

# Churchville Nature Center's New Green Building

Green buildings avoid or minimize negative impacts on the environment by conserving and using natural resources efficiently. A green building facilitates ecological harmony and respect for biodiversity in relation to buildings and architecture. Churchville Nature Center's New Green Building will incorporate green and sustainable design features, which will allow it to become LEED certified. LEED stands for Leadership in Energy & Environmental Design and is a nationally recognized green building rating system formulated by the U.S. Green Building Council to provide a national standard for what constitutes a green building.

## Geo-thermal (Exchange) Heating & Cooling

Geo-thermal systems use the earth's constant temperature both to heat the building in the winter and to cool it down in the summer. A Geo-exchange series of underground pipes circulate liquid that absorbs the constant temperature of the earth. This liquid is then circulated into the building. In winter a compression process transfers and amplifies the heat energy from the earth so the 50 degree ground temperature is warmed to the inside temperature of 70 degrees. Air ducts distribute that warmth throughout the building. In the summer the process is reversed: the warmer temperature inside the building is then dissipated back into the earth.

## Natural Daylighting & Solar Panels

Natural daylighting reduces the use of electricity, thereby reducing maintenance costs and operating expenses. It has also been shown to improve the learning environment and reduce eye fatigue. Solar panels will provide some of the electricity needs for the center during sunny days. These panels absorb sunlight and convert it into energy.

## Earth Sheltering & Native Landscaping

The building will utilize the ground as a natural shelter by grading a portion of the soil to cover over a part of the building. This will help save energy costs, as it provides added insulation, and help to blend the building in with the natural environment better. Native plants in the landscape help increase wildlife habitat and provide a more natural food supply for native animals. Native plants are also able to adapt better to local environmental conditions, thereby lessening the need to water and saving our natural resources.

## Green Vegetated Roof

Green roofs lower energy costs, extend roof life, improve roof water management, serve as added sound insulation, help reduce ambient temperature and provide an attractive natural aesthetic to the building.

## Grey Water Use & Water Efficient Fixtures

By collecting rainwater runoff from the roof, grey water can be used to supply many of the water needs of the facility such as landscape irrigation, toilet flushing, the mechanical systems and custodial uses. This minimizes the use of our dwindling potable water resources while decreasing storm water runoff. In addition, by utilizing high efficiency fixtures, water-saving faucets with occupant sensors, and waterless urinals, the overuse of our valuable clean water supply can be minimized.

## Reduced Building Footprint

The area of land beneath the building is called its footprint. In order to minimize impact on existing natural habitat around the building, Churchville will build up instead of out, utilizing an area on the east side of the current building. The footprint will be kept to a minimal size to reduce negative impacts to the wildlife gardens and meadow habitat and to blend in with the aesthetics of the current building.

## Environmentally Friendly Products

Other environmentally friendly products that will be incorporated into the building include low VOC paints and adhesives to avoid unhealthy organic compounds, the use of rapidly renewable materials such as cotton batt or straw insulation, and bamboo or wheatgrass cabinetry, utilizing reclaimed or salvaged lumber, and striving to use materials with 100 % re-cycled content, such as homosote .