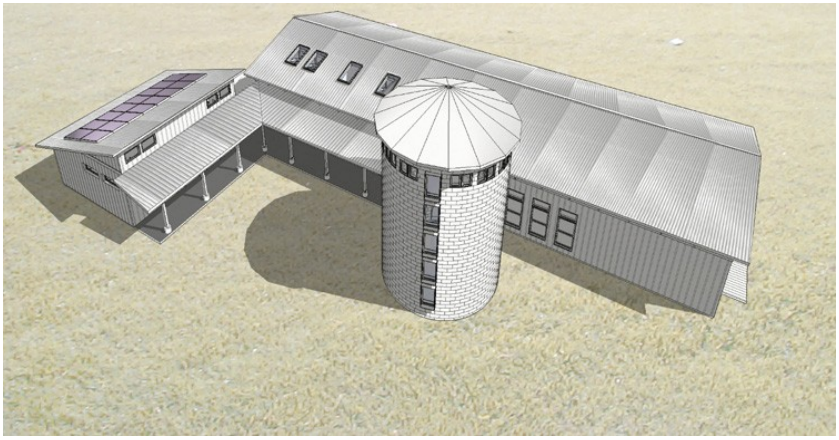
Pictorial Tour of Three Green Nature Centers
Metro Nashville Parks and Recreation
March 2008

All three nature centers incorporate sustainability features to connect people with nature, educate the public and minimize the impact to the surrounding natural area parks.

The design for each nature center was based on a detailed interpretive plan written in 2006 through a four day workshop with over 100 local stakeholders. A unique interpretive theme and educational emphasis was developed or Park. The interpretive plan helped guide the building, site, and exhibit design, and environmental education approach.

Shelby Bottoms Nature Center is the centerpiece of 810 acre site on the Cumberland River in East Nashville. It includes 3 miles of frontage along the Cumberland River and connects to 12 miles of Metro Greenway trail system. The building is 3175 square feet and incorporates water as its key theme. The building connects to the river with a "barge" design concept.

Bells Bend Nature Center is located in western Davidson County on an 808 acre rural and pastoral preserve that is bordered by the Cumberland River. The park opened in 2007 with four miles of trail. The 2828 square foot building is located on the edge the park on an home and barn site and designed to fit into the agricultural landscape of the area. The three-fold theme encourages cultivating knowledge of the natural world, understanding the cultural impacts upon the land, and developing outdoor recreation skills.



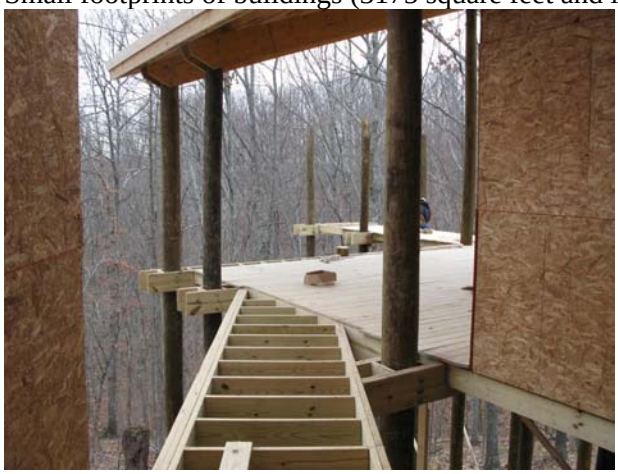
The Beaman Park Nature Center was designed as a tree house in the woods and is located in a rugged natural area with over 1600 acres of wooded hills and hollows. The 2201 square foot facility promotes the theme of a quiet sanctuary that inspires visitors to learn and experience a connection to the natural world.

Following are examples of sustainability features employed **in all three nature centers:**

EarthCraft House Certified Building

Joe Cooper, Southface Technical Provider, conducts one of two EarthCraft House certification inspections conducted at each of the nature centers. All three structures are certified by the program for overall sustainability features. The focus is site planning, energy efficient building envelopes and systems, energy star certification, water conservation, indoor air quality and resource efficient design and building materials. 150 points are required for certification. Over 200 points puts buildings in the "Select" category – Shelby Bottoms scored 202 and Bells Bend 221. Beaman Park is still being scored. Due to the small, house-like square footage these centers qualified for the EarthCraft certification system. The EarthCraft logo states "Sensibly Built for the Environment".

Small footprints of buildings (3175 square feet and less) with maximum uses of porches and outdoor spaces

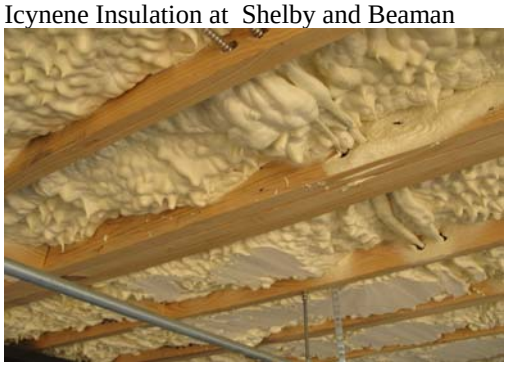


Located on the edge of the Parks to minimize disturbance to the natural

Shelby (above left) utilized the existing parking without adding additional spaces. Bells Bend (above right) is located on an old home site with one of the barns providing additional programming space. Beaman (not pictured) is located on a recently logged site.

High Performance Building Envelopes and HVAC Systems and long lasting, light colored metal roofs

Icynene Insulation at Shelby and Beaman



Long lasting fiber cement exterior siding

High Performance, Low E Double Insulation Windows

Natural Daylighting and Operable Windows

Programmable Thermostats and Low VOC paints

Compact Florescent Fixtures and Ceiling Fans

Restrooms with low flow water closets and automated sensors on faucets, toilets and lights, and ceiling fans and operable windows as well as educational information on water conservation

Each waterless urinal (pictured above) saves 40,000 gallons of water (and sewage) a year.

Energy Star Appliances and equipment throughout the buildings

Recycled content was used in finishes of cabinetry, toilet partitions, and furnishing. Some furnishings are reused from other facilities and were obtained through Metro Surplus. Desk chairs contain 51% recycled material and are 98% recyclable.

Local materials, native landscaping, no irrigation and minimum turf and minimal site lighting. Limestone boulders are used at Beaman (below left) in the bus parking area and also as seating and landscaping features. Local native plants are used specifically for each natural area park. Shelby features wetland plants, Beaman Highland Rim forest species and Bells Bend bottomland and upland plants.

Located adjacent to Metro Greenway along Cumberland River, the Shelby site encourages use of alternative transportation and physical activity. Beaman and Bells also are part of the parks and greenways system and offer many opportunities for fitness and healthy activities outdoors.

In addition to the above features in all three nature centers, each center features its own unique and outstanding features for sustainability.

SPECIAL FEATURES OF SHELBY BOTTOMS NATURE CENTER

Shelby Bottoms building was designed by Everton Oglesby Architects with water theme, incorporating a “barge” concept for the site along the Cumberland River. It is raised on pylons for minimal site impact and ability to weather high water events.

Nashville’s first green roof over occupied public space rests atop Shelby Bottoms. This feature was made possible through a public / private partnership with the Cumberland River Compact, who helped to raise the additional $87,000 cost for the green roof feature.

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Solar shades on the river facing windows reduce solar heat gain in summer months

During construction, a crane was required to lift the special soil medium to cover the green roof structure.

Sandy Bivens shows off newly completed Green Roof atop Shelby Bottoms Nature Center. The extensive green roof includes 4 inches of special soil medium and 7 varieties of drought tolerant sedum plants that will spread to form a solid vegetative covering over the next 2-3 years.

The Green Roof covers public meeting space and office. Benefits include energy conservation, sound dampening, stormwater management, reduced heat island effect, and long life for the roof membrane.

Metro Parks staff (above) take special briefing by Tremco horticulturalist on maintenance of green roof structure and vegetation.

Rain chains demonstrate rain fall runoff off different roof top sections. The metal roof sections runoff rapidly. The Green Roof sections runoff is delayed and much slower over time.

Roof runoff is collected into rain catch basins.

An educational exhibit shows visitor how the green roof layers, what plants are there and the many benefits to green roofs.

A pot of sedums shows visitors what is planted atop the Green Roof.

Shelby Bottoms Nature Center was award 2007 Merit Honor Award by American Institute of Architects. Pictured (LtoR) Architect Tracey Ford, Gary Everton with Everton Oglesby Architiect, Sandy Bivens, Metro Parks Superintendent of Nature Centers.

SPECIAL FEATURES OF BELLS BEND NATURE CENTER

Bells Bend and Beaman Nature Centers feature pervious concrete sidewalks made possible through a partnership with the Tennessee Concrete Association (below).

Photovoltaic cells were installed on the roof by Steve Johnson and his staff (above). These PV cells are made in Memphis. Energy generated will be approximately 4,400 kwh a year, which will pay for an additional 4,400 kwh a year through the NES Generation Partners program. Over 25 years, 185,035 lbs of CO2, the leading greenhouse gas will be avoided. NES, TVA, and Lightwave Electric officials check the system (left).

Barnwood salvaged from the site was reused for the classroom door and reception desk

The concrete floor has a river design stained on it.- representing Poplar Hollow Creek as it flows into the Cumberland River. This was recommended in the Metro Parks Nature Center Interpretive Plan. The river display will be used as an educational tool and was made possible through a partnership with Fuller Industries.

SPECIAL FEATURES OF BEAMAN PARK NATURE CENTER

The Beaman Park Nature Center is sited on the very edge of this large natural area park and just off a state highway - Old Hickory Boulevard. This is the smallest center with 2201 square feet.

To minimize disturbance to the park, the entrance drive is on a ridge top and follows an old logging road. The site was logged within the last 20 years.

Beaman and Shelby are built on poles to help minimize disturbance to site. This also contributes to the feel of the tree house in the woods as well as offers expansive views into the forest.

The Beaman Park Nature Center features geothermal system for heating and cooling. Three 300 foot wells were dug and pipes installed which will use the earth's constant temperature to save energy.

The geothermal heat pump is energy efficient, environmentally clean and cost effective.

Logs collected from the site were collected to build a mantle, furniture, bowls and other items for the nature center.

Friends of Beaman Park worked to raise funds and sensitively build over one mile of trail and a bridge across Henry Creek to connect the existing trail system to the nature center site.

PUBLIC EDUICATION AND OUTREACH

The buildings themselves are part of the educational exhibit for visitors at each center.

The Nature Centers host many public and community meeting.

Lighting, when necessary, is with high efficiency fluorescent fixtures.

HVAC duct work is located inside building envelope for maximum efficiency with zero duct leakage to outside space.

Shelby Bottoms Nature Center is hosting the Cumberland River Compact's monthly meetings of the Building Outside the Box Committee.

Over three hundred people turned out for Mayor Purcell's Dedication Ceremony for the Shelby Bottoms Nature Center in September 2007. Hundreds more have visited in its first three months.

Metro Park staff are busy with educational programming and designing exhibits.

A Green Roof exhibit (below) is on display at the Shelby Bottoms Nature Center. Cumberland River Compact staff Margo Farnsworth (left) and Gwen Griffith (right) helped raise funds to make the public, educational, and beneficial, green roof possible.

Water conservation and new ideas are always being discussed at the nature centers. "Sink Positive" has everyone interested in how much water goes down the toilet each flush.

Reduce, Reuse, Recycle!

Green exhibits and information are always available at the nature centers.
Workshops and programming on green topics and sustainability are scheduled regularly.

THE END!

But it's really just the beginning!