

## 01 74 00 – Cleaning and Waste Management

### 1. Introduction

The University, Durham County, and North Carolina are committed to reducing waste and the use of landfills. Waste reduction and recycling practices aren't limited to routine day-to-day functions and events on campus; they also apply to construction and renovation activities. Construction waste management practices include deconstruction, reuse, salvage, recycling and disposal.

Proper waste management and waste avoidance are to be considered in decisions made during all stages of the capital project planning and the construction process. Those involved with the design and the construction of buildings on campus are to have the knowledge and resources needed to avoid waste and manage the resulting waste in a manner that allows for the least environmental impact.

- A. This Construction and Design standard for cleaning and waste management provides an overview of University requirements for waste management and recycling requirements. This document is to be used in conjunction with other related sections listed below:

01 74 16	Site Maintenance
01 74 19	Construction Waste Management and Disposal

### 2. References

- A. The site (<http://deq.nc.gov/conservation/recycling>) provides information regarding the management of recycling in North Carolina.
- B. NC General Statute 130A-309.10(f).
- C. Durham County Regulations.
- D. University policy regarding hazardous materials.
- E. Regulations pertaining to construction waste disposal.
- F. The 1997 "Statement on Voluntary Measures to Reduce, Recover, and Reuse Building Construction Site Waste" released by the American Institute of Architects and the Associated General Contractors of America
- G. EPA Comprehensive Procurement Guidelines (CPG)

### 3. Definitions

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

- B. Commingling: Mixing recyclable Construction and Demolition material in one waste container. Materials Recovery Facilities (MRF) exists to sort and recycle commingled materials off-site.
- C. Construction and Demolition Waste: Includes all non-hazardous solid wastes resulting from construction, renovations, alterations, repair, and demolition.
- D. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitability, corrosiveness, toxicity or reactivity.
- E. Material Recovery Facility (MRF): A processing facility designed to sort and separate recyclables based on market needs and material components.
- F. Non-hazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitability, corrosiveness, toxicity, or reactivity.
- G. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- H. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- I. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste, but can be conducted on-site (as in the grinding of concrete and reuse on-site).
- J. Return: To give back reusable items or unused products to vendors for credit.
- K. Reuse: To reuse a construction waste material without altering its form on the Project site or elsewhere.
- L. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.
- M. Sediment: Soil and other debris that has been eroded and transported by storm or well production runoff water.
- N. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste in order to reuse or recycle them.
- O. Toxic: Poisonous to humans either immediately or after a period of exposure.
- P. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- Q. Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time through off-gassing: solvents in paints and other coatings; wood preservatives; strippers and household cleaners; adhesives in

particleboard, fiberboard, and some plywood; and foam insulation. When released, VOCs can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, and damage to the liver, kidneys, and central nervous system, and possibly cancer.

- R. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.
- S. Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. The purpose of the plan is to ultimately prolong the useable life of waste materials and reduce the amount of material being landfilled.

#### 4. Construction Waste Management Hierarchy

##### A. Building Materials and Components

1. Reuse in project
2. Reuse on campus
3. Recycle (grinding wood for mulch, metal shelves recycled)
4. Disposal (in accordance with state regulations)

##### Examples:

Marble bathroom partitions, slate roofing, mechanical equipment, stone, carpet, fixed furniture, auditorium seats, wall cabinets

##### B. Fixtures, Furniture and Equipment

1. Reuse by department
2. Reuse on campus (Surplus or Duke Recycles Free Store)
3. Disposal (in accordance with state regulations)

##### Examples:

Bulletin boards, clocks, pencil sharpeners, desks, chairs, lab equipment, A/V equipment, capital assets

##### C. Construction Waste Management: Project goals for recycling, the solid waste management plan, and reporting requirements

1. Waste Management Definition
2. Waste Management Goals
3. Waste Management Plan (See 01 74 19 Construction Waste Management and Disposal)
4. Management Plan Implementation
5. Special Programs

D. Selective Demolition: Project and University requirements regarding disposal and removal of equipment and materials.

#### 5. Specifications

The Contractor shall be responsible for knowing and complying with regulatory requirements - Federal, State and Local - pertaining to the legal disposal of all construction and demolition waste materials, including but not limited to the following:

##### A. N.C. General Statute 130A (Items Banned from NC Landfills)

1. Antifreeze – effective July 1, 1994
2. Appliances – effective January 1, 1991
3. Beverage containers from ABC permit holders – effective January 1, 2008
4. Lead-acid batteries - effective January 1, 1991
5. Plastic bottles - effective October 1, 2009
6. Scrap (whole) tires – effective March 1, 1990
7. Wood pallets (may be disposed in C&D landfill) – effective October 1, 2009
8. Yard Waste – effective January 1, 1993
9. Motor Oil – effective October 1, 1990
10. Motor Oil Filters – effective October 1, 2009
11. Aluminum Cans – effective July 1, 1994 (also banned from disposal in incinerators)
12. White Goods – effective January 1, 1991 (Incineration banned as of July 1, 1994)
13. Electronics (e.g. TVs, Computers, and Cell Phones) – effective July 1, 2011

##### B. Durham County Regulations

In 1997 Durham passed an ordinance making it unlawful to place target recyclables in the garbage. The ordinance applies to all waste generators – residential, commercial, and industrial. Target recyclables currently include:

1. Aluminum cans
2. Steel cans
3. Glass bottles and jars
4. Newspaper
5. Plastic bottles
6. Corrugated cardboard
7. Computer equipment – effective January 1, 2011
8. Televisions – effective January 1, 2011

For additional information you can go to (<http://durhamnc.gov/871/Recycling-Laws>).

C. University policy regarding hazardous materials: Contact Duke's Occupational & Environmental Safety Office for the current policy.

#### 4. Suggested Waste Management Goals

Within the limits of the construction schedule, contract sum, and available materials, equipment, products and services, the Owner has established that this Project shall generate the least amount of waste possible and employ processes ensuring the generation of as little waste as possible.

The Contractor should develop, for the Architect's and owner's review, a Waste Management Plan for the Project consistent with these goals.

- A. Minimize the amount of C&D (construction and demolition) waste initially generated by such methods as efficient use of materials, appropriate planning, proper storage, prevention of breakage and damage to materials, avoidance of excess packaging and source separation of waste.
- B. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized. Consistent with LEED criteria, the project goal is to reuse, salvage, or recycle a minimum of 50% of the wastes generated by weight on demolition/renovation projects and 75% on new construction.
- C. Use recycled, salvaged, renewable and recyclable building materials.
- D. Designing buildings surrounded by green space is a guiding principle of campus planning at Duke. The University has demonstrated a strong commitment to infill buildings while preserving and creating green space. With regard to building planning, Duke has made significant commitments to green design and construction, including committing that all new construction and major renovations will achieve Leadership in Energy and Environmental Design (LEED) Certification Standards with a goal of LEED Silver. ([http://sustainability.duke.edu/campus\\_initiatives/buildings/index.html](http://sustainability.duke.edu/campus_initiatives/buildings/index.html))