

What green building practices work best?

A look at the City of Bowie's P & R LEED silver certified maintenance facility

THE CITY OF BOWIE PARKS and Grounds Maintenance facility was dedicated in the spring of 2008. It was the Maryland city's first Leadership in Energy & Environmental Design (LEED) Silver certified building. The facility consists of two approximately 8,000 square foot buildings built on 2.5 acres. The main building consists of administration and equipment re-

pair. The second building is used for vehicles, equipment, and hard-goods storage. The facility is a demonstration project for "Green Building Design" and cost \$2.4 million to build; a portion of the funding was secured through grants from the Maryland Energy Administration and the Department of Natural Resources.

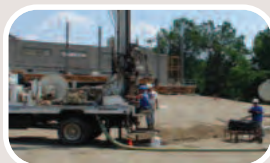
The facility supports a Parks Division that is responsible for maintaining more than 1,100 acres of parkland, eight play-

grounds, 10 ball field complexes that consist of 65 fields, one skate park, and one dog park. The park staff consists of 39 full-time employees and a FY13 operating budget of \$2.9 million.

The LEED facility has 35 green building practices incorporated into its design from ground source heating to green roofs planted with perennials (sedum cultivars). After 5 years, the facility has performed remarkably well considering many of these practices were new in the building trades at the time and untested in our region.

A few of the unique green components are straw-bale construction used as an insulator, and the rainwater collection system that is heated by solar panels that we use to wash equipment. The original purpose and design for these buildings were to provide for a safe, secure and efficient work facility and adding the green building techniques has not only saved valuable resources over

City of Bowie Parks and Grounds Facility - Bowie's First Green Building - Located at 3106 Mitchellville Road



▲ Heating and air conditioning are provided by a ground source heat pump system. A treated water solution circulates through a series of 21 underground wells under the back parking lot. The liquid is heated or cooled as it circulates through the wells by the constant temperatures of the ground to provide heat or air conditioning to the building.

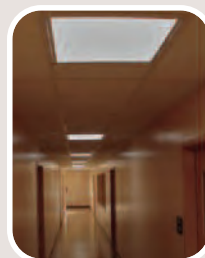
▼ Since the liquid moves through the wells at a constant temperature of about 50 degrees, the heat pump has to do less work than a traditional heat pump which uses outside air. Because it's beginning at a temperature of 50 degrees, it requires less energy to maintain a comfortable room temperature.



► Sections of the roof have green plants growing on them. These "living" roofs will provide natural insulation, increase the amount of "landscaping" on the property and will retain rainwater to keep them healthy.



▼ Natural light from windows and skylights illuminates rooms and hallways and cuts down on electricity costs.



► Materials were reused on the project wherever possible. Here existing asphalt, removed from one location on site, was ground up and used as fill material in another location on the site.



the last five years but has had a very positive effect on how our division performs its daily work assignments.

It is not an easy comparison to gauge what the overall savings of a building with green components compared to traditional construction as the facility we came from was considerably smaller, although the utilities are significantly less for a facility of this size. The buildings are a demonstration project, and we give tours to any interested party. One of the questions that is usually asked is, "What green practices work the best?" We have found that the ground source heating system, the photovoltaic panels, sun tunnels and the rainwater reuse system work the best.

In the past 5 years, this facility has experienced two blizzards, a hurricane, two tropical storms, a derecho (a widespread, long-lived, straight-line windstorm that is associated with a fast-moving band of severe thunderstorms), an earthquake, and a direct lightning strike to the building. The Parks and Grounds Maintenance Facility provides our division with a first-rate platform to work from under normal conditions and in times of emergencies that should last many years to come. ■

Ed Hall is parks supervisor for the City of Bowie, MD Parks and Recreation Department.



◀ A bio-retention pond is constructed on site to capture water runoff and naturally filter it before it is released into the ground.

▼ Solar heated hot water panels on the roof of the vehicle storage building use the energy of the sun to heat water used for washing vehicles and equipment. Water comes from rainwater collected on site.

▼ Photovoltaic (PV) panels produce electricity and constantly pump it back into the grid, reducing the amount of power that must be purchased.



▶ Two of the walls here (one on the side and one on the back of the structure) are constructed out of bales of straw, covered in plaster. The highly compressed straw is fireproof and provides an outstanding level of insulation, using a renewable material.



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