



Photo: SmithGroup

Philip Merrill Environmental Center

The Chesapeake Bay Foundation's philosophy on green buildings: "...the greenest building is the least amount of building (needed)... built with the fewest number of materials." Greg Mella, principal at the SmithGroup says of their choice to use engineered wood products for the building: "Wood requires 1/10th of the energy required to make a steel beam of the same strength...(and) you use fast-growing, under-utilized and less expensive wood species." This building is considered by many to be one of the "greenest" buildings ever constructed.

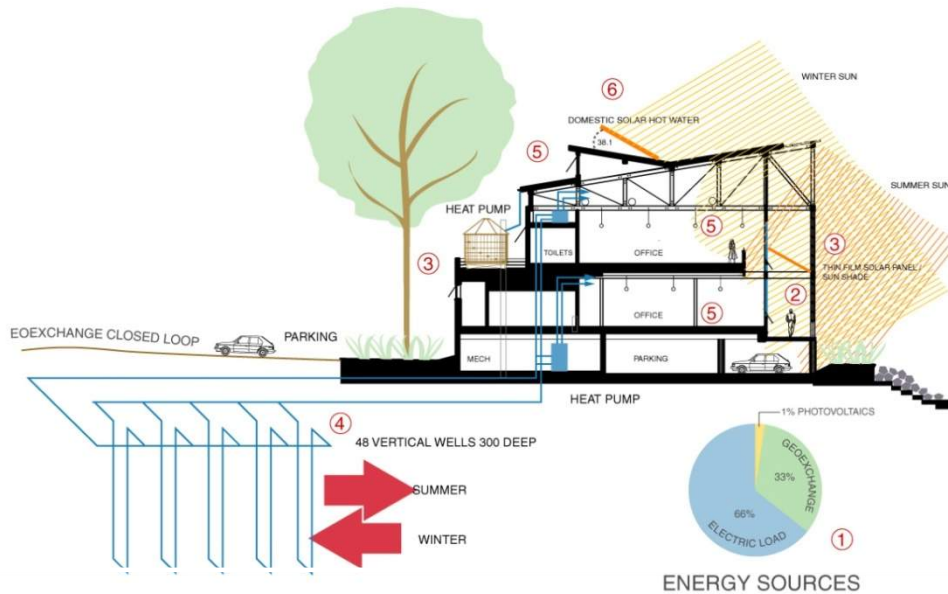
- Commercial office, interpretive centre
- Budget: \$7.5 M USD
- Area: 2,970 m²
- Materials: engineered wood products
- LEED Platinum
- Green Building Challenge 2002 : Level 2.7 in GBTool 1.76

SmithGroup
Annapolis, Maryland
2000

- Building incorporated a “cradle-to-cradle” philosophy – considers material use during building’s lifetime as well as re-use of materials after their useful life in the building.
- Building sited to take advantage of southern solar exposure and natural ventilation.
- Life-cycle approach used for choice of all building materials.
- Low or VOC-free paints and natural materials were selected for indoor environment objectives.
- Building designed with engineered wood products throughout: subfloors, walls, roof.
- Built on 20’ grid using 10.5”x11” parallel strand lumber columns and structural insulated panels (SIPs) measuring 22’x4’ for spanning wide expanses. All are left visible on interior.



- Sophisticated energy management system alerts occupants when windows should be opened; some windows open automatically for natural ventilation when possible; dependence on mechanical cooling and energy use are reduced. Daylight levels are monitored automatically; electric lighting 'switched on' as needed.



RENEWABLE ENERGY SOURCES

- Renewable energy sources account for 34% of the building's energy load, thus reducing its dependence on fossil fuels
- The building was oriented and formed to maximize natural ventilation through operable windows
- Photovoltaics systems are integrated with building's architecture as sun shades and skylight
- Geothermal exchange uses the earth's stable temperature to regulate indoor air condition
- Daylighting has been maximized by the building's orientation and fenestration. Sensors dim and turn-off artificial lighting as daylight satisfies the established light level, thus reducing the electric load.
- Domestic solar hot water is implemented to reduce energy on heating water

- Photovoltaic panels produce energy on-site. Roof-top solar panels heat water for indoor use. Heating and cooling provided via geothermal wells. Renewable energy sources account for 34% of energy load – energy use is 59% less than for comparable office buildings.
- Center captures and reuses rainwater and uses bioretention filter to treat oil and other pollutants in runoff from pervious parking area. Along with other measures (composting toilets, native landscaping, etc.) – water use is reduced by 90+%.
- Premiums paid for green measures expected to show return on investment in 7 to 8 years in the form of reduced operating costs.



Photo: Prakash Patel, courtesy SmithGroup

The (Philip Merrill Environmental Center) and its sophisticated systems have won international acclaim as a model for energy efficiency, high performance, and water conservation (proving) that it isn't necessary to lose comfort or beauty to build responsibly. – *Chesapeake Bay Foundation*

Photo: Prakash Patel, courtesy SmithGroup

Architects: SmithGroup

Lead Architect: Greg Mella

Structural Engineers: Shemro Engineering, Inc.

Mechanical/Electrical/Plumbing Engineers: SmithGroup

General Contractor: Clark Construction Group

Sources: USGBC website, SmithGroup website, APA – *The Engineered Wood Association*, US Dept. of Energy website, Chesapeake Bay Foundation website

