

## **APPA AWARD SUBMISSION – UNC Charlotte Construction and Demolition Waste Management Program**

### **STATEMENT OF PROGRAM/PRACTICE:**

The University of North Carolina at Charlotte is the 4<sup>th</sup> largest university in the state system. Over the past six years, it has added over 800,000 gross square feet of building space to accommodate a rising student population currently at 21,000 students. This increase in square footage is a direct result of a successful bond-funded construction program.

Prior to the implementation of the Construction and Demolition (C&D) Waste Management strategy, our C&D recycling was a “hit or miss” program. We were contractor-dependent with much of the waste never being sent to an approved C&D landfill. Since the inception of this collaborative initiative, UNC Charlotte has recycled and reused over 2.1 million pounds of material. Last year, the C&D program saved contractors \$8,750 in tipping fees and diverted over 700,000 pounds from landfill. This represents 49% of all C&D material generated on campus.

### **NARRATIVE DESCRIPTION**

#### Institutional Benefits

The C&D program serves as a signature effort for our University. It marked the first time that our capital projects, recycling and business support (purchasing) departments joined forces to develop a successful process beneficial to the university and community-at-large.

Below are some of the benefits to the university.

- *Development of a systematic program which allows for continual improvement*  
The acceptance and implementation of the C&D Waste Management program has enabled the Office of Waste Reduction and Recycling to become part of the construction process from the design stage to occupancy of a new or renovated building. Originally, this task was relegated to the University’s Capital Projects section within Facilities Management. Consequently, this program has fostered cross-departmental communication which had not previously existed. One person was hired for the purpose of developing and maintaining the C&D program. This allows the university to maximize program results.
  
- *Recognition in the local community for developing best practices*

Our program supports the overall Mecklenburg County goal to recycle C&D waste. It represents UNC Charlotte's (a state-funded institution) willingness to reach across municipal/governmental boundaries and ensure that this worthwhile effort is maximized.

Furthermore, we have developed a relationship with Habitat for Humanity (HFH) to donate useable items such as doors, office furniture, ceiling tiles and breeze blocks prior to demolition. HFH performs a walk-thru of the targeted construction area then, identifies and takes those items to their "ReStore" for community use. The Charlotte Observer newspaper recently reported on the success of the HFH ReStore (*"They Sell Stuff That's Too Good To Throw Away: Habitat's Restore Deals In Discards As Well As New Building Materials"*, 01/21/07). We believe that our efforts have, in some small way, contributed to this well-deserved accolade.

UNC Charlotte was an early adopter of C&D recycling within the 16 campus university system of North Carolina. As more and more campuses hear about our program, interest in our work is rising. Knowledge sharing between campuses fosters continuous improvement and ensures that best practices are utilized.

### Innovative Characteristics of the Program

The passage of the 2000 Higher Education Bond Referendum opened the door to new construction at UNC Charlotte. Eight new buildings and two regional utility plants were constructed under this referendum. The C&D program recognized the need to recycle the excessive/inordinate amount of waste material which this construction program would produce. A means to put this waste to more effective use was created and implemented by engaging the local construction community. This collaborative approach has proven to be beneficial to all involved parties. The following items are specifically related to the program's creative and innovative components:

#### *Specification and Goals*

- Under this program, waste specifications were written as to not be prescriptive. They allow contractors to make plans regarding how to achieve these goals. Specifications were drafted that require a contractor to divert waste from local landfills, report on their activities and make C&D recycling part of their site management plans. The University reviews these plans and either approves or asks for more information, when necessary. These non-restrictive specifications have fostered buy-in from the contracting community and resulted in enthusiastic participation. Data collection procedures and cost tracking systems were necessary to accurately measure the program's effectiveness. Annually, realistic goals are set based upon the level of construction on campus. These goals are periodically reviewed to ensure: 1) market sustainability, 2) the

program's on-going success, 3) compatibility with Mecklenburg County's recycling goals, and 4) continual community interest.

#### *Financial Gains*

- Savings and income generated via the recycling process accrues to the contractors, not the university. This helps to offset some of their costs in an industry where prices are currently escalating.

#### *The Green Concept and LEED*

- As universities across the USA begin to explore the sustainability paradigm, it becomes obvious that business operations can become a key part of the sustainability equation. Nowhere is this more important than in building construction. UNC Charlotte is beginning construction on its first LEED project. The fact that we have an established C&D recycling program makes attainment of the LEED point for C&D recycling achievable with limited effort.

#### *Consultancy Services*

- Employee involvement goes beyond internal support for the program. Due to the accumulation of knowledge about C&D recycling within this locality, we are in a position to offer consultancy services to our contractors. We provide assistance by 1) defining the material streams that may be reused or recycled and 2) locating appropriate markets/vendors for their materials.

#### Portability and Sustainability

This program is long-term in nature and can continue provided that construction and renovation occurs at the institution and all involved parties wish to participate. The C&D program strategy can be easily adopted by any institution/organization using the guidelines indicated below:

- a) Construction waste is currently being generated at the site;
- b) A collaborative relationship with the construction industry exists and is desired;
- c) Local/government sites are available which support recycling of construction waste; and
- d) Cost savings can be generated.

Sustainability of the C&D program can be found within the following three areas:

- a) Economic
  - Accrued savings returned to contractors
  - Support local Historically Underutilized Businesses (M/WBE) – developed pallet collection tender, awarded to M/WBE sole trader – helping grow and establish small business

- Supply of re-use materials to local charlotte markets - directly/indirectly support local C&D recycling markets and operators
- b) Environmental
- Reduce waste to landfill
  - Reduce CO<sub>2</sub> emissions due to recycling
  - Green building growth in Charlotte – train contractors in benefit of recycling when bidding on LEED contracts
  - Knowledge sharing and training amongst the 16 campuses within the UNC system.
- c) Social
- Develop partnership with Habitat for Humanity (HFH). HFH does a building walk-through prior to building renovation/construction. They take useable items and sell in their “ReStore”.

### Management Commitment and Employee Involvement

Without the active participation and support of the UNC Charlotte Board of Trustees, the Chancellor, Vice Chancellor of Business Affairs and other senior management, the establishment of a successful C&D recycling program would have been a more arduous journey. The leadership and support shown conveyed the importance of this program to all parties involved. This support was a key catalyst in the establishment of the program.

Continued support and involvement of its participants has enabled the program to build the momentum that it currently enjoys. Given the level of participation and the resulting success of this program, management remains committed. The C&D program demonstrates that UNC Charlotte is dedicated to campus recycling and waste reduction efforts.

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### Documentation, Analysis and Benchmarking

A key component of the C&D recycling program has been to establish a procedure to track the amount of waste generated and percentage recycled by weight. This has been accomplished by 1) requiring the contractors to submit an initial waste management plan; 2) estimating the waste to be generated; and 3) writing procedures for handling the

waste. Contractors are then required to submit a monthly waste management report, which can be compared to the original plan thereby ensuring that the goals set out in the waste management specifications are being followed.

Benchmarks of this recycling program were related to the continuous improvement of the C&D program. Analysis of the data has revealed the following:

- ◆ C&D recycling has increased by 133%;
- ◆ Since the inception of the program, we have recycled, reused and diverted over 2.1 million pounds of material;
- ◆ For the 2005-2006 Fiscal Year, over 700,000 pounds of C&D materials were recycled (49% of all C&D material generated on campus);
- ◆ We set and exceeded our goal that a minimum of 20% of all C&D waste generated on campus was recycled in the first year. This goal was recently increased to 35%; and
- ◆ Contractors have saved \$8,750 in tipping fees.