



### **Materials & Resources**

The environmental impact of construction at *Euclid Commons* has been lessened through responsible management of construction waste, reusing existing resources, selecting products with recycled content, using locally manufactured or harvested materials and designing for the collection of recyclables.

More than 50% of all the construction and demolition waste generated on the project was diverted from the landfill, and instead sent to a recycling facility. The Environmental Protection Agency (EPA) estimates that 136 million tons of building-related C&D debris was generated in the United States in 1996. Through effective construction waste management, it is possible to extend the lifetime of existing landfills, avoiding the need for expansion on new landfill sites.

More than 10% of the materials and furnishings that are used in these student housing facilities were manufactured within a 500 mile radius of the project site, and half of those materials and furnishings were extracted or harvested within a 500 mile radius. An increase in demand for locally extracted and manufactured building materials and products supports the regional economy and reduces the environmental impact resulting from transporting materials around the country (and sometimes around the world). By reducing transportation activities, there is a reduction of pollution (global warming emissions) and traffic that is associated with delivering materials to the job site.

### **Indoor Environmental Quality**

Conscious measures to enhance the indoor environment for occupants have been implemented at *Euclid Commons* such as ensuring ventilation effectiveness, control of contaminants, use of low-emitting materials, thermal control, and a connection to the outdoors through daylight views.

Smoking is not permitted in or near these housing facilities. Further, Cleveland State University has taken a step to improve the quality of its indoor environment by using low-emitting materials. All adhesives, sealants, paints, coatings, and carpet installed have low-VOC content, or are considered "low-emitting". VOCs, or Volatile Organic Compounds (i.e. the "new car smell"), are emitted as gases from certain solids or liquids. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors. More information can be found about VOCs at <http://www.epa.gov/iaq/voc.html>.

Thermal comfort is enhanced through the individual capability of controlling lighting and temperature. Each one of the regularly occupied rooms has a direct view to the outdoors. The buildings have been designed with operable windows and mechanical systems which provide adequate ventilation to meet ASHRAE Standard 55-2004. A survey will be distributed to the occupants to assess their level of thermal comfort.

To maintain a healthy indoor environmental quality, green housekeeping practices are being implemented. Green housekeeping is characterized by the use of environmentally and human friendly cleaning products and practices. Specifically all cleaning products are certified by Green Seal which are safer for cleaning personnel and building occupants (i.e. they don't have malodorous fumes) and they are manufactured in an environmentally responsible manner. More information about green housekeeping practices and a list of approved chemicals can be found at <http://www.greenseal.org>.

### **Building Safety in Euclid Commons**

*Euclid Commons* provides safety features over-and-above standard requirements found in typical apartment complexes. Cleveland State University has included the sprinkling of closets and other incidental spaces not required under NFPA 13R residential code. Some of the features are:

- NFPA 13 sprinkler system--fully sprinklered building with dry system in areas that are not climate controlled by an HVAC system.
- HVAC systems provided with smoke detector interface to the fire alarm system.
- Full fire alarm system; manual and automatic
  - Manual pull stations at building exit paths
  - Smoke detection in dorm suites, exit paths, air-handling systems, etc.
  - Heat detection in all mechanical rooms.

Each unit has fire prevention partitions from floor to ceiling between the units. In addition, the ceilings are 1-hour UL rated and have an additional layer of drywall in excess of code requirements. The additional layer improves acoustic isolation and extends fire performance. Stair towers are 2-hour rated fire barriers having membrane protection for all floors. The towers are also sprinklered and the central stair in all buildings has an area of rescue assistance with call buttons.

***Water Use Reduction***

A combination of water efficient plumbing fixtures was utilized to conserve water usage throughout the student housing complex. A reduction in water usage results in less of a burden on the municipal water supply and waste water systems. Water savings, as it relates to LEED, is based on the guidance of the Energy Policy Act of 1992 (EPAc). Euclid Commons incorporated low-flow lavatory faucets (0.5 gpm), dual-flush toilets (1.6/0.9 gpf), low-flow showerheads (2.0gpm), and low-flow kitchen sinks (1.5gpm) to achieve a water reduction of more than 30% below baseline EPAc measures.

To minimize the use of potable water for irrigation purposes, drought tolerant shrubs were planted for landscaping and no permanent irrigation systems were installed.