

# Case study

# Georgia Institute of Technology

## Atlanta, Georgia



## Research institute's green building marks its commitment to sustainability

The Georgia Institute of Technology has a strong tradition in environmental and sustainable education and research. That's why, when the Institute set out to build its new College of Management building, it decided to exemplify this tradition. This cornerstone project of Technology Square, Georgia Tech's new multipurpose complex, achieved Silver certification under the U.S Green Building Council's Leadership in Energy and Environmental Design (LEED®) rating system.

Georgia Tech is one of the nation's top research universities, distinguished by its commitment to improving the human condition through advanced science and technology. The Institute's campus occupies 400 acres in the heart of the city of Atlanta, where more than 16,000 undergraduate and graduate students receive a focused, technology based education. The new Management Building comprises 189,000 square feet of classrooms, offices and learning resource space, including executive education and interdisciplinary centers.

When Georgia Tech decided to pursue LEED certification for the building, Johnson Controls worked directly with the Institute's consultants to provide engineering support during the design phase. For more than a decade, Johnson Controls has been providing building controls to Georgia Tech. In fact the Metasys® building management system on campus is one of the largest installations in the country, involving 85 buildings, including the new Management Building.

According to Leslie Saunders, Director of Capital Planning and Space Management, Georgia Tech has pursued sustainable design in new construction since 1995 when it was written into the Institute's strategic plan. The Institute recognized the long-term economic benefits of sustainable design, its positive impact on the environment and



Students enjoy an open courtyard at Technology Square.

"Having the contractor involved early, makes the process work well and ensures our strategies are maintained."

**DON ALEXANDER**  
INSTITUTE ENGINEER, GEORGIA TECH



The Management Building comprises 189,000 square feet of classrooms, offices and learning resource space.



Technology Square blends education, research, economic development and welcomes the public.

on quality of life for its citizens and wanted to ensure the use of sustainable practices and set standards for others to emulate in future construction. "This step mandated sustainable practices, some of which we had been implementing for many years; for instance energy efficiency, which we've been practicing since the mid-70's, like many other organizations," says Saunders.

The Metasys system has played an integral part in the Institute's energy conservation initiatives by providing more precise monitoring and control of energy using equipment. Similarly, the system is integral to the monitoring and reporting required for LEED certification. Metasys allows for the reading of airflows and pressurization and extra metering that is being done, and provides more advanced recording and documentation.

LEED certification is as much an academic achievement for Georgia Tech as it is an environmental one. Not only is the building a comfortable and environmentally responsible space for students and faculty, it fits with the Institute's plan to incorporate the business of sustainability into its curriculum. "The building shows that we are practicing what we preach," says Dr. Jean-Lou Chameau, Provost and Vice President for Academic Affairs, and founding director of the sustainability program on campus. "It is in keeping with our goal to make sure students have an applied understanding of energy and environmental issues, and how they will affect their world as professionals."

## Walking the environmental talk

While the Management Building is Georgia Tech's first LEED certified building, it is not the only effort in sustainability. Saunders indicates the Institute has required sustainable design to be incorporated into many of its buildings and for the supporting documentation to be supplied.

"LEED however, is a highly recognized process and going through it with the Management Building serves as an example of our efforts to walk the talk in all of our campus buildings," states Bob Thompson, Senior Vice President for Administration and Finance at Georgia Tech. "The building is a major piece of Technology Square, a complex that blends education, research, economic development and welcomes the public. As such, it displays our environmental commitment directly to the Atlanta community," adds Dr. Wayne Clough, president of Georgia Tech.

Environmental features in the building include the continuous monitoring of energy use in mechanical and electrical equipment through the Metasys system. Low-emitting interior paints, sealants and adhesives were used in the construction process along with recycled carpeting, and non-urea/formaldehyde materials in the wood furniture and doors. Special high-filtration systems were installed in the air supply, and copier rooms are separately vented to remove fumes. Also, carbon dioxide monitors alert the mechanical systems to supply more outside air as needed. Most of the indoor air quality and energy efficiency features were also incorporated into the other three buildings and parking deck at Technology Square.

Water conservation measures include a water efficient drip irrigation system and drought resistant native plants, which reduce watering requirements. Bathroom fixtures use only 25 to 50 percent of the water consumed by standard fixtures. The facility also features a high-performance building envelope, reflective white roof, efficient heating and cooling systems and energy saving light fixtures. In addition, no ozone-depleting refrigerants are used in the cooling systems.

## Sustainability goes beyond buildings

"Our vision for sustainability is to engage the campus at large," says Dr. Chameau. "We incorporate practical sustainability in the development of the campus outside of the buildings, and inside the buildings, we advance knowledge about sustainability in our academic and research activities. As my colleagues and I lecture around the world on this subject, I know that the great success of our sustainability initiatives, including LEED, is now being recognized."

According to Dr. Chameau, several of the Institute's degree programs and classes stress sustainability and its application in business and life. Some of these classes have an add-on certificate of sustainability. The Institute has a very active recycling program and is embarking on tree management and reforestation processes and storm water management, in addition to elimination of petrol-based vehicles and the

conversion of surface parking to deck parking. And bicycle trails are being incorporated into roadways. Georgia Tech also hosts the largest and most involved Earth Day celebration in the South.

## Growth and change call for flexible technology and support

According to Saunders, in the last ten years Georgia Tech has almost doubled its academic and research square footage and undergone nearly a billion dollars worth of activity. It is the Institute's intention to continue growing as required to support the changing needs associated with its academic and research mission. "As we do this we will continue to rely on the flexibility of our building controls to maintain a sustainable campus. With a system tied together the way ours is, we're able to do this on both a local scale and on a campus-wide scale," says Saunders.

Georgia Tech's newest building, the Christopher W. Klaus Advanced Computing Building will also include environmental and sustainable features with the goal of a LEED Silver rating. Water conservation will be a key component in achieving certification. The Metasys system will monitor the irrigation system to quantify the amount of storm water and HVAC condensate that is reclaimed. The system will also provide extensive monitoring of utility services. Johnson Controls was again involved early-on in the design cycle, reviewing schematics for consistency. "Having the contractor involved early, makes the process efficient and effective and ensures that we maintain our strategic focus," says Alexander.



Chuck Rhode (left), associate vice president of facilities for Georgia Tech and Dr. Wayne Clough (center), president, tour Technology Square with Paul vonPaumgartten (right) of Johnson Controls.

"As we continue to grow to meet our academic and research mission, we will continue to rely on the flexibility of our building controls to maintain a sustainable campus."

**LESLIE SAUNDERS**  
DIRECTOR OF CAPITAL PLANNING  
AND SPACE MANAGEMENT  
GEORGIA TECH



Bob Thompson (left), senior vice president for administration and finance, Leslie Saunders (center), director of capital planning and space management and Dr. Jean-Lou Chameau (right), provost and vice president for academic affairs overlook the Klaus Advanced Computing Building construction site.



