

Phillip Merrill Environmental Center – Holistic “Green” Office Building

The Chesapeake Bay Foundation (CBF) is the largest conservation organization dedicated to saving the Chesapeake Bay. Their motto, “Save the Bay” defines their mission and commitment. Founded in 1967, the non-profit organization has 110,000 active members and over 180 full-time employees. It is run on an annual budget of \$15 million, which is raised almost entirely through private donations. When the decision was made to build a new headquarters in Bay Ridge, Annapolis, Maryland, the foundation stuck to practicing what they preach. Their goal was to make the office a standard for environmental friendliness and energy efficiency, according to William C. Baker, the foundation’s president. The center was completed in December 2000 and designed by the SmithGroup of Washington D.C. The Clark Construction Group, Inc. served as the general contractor.

Numerous innovations were incorporated into the building design in order to achieve a model holistic “green” building. The design was an obvious success and was awarded the first ever “platinum” rating from the U.S. Green Building Council and its Leadership in Energy and Environmental Design (LEED) initiative. LEEDs certified buildings are rated based on five criteria: materials, energy, water, indoor air quality, and site issues. Many consider the Phillip Merrill Center to be one of the world’s “greenest” buildings and clean-building experts have deemed it the world’s most energy efficient and environmentally friendly building. The project has received numerous other awards including Best New Construction from the AGC Washington Contractor’s Award competition. Many groups including ASCE and John Hopkins Greening Committee have toured the site as an example of the benefits of using “green” concepts in building design. In addition, it has been featured in a number of prominent articles, including Civil Engineering in March 2001, Time magazine in August 2002, the Detroit News in May 2002, and National Geographic in September 2002.

The 32,000 square foot building is located on 31 acres of Chesapeake Bay shoreline. The building houses staff offices and an education and training center. The foundation spent an extra \$1.5 million on its \$6.3 million headquarters to make it green, but estimates it will recover these costs in energy and water savings over the next 10 years. It uses 2/3 of the energy and 1/10 of the water consumption of a comparably sized office building.

Features of the building include composting toilets. The toilets empty into composting vats. After staff members take care of business they throw a cursory handful of mulch down the hatch to speed up the decomposition process. Microbes and bacteria take care of the rest, and the waste is eventually turned into compost. It will be 2004 before they have the first batch of compost. This system is estimated to save \$29,000 a year on water and sewage bills and does not send any solid waste to the sewage treatment system. A majority of the materials used were produced and shipped less than 300 miles to the site. In addition, many materials were reused or recycled, such as concrete taken from the foundation of the old Bay Ridge Inn which previously occupied the CBF site and old pickle barrel’s used to hold storm water runoff which is then used for non-drinking needs within the building and fire prevention. The center uses less than 100 gallons of water per day and only 60 gallons of wastewater per day is released to the public sewage treatment plant. Ceiling tiles made from recycled paper, “green” certified plywood, and galvanized steel siding and roofing were used. The steel siding and roofing help keep the building cool by reflecting heat away. Photovoltaic cells contribute to the electric energy for the building. CBF spent an extra \$100,000 to use a geothermal heating and cooling system with an expected five years or less payback. A shading system is used to reduce air conditioning usage. The building ground’s are low maintenance and take advantage of natural flora. The Phillip Merrill Environmental Center is a glimpse into future building trends and the need for “greener” building design.

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Figure 1. Front view of Phillip Merrill Center.



Figure 2. Photovoltaic cells on outside of structure.



Figure 3. Geothermal heating system.



Figure 4. Rainwater collected and used in rest rooms.



Figure 5. Pickle barrel cistern used to collect rain runoff and recycle.



Figure 6. Ed Wintermute shows off the workings of the composting sewage system at Chesapeake Bay Foundation's Phillip Merrill Environmental Center. (photo Bill Clark / Scripps Howard News Service)