



**The Catholic University of America**  
**Washington, D.C.**  
**Green Building**

**SCHOOL**

The Catholic University of America (CUA) is a private nonprofit institution of higher education located in Washington, D.C. CUA consists of 12 schools offering graduate and/or professional degrees. Located in the northeast quadrant of Washington, D.C., the 193-acre campus encompasses 56 buildings, comprising more than 2.6 million square feet, dating back to every decade over the past century. CUA serves more than 3,400 undergraduate and 3,200 graduate students with a faculty and staff of 1,300.

**ABSTRACT**

The Catholic University of America has constructed the first Leadership in Energy and Environmental Design (LEED)-compliant college residence hall in the District of Columbia. The seven-story, 127,500-square-foot structure opened in January 2009 and houses 402 students, or 15 percent of student housing. Its unique environmentally friendly design will reduce carbon dioxide emissions by 125 tons per year and saves \$40,000 per year in energy costs over more traditional construction. Pre-cast panels and water source heat pumps are just two of the unique features contributing to energy savings. Water consumption has been reduced by 30 percent by incorporating low-flow shower heads and no urinals. Incorporating sustainable features in construction is now a way of life at CUA.

**GOALS AND OUTCOMES**

**Goals**

Catholic University was seeking to construct a new residence hall that would provide its students with improved and varied housing options while maintaining architectural consistency and seeking LEED certification. The goal of obtaining LEED certification was to reduce both energy and water consumption by 30 percent over conventional systems.

**Accomplishments and Outcomes**

Opus Hall was completed in January 2009, on schedule at a construction cost of \$30 million. The new 125,000-square-foot residence hall is 7 stories tall and houses 402 students in suite-style living. The project achieved many of the desired outcomes, such as community connectivity including a Metrorail stop within one mile of Opus Hall. No additional parking was constructed. The project has a “green” retaining wall that contributes to protecting existing habitat and reducing the heat island effect. A 30 percent reduction in water efficiency was achieved by utilizing Eco-Smart toilets, low-flow shower heads, no urinals and no permanent irrigation system for more water-efficient landscaping. More than 1 million gallons of water will be saved annually.

Opus Hall is on target to achieve the 30 percent reduction in energy usage by incorporating HVAC systems and controls according to stricter ASHRAE 90.1-2004 standards. Moreover, all appliances have the Energy Star label. This saves the university more that \$40,000 annually in energy costs. Contributing to the energy savings of the new residence hall were the installation of energy efficient pre-cast panels, which reduced construction time. In addition, their superior R-30 insulating factor significantly reduced

heat loss. This tighter construction has not sacrificed indoor air quality. Opus Hall has operable windows and state-of-the-art ventilation systems to assure occupants of adequate fresh air.

The new residence hall was designed so that 90 percent of the interior spaces have a view of the outdoors, which reduces lighting costs and contributes to the ecological focus of the building.

### **Challenges and Responses**

The greatest challenge the university encountered occurred when the builder declared bankruptcy, which has slowed the obtaining of LEED certification as certain documents are unavailable. The university is protected financially from the builder's default; however, the process for LEED certification has been delayed.

### **Campus Climate Action: Your School's Carbon Footprint**

It is estimated that more than 250,000 pounds of carbon dioxide will be saved by utilizing the stricter ASHREA 90.1-2004 standards and incorporating those operating changes into Opus Hall.

### **Commentary and Reflection**

CUA now looks to incorporate "green" measures in all construction and renovation. Although those projects have to show a reasonable payback, years ago, such concepts were never considered. Now they are a way of life at Catholic University.

All college campuses are experiencing a green revolution in which students are demanding their university be a good environmental steward. It is also a mission of the Catholic Church to protect resources and behave responsibly with regard to the environment.

## **ENGAGEMENT AND SUPPORT**

### **Leaders and Supporters**

Opus Hall was constructed by OPUS East, with architectural input from the firm of Little Diversified. Engineering design was provided by Schlenger Pitz, Mahan Rykiel was the landscape architect and Sebesta Bloomberg was the LEED and commissioning entity.

### **Funding and Resources**

The cost of Opus Hall was \$30 million and was provided by a tax-free D.C. bond offering.

### **Education and Community Outreach**

Students occupying the new residence hall were apprised of its unique, environmentally friendly construction and given information on how to treat the building to keep it functioning as intended. This is a continuing program.

## **CONTACT INFORMATION**

### **Contacts**

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## **MORE ABOUT YOUR SCHOOL**

### **Campus Sustainability History**

The Catholic University of America has a strong commitment to being energy efficient and minimizing its impact on the environment. The university has a vibrant recycling program that ranks 66th in the nation out of 300 universities. Moreover, it purchases 30 percent of its electricity from green sources to assist in improving the region's air quality. Its active conservation program encourages students, faculty and staff to reduce energy consumption and lessen water usage. CUA incorporates an environmentally friendly pest management system and only uses eco-friendly cleaners on campus. Most recently, CUA, in conjunction with Casey Trees, is working to improve the tree canopy on campus and has planted 100 new large trees. CUA's goal is to increase the tree canopy by 10 percent in the next five years.