Cutting-edge “green” technology has been incorporated into every inch of the new 84,000-square-foot building, from the solar panels on the soaring canopy to the vertical wind turbines at the entrance. The facility was designed to exceed Leadership in Energy and Environmental Design (LEED) Platinum standards of the U.S. Green Building Council—the highest standard that can be achieved.

“We felt that we needed to walk the talk,” says Paul Stiebitz, associate academic director of Golisano Institute for Sustainability. “We also saw an opportunity to include technologies for investigation into sustainable materials and systems. This building is truly a living laboratory.”

Here are some of the unique features:

**Fuel cell:** A UTC Power Model 400 Purecell System is the primary energy source for the building. This unit produces 400 kilowatts of continuous electric power; heat generated as a by-product of electrical generation helps heat this and other buildings on campus.

**Microgrid:** This system takes power inputs from variable sources (including wind turbines and solar panels) and stores energy in a battery bank to provide 50 kilowatt-hours of energy. This will power some of the building’s lights and electrical outlets.

**Water conservation:** The building is designed to be 66 percent more efficient than a typical building. For instance, rainwater is collected and filtered and used to flush the toilets.

**Geothermal system:** Liquid will circulate from eight wells drilled into the ground through pipes in the galleria floor, helping to keep it warm in the winter and cool in the summer.

LeChase Construction and SWBR Architects led the construction and design with additional support from FXFowle architects, Stantec civil engineering consultants and M/E Engineering.
Cutting-edge technology rooted in new facility for sustainability

The building maximizes energy efficiency through the building’s envelope, which consists of the components that separate the exterior of the building from the interior of the building. There are some of RIT’s signature bricks, but most of the building is sheathed in several varieties of glass. Opaque Spandrel panels have an insulation value comparable to masonry walls. Translucent panels with nanogel filling also have excellent insulating characteristics while admitting light. Transparent, high-efficiency heat-mirror glass made by Serious Energy (company founder Kevin Surace is a 1985 graduate) outperforms conventional triple-pane glass and is thinner, lighter and less expensive. Building windows in offices and conference rooms feature a coating that conducts electricity, so the glass can be heated to room temperature to eliminate drafts when the room is occupied. This eliminates the need for baseboard heating. The extensive glazing reduces the amount of artificial light required. A sunshade system of stationary louvers on the south side of the building reduces heat buildup from direct sun exposure.

Energy-saving touches include three electricity-generating wind turbines (right), placed on the north side of the new building.

Level 1: Monitoring the building
Three 65-inch flat-screen panels display the performance of building systems in real time on a video wall. The building is equipped with 1,200 sensors to monitor and control lights, heat and other systems. In the Microgrid Test Bed, information about the building’s energy production and use are analyzed. Researchers in the Materials Science Lab test and develop materials. Electric hybrid vehicles are tested in the Electric Propulsion Test Bed.

Level 2: Space to innovate
This level contains two areas where graduate students can work. The Eco-Design Lab is where students actively innovate, develop, and potentially commercialize their best ideas. Graduate students can present their ideas to other students and faculty in the Decision Theater. At the eastern end of the galleria, there is a collaboration room enclosed within amber-colored glass walls.
Level 3: Sustainability labs
The third floor is similar to the second with classrooms and conference rooms and a collaboration room along the west end. Labs on this floor include the Sustainable Building Materials Lab, an Environmental Chemistry Lab and an Eco-IT Test Bed. In this lab, researchers work on reducing energy use in computing. Researchers in the Staples Product Innovation Lab design office products with a lower environmental impact.

Level 4: Green roof
An open-air terrace features large areas of sedum and plantings that are part of Rochester’s Seneca Park Zoo Butterfly Beltway project. The green roof also provides some insulation value and absorbs runoff from rain and snow. The only lab at this level is the Sustainable Manufacturing Test Bed, where students research and develop remanufacturing and recycling processes that extend the lives of products.

The green roof absorbs runoff from rain and snow.

Solar panels provide a portion of the building’s energy needs.

The fuel cell produces 400 kilowatts of continuous electric power.

The Staples Product Innovation Lab is where office products of the future are designed.

Students in the Sustainable Manufacturing Test Bed extend the lives of products.

Offices for the architecture program are grouped together.

ILLUSTRATION BY STEVE BOERNER FOR RIT: THE UNIVERSITY MAGAZINE