

S U S T A I N A B L E D E S I G N



Salisbury University Teacher Education and Technology Center

LEED Expertise

- ▶ Light Pollution Reduction
- ▶ Innovative Wastewater Technologies
- ▶ Water Use Reduction
- ▶ Daylighting and Views
- ▶ Optimal Energy Performance
- ▶ On-Site Renewable Energy
- ▶ Refrigerant Management
- ▶ Measurement and Verification
- ▶ IAQ Performance
- ▶ Environmental Tobacco Smoke Control
- ▶ Outdoor Air Delivery Monitoring
- ▶ Increased Ventilation
- ▶ Construction IAQ Management Plan: During Construction and Before Occupancy
- ▶ Low Emitting Materials: Adhesive, Sealants, Paints, and Coatings
- ▶ Indoor Chemical and Pollutant Source Control
- ▶ Controllability of Systems: Lighting and Thermal Comfort
- ▶ Thermal Comfort: Design and Verification
- ▶ Commissioning of Building Energy Systems
- ▶ Innovation in Design
- ▶ LEED Accredited in the Building Design and Construction Specialty



Mueller

“A large percentage of our professional staff is LEED accredited in the building design and construction specialty...the focus on sustainability has become integral to our practice and the way we approach our work.”

Todd Garing, PE, LEED AP
Vice President
Mueller Associates

Mueller Associates has a deep portfolio of LEED®-certified projects that have addressed rigorous standards for sustainability. We have long recognized the vital role that buildings can play in minimizing environmental impact and reducing energy use in particular. We also understand our clients' need to strike an appropriate balance between first-cost investments and long-term life cycle savings, while meeting the parameters of comfort, performance, and environmental stewardship.

Mueller engineers work closely with other design team members to craft integrated sustainable solutions, addressing such aspects as building orientation, natural light, insulation, glazing, and building skin. Our office culture embraces an introspective and team-oriented approach that consistently yields innovation and efficiency in building performance. We support this collaborative and highly interactive approach with extensive research, consultation with manufacturers and contractors, and ample technological resources.

Our proficiency in devising state-of-the-art sustainable strategies dates to our work in designing a solar collector system for the White House in the 1970s. That kind of ingenuity continues to drive our work today, as we partner with our clients to optimize LEED performance in a variety of projects, including museums and cultural facilities, educational buildings, government facilities, and healthcare environments.



UMBC Performing Arts and Humanities Facility
rendering courtesy of Grimm + Parker Architects/William Rawn Associate, Architects

Designing for LEED Credits

Our experience related to LEED credits for energy and water use reduction includes such elements as:

- ▶ Energy-efficient lighting fixtures that work in concert with the natural daylight, dimming systems, and occupancy sensors
- ▶ HVAC systems sized and specified to complement a high-efficiency building shell with superior insulation, roof reflectance, glazing and skin materials, and reduced lighting loads
- ▶ HVAC systems that incorporate efficient equipment and heat recovery systems that transfer heating or cooling energy between the exhaust air and incoming fresh air
- ▶ Solar systems, including building-integrated photovoltaics and solar thermal domestic water heaters
- ▶ Direct Digital Control systems that respond to changing conditions accurately and quickly and document space conditions and energy consumption
- ▶ Energy management and controls, such as demand-based control and economizer cycles
- ▶ ASHRAE Energy Standard 90.1 compliant HVAC systems, and enhancements to reduce consumption by 30%
- ▶ Air monitors that track exhaust and incoming air used with monitors measuring relative humidity, carbon dioxide, and temperature, to meet ASHRAE Ventilation Standard 62
- ▶ Air conditioning devices that comply with the enhanced refrigerant management credit
- ▶ Plumbing and waste systems with low flow devices that reduce water usage over conventional systems by at least 30%
- ▶ Appropriate exhaust systems to remove contaminants before they enter occupied spaces
- ▶ Captured or recycled water for site irrigation, flushing toilets and urinals, and cooling tower make-up

LEED-Certified Projects

Our portfolio of LEED-certified projects and projects on track for LEED-certification includes:

- ▶ Bryn Mawr School, Lower School Renovations
- ▶ Duke University, School of Nursing
- ▶ Thomas Jefferson Visitor Center and Smith Education Center at Monticello
- ▶ Salisbury University:
 - Teacher Education and Technology Center
 - Perdue School of Business
 - Nanticoke Residence Hall
- ▶ University of Maryland, College Park:
 - Journalism Renovation
 - Denton Dining Hall
 - Fraternity and Sorority Renovation
- ▶ University of Maryland, Baltimore County, Performing Arts and Humanities Facility
- ▶ University of Maryland, Baltimore, School of Pharmacy
- ▶ The National Academy of Sciences
- ▶ Radford University, College of Business and Economics
- ▶ University of Baltimore, John & Frances Angelos Law Center

“The mechanical system for the visitor center at Monticello is a crucial part of the LEED-certification process. More importantly, working in the shadow of Jefferson’s home demands that the system be carefully integrated into the architecture.”

Sandra Parsons Vicchio, AIA, LEED AP
 Ayers/Saint/Gross



Thomas Jefferson Visitor Center and Smith Education Center
photo courtesy of Thomas Jefferson Foundation/Mary Porter



National Academy of Sciences

Duke University School of Nursing

This LEED-Silver project included strategies for reduced light pollution and water use, enhanced system commissioning, measurement and verification of energy usage, controllability of lighting systems, and prerequisite indoor air quality performance.

National Academy of Sciences

Mueller is working closely with the design team to pursue LEED-Silver certification for the complete renovation of this 80+ year-old historical building. The project will incorporate daylight harvesting; building-integrated photovoltaics (translucent skylights in the atrium that also act as solar panels); dedicated outside air systems; and exhaust air, condenser water, and steam condensate energy recovery.

Thomas Jefferson Visitor Center and Smith Education Center

This award-winning new visitor center at Monticello reflects such sustainable design techniques as low-flow faucets, dual flush toilets, waterless urinals, on-site wastewater treatment, green roof structures, commissioning, energy optimization, centralized geothermal systems, automatic lighting controls, and daylighting. The project earned a LEED-Gold certification.

Salisbury University

The LEED-Silver Teacher Education and Technology Center, completed in 2008, underwent extensive energy modeling to optimize the building's performance.

The new Perdue School of Business will include such strategies as energy recovery, high-efficiency condensing boilers, a geothermal system for cooling of a museum space, and domestic water heating. The project will undergo enhanced commissioning during its final stages to optimize the building's efficiency.

UMBC Performing Arts and Humanities Facility

Mueller is coordinating with the design team to pursue LEED-Silver certification for the university's new Performing Arts and Humanities facility. The project will include rainwater and air conditioning condensate harvesting for irrigation, energy recovery, demand-controlled ventilation, and variable flow fan and pumping systems.



Salisbury University Teacher Education and Technology Center

UMB School of Pharmacy

Mueller incorporated sustainable design concepts into this project, which will be submitted for LEED certification. LEED strategies include total energy recovery wheels in laboratory and ventilation air handling units, steam condensate heat recovery for domestic water heating and HVAC reheat, extensive lighting controls, and interactive displays to educate occupants on building energy consumption.

Bryn Mawr School

Mueller is providing mechanical, electrical, and plumbing engineering design for a new middle school building. The project is registered with the certification goal of Silver.

London Town

The site development for the Historic London Town Archaeology Learning center implemented sustainable design strategies to control stormwater management in this Chesapeake Bay Critical Area site. The project has a green roof and rain gardens to meet the requirements of the critical area.