

OptiNet[®]

THE OHIO STATE UNIVERSITY: Peter L. Scott Laboratory, Columbus, OH

Scott Laboratory was built on The Ohio State University campus in 2006 to provide classroom and laboratory space for the mechanical engineering department. At that time, the laboratory was designed to standards that required high air change rates in laboratory spaces.

Need:

The University put into effect a pilot program to implement an Aircuity OptiNet system to monitor indoor air quality in the laboratories and to optimize energy. OptiNet could maintain lower air change rates during times of "acceptable" indoor air quality yet also ramp up with increased air change rates in the lab spaces if the system detected indoor air parameters outside of the predetermined range.

Results:

The initial results for the nine room pilot project were very positive. The annual energy savings are trending to be over \$61,000 per year, reducing the carbon footprint of this facility by 27.64 metric tons! The payback for the system was 9.7 months. These results have prompted the University to expand the existing system to add more laboratory spaces to the system and increase the annual energy savings. Phase 2 is currently underway and promises the same lucrative results.



CASE WESTERN RESERVE UNIVERSITY: Iris S. & Bert L. Wolstein Research Building, Cleveland, OH

Built in 2003, the Iris S. and Bert L. Wolstein Research Building is six stories tall and encompasses 320,000 square - feet. It was designed to accommodate 900 researchers and is home to some of the world's leading research initiatives. When examining energy use, CWRU's facilities team deemed the Wolstein Research Building to be one of the largest sources of energy consumption on campus.



Need:

The research facility utilized energy-conserving variable air volume (VAV) controls, but the air change rates in many of the laboratories were based on previously established standards; thus, were heating and cooling much more outdoor air than needed to maintain comfort and safety in the lab.

Results:

After OptiNet was installed, the data showed an annual energy savings of \$241,000 with a payback for the system in 1.25 years. The system reduced energy consumption, demonstrated improvement in air quality, while providing continuous real-time data feedback through a password-protected website, making monitoring and tracking easy.

OHIO DOMINICAN UNIVERSITY: Bishop James A. Griffin Student Center, Columbus OH

The Student Center creates a community space to serve the physical, cultural, and spiritual needs of Ohio Dominican students. It represents the "living room" of the campus and is the focal point for student activities outside the classroom.

Need:

Energy conservation was very important to Ohio Dominican. They wanted to assure that this LEED facility be as energy efficient as possible while maintaining comfort for the occupants. The diverse use of this facility including exercise and aerobics, meeting rooms, a bookstore, food preparation areas and eating areas created a challenge for assuring effective ventilation rates without over-ventilation. The wide range of OptiNet sensors including Total Volatile Organic Compounds (TVOC) for exercise and cooking areas, Particulate sensors to detect cooking odors and smoke and Carbon Dioxide sensors to monitor assembly areas were a perfect fit for this complex project.



Results:

The world class facility has created a pristine environment for student activity. The OptiNet system contributed four LEED points towards the overall LEED Silver designation and continues to provide a healthy environment while minimizing energy use.

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DAVENPORT UNIVERSITY: Victor Parkway Facility, Livonia, MI

Davenport University dedicated its first-ever classroom facility in Livonia, Michigan. The 40,000 square-foot facility, at 19499 Victor Parkway, includes 26 classrooms, meeting rooms, an MBA seminar room, a 2,000 square-foot library information commons, conference rooms and several labs on three floors.



Need:

The University wanted to minimize energy use and improve the energy efficiency of their current Heating, Ventilation, and Air Conditioning (HVAC) system. This installation was unique in that Davenport housed a special "in-floor" VAV system.

Results:

OptiNet was compatible with the "in-floor" VAV system and was installed in six zones on three floors. Rather than merely telling the temperature in each zone, the OptiNet Facility Monitoring System was able to monitor the quality of the air in the space (temperature, humidity, small particles, carbon dioxide and monoxide as well as total volatile organic compounds) allowing Davenport to intelligently control each room's airflow in order to increase safety and minimize energy use.

MICHIGAN STATE UNIVERSITY: Food Science & Human Nutrition Building, Lansing, MI

The Department of Food Science and Human Nutrition at Michigan State University ranks as one of the largest in the country, and offers a multidisciplinary field that applies disciplines such as chemistry, microbiology, engineering and nutrition to develop new food products and design new processes to improve the safety and quality of foods.

Need:

The University recognized that the airflow control systems currently in place needed to be upgraded to provide occupant safety and scientific integrity within a cleaner, greener, sustainable laboratory environment.

Results:

The University realized that they couldn't manage what they didn't measure. Ingenuity IEQ installed an OptiNet Monitoring System in the Food Science and Human Nutrition building, the first system of its kind to be used at MSU. The systems Ingenuity IEQ designed operate in response to real-time air quality demands within the laboratories by constantly monitoring airflow requirements based on occupancy, heat loads and air quality. Michigan State University can proudly say that the laboratories in the Food Science and Human Nutrition buildings are energy efficient, healthy, safe, and produce a consistent Return - On - Investment (ROI) through lower energy costs and lower maintenance costs over the life of the labs.



THE OHIO STATE UNIVERSITY: Student Academic Services Building, Columbus, OH

The new Student Academic Services Building (SAS), 127,000 square-foot and six stories tall, was completed in late 2009 and serves as the new gateway to the North side of campus. It has some unique aspects to it, but mostly was a building of necessity. In this case, extravagant design was left to other campus architecture; whereas this building brought together under one roof related departments, previously scattered across different buildings and floors.



Need:

The building required accurate sensing of carbon dioxide levels to assure that each space received adequate ventilation to support the occupants while minimizing energy use. The OptiNet technology also provided valuable points toward the desired LEED Silver designation.

Results:

The information gathered by the OptiNet system interfaces to the building automation system to provide data to facilitate the proper ventilation of each monitored space.