



**J.H. Findorff and Son  
Epic Systems Corporation Verona Business Campus  
Phase I**

*Construction Waste Management and Recycling Program  
Final Report  
December 2005*

WasteCap Wisconsin provided technical assistance, educational assistance, monitoring, measuring, documenting and publicizing results of waste management efforts during construction of the Epic Systems Corporation's new business campus in Verona, WI from October 2003 to September 2005. While construction activities on this project continue, WasteCap Wisconsin has concluded its work.

**Project Summary and Conclusions**

In terms of construction waste management and recycling, WasteCap Wisconsin views the Epic project as a model of how these programs should operate. WasteCap provided an overall recycling plan for the project, supplied worker training materials and signage, established markets for the recyclables generated on the site, helped monitor the program and documented the efforts. Findorff personnel conducted the on site training of workers, monitored the recycling containers, assessed the day-to-day performance of workers and displayed the leadership and commitment to recycling principals and goals that was so vital in insuring the success of the recycling program. This was a very good partnership.

Recycling program highlights for the Epic project include:

- A 65 percent overall recycling rate by weight
- A very successful Talk and Tour program conducted in June 2005 and attended by more than 70 local and state building professionals and policy makers.
- More than 1,900 tons (3,800,000 pounds) of waste was diverted from landfills, enough waste to fill 373 30-yard dumpsters, which if placed end-to-end would extend almost 1.62 miles.
- 730 tons of wood was recycled, the equivalent of about 4,800 trees.
- The 312 tons of scrap metal recovered from the Epic project, when used to create new metal products, will yield enough energy savings to power more than 100 average homes for a year.

These are significant recycling achievements, even for a project as large as the Epic Systems campus.

One of the remarkable things about this project, and one of the reasons WasteCap views it as a model for other large commercial construction recycling efforts, is that Findorff personnel – from management to laborers – always seemed to be looking for more opportunities to recycle more materials. For example, project safety coordinator Nibby Damman noticed that the roofers were generating hundreds of plastic pails that held screws for the roof deck. He asked if there was a way to recycle them. WasteCap researched the issue and found that the pails could be recycled, but that the procedures necessary for recycling would probably involve too much labor to make it worthwhile. Nibby thought about it and asked the roofing company if their supplier of the screws would take the pails back when they were emptied, and the supplier agreed to take them back.

As another example, a customer change order resulted in truckloads of brick suddenly becoming potential waste. Project manager Deana Turner asked WasteCap if the bricks could be recycled if that became necessary. WasteCap identified some Madison area crushing yards that would crush the bricks and recycle them as gravel. However, in the long run, project management found a better use for the material-- the bricks were donated to the City of Verona for use in city building projects. (Note: Neither of these waste reduction solutions are reflected in the recycling data contained in this report as the volume and weight of the pails was never quantified, and in a technical sense we didn't feel we could say that the bricks were "recycled.")

Not all the recycling challenges on the Epic project met with the same success as the examples above. However, even when the results were not what was originally hoped for, some valuable lessons were learned. For example, electrical and plumbing work at Epic began to generate large quantities of PVC pipe scrap in early 2004. Again, Mr. Damman asked WasteCap if this material could be recycled. Around that same time WasteCap was engaged in discussions with the Vinyl Institute, Waste Management and others about the possibility of establishing a vinyl siding recycling program in Wisconsin. The talks were promising, and as vinyl siding and PVC are similar materials, it was felt that we could begin collecting the material at Epic in the hope that we could create a market to take it. Unfortunately we collected the PVC scrap faster than the market could be established and we were unable to recycle it. However, as a result of that experience WasteCap was able to secure funding for an experimental vinyl siding recycling project in 2005. That project is expected to continue in 2006, and we hope that eventually we will be able to include PVC pipe in the program. In recycling, as in any other business, markets determine success.

Drywall recycling represented another challenge. The original recycling plan called for drywall scrap to be recycled as a soil amendment on the agricultural fields adjacent to the Epic Phase I site. WasteCap made arrangements with the farmer who leased the fields to grind and spread the material as it became available. The effort faced a number of obstacles and issues which are contained in the "Monthly Reports" section of this report. Generally, WasteCap learned that its standard practice of pairing a particular farmer with a particular construction project for the purpose of recycling drywall can often prove to

be challenging. We concluded that a way must be found to organize a stable and formal drywall recycling program in the Madison area that can accept and accommodate drywall scrap from a number of projects. To that end, in 2006 WasteCap will undertake the effort to create that market in Madison. If successful, this drywall recycling program could have a profound impact on the amount of drywall that enters landfills and should benefit Findorff on all its Madison area projects.

In conclusion, WasteCap wishes to thank J.H. Findorff and Son for the experience of working together with them on the Epic Systems Corporation Phase I project. It has been our privilege to work with your team of skilled, professional employees who are committed to quality and craftsmanship and share WasteCap's values of building in a responsible manner for the benefit of our clients and our state's environment.

<b>Material</b>	<b>Volume (yd<sup>3</sup>) (to date)</b>	<b>Weight (tons) (to date)</b>
Mixed Paper	1017	29.1
Concrete	1230	587.8
Cardboard	396	20.03
Commingle	182.62	3.64
Drywall	970	242.5
Scrap Metal	1929.12	312.59
Wood	5490	730.16
<b>Total Recycled</b>		
	11214.74	1925.803
<b>Total Trash</b>		
	5240	683.53
<b>Recycle Rate</b>		
	<b>68.16%</b>	<b>73.8%</b>