



SUSTAINABLE LABS

at the University of Scranton and Rice University

by Cassidy Clevenger

STEM programs across the country have been making concerted efforts to improve the culture of science and sustainability. Two institutions that are setting a high standard for environmentalism and research are the Brockman Hall for Physics and the BioSciences Research Collaborative (BRC) labs at Rice University and the Loyola Science Center at the University of Scranton.





Photo by Jeff Fitlow/Rice University

Rice and the University of Scranton are making strides toward scientific excellence and community involvement, while also adhering to a commitment to sustainable research in their STEM programs that endorses collaboration, sustainability, and integrity.

Getting students excited about sustainability is the key to making progress. Rice, for example, had students play a major role in the LEED certification for many of their buildings. Students were involved in several areas of the process, including recycling, caring for the community garden, and starting greener initiatives on campus, such as tray-less dining.

Similarly, when underclassmen begin working on some of their earliest papers, the university encourages students to study environmental efforts; when students become passionate about the planet, their ability to inspire growth and change is put in perpetual motion.

Tangible, Immediate Benefits to Sustainable Practices

Most schools who have a mission of sustainability proudly proclaim their LEED certification. According to the U.S. Green Building Council (USGBC), which is a non-profit coalition that rewards eco-friendly building designs, in order to pass a Gold LEED certification, sites

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must excel in several areas, including sustainable site choice, energy savings, water efficiency, reduction of CO2 emissions, and indoor environmental quality, while also improving company profitability and employee well-being. In short, it is no easy task to achieve this certification—every detail of construction, including vendors and design, must meet a specific standard.

Mark Murphy, Director of Sustainability and Energy Management at the University of Scranton, noted that during the development of Loyola Science Center, the university found construction was actually less expensive when using sustainable methods, compared to alternative, more traditional methods of construction. In other words, while the design and certification process may be more tedious to create eco-friendly buildings, there are real, tangible, and immediate benefits in sustainable practices.

Golden “Green” Plans

When visiting Loyola Science Center, the first thing someone is likely to notice is the beautiful design that stands as a work of art and example of education in action. As noted by Murphy, the inspiration of Loyola Science Center’s design was “science on display.” Intentionally exposed mechanics of the building, such



Photo courtesy Loyola Science Center/University of Scranton

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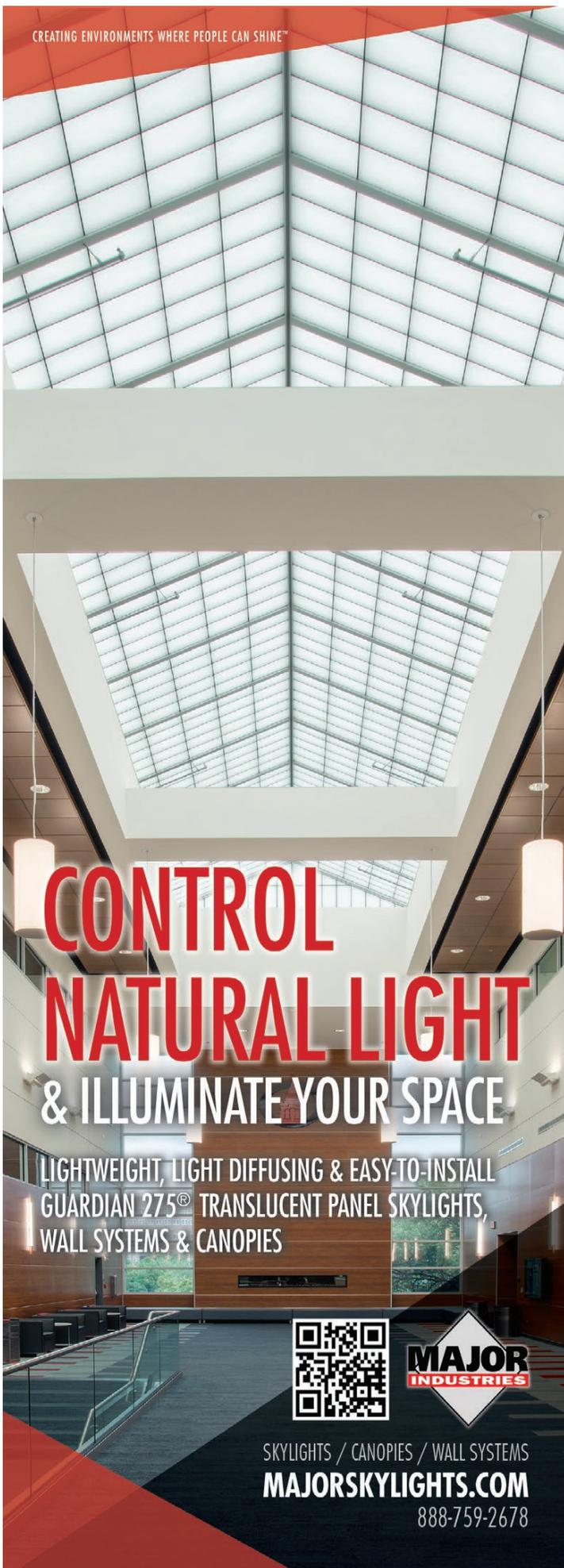
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as the drain pipes that feed into the community garden or the visible energy recovery wheels, allow for learning experiences at every turn of a tour at Loyola Science Center.

The University of Scranton's center stands four-stories tall and encompasses nearly 200,000 square-feet. The center includes a root-top greenhouse and observation deck for research. Additionally, the building holds twenty-two classrooms, thirty-four sustainable laboratories, eighty offices, and an atrium with a cafe.

The plants filling the common areas and halls make the building feel alive. The plants—some of which have been cared for by various faculty and students for decades—offer the facility an inviting and organic flow.

One of Rice's LEED Gold buildings is Brockman Hall for Physics. Brockman is filled with sustainable features, such as clean electrical power, water and air filtration that removes submicroscopic dust, 30% energy recovery on AC in the Summer, and a dehumidification system that converts the humidity in the air into a clean power source that runs Rice's central plant.

Sustaining Connections

In addition to being eco-conscious, Loyola Science Center also serves as a living tribute to teamwork and innovation. All of the classrooms are designed to accommodate group activities and personalized, interactive learning. Research on how building design affects students' impact on learning found that informal learning spaces are as much a necessity to education as the traditional classrooms and labs are to learning. Open spaces with cozy furniture near the faculty offices create a sense of connectivity between students and educators.

Collaboration within the scientific community impacts all levels, from undergraduates helping their peers with a project to partnerships among colleagues. This is why Loyola Science Center's offices, labs, and commons were designed with open floor plans and floor-to-ceiling glass walls that encourage students, faculty, and other visitors to work effectively and communally.

Additionally, Loyola Science Center engages the community in eco-friendly topics. These community events have ranged from free movie showings, to Earth Day essay contests, or celebrations. Similarly, one of the crowning jewels of Loyola Science Center is the community garden, which is tenderly cared for by Loyola Science Center staff, faculty, students, as well as other community members.

Future of Sustainability

A major aspect of being eco-conscious involves not just planning for the current needs of the students, institution, and planet, but also being aware that changes will have to be made down the line. Rice, for example, initiated the Climate Action Plan in the Fall of 2013. This initiative preaches and practices the mission of making Rice a completely carbon neutral campus by 2038.

Rice is planning on undertaking another project called mass timber, which will aid in reducing greenhouse gases by replacing wasteful materials, such as concrete, with wood. To manufacture

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concrete produces mass amounts of carbon dioxide into the environment. This is why Rice Architecture professors Jesús Vassallo and Albert Pope are working to develop an architecture that is more eco-friendly.

Caring for the Divine Creation

When thinking about STEM, theology is not an obvious pairing. At the University of Scranton, however, their faith is directly connected to sustainability practices. Taught how every person has an impact on the Earth's health, students are encouraged to look at their conservation efforts through a theological lens, and make connections between honoring God's creation and the benefits of sustainable practices.



ABOUT THE AUTHOR: Cassidy Clevenger is a Samford University alum. She is currently in graduate school at Samford in the MSW program, while working as a staff writer for Flaherty Media.

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