Why VDOT is choosing sustainable building practices

VDOT's core values and sustainable building go hand in hand:

Action and Accountability: By designing and building to LEED Certification standards, VDOT is demonstrating an increased willingness to be held accountable to taxpayers to provide higher-quality services at lower long-term costs.

Results and Stewardship: This safety rest area and Welcome Center demonstrates VDOT's stewardship of our environment. LEED Certification provides concrete and measurable results to the public.

Safety and Security: Low-emitting, non-toxic building materials help ensure a safe and healthy indoor environment.

Teamwork: Successful green-building projects demand teamwork from the owner, design team and builder. By coordinating the team's ideas early, VDOT streamlined decision-making and reduced costs while creating an efficient, attractive building for travelers.

Environmental Excellence: By building green, VDOT is reducing its environmental impact. Virginia's governor is leading state agencies to meet innovative energy-savings goals. This building uses less energy, less water and fewer virgin materials than a traditional structure. It will save thousands of taxpayer dollars over its life.

This pamphlet is printed on 30% post consumer, certified EcoLogo paper that is manufactured using biogas energy.

Graphic design services provided by **BAM architects.**

What you can do

1 Build to last: Think about your first cost vs. your annual cost of maintaining your home. Purchase energy-efficient and durable building products that reduce maintenance costs and provide a return on your investment.

2 Batten down: Seal around all of your doors, windows and any electrical outlets in exterior walls. If you added up all of the holes, gaps and cracks in the average American home they would add up to the area of one standard window. If not plugged, it would be the equivalent of leaving a window open year-round.

3 Light up: Replace 3 incandescent bulbs with compact fluorescent (CFL) bulbs and eliminate 300 lbs of CO_2 from the atmosphere. CFLs use 65-75% less energy and last up to 10 times longer.

4 Recycle: Recycling half of the aluminum, glass, plastic and paper you use saves 2400 lbs of CO_2 and keeps over a quarter of your household trash from going to a landfill.

5 Clean green: Use simpler, less toxic, often less expensive cleaners in your home. A small amount of white vinegar mixed with water is great for cleaning windows and mirrors.

6 Harvest the Sun: Water heating accounts for 17% of a home's energy costs. Solar Hot Water systems are now highly efficient and economical, especially with the help of a recent Federal Tax Credit for up to 30% of the cost.

7 Turn it down, turn it up: Turn your thermostat up 3 degrees in summer and down 3 degrees in winter and save 1050 lbs of CO_2.

8 Be water wise: Buy lower flow toilets and faucet aerators to reduce your water use by over 22,000 gallons per year for a family of four.

9 Wash Cool: Do 2 loads of laundry each week in cold or warm water instead of hot (and hang to dry if possible), save 500 lbs of CO_2 per year.

10 Be a Star: Purchase ENERGY STAR refrigerators, dishwashers, clothes washers and dryers. They save 10-50% in water and energy a year. ENERGY STAR lighting, heat pumps, thermostats and home electronics are also available.

For more great ideas on how to make your home greener, visit:
www.energystar.gov
www.usgbc.org
www.globalgreen.org

Travel Information - Toll-free numbers and Web sites

Call these numbers or visit these Web sites to learn about Virginia traffic conditions. (Note: TTY/TDD users should call 711)

Current traffic information

Call 511 or 1-866-MY511VA or visit 511Virginia.org

Report road hazards

Call1-800-367-ROAD (7623) or visit VirginiaDOT.org

Other helpful numbers

Chesapeake Bay Bridge-Tunnel	(757) 331-2960
Jamestown-Scotland Ferry	1-800-VAFERRY
Virginia's E-ZPass	1-877-762-7824
Virginia State Police	(804) 674-2000
Wireless/Cellular Users	#77

VDOT Virginia Department of Transportation

For additional copies and information:
For information about other VDOT green buildings and electronic versions of their brochures, please visit www.VirginiaDOT.org and search the word "LEED."

VDOT's Web site: VDOT.Virginia.gov

Why Build Green?

In the United States, buildings are responsible for:

136 million tons of construction and demolition waste every year. That's nearly **3 lbs** a day for every American.

40% of the world's raw materials—3 billion tons annually.

36% of total energy use

65% of electricity consumption

30% of greenhouse gas emissions

30% of raw materials use

30% of waste output (equal to 136 million tons annually)

12% of potable water consumption

A typical **1700 sq. ft** wood frame home requires the equivalent of clear-cutting **one acre** of forest

VDOT's Answer:

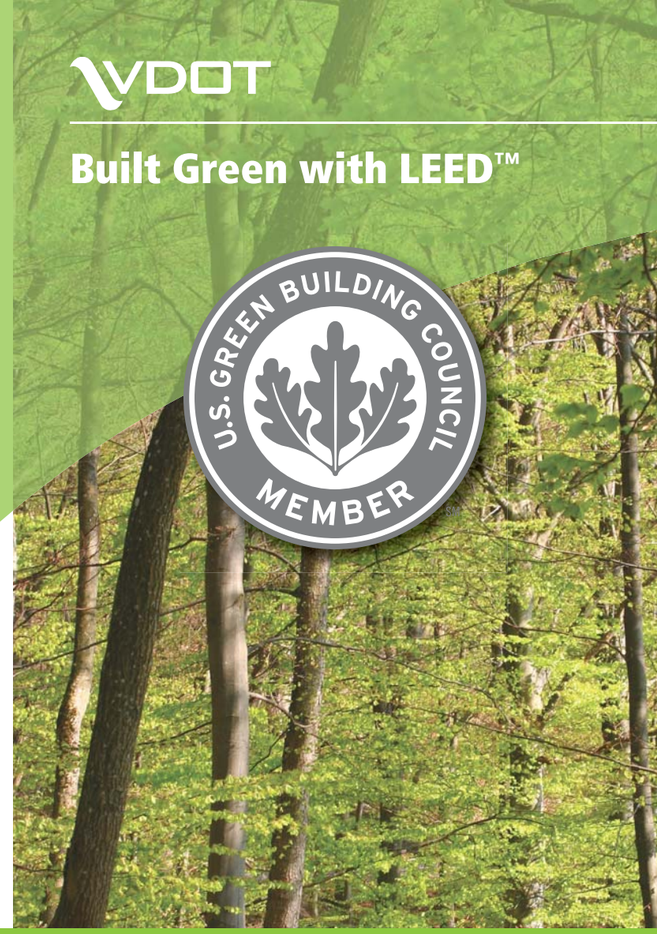
By building green, we can increase the quality and life-cycle of our public transportation infrastructure, conserve energy and reduce expenditures on escalating utility costs, improve our health and reduce pollution. Better performance, longer life-cycle and lower costs create a better future for the Commonwealth.

What is LEED?

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is a nationally accepted benchmark for the design, construction and operation of high-performance green buildings. Created by the United States Green Building Council, LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their building's performance. LEED promotes a whole-building approach to sustainability.

VDOT

Built Green with LEED™



Sustainable buildings save energy, save money and serve people better

VDOT Safety Rest Area and Welcome Center (I-81 southbound, Winchester/Clearbrook)

The exterior of this building is designed to reflect the regional design character of Virginia's traditional northwestern and Shenandoah Valley style architecture, as advocated by the Virginia Department of Historic Resources. Contrasted with the traditional look are the modern solutions for high-efficiency and energy performance, which underscore the versatility of a fully integrated sustainable building. In addition to energy-saving systems, the materials used in the modern interior and traditional exterior of the building play a critical role in achieving the sustainability goals for this facility. This VDOT Safety Rest Area and Welcome Center demonstrates that sustainable buildings can be created in a variety of architectural styles and still be "built green."

The completion of this project in 2008 represents one of the first VDOT owned facilities to seek the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Certification for high performance/sustainable building design and construction.

Please use this brochure and the educational signs throughout this facility to learn more about LEED and green building practices.

VDOT LEED Team Credits

Design-Build Contractors
Ricketts Construction Company, Inc.
Charles Ricketts Construction Co. LLC
Fidelity & Deposit Company of Maryland
Architect
The Marshal Group, LTD.
Engineers
Harvey Hottel, Inc.
Anderson & Associates, Inc.
ADTEK Engineers, Inc.
John J. Christie & Associates P.C.
Project Manager
KCI Technologies, Inc.
LEED/ Sustainability Consultant
Sustainable Design Consulting, LLC
Energy Consultant
EMO Energy Solutions, LLC

35.7% in estimated annual savings from 30.8% reduction in energy use versus a standard building. Efficient heating and air conditioning and interior and exterior lighting keep energy costs down. The higher efficiency systems will contribute to an estimated savings of **$9500** per year and over $285,000 for VDOT over 30 years when considering anticipated escalating energy costs and maintenance and replacement costs for a standard system.

78% of the museum quality epoxy terrazzo flooring in the Safety Rest Area is recycled glass. Not only does this floor have tremendous long term value related to performance and low maintenance, the usage of recycled glass reduces the amount of glass going to landfills, and reduces the need for energy-intensive quarried stone.

3,108 tons, **91.9%** of all construction waste was diverted from the landfill. This includes concrete, masonry, brick, steel, wood, slate, roofing, telephone poles, picnic tables and asphalt. These were crushed for reuse, mulched or salvaged for future use.

95 tons of CO_2 emissions, a contributor to global warming, are estimated to be eliminated from the atmosphere over 30 years due to the ground source heat pump, which saves over **171,700 kWh** per year for this project.

100% of the adhesives, sealants and paints in the facility are low-emitting, which provides a safer indoor environment for the public.

42% anticipated annual water savings is achieved through waterless urinals, low-flow toilets, and low-flow lavatories. This equals **688,755 gallons** of water saved annually. Sewage treatment needs are also reduced.

16 Geothermal Wells use the constant temperature of the ground to assist in providing heating and cooling to the building. This system of vertical wells at a depth of over 400 feet is an innovative type of heat pump system. Ground source heat pumps (GSHP) reduce energy needs and have a life-cycle more than double that of a traditional HVAC system. The GSHP system avoids any visible equipment on the roof.

50% of the building materials are derived and from within **500 miles**. Using regional materials such as concrete, brick and drywall reduces transportation costs and emissions, and supports the local economy.

90% of the average annual rainfall from the semi-truck parking area and bus parking area is captured and treated using hydrodynamic separator (vortex) structural Best Management Practices (BMPs).

33.6% of the products used for construction including structural steel, roofing, terrazzo and drywall contain recycled materials, helping reduce the use of virgin materials.

0 irrigation is required thanks to the use of native and adapted vegetation, reducing costs for piping and water use. The landscape also requires little to no maintenance, saving money and equipment costs.

100% of the cleaning products and techniques are selected for their reduced human and environmental impact. Certain chemicals are banned, and VDOT is committed to maintaining a clean, safe and healthy facility for interstate travelers.