overture Center for the Arts will promote excellence in the arts,



Figure 1. The Overture Center for the Arts concept drawing.

providing top quality performing and visual arts venues downtown for Madison's local arts organizations. This high-profile project has served as an excellent demonstration of how construction waste can be recycled in a downtown location with space constraints. J.H. Findorff & Son, Inc., the general contractor, hired WasteCap Wisconsin to manage the construction waste recycling efforts, and Madison Environmental Group was hired as the on-site recycling manager. At the end of the 21-month project period, our overall

recycling rate was 55%, well exceeding our 35% goal. Although the Wisconsin Department of Natural Resources grant period is now complete, the recycling operations will continue through the end of Phase II.

The scope of work for the Waste Reduction and Recycling Demonstration Grant included the following tasks: locate and label containers; instruct and educate employees and subcontractors; monitor trash and recycling bins for compliance; summarize waste results; evaluate the construction waste management results; evaluate the project economically; and share the results. We also investigated and located markets for various recyclable materials. This report addresses each of these tasks.

1. Locate and label containers.

Over the course of the project, Findorff has recycled concrete (including brick and block), wood, drywall, metal, cardboard, white paper, newspaper, and commingled cans and bottles. Large-volume materials (concrete, wood, metal, drywall and trash) were collected in dumpsters ranging from 10 to 30 cubic yards (Figure 2). [Hereafter, both trash and recycling containers are referred to as "dumpsters" in this report.] Cardboard was collected in smaller 2-yard wheeled dumpsters as well as 6-yard dumpsters (labeled for cardboard) with lids to ensure the material stayed dry.

Until the summer of 2003, there was no recycling signage at these dumpsters and



Figure 2. We collected plywood and structural wood for recycling. April 2002.

recyclable materials were always deposited into the proper containers. In May and June 2003, when Mifflin Street was re-opened to traffic, three dumpsters (for wood, trash, and metal) were moved, and workers on the site decided to label these containers at their new locations, to avoid confusion about where the various recyclable materials should go.

Smaller-volume materials (white paper, newspaper, and cans and bottles) were collected in smaller containers. White paper (mostly drafting plans) was collected in two 90-gallon plastic containers with wheels, at the on-site office and at the Overture office across the street from the construction site (Figure 3). Newspaper was collected in clearly labeled plastic bins and in cardboard boxes in lunch and break areas. Cans and bottles were collected at recycling stations in lunch and break areas and at several high-traffic locations around the work site. Each of these stations had a pair of 30-gallon plastic containers clearly labeled for recycling and for trash, located next to each other (Figure 4).



Figure 3. White office paper and drafting plans are collected in 90-gallon containers with wheels. April 2002.

In addition, up to 14 “break room” recycling stations were established for newspaper, cans and bottles, and trash. These stations were periodically moved as construction activities changed.



Figure 4. Break room recycling stations consist of paired containers for trash and recyclable cans and bottles, June 2002.

2. Investigate markets for recyclable materials .

Since recycling began in April 2002, we identified markets for four new materials generated from the construction site and developed a new market for recycled wood when our previous hauler and processor went out of business.

We identified markets for shredded paper, Styrofoam beadboard, “rebond”

polyurethane foam, and drywall. All of these materials were generated temporarily during the construction process.

Drywall was collected at the Overture site for approximately six weeks in May and June, as part of our pilot drywall recycling project (Figure 5). We worked with Royster Clark to produce an agricultural-grade gypsum product from scrap



Figure 5. Scrap drywall was collected from Overture in May and June 2003. June 2003.

drywall, which Royster Clark used on a trial basis as an alternative to commercially purchased agricultural gypsum in their fertilizer manufacturing operations. Type X, or “Firecode C” drywall – the type of drywall used most extensively in commercial construction - - was separated and ground, screened and used in the manufacture of fertilizer (Figure 6). Other types of drywall such as green board, blue board, and Dens Glass, contain paraffin or more than 1% fiberglass content. We were uncertain

of the effect these materials would have on fertilizer production, so we did not separate them for recycling.

For the pilot recycling project, WasteCap coordinated drywall collection from Overture and from Don Simon Homes. Pellitteri Waste Systems hauled the drywall to Royster Clark’s manufacturing facility on the east side of Madison. Sixty-two tons of drywall were collected for the pilot. A test was conducted on May 9, 2003, and again in June 2003 that tested

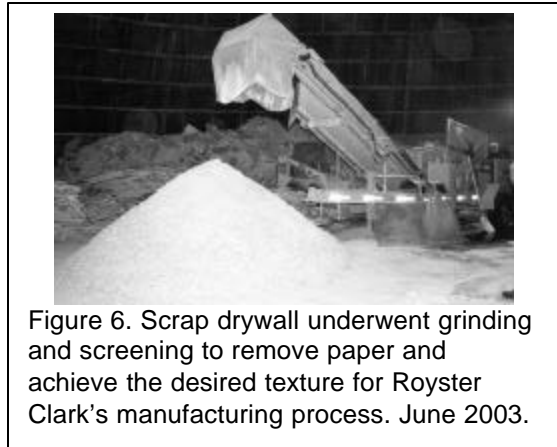


Figure 6. Scrap drywall underwent grinding and screening to remove paper and achieve the desired texture for Royster Clark’s manufacturing process. June 2003.

different grinding and screening equipment. The pilot test was successful and Royster-Clark successfully manufactured SulfaCal, one of their fertilizer products, using the ground, screened drywall. See WasteCap Wisconsin’s web site at www.wastecapwi.org for the Drywall-to-Fertilizer Final Report.

We were able to recycle less than 15 tons of drywall from Overture, due to the capacity limitations of the pilot project. However, we hope that the success and knowledge gained from this trial will be used to create a stable market for drywall recycling in the Madison area. WasteCap Wisconsin is investigating possible avenues for future drywall recycling operations.

3. Instruct and educate employees and subcontractors.

In April 2002, we held an Earth Day kickoff event to share recycling information and introduce the recycling program to employees. At that time, we presented the new recycling program at one of Findorff’s weekly “tool box” meetings for all

site workers (Figure 7), and at a weekly Findorff's foremen's meeting. We also met with subcontractor workers in small groups to educate them about the recycling program.



Figure 7. Workers listened to our presentation about recycling at a "tool box" talk in April 2002.

On November 15, 2002, America Recycles Day, we held an appreciation lunch for construction workers on the job site. At that lunch, we posted current recycling rates and congratulated employees for their success. We periodically updated the signs so that workers could see the recycling rate change over time (See Attachment B).

Regular site visits, conducted two to four times a month, offered many opportunities to communicate with

workers about recycling and answer questions about specific materials (Figure 8). Many workers were interested in learning what happened to the recycled materials after these materials left the site. Workers on the site were pleased with their successful recycling operations, and we observed a high level of support for recycling among construction workers. Workers were also interested in knowing what other construction jobs in the community were recycling. We reminded them that they were setting a good example and others will follow!

Throughout the recycling project, the on-site recycling managers met with the foremen approximately once a month to request their feedback and answer questions. The Findorff Superintendent and foremen also updated the on-site recycling managers on the construction activities and notified them about changes in materials to be generated on the site. These updates were important so that we could identify markets for new materials that could be recyclable.



Figure 8. When visiting the construction site, we talked to subcontractors, and to Findorff workers (such as these workers installing drywall) about recycling. May 2003.

As construction work evolved on site, new Findorff crews and subcontractor crews periodically arrived, and we tried to ensure that all workers were kept current on the recycling operations. Regular site visits by on-site managers were helpful in maintaining recycling operations. During a high turnover period in the

summer of 2003, Amanda Fuller of Madison Environmental Group, and Cal Heiser, Findorff's Superintendent, walked around the site to meet some of the new subcontractors and introduce them to the recycling program. We updated them as to which materials were being recycled, where to get their recycling questions answered, and gave all of them copies of the Reuse Tracking Form (Attachment A) to record any materials they removed from the site destined for reuse.

4. Monitor trash and recycling bins for compliance.

Before Mifflin Street was re-opened in the summer of 2003, the dumpster for drywall was located at the corner of Mifflin and Henry Street, adjacent to the fence. We experienced some contamination with waste materials that were apparently thrown over the fence ["contamination" is defined as any material placed in the wrong container for disposal]. After large dumpsters were moved to re-open Mifflin Street, there were again minor contamination issues in those large dumpsters. We believe this contamination was partly due to the relocation of the dumpsters. Workers on site had learned where the wood, drywall, metal, and concrete recycling dumpsters were, but when those dumpsters were moved to new locations, we believe they were occasionally mistaken for a trash dumpster.

Workers on site responded by creating spray-painted plywood signs for all large dumpsters (Figure 9). We responded by increasing on-site personal communication with new workers, and by meeting with all new subcontractors to make sure they were fully updated on the recycling operations.



Figure 9. Findorff workers created these spray-painted plywood signs to label dumpsters after they were moved around to re-open Mifflin Street. May 2003.



Figure 10. Recyclable materials, such as concrete, were collected in 1-yard carts throughout the construction site, and transferred to dumpsters. March 2003.

In general, Findorff's operations minimized contamination by collecting recyclable waste materials in 1-yard carts throughout the work site and transferring material from those carts into large 20 or 30-yard dumpsters (Figure 10). Using small containers as intermediate collection sites provided an opportunity for workers to identify any contamination and remove it before transferring material to the large dumpsters.

In lunch and break areas, contamination problems were minimized by eliminating isolated trash containers and ensuring that trash and recycling bins were always placed adjacent to one another (Figure 4).

5. Document waste management results.

We collected records from haulers and processors to document the weight of trash and recyclable materials from the work site (See Attachment C). For newspapers and cans and bottles that are recycled curbside, we weighed the materials on a scale before placing them at the curb (Figure 11).



A small amount of material was occasionally taken off-site for recycling or reuse, rather than recycling in the large dumpsters. We created a simple Reuse Tracking Form to track this material (See Attachment A). Foremen or other workers filled out these forms and returned them to us, providing information about materials (such as wooden spools, or scraps of pipe or wire) that were removed from the site for reuse or recycling. We emphasized to

foremen that it is very difficult to track reuse of these materials without their assistance. Off-site reuse and recycling was by far the most difficult category of material to track and document. We believe that our measurements of such off-site reuse or recycling are conservative. This is further explained in Section 6.

We created monthly summaries from these records to report the quantity of each material recycled and reused. We also documented the recycling process through photographs, and we created a photo album to show the recycling activities month by month.

Table 1 shows the waste and recycling results from April 2002 to December 2003. Concrete accounts for the highest proportion of recycled materials by weight. The total recycling rate for the 21-month period from April 2002 to August December 2003 is 55%, which exceeds our goal of 35%. This recycling rate includes the disposal of material from the deconstruction of the Yost Façade on State Street. The reinforced concrete from the façade was not recyclable and was disposed of in an approved fill site.

Some Construction and Demolition Recycling projects consider fill material to be recycled material. We do not. This may explain significant disparities in recycling rates on different projects.

Table 1.

Construction Waste Management Results from April 2002 to December 2003

Material	Weight of waste (tons)	% of waste stream by weight	Volume of waste (cubic yards)	Receiving party
Concrete and Brick	1,234.96	34.62%	1,368	Wingra Stone
Wood	422.74	11.85%	3,855	Mobile Pallet / Pellitteri
Metal	255.66	7.17%	900	All Metals Recycling
Drywall	14.34	0.41%	100	Royster Clark
White Paper	14.12	0.40%	70	Peltz Group
Cardboard	23.02	0.65%	658	Peltz Group
Newspaper	1.30	0.04%	3.4	Recycled curbside
Cans and Bottles	1.79	0.05%	60	Recycled curbside
Styrofoam	0.02	0.00%	2	Focuscorp (reuse)
Shredded Paper	0.11	0.00%	3.3	Focuscorp (reuse)
Polyurethane foam	2.04	0.06%	32.36	Reynolds Recycling
Total Recycling	1,970.10	55.23%	7,052.1	
Trash	884.11	24.79%	3,035	Madison Prairie Landfill
Fill Waste ¹	712.59	19.98%	736	Raemisch's or Clayton's Pit
Total Landfilled (Trash +Clean Fill Waste)	1,596.7	44.77%	3,771	
Totals	3,566.8	100.0%	10,823.1	

¹ This figure includes 518.32 tons of reinforced concrete from deconstruction of the Yost façade and 194.27 tons of other construction related concrete that was not recyclable by Wingra Stone.

6. Evaluate construction waste management methods.

We are pleased with the methods we developed to transfer, collect, and haul materials from the site. Overall, recycling proceeded very smoothly in spite of the challenges of limited space and uncertain markets.

In October 2002, we posted three signs on the fence surrounding the construction site to publicize the recycling program and show the results month by month (Figure 12).



Figure 12. Three sets of signs were placed at the corners of the construction site in downtown Madison, October 2002.

We improved our initial collection system for the on-site lunchroom by placing each trash container adjacent to a recycling container and by replacing a recycling station that took up too much space with a smaller one on wheels (Figure 13).

Tracking reuse or recycling of construction materials that are not recycled in dumpsters was difficult. These materials were removed by many different parties and in small

quantities that were not often measured. Sometimes the general contractor removed reusable material to take to another job site, and sometimes subcontractors returned reusable or recyclable materials to their own shops. Examples include plastic buckets, scrap metal, or wooden spools used for electrical wire. After talking with workers and foremen on this job site, we learned that various materials were being reused and recycled off-site. In February 2003 we developed a “Reuse Tracking Form” that allowed workers or foremen to record materials being removed from the job site for reuse or recycling (Attachment A). Foremen did occasionally report off-site reuse or recycling, but it is likely that other reuse and recycling occurred that we did not learn about. Not everyone on the job site was aware of the Reuse Tracking Form, and there were numerous subcontractors who did not know about our tracking efforts, who may have taken materials back to their own shops for reuse or recycling. Our weekly site visits to the construction site were not enough to learn about all these materials. We believe the records we received by way of the Reuse Tracking Forms allowed us to present a more complete picture of waste reduction on the construction site, but that the off-site reuse and recycling measurements are conservative estimates

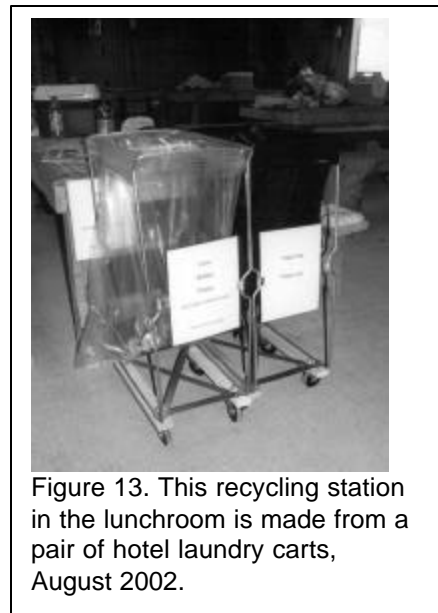


Figure 13. This recycling station in the lunchroom is made from a pair of hotel laundry carts, August 2002.

7. Evaluate the project economically.

We collected data from haulers and processors regarding their hauling and disposal fees for trash and recyclable materials, and rebates for materials where applicable. Table 2 shows a summary of disposal costs from April 2002 to December 2003.

Table 2. Summary of disposal costs for each waste material from April 2002 to December 2003. Costs reflect hauling and tipping fees wherever applicable.

Material	Amount (tons)	Disposal fees	Cost per ton
Concrete and brick	1,234.96	\$8,400	\$6.80
Wood	422.74	\$24,070	\$83.26
Metal ¹	255.66	(\$248)	(\$0.97)
Drywall	14.34	\$620	\$43.24
White Paper ²	14.12	\$102	\$7.27
Cardboard ²	23.02	\$165	\$7.17
Newspaper	1.3	\$0	\$0
Cans and Bottles	1.79	\$0	\$0
Shredded Paper	0.11	\$0	\$0
Styrofoam	0.02	\$0	\$0
Polyurethane foam	2.04	\$0	\$0
Total Recycling	1,970.10	\$33,109	\$16.81
Trash	884.11	\$40,216	\$45.49
Fill Waste ³	712.59	\$3,529	\$4.95
Total Landfilled (Trash + Fill Waste)	1,596.70	\$43,745	\$27.39
Other fees		\$3,271	
Totals at 55% recycling	3,566.8	\$80,125	

¹ Hauling fees total \$5550 but rebate for scrap metal is \$25/ton or \$5798 resulting in a net gain of \$248).

² After Peltz Group was recently purchased by Waste Management, they instituted a hauling charge for paper and cardboard. Until July 2003, there was no charge for paper or cardboard hauling.

³ This figure includes 518.32 tons of reinforced concrete from deconstruction of the Yost façade and 194.32 tons of other concrete not recyclable by Wingra Stone.

For comparison, Table 3 shows projected costs for disposal if no recycling program took place and if all waste was sent to a landfill. The volume and weight used to calculate hauling costs is based on disposal records during the twenty-one month period from April 2002 to December 2003.

Table 3.
Estimated waste disposal costs without recycling
 April 2002 – December 2003

	Estimated disposal quantities and costs without recycling, April 2002 – December 2003
Total tons of waste (excluding fill ¹):	2,854
Total volume of waste (cubic yards):	10,822
Number of hauls (Total cubic yards / 30 cubic yards per haul):	361
Hauling fees ² (\$72 per 30 cubic yard haul):	\$25,992
Tipping fees ³ : (\$29 per ton)	\$82,766
Total disposal costs if 0% Recycling (hauling + tipping):	\$108,758

¹ The deconstruction waste (712.59 tons) that was disposed of in an approved fill site is excluded from this estimate because it is unlikely that a large amount of this material would ever be disposed of in a municipal landfill. We therefore did not include the \$29 / ton tipping fee for this material in our estimated disposal costs.

² Hauling fees are based on current rates from our trash hauler.

³ Tipping fees are based on tipping rates paid for trash disposal from this job site.

Based on the projected costs in Table 3 and the actual costs in Table 1, we calculate the following savings due to recycling:

SAVINGS DUE TO RECYCLING

Estimated disposal costs without recycling	\$ 108,758
Actual disposal costs with recycling	<u>- \$ 80,125</u>
Savings	\$ 28,633

This amounts to 26% savings in disposal costs over the 21-month period from April 2002 to December 2003.

Table 4 shows our expenditures compared with the budget of our grant. Findorff's and WasteCap's labor expenses were higher than projected but other expenses and supplies were less expensive than projected.

Table 4. Expenditures and grant budget through December 31, 2003.

Budget Item	Total amount in grant	Amount spent
Findorff Labor	\$69,365	\$89,830
WasteCap Labor*	\$47,775	\$50,011.09
WasteCap Supplies	\$3,331	\$2440.65
Recycling Hauling Fees	\$33,761	\$33,109
Recycling Bins	\$600	\$273.56
Signs	\$1,250	\$630.70
Sub Lunches	\$750	\$350
Total Project cost	\$156,832	\$176,645

*This amount reflects billing through December 31, 2003, and does not include in-kind labor.

8. Share the results.

Television and Radio

On Thursday, September 4, 2003, Overture's Construction & Demolition recycling program received some unsolicited press attention. In response to a recent DNR solid waste report pointing to the impacts of C&D waste, Channel 27 visited Overture and interviewed Findorff's Dan Cowell about recycling efforts. Sherrie Gruder, a C&D recycling specialist at UW-Extension, referred Channel 27 to the Overture project.

On Earth Day, April 22, 2003, Overture's recycling program received much press as a result of WasteCap's Talk and Tour. See "Tour" Section below for more details.

On February 25, 2003, Sonya Newenhouse of Madison Environmental Group was interviewed by Rachel Kastenberg on WSUM radio. She spoke about Environmental Solutions, and highlighted recycling at Overture.

On November 15, 2002, America Recycles Day, Betsy Robertson from Channel 15 returned and interviewed Amanda Fuller of Madison Environmental Group, and Carol Arness, a Findorff Carpenter Foreman, for a piece on the 10:00 news that evening.

On November 10, 2002, Amanda Fuller was interviewed by Gil Halsted on Wisconsin Public Radio, in an unsolicited piece about deconstruction and construction waste recycling at Overture.

In April 2002, Betsy Robertson of Channel 15 TV reported on the recycling success at the Overture Center. The Findorff Superintendent, Cal Heiser, Findorff Project manager, Cindy Menches, and Owner's Representative, Mike Huffman, were interviewed for the report.

Print Media

In October 2003, WasteCap's report of the drywall recycling pilot project was completed. This pilot project included 14 tons of drywall from Overture. The report is available from WasteCap or at www.wastecapwi.org.

On September 15, 2003, the top story on the issue of *The Daily Reporter* highlighted construction and demolition waste. Jenna Kunde of WasteCap Wisconsin was interviewed for this story and highlighted recycling at Overture. J.H. Findorff and Sons and Overture Center for the Arts is featured in this article.

On August 30, 2003, the Milwaukee Journal Sentinel highlighted Overture's recycling efforts in an article titled "Recycling Urged for Construction Waste." Written in response to a recent study released by the Wisconsin DNR that stated that nearly one-third of landfill waste is construction and demolition debris, Jenna Kunde of WasteCap Wisconsin was interviewed and highlighted Overture Center for the Arts. To view the article visit <http://www.jsonline.com/news/State/aug03/165881.asp>.

On April 22 and 23, 2003, the Wisconsin State Journal covered the Earth Day 2003 Talk and Tour at the Overture Center and featured the recycling in "Lots of Recycling going on at Overture construction site" and "Overture: An Earth Day Tribute" (See Attachment D.)

In April, July, and November 2003, we updated the small signs placed around the construction site announcing current recycling results for workers on-site (See Attachment B for an example).

In April, June, and September 2003, we sent recycling results to George Austin for the Overture Update Bulletin. In January 2004, we sent December 2003 results.

In October 2002, we placed three signs on the outside fence of the construction site (Figure 12). These signs post the list of materials being recycled on the job site, and the current recycling results, updated each month. Smaller signs with current recycling results were posted in the main lunchroom at the construction site.

Throughout the project, on-site recycling managers produced one-page monthly summaries of recycling results and updates and presented this information at Overture construction progress meetings once a month (See Attachment E).

Tours

On Earth Day, April 22, 2003, WasteCap Wisconsin hosted a Talk & Tour at the Overture Project to celebrate one year of recycling on the job (Figure 14). The event was sold out -- eighty people participated. The Talk & Tour was covered by Channel 15 TV, the Wisconsin State Journal, The Capital Times, the Daily Reporter, WIBA, and other TV and radio stations and newspapers, including front page coverage on both Earth Day and April 23 in the Wisconsin State Journal. Talk & Tour presenters included Madison Mayor Dave Cieslewicz; George Austin, Overture Development Corporation; Mike Huffman, Huffman Facility Development; Mark Jenssen, PL&F Architects; Dan Cowell, J.H. Findorff & Son; and Jenna Kunde, WasteCap Wisconsin, Inc. Evaluation results from the Talk & Tour were extremely positive.



Figure 14. Cal Heiser, Findorff Superintendent addressed Talk & Tour participants at WasteCap's Earth Day Talk & Tour at Overture, April 22, 2003.

We conducted two recycling-oriented tours of the construction site in Fall 2002. One tour was held October 23, 2002, for the City of Madison Solid Waste Advisory Committee and Wisconsin Department of Natural Resources staff working on Construction and Demolition waste issues. The second tour was November 21, 2002, for visitors from the University of Florida interested in deconstruction recycling, and additional Department of Natural Resources personnel, including Sheila Henneger of the Bureau of Community Financial Assistance.

Presentations

In January 2004, Dan Cowell of Findorff gave a presentation at the Associated Recyclers of Wisconsin (AROW) Conference, highlighting the recycling efforts at Overture.

On December 10, 2003, Sonya Newenhouse shared some highlights and photos from Overture's recycling successes at the National Association of Women in Construction luncheon.

On December 1, 2003, at Madison Environmental Group's Open House, Sonya Newenhouse shared the latest results from the Overture recycling project.

In August 2003, Garrick Maine of Flad & Associates spoke at the Environmental Council of Concrete Organizations meeting in Milwaukee. He shared Overture's construction and demolition recycling results and the success using "green concrete" with recycled fly ash and slag.

In May 2003, Jenna Kunde presented Overture's deconstruction recycling results and highlighted the construction recycling results to date, at the 11th Annual Rinker International Conference on Deconstruction and Materials Reuse in Gainesville, Florida. She also presented results of the recycling program at the 12th Annual Environmental, Industry & Government Seminar in Milwaukee that month.

On April 1, 2003, Drew Stuyvenberg of WasteCap Wisconsin presented at the National Green Building Conference. He shared several construction waste recycling projects, including the Overture Center for the Arts.

Internet

The latest recycling updates are available on Findorff's recycling website, accessible from www.findorff.com. Project updates are also available on WasteCap Wisconsin's website, www.wastecapwi.org, and at Madison Environmental Group's website, www.madisonenvironmental.com.

WasteCap regularly shares results of the project through their monthly email bulletin, which is distributed to more than 1,400 professionals throughout Wisconsin.

Conclusion

This project exceeded its recycling goal of 35% with a recycling rate of 55%. We are pleased with the success of this urban construction recycling demonstration project, and we look forward to sharing the successes with others so that construction waste recycling practices may become more widespread. This project has shown that recycling can indeed be successful on a tight downtown commercial construction site.

Many thanks to the Findorff construction crew for setting a fine example for the construction industry.

Contacts

<p>General Contractor</p> <p>Cal Heiser, Superintendent Lawrence Thomas, Sr. Project Mgr. Dan Cowell, Project Manager</p>	<p>J.H. Findorff & Son 300 S. Bedford St. Madison, WI 53703 (608) 257-5321 www.findorff.com</p>
<p>Construction Waste Management</p> <p>Jenna Kunde, Executive Director</p>	<p>WasteCap Wisconsin, Inc. 2647 N. Stowell Ave. Milwaukee, WI 53211-4299 (414) 961-1100 www.wastecapwi.org</p>
<p>On-site Recycling Managers</p> <p>Amanda Fuller Sonya Newenhouse, Ph.D</p>	<p>Madison Environmental Group, Inc. 25 N. Pinckney St., Suite 310 PO Box 1607 Madison, WI 53703 (608) 280-0800 www.madisonenvironmental.com</p>
<p>Owner</p> <p>Mike Huffman, Owner's Representative</p>	<p>Overture Foundation 1 S. Pinckney St. Ste 816 Madison, WI 53703-2689 (608) 294-9000 www.overturefoundation.com</p>
<p>Waste Haulers</p> <p>Wood, Drywall</p> <p>Concrete</p> <p>Paper, Cardboard</p>	<p>Pellitteri Waste Systems PO Box 259426 Madison, WI 53725 (608) 257-4285 www.pelliteri.com</p> <p>Green Valley Disposal PO Box 473 Waunakee, WI 53597 (608) 251-7878</p> <p>Peltz Group/ Recycle America Alliance 2200 Fish Hatchery Rd Madison, WI 53713-2594 (608) 251-2115 www.peltzgroup.com</p>

<p style="text-align: center;">Metal, Trash</p>	<p>Waste Management 2418 W. Badger Road Madison, WI 53713 (877) 969-2783 www.wm.com</p>
<p style="text-align: center;">Cans and Bottles, Newspaper</p>	<p>City of Madison Streets Division 1501 W. Badger Rd. Madison, WI 53713 (608) 267-2626 www.cityofmadison.com/streets/streets.htm</p>
<p style="text-align: center;">Polyurethane Foam</p>	<p>Reynolds Urethane Recycling, Inc. 7209 U.S. Highway 14 Middleton, WI 53562-0736 (608) 831-4244</p>

Attachment A. Reuse Tracking Form

Tracking Form for Materials Taken Off-Site

Overture Arts Center
J.H. Findorff & Son
WasteCap Wisconsin, Inc.
Madison Environmental Group, Inc.

For construction recycling documentation, we need to track recycling and disposal of all materials from this site, including those removed by contractors. **Please use this form to track construction material removed from the job site.** Reuse is encouraged, and contractors should try to find reuse options before disposing of items as trash. Reuse and recycling will help us toward our 35% recycling and reuse goal for this site. Thank you.

Date: _____

Company Name: _____

No materials taken off site this month. (If this box is checked, do *not* fill out rest of form. Turn in this sheet to Findorff Superintendent or Madison Environmental Group)

Material(s) Taken Off Site: _____

Material Removed By: (check one) contractor supplier other _____

Destination (check one): Reuse Recycling Landfill other _____

Please describe reuse or recycling briefly (e.g. wood reused in household woodworking projects) _____

Amount Removed (cubic yards, pounds, tons, or number – e.g. 5 cubic yards of wood, 50 pounds of metal, or 25 electrical spools) _____

PLEASE RETURN TO FINDORFF SUPERINTENDENT

Or to Madison Environmental Group,
25 N. Pinckney Street Suite 310
Madison WI 53703
Phone (608) 204 - 0400
Fax (608) 280 - 8108

Thank you for recycling!

Attachment B. Example of signs on the job about recycling.

Recycling Rate **56%**
(April 2002 – October 2003)

Concrete and Block	1235 tons
Wood	388 tons
Metal	240 tons
Paper & Cardboard	32 tons
Drywall	15 tons

Recycling one ton of
paper saves 17 trees.




Findorff's recycling efforts
have saved 544 trees since April 2002.

Thank you for recycling!

Attachment C. Example of monthly hauling records

09/08/2003 11:32 FAX 6082575308 OVERTURE CTR + MAD ENVIRON AUGUST 002 '03



Pellitteri
WASTE SYSTEMS
7035 Raywood Rd.
P.O. Box 259426
Madison, WI 53725-9426
608.257.4285 (HAUL)
Fax: 608.257.1179
e-mail: controller@pellitteri.com Web: www.pellitteri.com

INVOICE NO. 38X00559
INVOICE DATE 08/31/03
ACCOUNT NO. 279147
DUE DATE 09/15/03

AMOUNT YOU ARE PAYING

PLEASE RETURN TOP PORTION WITH REMITTANCE

COPY

BILL TO FINDORFF & SONS, INC.
P O BOX 1647
601 W WILSON ST.
MADISON, WI 53703

"Tradition of Service For Over 60 Years"

RVICE ADDRESS: W MIFFLIN ST & FAIRCHILD (MADISON, WI)

DATE	LOCATION: W MIFFLIN ST & FAIRCHILD	DESCRIPTION	PRIOR BALANCE	SERVICE TO
08/01/03		** 3.57 TONS ** FROM 7/31/03 ✓		775.00
08/07/03	38X00559	30YD PICKUP WOOD RECYCLE 08/07/03	0806-5287	155.00 ✓
08/07/03		** 3.07 TONS **		
08/14/03	38X00559	30YD PICKUP WOOD RECYCLE 08/14/03	0814-2818	155.00 ✓
08/14/03		3.7 TONS		
08/19/03	37X00590	PAYMENT RECEIVED 001928		<775.00>
08/19/03	38X00559	30YD PICKUP WOOD RECYCLE 08/19/03	0819-3717	155.00 ✓
8/19/03		** 2.63 TONS **		
8/22/03	38X00559	30YD PICKUP WOOD RECYCLE 08/22/03	0821-4912	155.00 ✓
8/22/03		** 3.40 TONS **		
8/27/03	38X00559	30YD PICKUP WOOD RECYCLE 08/27/03	0826-5722	155.00 ✓
8/27/03		** 3.17 TONS **		


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SEP 3 2003
J.H. FINDORFF

CALL OUR DOCUMENT DESTRUCTION SERVICE FOR YOUR FALL CLEAN-OUT.
WE HAVE RECENTLY ACHIEVED AAA RATING - THE HIGHEST LEVEL OF
CERTIFICATION IN THE INDUSTRY - FOR SECURITY PRACTICES AND PROCEDURES.
WE ACCEPT PAYMENT BY MASTERCARD/VISA & DISCOVER/NOVUS

INV# 38X00559	CURRENT	30 DAY	60 DAY	90 DAY	DATE 08/31/03
ACCT# 279147	775.00				PAGE 1 OF 1

5% per month late charge assessed on past due amounts

Raywood Rd. P.O. Box 259426 Madison, WI 53725-9426 608.257.4285 (HAUL) • Fax: 608.257.1179 e-mail: controller@pellitteri.com • Web: www.pellitteri.com



PLEASE PAY THIS AMOUNT ▶ **775.00**

SOY BASED INK

Attachment D. Examples of local news coverage about the project.

Wisconsin State Journal, April 23, 2003

Wisconsin State Journal, April 22, 2003



OVERTURE: AN EARTH DAY TRIBUTE

With the afternoon sun streaming down from a glass dome at the Overture Center on State Street, loaned about construction material reuse at an Earth Day tour sponsored by WasteCap Wisconsin.

Lots of recycling going on at Overture construction site

In honor of Earth Day today, officials will hold a talk and give a tour.

By Lesley Rogers Barrett
County reporter

Even after it's replaced by the state-of-the-art Overture Center, the old Madison Civic Center will live on. At least parts of it.

In honor of Earth Day today, city and Overture officials will give a talk and tour of the \$100 million arts center on State Street, detailing how recycling and reuse have kept 1,184 tons of waste out of landfills so far.

Registration for the event starts at 3 p.m. today at the Civic Center lobby with a talk and tour to follow. The event ends at 6 p.m.

To date, more than 50 percent of the Overture construction waste has been reused or recycled instead of dumped into a landfill. That includes:

- ◆ 203 tons of wood recycled into mulch.
- ◆ 841 tons of concrete crushed into aggregate for new concrete.
- ◆ 126 tons of metal recycled into new products.

Preservation is key in the design, since architect Cesar Pelli is working around the old Yost-Kessenich store facade. Pelli plans to use lights for the Overture entrance that were preserved from the Madison Gas & Electric Building, which was demolished as part of the Overture project.

Madison businessman Jerry Frautschi donated \$100 million to create the Overture Center. The first phase should be completed in September 2004 and includes a 2,250-seat Overture Hall, several community performance and lecture spaces, art galleries and reception space.

The second phase, to be completed in 2005, is an overhaul of the Oscar Mayer Theatre, Isthmus Playhouse and Madison Art Center.

1/24/03 11:11 AM 1113 © 2003 Wisconsin State Journal

Attachment E. Example of monthly recycling report, March 2003.



Madison Environmental Group, Inc.
 22 North Carroll St., Suite 310
 Madison, WI 53703
 608.280.0800 phone
 608.280.8108 fax



WasteCap Wisconsin
 2647 N. Stowell Ave.
 Milwaukee, WI 53211-4299
 414.961.1100 phone
 414.961.1105 fax

DATE: March 27, 2003
SUBJECT: Waste Management and Recycling Summary
FROM: Amanda Fuller, Sonya Newenhouse, Jenna Kunde

MARCH 2003 SUMMARY

Monitor Bins

Recycling bins and dumpsters continue to be free of contamination.

Investigate Markets

- Drywall recycling- Plans are in place for a 30 ton batch of drywall for a recycling demonstration at the end of April, and a 50 ton batch later in the summer. We have finalized a list of acceptable types of drywall for recycling
- We have received several inquiries from workers about Styrofoam recycling. The company that was coming to pick it up for reuse as packaging is no longer doing so, and currently it is not economical to store and haul it for recycling. Currently, Styrofoam is being disposed of in the trash. Later in the project when volumes of Styrofoam increase, we recommend reconsidering recycling as an option.

Results

Material (tons)	February tons	Total tons to date
Wood (recycled and reused)	21.33	203.89
Concrete, Brick and Block	65.99	840.89
Metal	12	125.9
Cardboard	0.95	5.01
White Paper	0.68	6.95
Cans and bottles	0.10	0.88
Newspaper	0.04	0.50
Shredded Paper	0	0.11
Styrofoam	0	0.02
Polyurethane foam	0	0.11
Total Tons Recycled	101.09	1184.25
Trash	40.45	433.85
Clean fill	0	657.07
Total Tons Landfilled	40.45	1090.93
% of waste recycled:	71.42%	52.05%

Share Results

- We have given our most recent recycling figures to Tom Sweeney at Findorff to update the recycling web site.
- The Talk & Tour invitation has been printed and will be mailed to approximately 2,000 professionals before the end of the month. In addition, the Talk & Tour is being promoted through many industry email lists including IFMA, AGC, AIA, the Business Materials Exchange of Wisconsin, Association of Women in Construction, & WasteCap's lists.
- WasteCap staff will be speaking at a national Green Building conference in April about our construction waste management projects including Overture's results to date.