

The Ohio State University – Scott Lab Energy Reduction Pilot Project

Improving Energy Efficiency

Background:

Scott Laboratory was built on the Ohio State University campus in 2006 to provide classroom and laboratory space for the mechanical engineering department. The laboratory portion of the facility utilizes a variable volume HVAC system that exhausts 100% of the airflow to support the research and testing needs of the various professors and students.

The installed laboratory system utilized a state-of-the-art Phoenix Controls laboratory airflow control system. The Phoenix Controls system provides accurate airflow to each space and assures the proper pressure relationships between adjacent spaces to contain any odors and fumes that may result from laboratory activity. The laboratory airflow ventilation system was designed to maintain a high air exchange rate in each laboratory in the event that odors or fumes were released.

Pilot Program:

As the Office of Energy Services and Sustainability at the University began to analyze the energy use rate at this recently constructed facility, it became apparent that this building was a prime target to apply an emerging technology, the OptiNet® system by Aircuity. Aircuity developed an innovative approach towards constantly monitoring air quality within any space within a building. The system uses a “distributed” air sampling approach that routes packets of air on a building-wide backbone to be analyzed sequentially by a suite of high quality sensors. Once each sample is collected and analyzed, the information is used to determine the optimal amount of airflow to be provided to each room for maximum safety, comfort and energy efficiency. Nine laboratory spaces were chosen for this pilot project.

The Result:

The results from this 9 space laboratory pilot project are very impressive. Based on airflow data collected from February 2 to March 16, 2009, the system saved 13,290 CFM of airflow in the Scott Laboratory facility. Based on the current University utility rates, each CFM of airflow costs \$4.60 to heat and cool. **Based on this information, this airflow reduction will save the University \$61,134 annually providing a payback for the OptiNet system of 9.7 months! In addition, the system reduced the carbon footprint of the facility by 27.46 metric tons per year.** The building occupants are impressed that their comfort and safety has not been compromised; in fact, these changes have actually created an improved indoor environment.

Results of this 9 space, laboratory pilot project shows the airflow reduction will save the University \$61,134 annually providing a payback for the OptiNet system of 9.7 months! In addition, the system reduced the carbon footprint of the facility by 27.46 metric tons per year.



Client:
The Ohio State University

Facility type:
Laboratory

Technologies:
OptiNet® by Aircuity

Location:
Columbus, Ohio

Square Feet:
131,000

Number of floors:
3

Date occupied:
2006