

The *Ideal* Green Building

The ultimate goal of the green building movement is a facility that will:

- A) Be built with minimum impact on resources & habitat,
- B) Operate efficiently and effectively without polluting, wasting resources or altering local ecosystems, and
- C) Completely biodegrade over time without contaminating its habitat or damaging the environment.

We're not there yet, but we're getting closer. The new Nature Center embodies the best thinking in each of the eight principles of Green Buildings below. Explore them today, inside and out, and consider how you might use these ideas in your own home and office:

Save Energy

Recycle Buildings

Create Community

Less Material Use

Protect the site

Low-impact materials

Save Water

Healthy Buildings

Minimize C&D Waste

Green up the Business

GREEN BUILDING PRIORITIES

Green Building Resources

Cleveland, OH

NATURE CENTER AT SHAKER LAKES

2600 South Park Blvd.
Cleveland, OH 44120
www.shakerlakes.org
216-321-5935 voice
216-321-1869 fax

CLEVELAND GREEN BUILDING COALITION

www.clevelandgbc.org

ENTREPRENEURS FOR SUSTAINABLE DEVELOPMENT

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ADAM J. LEWIS CENTER FOR ENVIRONMENTAL STUDIES

www.oberlin.edu/envs/ajlc

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Nature Center

AT SHAKER LAKES

A Home in Nature

A Guide to Our Green Building

A Question of Mission

In 1969, neighbors of the Shaker Parklands founded the Nature Center at Shaker Lakes as a key part of their efforts to protect the Parklands from a state-sponsored freeway construction project. They built a modest building at the site of a proposed freeway interchange. The facility was home to classes, programs, hundreds of volunteers and a small staff of professional naturalists, all of whom were dedicated to preserving the Shaker Parklands for generations to come, and to teaching people to be environmental stewards.

After more than three decades of programming, the Nature Center's community had grown so that its modest home could no longer meet its educational needs: More than 25,000 people participate in activities annually, and thousands more walk the trails of the Shaker Parklands. The Nature Center needed to expand.

The Building Design

The Board, staff and community members worked with Schmidt Copeland Parker Stevens, Architects, to design a building that would contribute to the Center's dual mission of conservation and education and would carry out the strategic priority of enhancing visitors' experiences.

The design incorporated as many green building elements as possible to minimize the impact of construction on the environment and to pay attention to the ongoing effect of the building on surrounding habitats.

Early in the process the decision was made to "recycle" the original building and to keep the footprint as small as possible. Panzica Construction was engaged as contractors for the project and participated in reducing the impact of construction and demolition.

The Nature Center facility represents some of the greenest thinking in Cleveland. As you explore our building, look for some of these features:

Inside...

Carpet Tile

The Nature Center's library, meeting room and classrooms use 2x2' square carpet tiles. Each square can be replaced, as it becomes stained or damaged, or rotated from high- to low- traffic areas, so the floor wears evenly... just like rotating your car tires. Unlike most wall-to-wall carpets, these tiles can also be recycled.

FACTS: Carpet & rugs cover 70% of U.S. floors. Most carpets end up in landfills.

Ceiling Fans

By making the room feel more comfortable year-round, ceiling fans can reduce your reliance on heating and cooling systems, saving energy and reducing your utility bills.

In the summer ceiling fans push cool air up off the floor and closer to head level, where it feels cooler. (You cool down as moisture evaporates off your skin.)

In the winter reverse the direction of the blades, so they push the heat that gathered toward the ceiling down towards the ground, where you're standing.

Sun Tubes

Sun Tubes are long, reflective tubes installed in your ceiling and roof that are much less likely to leak than skylights. They guide daylight through the ceiling and diffuse it into your house. They're completely enclosed, creating a pocket of air that insulates far better than panes of skylight glass.

The Nature Center uses sun tubes to bring natural light into its classroom hallway and visitor's area.

TJI Joists

All new ceiling joists in the Nature Center building are made of pressboard and 2"x3" boards. Shaped like wooden I-beams, they are more rigid and as strong as traditional 2x10" lumber joists.

FACT: The most important attribute is that they reduce the need for 2 x 10 and larger wood framing materials which reduces demand for large tree stock from our forests.

Discrete Plumbing

AUTOMATIC FAUCETS: The water only runs when your hands are under the faucet. With kids coming and going through the Nature Center, we won't have to worry about someone leaving the water running....

TOILETS: According to federal regulations, all new toilets must use 1.6 gallons or less water per flush. With special circuits to monitor our water usage, our Toto® toilets flush with less water when in frequent use—as low as .6 gallons per flush. This feature saves thousands of gallons of water per year.

FACT: Toilets built before 1980 may use up to five gallons or more per flush!

WATERLESS URINALS: The three urinals in our men's room do not use water. Urine drains through a thin layer of blue, sanitary liquid and collects in a disposable trap at the base of the bowl. When the urine rises to a certain level, it drains into the waste line. The blue fluid contains disinfectant that cleans the trap and prevents sewer gasses from being emitted into the air. The urinal bowl surfaces are urine repellent and are cleaned daily, just like a conventional urinal. Urine is 99% liquid and drains without water.

FACT: These three WaterLess® urinals will conserve up to 135,000 gallons of water annually.

Strawboard

The Nature Center's shelves, coat racks and parts of its countertops are made from strawboard. These boards are made by compressing straw using a low-VOC bonding agent. (Volatile Organic Compounds are hazardous organic materials that can cause health problems, even cancer.)

FACT: Strawboards are one of few completely biodegradable building materials... and straw is a renewable resource.

Our Footprint

The area of land beneath a building is called its "footprint." As the Nature Center expanded, we wanted to preserve as much land as possible. By renovating the existing building, and by focusing on building UP, rather than OUT, our new building increased programming area by 60%, while only consuming 30% more land than the original facility.

Although the original building was completely gutted, much of the old building was recycled and reused. Many items were salvaged for reuse and 8 tons of glass, wood and metal were separated and recycled instead of being sent to a landfill.

Geothermal

Fluid circulates through 1¼ miles of pipes under our parking lot. Regardless of the season, it reaches a 55-degree temperature before flowing to one of seven heat exchangers inside the building. The fluid helps cool the air in the summer and warm the air in the winter, consolidating the jobs of an air conditioner and a furnace, and saving energy in the process.

To minimize heat loss the building envelope is energy-efficient by using highly efficient R-rated windows that are treated with a low E film, and filled with argon gas.

Green Roof

The main entrance roof is growing.... Rather than installing a traditional tar-sealed flat roof, we planted a variety of grasses, wildflowers and perennials. They grow in 8" of soil that's kept in place by square GreenGrid® modules. Green roofs lower energy costs, extend the life of your roof, reduce the speed of water runoff, and reduce ambient temperature.

FACT: Green roofs can cool down an urban area by 3 to 4 degrees Fahrenheit!

Cement Board

The original Nature Center building, constructed in 1969 according to the standards of its day, was sided with cedar shingles milled from old growth forests.

The new Nature Center's siding is made from compressed and bonded recycled wood, cement and plastic. Cement Board is very durable and inexpensive to manufacture. As many of the building's original cedar shingles were in good condition, we reused them on the renovated sections of the Nature Center.

FACT: Cement board doesn't collect moisture, so it holds paint longer than other materials.

Tree Protection

The Center worked carefully with contractors to form a tree protection program, to ensure that as few trees as possible were harmed during construction:

Before Construction: Trees were treated with a special bacteria to strengthen their roots.

During Construction: Temporary fences clearly marked the construction site, to keep contractors and their tools & equipment a safe distance from plants and trees.

One Tree Project

Only one mature tree was cut down to make way for the Nature Center's expansion, but it did not go to waste.

The 30" red oak tree was milled on site then dried in a solar kiln. Volunteer artisans and craftspeople used the milled wood and pieces of the remaining "green wood" limbs to create a myriad of beautiful pieces of furniture, bowls, and other art objects that are now on display at the Center. The welcome desk, fireplace mantel and conference room table were also crafted from One Tree wood.

The architects, Schmidt Copeland Parker Stevens, donated a new red oak tree now planted in front of the Nature Center.

& Out

Visit the Nature Center at Shaker Lakes to see these and many other green building features at

work:

Zone heating / cooling	Compact Fluorescent Lights
Automated lights	Reused doors & windows
EnergyStar appliances	Motion activated lighting
NFRC-Rated windows	Miratec wood fiber composite
Recycling Center	Recycled plastic decking boards
Tankless water heaters	Rain Barrels