PRACTICE Greenhealth

Anne Arundel Medical Center

Case Study: Less Waste Challenge, Construction and Demolition Debris Diversion

Anne Arundel Medical Center Annapolis, Maryland

Summary

As a component of an application to apply for Leadership in Energy and Environmental Design (LEED) certification for a new construction project, AAMC set a goal to achieve a 50 to 75 percent diversion rate of demolition and construction debris.

AAMC enrolled in the Healthier Hospitals Initiative (HHI) Less Waste Challenge and set a goal for construction and demolition debris recycling.

The project team incorporated diversion and recycling specifications in construction management contracts and tracked and reviewed progress regularly.

HHI's goals were surpassed with 1,750 tons of waste diverted from the landfill during construction, a 93.3 percent recycling rate.

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The Problem

In 2006, AAMC began planning for the newest addition to the 57-acre medical campus: the construction of a 292,600 square foot, eight-level clinical care tower building. To minimize environmental impact in the community, improve interior air quality for patients and workers, and maximize energy and water efficiencies, AAMC leaders elected to pursue a Leadership in Energy and Environmental Design (LEED) Gold Certification and divert 50 to 75 percent of construction and demolition debris from area landfills. Construction debris can comprise up to 36 percent of overall landfill waste, a known source of up to 18 percent of U.S. greenhouse gas emissions[1, 2].

The Strategy Selected

Hospital leaders rooted the project in the vision statement and corporate values of the organization. The diversion of construction and demolition debris was a good fit with the hospital mission of enhancing the health of the people in their served communities, and also aligned with their corporate values including innovation and collaboration. A project team comprised of AAMC leadership, an architect, mechanical/electrical/plumbing engineers, an owner's representative, construction manager, and a LEED consultant oversaw the project and helped guide the work.

Implementation Process

To achieve the 50 to 75 percent goal of diverting and recycling construction and demolition debris, the team included recycling and waste segregation specifications in requests for proposals and contract language. Among the expectations included in the construction contract were reuse, salvage and recycling of material through proper handling, separation and segregation, specifically, concrete (which was later used in building footing), metal, wood, cardboard, and general debris materials. Additionally, the construction contract included expectations ensuring proper certification of recycling facilities, and providing in and out weights of trucks/material in a monthly report to the project oversight team. Together, hospital leaders and construction management leaders worked to educate their employees in proper segregation and audited waste management practices.

From left to right: Carolyn Core, SVP, AAMC; Odit Oliner, LEED Coordinator, Perkins+Will; Craig Rasmussen, Project Manager, James Posey and Associates; Charlotte Wallace, Sustainability Coordinator, AAMC; Mike Moraz, Project Manager, Whiting-Turner; Chuck Goodman, Founder, CR Goodman Associates; Mark Hasslinger, Principal Architect, CR Goodman Associates

Benefits

Meeting the goals of the LEED certification and HHI Less Waste Challenge has resulted in cascading effects of efficiency. These include:

- Timely implementation of other waste reduction and diversion programs (reprocessing, RMW, recycling) which resulted in $800,000 savings the first year.
- A 33 percent savings in water due to low-flow fixtures and utilization of native plantings that thrive with little water, thus eliminating the need for irrigation systems.
- Eighteen to 20 percent energy conservation by installing a highly efficient HVAC system, including chillers and chiller plant controls and a de-humidification system.
- Ninety percent energy conservation on lights alone in operating rooms by implementing LED lights.
- Achieved LEED Gold certification—the first hospital in the state of Maryland to do so.
- Listed as one of *Becker's Hospital Review's* Top 50 Greenest U.S. Hospitals.

Challenges and Lessons Learned

As hospitals consider new construction and renovation projects, AAMC leaders recommend that project teams make decisions as early as possible regarding incorporating sustainability standards in building design. To monitor construction and demolition debris recycling rates, the team found meeting biweekly was helpful in reporting, tracking and reviewing progress around construction and demolition diversion rates and other credits.

About AAMC

AAMC is a regional health system headquartered in Annapolis, Maryland, serving an area of more than one million people. Founded in 1902, AAMC includes a 424-bed not-for-profit hospital, a medical group, imaging services, a substance use treatment center, and other health enterprises. In addition to a 57-acre Annapolis campus, AAMC has outpatient pavilions in Bowie, Kent Island, Pasadena, Odenton and Waugh Chapel, all in Maryland as well.

Inpatient admissions **26,500**

Births **5,500**

Emergency visits **93,500**

Outpatient visits ..... **102,000+**

The Team

Carolyn Core, Senior Vice President, AAMC

Odit Oliner, LEED Coordinator, Perkins+Will

Craig Rasmussen, Project Manager, James Posey and Associates

Charlotte Wallace, Sustainability Coordinator, AAMC

Mike Moraz, Project Manager, Whiting-Turner

Chuck Goodman, Founder, CR Goodman Associates

Mark Hasslinger, Principal Architect, CR Goodman Associates

To keep hospital staff and stakeholders updated, an educational board was established in a high-volume common area. The educational tool provided updates on the project, and provided education about the health benefits of recycling and diverting construction and demolition debris. AAMC includes regular updates on sustainability initiatives in regional marketing campaigns, new employee orientation materials, and tours for civic/community groups.

Citations:

1. U.S. Environmental Protection Agency. Overview of Greenhouse Gases. Available at: http://epa.gov/climatechange/ghgemissions/gases/ch4.html. Accessed 1/18/15.
2. United States Environmental Protection Agency. Solid Waste in New England. Construction and demolition debris. Available at: http://www.epa.gov/region1/solidwaste/cnd/.

Photo credit: Boulder Associates Architects, 2003. On-site roll-off dumpsters are used to separate and collect construction demolition and debris.