

Green Features and LEED Certification

Written by Mike Swofford

Monday, 10 January 2011 02:00 - Last Updated Monday, 07 February 2011 12:56



The vision of the Scout Achievement Center (SAC) was to create an outstanding resource facility that offers a multitude of services and opportunities for youth, volunteers, and the community while incorporating sustainable features throughout the entire campus. The Dan Beard Council first became intrigued by the idea of a "green" building during the planning process for the new center. For 100 years, Scouting has stayed true to the values expressed by the Scout Oath and Law, yet we continue to remake our program to meet the needs of contemporary children and youth. Today's new generation of Scouts are more environmentally conscious than any earlier generation...

With the guidance and support of our project partners Baker Concrete, Messer Construction, and BHDP Architecture, we learned about the Leadership in Energy and Environmental Design (LEED) program. This became the guiding set of principles that we used to design a new sustainable building.

We felt that we could inspire Scouts to think and act with a greater environmental responsibility if our new building was consistent with the "green" lessons within Scouting. As they become educated by the instructive nature of the building and campus, we hope that Scouts will be inspired to continue and increase their involvement in Scouting and that Scouts and adult visitors will take away "green" ideas to implement in other areas of their lives.

There is a tremendous power of cohesion that naturally develops during the design and creation of a sustainable building. By deciding to go "green," we let the community know that Scouting is and always has been green since our inception in 1910.

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SAC Overview:

Building name:	Scout Achievement Center (SAC)
Location:	Cincinnati, Ohio
Setting:	Suburban
Project type:	New construction
Project scope:	A stand-alone, one-story building
Cost:	\$7.1 million
Lot size:	2.9 acres
Building area:	26,900 square feet
Building types:	Office, assembly, retail
Completed:	July, 2009
Certification:	U.S. Green Building Council's LEED® Silver Level Certification

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About LEED

Developed by the U.S. Green Building Council (USGBC), LEED® is a third-party certification system that measures the sustainable performance of buildings and can be applied to any building type and any building life-cycle phase. The LEED Green Building Rating System is the national benchmark for the design, construction, and operations of high-performance green buildings.

For those who own and operate buildings, LEED provides a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. It also enables project teams to deliver certified performance for their buildings. Third-party certification assures that LEED buildings are constructed and operated as intended.

An organization's participation in the voluntary and technically rigorous LEED process demonstrates leadership, innovation and environmental stewardship. LEED promotes a whole-building approach to sustainability by recognizing performance in six key areas:

1. Sustainable Sites
2. Water Efficiency
3. Energy and Atmosphere
4. Indoor Environmental Quality
5. Materials & Resources
6. Innovation & Design

Commitment to Green Education

As part of the Dan Beard Council's continuing effort to educate others on green building operations, sustainability, and environmental consciousness, we encourage you to learn more about the green features exemplified in the SAC. Here's a list of sustainable ideas that can be applied to a new building project or into your daily life:

- Research plants native to your geographic region, or ecoregion. Maps of various

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ecoregions are available from organizations such as the Nature Conservancy.

- Do an online search for commercial bike racks to research models and pricing that are a fit for your organization.
- Obtain signage and designate parking for fuel efficient vehicles. Find out if your car qualifies for the fuel efficient parking space at www.fueleconomy.gov.
- Consider creating a commissioning plan to catch potential glitches the next time new equipment is installed. Also, schedule an internal training session to help prevent user error.

- Consider purchasing motion sensors for your exterior lighting to save energy.
- Contact your local waste and recycling provider to learn more about recycling pick-up services in your area.
- Identify an area on your building site that could serve as a designated smoking area. Make sure it is at least 25 feet from the building.
- Consider adding entrance mats to your facility. Be sure to put a cleaning plan in place or find a company that will clean and maintain the floor mats as well.
- Talk to your current pest management provider about integrating preventative evaluations with low-impact solutions for treatment.
- Ask your current cleaning vendor if they have “green” products available.

On the pages that follow, you can learn about possibilities for green living and building from some of the features incorporated into the SAC...

Sustainable Sites

By carefully choosing a building site, many “green” features can be incorporated into a project, potentially offering substantial cost savings over the long run. The Scout Achievement Center created a sustainable site by implementing the following features:

Native Plantings



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Description: The site landscaping consists of indigenous plants that are natural to the environment and can grow without irrigation.

Benefit: Other benefits of native plantings include improved air quality, reduced air temperatures in summer, reduced heating and cooling costs, habitat for wildlife and recreation and aesthetic value.

Tip to get started: Research plants native to your geographic region, or ecoregion. Maps of various ecoregions are available from organizations such as the Nature Conservancy.

Maximized Open Space

Description: Minimized impact on land and reduced the development footprint of the building while maximizing building function.

Benefit: By maximizing open space, impervious cover is limited and more natural space exists.

Tip to get started: During the building design phase, think about how space will be used, and try to find multiple uses in each room, thereby minimizing the building space

Green 101: The term impervious cover refers to any surface in the urban landscape that cannot effectively absorb rainfall such as sidewalks, rooftops, and parking lots.

Source:www.epa.gov/watertrain/protection/glossary.html

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Minimized Stormwater Run-off/Maximized Stormwater Filtration

Description: Created large retention pond, a natural water filtration method, so water does not shoot off of the site into storm sewers. Directed gutters toward and surrounded building with permeable pavement, soil and plants to allow storm water to penetrate ground, rather than washing into sewers.

Benefit: A retention pond helps lessen the impact on the municipality's storm sewer. By capturing rainfall in the retention pond, less runoff enters the sewer and the amount pollution that enters local streams, rivers and lakes is reduced.

Tip to get started: Create a rain garden with native plants around areas of natural runoff adjacent to impervious cover.

Reflective Paving

Description: Used concrete with a high solar reflectance index (SRI) from industry leader, Baker Concrete, to help prevent heat absorption and to bounce rays away from the surface. Planted trees that will provide shading for at least 50 percent of the hardscape such as the parking lot and sidewalks.

Benefit: By using reflective paving, the heat island effect is reduced.

Tip to get started: Select plants that will shade hardscape areas within five years.

Green 101: The term heat island describes built up areas that are hotter than nearby rural areas

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– heat islands can increase summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions. Source: <http://www.epa.gov/hiri/about/index.htm>

Reflective Roof



Description: Used light-colored roofing and wall finish materials so less heat would be absorbed. Ninety-seven percent of roof is reflective with an SRI of 109.

Benefit: When less heat is absorbed, less air conditioning is used, which helps reduce energy consumption and cut operating expenses.

Tip to get started: When researching roofs, consider a cool roof.

Green 101: Cool roof performance is a function of solar reflectance and infrared emittance, which are the two properties that define the “coolness” of a roof. Source: <http://www.mbma.com/display.cfm?p=28>

Bicycle parking racks and on-site locker and shower facilities

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Description: Provided bicycle parking racks for 10 percent (double the LEED requirement of five percent) of the building population. Locker and shower facilities for each gender were also included.

Benefit: By promoting an alternative means of transportation, harmful emissions are reduced and our carbon footprint is lessened – a healthy lifestyle is encouraged.

Tip to get started: Do an online search for commercial bike racks to research models and pricing that are a fit for your organization.

Five dedicated Fuel Efficient Vehicle (FEV) parking spaces

Description: Provided five preferred parking spaces to vehicles that receive at least 35 miles per gallon.

Benefit: By supporting fuel efficient vehicles, harmful emissions are reduced and our carbon footprint is lessened.

Tip to get started: Obtain signage and designate parking for fuel efficient vehicles. Find out if

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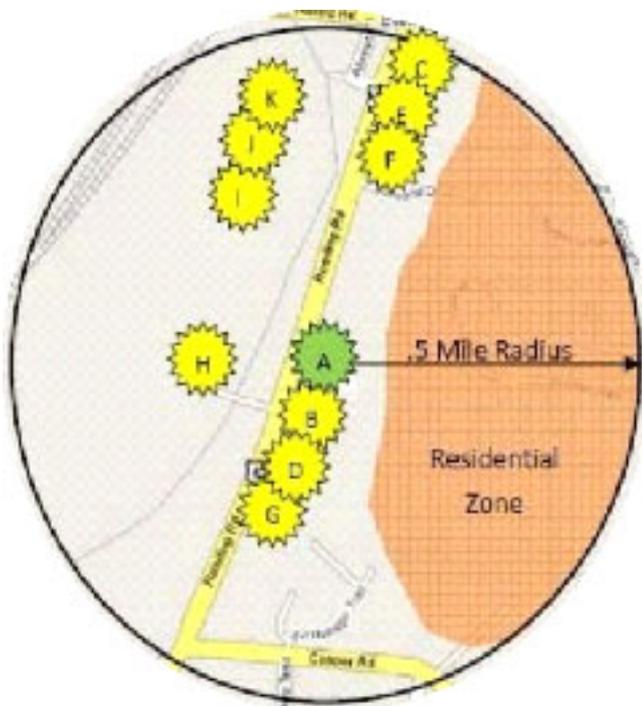
your car qualifies for the FEV parking space at www.fueleconomy.gov.

Pedestrian connectivity to 10 restaurants, banks and other local services

Description: Selected a location sited close to residential areas and commercial districts where pedestrians can easily access local services.

Benefit: By selecting a site close to restaurants, banks and other basic services, walking is encouraged and vehicles are used less frequently, thus emissions are reduced and a healthy lifestyle is encouraged

Tip to get started: When researching sites on which to build, consider the pedestrian proximity to local services.



A

Scout Achievement Center

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B	Park - Gorman Heritage Farm
C	Restaurant - Subway
D	Restaurant - Penn Station
E	Beauty Salon Great Clips
F	School - Cincinnati State
G	Restaurant - Homer's Smorgasbord
H	Bank - Formica Credit Union
I	Grocery - Walmart
J	Restaurant - Starbucks
K	Bank - Fifth Third Bank

Water Efficiency

Many low-cost options exist to help reduce consumption of drinkable water. The Scout Achievement Center reduced its use of potable water by implementing the following items:

Native Plantings/No Irrigation



Description: Selected indigenous plants that do not require irrigation.

Benefit: Native plantings help reduce the need for pesticides and fertilizer. Because they do not require irrigation, drinkable water is conserved. They are hardy in that they can survive cold winters and hot summers since they have adapted to local conditions over several years.

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Tip to get started: Learn about plants that are native to your local environment, and start planting today.

Low Flow Plumbing Fixtures

Description: Installed ultra low-flush toilets, low-flow shower heads and other water-conserving fixtures that minimize water consumption.

Benefit: By using high-efficiency fixtures, less potable water is used.

Tip to get started: Consider installing low flow plumbing fixtures. Or, for a lower cost option, place aerators on your current fixtures.

Energy and Atmosphere

According to the U.S. Green Building Council, buildings account for 72 percent of electricity consumption. Fortunately, many options exist to help save energy, including the following items that the SAC put into place:

Fundamental commissioning of mechanical systems following construction

Description: Created a commissioning plan – a plan to test systems after installation – to ensure mechanical systems work properly.

Benefit: By testing equipment prior to use, potential errors can be caught and corrected early on. Commissioning also presents an opportunity to train staff on how to properly use systems.

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Tip to get started: The next time new equipment is installed, consider creating a commissioning plan to catch potential glitches. Also, schedule an internal training session to help prevent user error.

Daylight provided to open office areas to reduce electric light demand



Description: Maximized use of natural light throughout office areas.

Benefit: By using natural light, electric lighting is used less, thus energy use and cost are reduced.

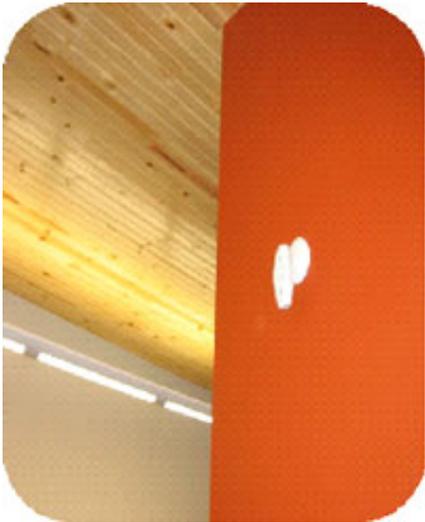
Tip to get started: In the design phase, consider adding windows throughout the building to serve as a key source of lighting. Remember that east, south and west-facing glass can provide excessive heat, which can increase cooling costs.

Electric lighting & mechanical systems equipped with occupancy sensors

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Description: Implemented high-efficiency lighting and air conditioning and heating systems with occupancy sensors.

Benefit: Less energy is used because lights, air conditioning and heating automatically turn on when a room becomes occupied. When the room is vacant, they turn off.

Tip to get started: Implement lighting with occupancy sensors in rooms that are not used regularly to ensure energy is not wasted when the room is vacant.

Exterior lighting is controlled by motion sensors

Description: Implemented exterior lighting (excluding emergency lighting) that is controlled 100 percent by motion.

Benefit: Lights automatically turn on when motion is detected and remain off otherwise, so less energy is used.

Tip to get started: Consider purchasing motion sensors for your exterior lighting to save

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energy.

Materials and Resources

Many opportunities exist to recycle materials during and after construction to help lessen waste. The SAC recycled materials in many ways, including the following:

75% of construction waste diverted from landfills

Description: Recycled construction waste and scraps to lessen the demand on landfills.

Benefit: By diverting waste from landfills, pollution of the environment such as contamination of soil and groundwater is reduced.

Tip to get started: Identify ways to reuse construction scraps such as wood, metal, steel and plastic. Learn more at www.epa.gov/epawaste/conserves/rrr/imr/cdm/index.htm

20% recycled content new materials

Description: Used high recycled content concrete and steel. Also used recycled siding and carpet.

Benefit: By using recycled materials, natural resources are preserved.

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Tip to get started: Consider using recycled materials for your next project to save money and conserve resources.

20% new materials extracted, processed and manufactured regionally

Description: Used stone that was obtained within a 500-mile radius.

Benefit: By purchasing stone from the region, the local community and labor are supported. Also, transportation costs are minimized because the stone can be transported using less energy.

Tip to get started: When comparing vendors, take into account geographic location before making a buying decision.

Break room and loading dock recycling and collection areas



Description: Created designated areas in kitchen and behind facility for the collection and storage of non-hazardous materials for recycling including paper, corrugated cardboard, glass, plastics and metals.

Benefit: By designating a trash shoot for recycling in the staff kitchen, employees can more easily recycle materials. The recycling area outside the facility helps separate the recyclable materials from the non-recyclable materials, which makes it easier for pick-up. Hence,

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recyclables can be reused and fewer materials go to landfills.

Tip to get started: Contact your local waste and recycling provider to learn more about pick-up services in your area.

Indoor Environmental Quality

A high-quality indoor environment offers many health benefits to building occupants. Below are some of the ways the SAC created a superior indoor environment for scouts, volunteers and staff:

Remote smoking area to reduce occupant exposure to tobacco smoke

Description: Created a designated smoking area that is 25 feet away from entries, outdoor air intakes and operable windows.

Benefit: Exposure to second-hand smoke is reduced.

Tip to get started: Identify an area on your building site that could serve as a designated smoking area. Make sure it is at least 25 feet from the building.

Air quality management plan during construction

Description: Implemented a plan to maintain high-quality air and to reduce dust during construction.

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Benefit: By having an air quality management plan, problems are prevented and the health of the construction staff and occupants is sustained.

Tip to get started: Prior to construction of a new building, establish an air quality management plan.

Pre-occupancy flush-out to remove construction contaminants

Description: Conducted a building flush-out with 14,000 cubic feet of outdoor air per square foot of building.

Benefit: By flushing out the facility prior to occupants entering the building, the construction contaminants are removed and the best air quality possible is created.

Tip to get started: When flushing out a building, maintain an internal temperature of at least 60 degrees and relative humidity of no more than 60 percent.

Use of low-emitting materials such as low-VOC paints, adhesives and carpet systems

Description: Chose paints, adhesives and carpet systems that have low levels of volatile organic compounds (VOC).

Benefit: Exposure to harmful chemicals improves air quality and reduces sensory irritation and other short- and long-term adverse health effects.

Tip to get started: Many companies produce low-VOC products that are also cost-effective.

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Consult with your suppliers to ensure these products are used.

Walk-off mats at entrances to reduce contaminants brought into building



Description: Placed walk-off floor mats at entryways.

Benefit: Floor mats help capture dirt, dust and other contaminants brought into the building from the outside.

Tip to get started: Consider adding entrance mats to your facility. Be sure to put a cleaning plan in place or find a company that will clean and maintain the floor mats as well.

MERV 13 filters on mechanical equipment

Description: Installed MERV 14 filter* on mechanical equipment.

Benefit: A MERV 14 filter limits molds and helps control respirable-size particles including most bacteria, which promotes wellness for occupants.

Tip to get started: When selecting a filter, consider the building's location, occupancy, air

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quality issues and type of HVAC system.

*MERV 13 filter is LEED requirement, but SAC used MERV 14 filters

Daylight for 90 percent of building occupants

Description: Maximized use of natural light throughout building.

Benefit: Natural lighting has been shown to have a positive impact on productivity and well being.

Tip to get started: In the design phase, consider adding windows throughout the building to help improve employee productivity and well being.

Innovation and Design Process

Going "green" goes beyond just the construction of a building, it also includes ongoing educational and maintenance programs that take place post-construction. The SAC developed many of these programs, including the following:

Integrated Pest Management Program

Description: Implemented a pest management program that integrates inspections (for pest prevention) with a minimal amount of chemicals (for pest problems).

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Benefit: By using an integrated approach, exposure to harmful chemicals is reduced.

Tip to get started: Talk to your current pest management provider about integrating preventative evaluations with low-impact solutions for treatment.

Green Education

Description: Created a self-guided tour of the SAC with a field guide that highlights "green" features of building, and developed a report summarizing "green" features of building that other councils may use as an educational tool for their own efforts.

Benefit: The SAC can help educate its constituents how and why to create a "green" building.

Tip to get started: In the building design phase, consider adding features that are conducive to creating a self-guided tour to help educate scouts, volunteers and staff about building "green."

Green Housekeeping

Description: Used Green Label certified products for housekeeping.

Benefit: The products used for housekeeping are concentrated, so less packaging is used and the impact on the environment is reduced.

Tip to get started: Ask your current cleaning vendor if they have "green" products available.

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Exemplary Performance

Description: The SAC achieved exemplary performance in the following categories:

Sustainable Sites - Credit 7.1 (Heat Island Effect, Non-Roof)

LEED® requirement: 50 percent reflective paving

SAC achieved: 100 percent reflective paving

Water Efficiency - Credit 3 (Water Efficiency)

LEED® requirement: 30 percent efficiency

SAC achieved: 41 percent efficiency

Tip to get started: From the project inception to execution, document the process noting item(s) that exceed LEED requirement(s).

LEED® Accredited Professional

Description: Received direction and support from LEED Accredited member of the project team.

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Benefit: LEED requirements are more easily understood and interpreted by working with a LEED Accredited participant.

Tip to get started: Find out how to become LEED Accredited by visiting the U.S. Green Building Council web site at www.usgbc.org.

Learn More

Many organizations and educational resources are available to help support your "green" initiatives. Visit the following web sites to learn more:

U.S. Green Building Council

www.usgbc.org

LEED Professional Accreditation

www.usgbc.org/DisplayPage.aspx?CMSPageID=1815

U.S. Dept. of Energy, Energy Efficient and Renewable Energy

www.fueleconomy.gov

U.S. Environmental Protection Agency

www.epa.gov

Nature Conservancy

www.nature.org