MATERIALS

The extraction, manufacturing and transporting of building materials can contribute to multiple negative impacts. Key goals of the ETC are: Using low-embodied energy materials, materials that have the highest recycled or recyclable content, materials that have the lowest toxic emissions, materials that require little maintenance. Some examples include:

- Concrete with 50% fly ash content, an industrial by-product
- Plastic lumber structural beams, 100% recycled plastic
- Long-lasting fibrous cement siding
- Agricultural waste countertops
- Long-life recycled steel roofing material
- Certified (FSC) sustainable lumber

INDOOR ENVIRONMENT

Achieving a high quality indoor environment is a balance of good air quality, natural ventilation, daylighting, low toxicity furnishings and finishes, and maximizing overall occupant comfort. The ETC achieves this goal through the following strategies:

- More than 50% of day-time space lighting needs met through daylighting. This is achieved through south-facing clerestory windows, north-facing skylights, and windows
- Natural ventilation through numerous occupant accessible operable windows and electronically controlled windows
- Paint with low volatile organic compound (VOCs) content
- Countertops with no VOCs or formaldehyde
- No carpet and low-emitting fabric display boards
- Space heating through hydronic system. Eliminating circulation of allergens, toxins and dust from fan-forced heating

“A building that teaches”

Department of Environmental Studies and Planning
ETC MISSION

The Environmental Technology center is an education, demonstration and research facility that teaches the art and science of sustainable building design and construction. The Center’s mission is to:

- Foster an understanding of the environmental, economic, social and human health impacts that arise from our current approach to building design and resource use.
- Educate about the viable science-based solutions that are grounded in and consider a balance of the key aspects of sustainability: environment, economy and social equity.
- Empower students, professionals, business community, local government and the broader community to implement balanced solutions to built-environment impacts.

ACTIVITIES

The Center has hosted thousands of visitors and participants in a variety of activities, including:

- Green materials Expo
- U.S. congress Energy Sub-Committee Hearing
- Greening Affordable Housing Conference
- Climate Change Symposia
- Site Tours
- Green Building Film & Lecture Series
- Green Building Professional Certificate Program

WATER

In consideration of one of the primal resources, water, the ETC has substantially reduced water use both inside and outside the building. In a typical building the majority of the water is used for landscape irrigation. Examples of water-aware strategies include:

- Use of native and low-water using landscape plants
- Experimental sedge lawn that uses a fraction of the water of traditional lawns
- Minimizing storm water runoff and maximizing storm water re-infiltration
- Waterless urinal
- Low flow toilets and faucets
- Drip irrigation for landscaped and food-growing areas

SITE

The initial development of land for building begins a process that will be in harmony with or disrupt the existing natural conditions. In being a good steward of Copeland Creek, the adjacent waterway, much care was taken to have the development of the site have minimal impact on the creek ecology. The ETC is part of the EarthLab site, a living laboratory for implementing classroom curriculum in the many fields of study of the Department of Environmental Studies and Planning. The site includes:

- Riparian habitat conservation and restoration project, managed by students and faculty
- AgroEcology garden and orchard, demonstrating organic food production without chemical fertilizers, pesticides and insecticides
- Greenhouse for native plant and food plant propagation
- Minimal use of non-permeable paved surfaces and demonstration of asphalt paving alternatives
- Native plant buffer area between building and creek

ENERGY

Fossil fuels are the primary energy sources in the U.S. and their use is responsible for multiple environmental, economic and health impacts. Minimizing fossil fuel use, maximizing the use of renewable energy sources and incorporating energy efficient equipment are key energy goals of the ETC. The building’s high energy performance is due to a synthesis of proven ancient passive solar principles and present-day high technology equipment. Examples of energy-aware strategies include:

- Passive solar heating and cooling
- Trombe walls and thermal mass of various compositions
- Spectrally selective film glazing
- A 3,000 watt roof-integrated solar electric (PV) system, making the building a net producer of electricity
- Building management system
- Biological and mechanical shading devices
- Energy use reduction of 70-80%