



By Amr Abdel-Azim

The new Center for Biotechnology and Interdisciplinary Studies at Rensselaer Polytechnic Institute, Troy, New York, is a state-of-the-art, advanced research platform for a new era in research at the nation's oldest technological research university.

The 218,000-square-foot, \$100 million facility (including \$80 million for construction), opened in September 2004, ranks among the world's most advanced research facilities focused on the application of engineering and the physical and information sciences to the life sciences. With its high-

Amr Abdel-Azim is the senior executive for capital projects at Rensselaer Polytechnic Institute, Troy, New York. He can be reached at abdela@rpi.edu. This is his first article for Facilities Manager.

tech laboratories and expansive atrium, the Center for Biotechnology and Interdisciplinary Studies provides a platform for collaboration among many diverse academic and research disciplines to enhance discovery and encourage innovation. The center is designed to foster the multidisciplinary nature of biotechnology.

Research and office space support approximately 400 faculty, staff, and students. A wired 150-seat auditorium, the Bruggeman Conference Center, and other meeting spaces enhance opportunities for collaboration on campus, throughout the region, and around the world. The labs include state-of-the-art equipment, such as a 900 MHz nuclear magnetic resonance (NMR) spectrometer.

Several years ago, under the leadership of President Shirley Ann Jackson, Rensselaer embarked on an ambitious long-range strategic plan that has led to a renaissance at the Institute. This strategic blueprint, *The Rensselaer Plan*,

The concept of interdisciplinary studies is well supported in the building design, which creates an environment that encourages and facilitates interaction among researchers.

includes \$400 million in new construction and renovation, including the new biotechnology center.

“By establishing the Center for Biotechnology and Interdisciplinary Studies, we have created a gathering place where scientists and engineers from various disciplines will explore at the intersection of the life sciences, with engineering and the physical and information sciences, thereby accelerating discovery and ultimately enhancing the quality of life for all people,” said Jackson.

The concept of interdisciplinary studies is well supported in the building design, which creates an environment that encourages and facilitates interaction among researchers. The research spaces are open and flexible in their use, and therefore conducive to collaboration among various disciplines. Meeting spaces—scheduled or by chance—abound, including wide corridors equipped with lounge furniture, and conference rooms of various configurations.

The most prominent of all the interactive spaces in the building is an atrium, which serves as a gateway to the labs on the interior of the building and the offices, in an “L” shape along the exterior. The labs are connected to the offices by bridges that cross the atrium. The atrium, with its expansive open spaces, three-tiered skylight providing natural light, and balconies, links to meeting and break rooms and connects to outside terraces. All are spaces that encourage user interface.

The 150-seat auditorium, located at the west end of the center, is designed to be an integral part of the research facility or to function independently of the core research areas. This allows maximum flexibility and maintains the required safety and security functions. The auditorium houses state-of-the-art audio-visual, presentation, wired and wireless features for the exchange of information in and beyond the facility. Every seat has an electrical outlet and data port. Above the



South elevation of the building opens up to an opened landscaped area. With columned arcade, seats, lighting balusters, and trees to form an inviting south facade.



Adding to the quality of interior spaces, the three tiered skylight provides natural light and balconies, links to meeting and break rooms and connects to outside terraces, to encourage user interface.

auditorium is a spacious outdoor plaza that can be used for social functions that may accompany a lecture or symposium.

Features for Researchers

The building is designed to foster interdisciplinary research, changing the culture by altering day-to-day interactions, encouraging researchers to view the same problem from different aspects. Researchers work in “faculty constellations” in areas such as biocatalysis and metabolic engineering, areas that reach across traditional academic disciplines. The new structure supports and promotes these new, non-traditional interactions.

The laboratories are designed in a three-tiered hierarchy:

- Research Laboratories
- Support Laboratories
- Core Laboratories

The Research Laboratories are open labs with no intermediate walls and with no “anchor” functions that would impede their flexibility.

The Support Laboratories support each faculty constellation and are intended to house those activities that are either procedure-specific or equipment-specific. The Support Labs have less need for flexibility, but allow the Research Labs to retain their flexibility. The Support Labs contain such activities as tissue culture, microscopy, and mass spectrometry.

The Core Laboratories house research tools—in many cases one-of-a-kind within the facility—that are available for use by all researchers. These include: 900 MHz NMR, microscopy, glass wash, imaging, etc.

The building is tied into the surrounding campus via an array of streetscape projects, including landscaping, exterior light fixtures, continuation of fencing along the main street of campus, sidewalks, and seating areas. The building blends nicely with the surrounding architectural fabric of the historic campus.

The Center's Structure

On the exterior, the east facade of the building is Flemish-bond red brick, designed to blend with the adjacent historic residential Quadrangle, which lines one of the main roads of Rensselaer's campus. Behind this red brick exterior is a state-of-the-art modern facility extending into the academic heart of campus. The building is tied into the surrounding campus via an array of streetscape projects, including landscaping, exterior light fixtures, continuation of fencing along the main street of campus, sidewalks, and seating areas. The building blends



The research labs are open labs with no "anchor" type functions which would impede their flexibility. Overhead service carriers with all utilities greatly contribute to the flexibility.

nicely with the surrounding architectural fabric of the historic campus.

The building includes many "green" design elements.

The atrium is naturally ventilated through a series of louvers concealed by soffits along the outside of the building. Smoke evacuation fans, required in all atrium areas, vent the space. Walls of the atrium of adjacent offices and labs are designed to temper the atrium space, hence it provides for a substantial energy savings all year around.

The building was designed by Burt Hill Kosar Rittelmann (BHKR) and Bohlin Cywinski Jackson (BCJ). Principals of these firms are graduates of Rensselaer. Construction management was provided by McCarthy Construction. The building was opened for an international biotechnology symposium in September 2004.

It has been an exciting time to see this part of *The Rensselaer Plan* in the making, with all hopes of the momentum that these projects bring to campus. 🏛️

Software for the INFORMED Professional

Our Cleaning Management Software calculates custodial staffing needs using nationally recognized models such as APPA's *Custodial Staffing Guidelines*¹ and ISSA's *358 Cleaning Times*². It's packed with tools that help you understand and manage every aspect of your cleaning operation.

Pocket PC based inspection software is included as an integrated part of the package to help you manage and achieve whatever cleanliness level you staff for. We believe the integrated chemical usage calculation engine is the best in the business and our equipment library tools help you optimize your operations within budget constraints.

After eleven years on the market, the software is in use everywhere from small K-12 schools to the largest universities in the nation. We can help you benefit from the software quickly, through training, data migration, and space inventory collection.

Visit our website to learn about our software and obtain a no-charge copy for evaluation. If you have never experienced the power of an easy-to-use, modern workloading package, you owe it to yourself to look at **CMS 2004**. In a matter of hours you can see where your budget is going and how to significantly improve your cleaning operation.



¹Software developed in consultation with Jack Dudley, P.E., Editor and Co-Author of the First Edition of the *Custodial Staffing Guidelines* and Co-Author of the Second Edition. Mention of APPA does not imply endorsement of the product.

²ISSA Cleaning Times used by permission of ISSA, Lincolnwood, IL., www.issa.com

INFORMED LLC

Telephone: 845.548.6736

www.contractron.com

E-mail: Earthmark@att.net