

# Sustainability in construction at Creighton

Like many other higher education campuses and companies Creighton is striving to draft their own policies, procedures and guidelines. Through the support of many who have already paved the way this is the first of many versions to come of Creighton's **Think Green at the Blue**.

The foundation of sustainable facilities means the integration of design, construction, and operation methods that reduce the environmental impact of a facility over its life.

The team of architects, engineers, and contractors are a vital part in executing the University's vision of sustainability. The roles and responsibilities for the design team and contractors are as follows:

## **The Design Team**

- Bring ideas to the process and define the trade-offs to allow decision making
- Collaborate and have an attitude of peers among all team members
- Provide direction and leadership to the University to allow them to successfully fulfill their role
- Facilitate the overall process
- Commission the facility

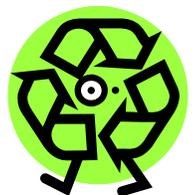
## **The Contractor**

- Ultimately has to execute the plan
- The General Contractor must have business practices that promote sustainability
- Will be required to develop much of the documentation required for official certification
- The General Contractor must provide strong leadership to the entire construction team to ensure the process is followed

A major item that will assist the University to design and build “green” is to have a LEED Accredited Professional on both their design and construction team to guide their efforts. The University will be working to achieve sustainability using the LEED guidelines on renovations and remodels but not necessarily seeking certification. When possible on new construction the University would seek Silver LEED Certification. This is when the team would need to be sure that the prerequisites can be met depending on the scope of work.

There are five sections addressed in the LEED Certification process; Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and the final section addressing Indoor Environmental Quality. These sections and prerequisites are covered in-depth in the [New Construction & Major Renovation Version 2.2 Reference Guide](#) created by the U.S. Green Building Council (LEED).

- Recycle cardboard and otherwise reduce the amount of trash sent to the waste stream.
  - In order to earn any points/credits you will need to divert at least 70% of construction waste from disposal.
- Use products made of rapidly renewable materials like bamboo.
- Use materials with low or no VOC's.
- Use materials that are produced locally or regionally.
  - To comply with LEED building materials must be extracted, harvested or recovered as well as manufactured within 500 miles of the project.
- Turn off engines when the machine isn't being utilized.
- Turn off lights, equipment, and tools when not in use and are not required for safety or security of the job site.



- Car pool to the job site.
- Your vehicles are a part of the University Green House Gas Emission Inventory when your vehicles are on campus property. If you are going to be parked for more than 30 seconds, turn off the engine. Ten seconds of idling can use more fuel than turning off the engine and restarting it. Idling gets ZERO miles per gallon.
- Commission HVAC controls in remodel projects. This shall include temperature controls and other extensions of the Building Automation System.
- Use “green” cleaning products and techniques for final cleaning. The products should be compatible with the University's inventory and shall comply with the specifications of specific material and equipment incorporated into the job.
- Demonstrate water conservation like using little water when washing down/cleaning a site or cleaning tools.
- Recycle carpet, ceiling tile and other products removed as part of demolition.
- Reuse materials when possible from the existing construction on the project you are remodeling

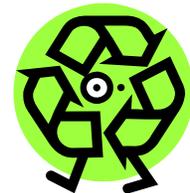
## Resource efficiency the 3R's - Reduce, Recycle, Reuse

The theme grows stronger for resource efficiency and waste reduction during the construction process.

### Recycling Construction Waste

□ Virtually all materials generated on a construction site can be recycled, subject to local opportunities. Wastes must be kept clean and separated to ensure opportunities for reuse or recycling. In March 2010 the University implemented recycling of construction waste at 50% for each job large or small. **It is now March of 2012 and the target is 70% recycling of construction waste.** This will increase each year by 10% for the next four years to reach the final goal of 90%.

- □ Cardboard packaging can be broken down and recycled
- Top soil can be saved and reused on site for landscaping or sold to nurseries
- □ Metals can be recycled
- Carpeting can be recycled
- □ Paper from trailers and offices can be easily recycled into a fine paper bin
- Separate materials according to:
  1. Timber
  2. Metals
  3. Masonry
  4. Plastics
  5. Plaster
- □ Train workers prior to the job about waste minimization goals. The contractor could be asked to display their company's written training program and demonstrate the training was accomplished.
- Centralize cutting operations to reduce waste and simplify the sorting process
- Set up clearly marked bins or trash cans for different types of usable waste: i.e. wood for wood chips in flower beds, sawdust for compost, etc.
- Deliver FF&E or other salvage material that was part of demolition to organizations like Habitat for Humanity ReStore.
- Be sure all equipment and materials are functioning and re-useable – no junk!
- Contractors working with the University on smaller projects are required to coordinate their recycling efforts with Facilities Management.



## Choose a strategy for each stage of construction in your Waste Management Plan:

### Land Clearing

- Minimize disruption to existing vegetation and soils
- Limit the use of heavy machinery which damage soils and vegetation
- Excavated soils and trees can be used for final landscaping

### Excavation

- Limit the amount of excavation need to limit the soil disturbance
- Excavated materials can be used as backfill or landscaping

### Foundation work

- Utilize reusable forms

### Framing

- Design using standard sizes to reduce cutting waste
- Use prefabricated wall, roof, and floor systems
- Send waste wood to recycling facility to make chips for pulp, composite wood products, etc.

### Insulation

- Use prefabricated wall systems with insulation already included
- Use blown in cellulose in walls
- Use scrap insulation for sound proofing interior walls

### Drywall

- Design using standard sizes
- Send scrap materials to a recycling depot

### Paint

- Use leftover paint as undercoating at next job
- Send excess paints and solvents to a recycling plant

### Exterior finishing

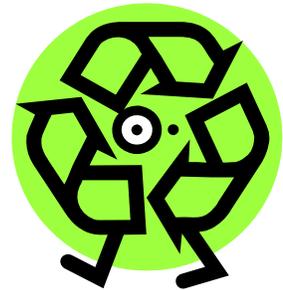
- Measure twice-cut once to minimize waste
- Store materials carefully to avoid damage
- Salvage bricks and blocks from demolition projects
- Broken bricks and blocks can be used as backfill in some situations
- Send vinyl and aluminum siding to recycling facilities

### Roofing

- Send asphalt shingles to a local recycling facility
- Membrane and insulation recycling is available just by obtaining a quote

### Creighton Decisions

- In 2009 Father Schlegel signed the American College and Universities Presidents Climate Commitment.
- All materials that can be manufactured with an Energy Star rating are required over non-rated products. The University became an official Energy Star Partner in 2009.



- Green Cleaning will be the exclusive method of cleaning at the University on August 1, 2008.
  - Replacement of traditional cleaning agents with environmentally friendly alternative.
  - Equipment that is more efficient, quieter, and more effective in removing contaminants from the indoor environment
  - Processes that minimize the use of water and energy, and promote healthy indoor air quality, all while providing a high level of cleanliness
- Interior and exterior paint products have change to a Low VOC/Green products from Sherwin Williams.
  - Interior Products
    - Primers – ProGreen 200 Latex and Harmony Latex
    - Finish Coats – ProGreen 200 flat, eggshell, and semi-gloss  
Harmony flat, eggshell, and semi-gloss  
Duration Home matte, satin, and semi-gloss  
Proclassic Waterborne satin, semi-gloss, gloss, and high gloss
    - Specialty Coatings – Pro-Cryl Universal primer for metal  
O VOC Acrylic  
Industrial Enamel 100 - oil based industrial enamel less than 100 g/l VOC  
Pro Industrial High Performance Epoxy  
Pre-Catalyzed Waterbased Epoxy  
Porch and Floor Enamel
  - Exterior Products
    - Resilience Exterior flat and satin
    - Superpaint Exterior flat, satin, floss, and high gloss
    - A-100 Exterior flat, satin and gloss

## ***Summary***

***We have taken many small steps since the introduction of this program in 2008 and will continue to look forward to working with the professional and educational community to assist us as we grow into a University who is proud of its sustainable habits. You can look forward to changes in our design guide to reflect these practices. It will charge us to re-evaluate our standard products and specification to bring them into the "GREEN".***