The Biomedical Sciences & Engineering Education Facility: Sustainability in Action

The Universities AT SHADY GROVE

Already a core value of the Universities at Shady Grove, sustainability is integral to the Biomedical Sciences and Engineering (BSE) Education Facility. The BSE will catalyze learning both through its academic programs and through the experience of the building itself.

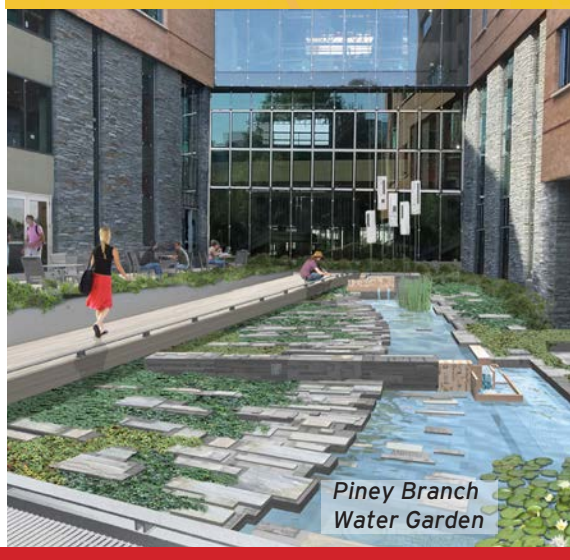
BSE PERFORMANCE GOALS

Early in the design process, engineers analyzed how sustainability could have a major positive impact on the shape of the building, landscape and site features. The following are the over-arching goals that support USG's strong commitment to sustainability. The BSE:

1. Promotes ecological connectivity and function across the campus, and the greater Montgomery County community.
2. Teaches students, faculty and visitors about building performance by showcasing building systems and learning opportunities.
3. Is an example for sustainable design—both in the Mid-Atlantic region and globally—for teaching lab programs, design, construction, and operations.
4. Is a leader in conserving resources, including water, energy and materials.
5. Includes biophilic design which will enhance health and happiness by celebrating our innate human attraction to natural systems and elements.

U.S. GREEN BUILDING COUNCIL LEED PLATINUM USGBC

LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world. LEED provides a framework to create healthy, highly efficient and cost-saving buildings. LEED certification is a globally recognized symbol of sustainability achievement. The BSE is registered with the certification goal of LEED Platinum®.



Piney Branch Water Garden

9 Universities. 1 Campus. *That's the Power of 9.*

Bowie State University 1865 · Salisbury University · Towson University · University of Baltimore · University of Maryland Baltimore · UMBC · University of Maryland · University of Maryland Eastern Shore · University of Maryland University College

KEY SUSTAINABILITY FEATURES

The BSE shows strong performance in all areas of sustainable design and is registered with the certification goal of LEED Platinum®. Its features include:

MATERIALS AND RESOURCES

The BSE focuses on minimizing the embodied energy and other impacts of building materials. Interior finishes are inspired by biophilic design using natural colors, textures and shapes.

- Over 95% of construction waste was recycled
- 20% use of local construction materials
- 20% recycled content building materials
- Reduced use of interior building materials
- Built with easily accessible recycling areas

INDOOR ENVIRONMENTAL QUALITY

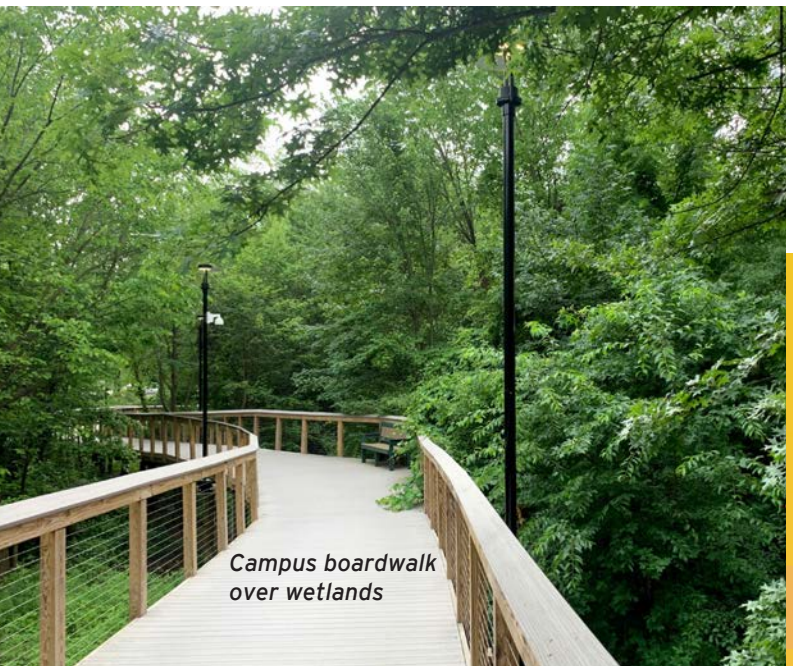
The BSE is designed to increase ventilation, minimize pollutant entry and bring daylight into the building.

- 87% of occupied spaces have exterior views
- Living green wall improves indoor air quality
- High efficiency air filters remove particulates
- Individual controllability of systems
- Natural ventilation
- Walk-off entry mats keep out contaminants
- No high-VOC products or lab-finishes

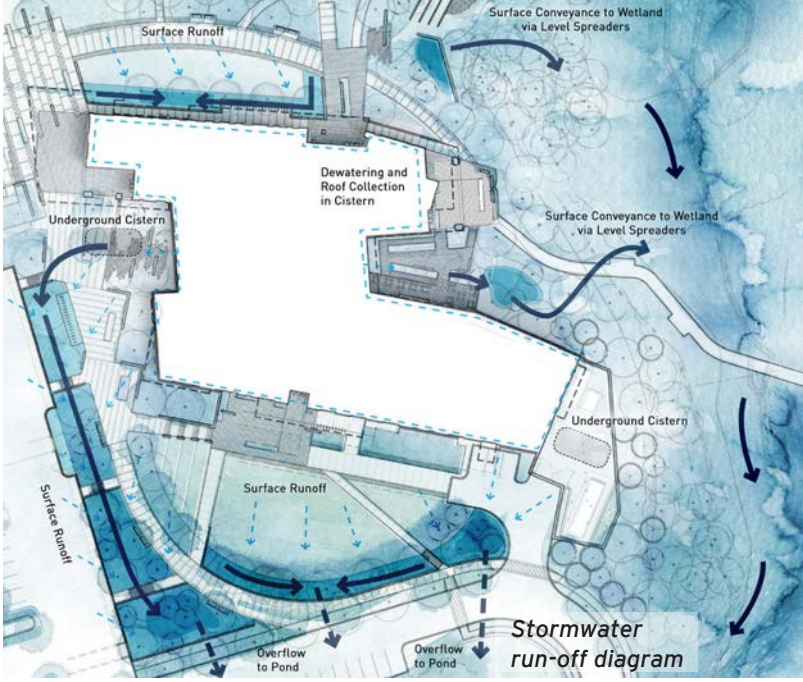
SUSTAINABLE SITES

The BSE has maintained a strong connection to the local site ecology by minimizing impacts on the adjacent wetland and local watershed.

- Open space makes up 43% of the total site area
- Native planting is emphasized
- Built on a parking lot to conserve greenfields
- Minimal nighttime illumination
- Bioswales naturally filter surface water



Campus boardwalk over wetlands



Stormwater run-off diagram

WATER EFFICIENCY

The BSE is expected to use 79% less water than baseline predictions.

- 100% of water that falls on the roof is harvested
- Greywater is collected to flush toilets
- Low-flow fixtures conserve water
- Rainwater is used for irrigation

ENERGY AND ATMOSPHERE

Energy Use Intensity is a building's annual energy use per unit area. The BSE is expected to use 36% less energy than a typical lab building. Real-time performance data will be shared with building users via a digital green screen located in the building's lobby. Energy conservation measures include:

- Two-pipe active chilled beams
- Lab air handling unit energy recovery
- High-efficiency chillers
- Condensing hot water boilers
- LED lighting
- On-site solar panels (renewable energy)
- Occupancy sensors
- Passive solar shading
- Commissioning of building systems
- Measurement and verification of building performance

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Want to learn more about the BSE?
Visit shadygrove.umd.edu/bse