OptiNet case study

World Class Pharmaceutical Company

Dynamically Vary Ventilation Rates to Save Energy – Ensure Safety

THIS WORLD CLASS PHARMACEUTICAL COMPANY strives to ensure the efficient and responsible use of energy in their global operations. Energy efficiency is a key criterion when they purchase equipment and services. In 2005, they achieved an 8.6 percent reduction in energy usage over the previous year at their offices, labs and manufacturing facilities in North America.

However, they believe it is important to do even more. For this reason, they have set an aggressive, company-wide goal of reducing energy usage by 25 percent through 2008 from a 2004 baseline (BTU per unit area). To help achieve this goal, their facilities across the globe are undertaking a range of measures that include, among other things: retrofitting or replacing lighting, heating and air-conditioning units; installing high-efficiency equipment; and optimizing chilled water systems.

LABORATORY DEMAND CONTROLLED VENTILATION

One area of significant interest is the reduction of costly outside air required to maintain ventilation rates in the research labs and vivariums. To validate that a clean, healthy, safe environment can still be maintained, while dynamically varying the air change rates, a pilot project using OptiNet in two biology labs and eight vivariums was undertaken. OptiNet's Laboratory Demand Controlled Ventilation application was deployed to dynamically control the dilution ventilation based on the cleanliness of the air, rather than leaving the air change rates at typical design levels.

Biology Labs

- Occupied - 12ACH (as designed) down to 8 ACH
- Unoccupied - 8.5ACH (as designed) down to 4 ACH

Vivariums

- 15 (as designed) down to 6 ACH

Chemistry Labs

- Monitoring only today

ESTIMATED ANNUAL ENERGY SAVINGS: $63,000 – 1.1 YEAR PAYBACK

By reducing the outdoor air flow rates, the operating speeds of the main supply and exhaust fans are reduced. Coupled with the subsequent reduction in heating and cooling requirements for the outdoor air, OptiNet will achieve energy savings of approximately $63,000 per year (@$7.50/cfm).

Laboratories

3,368 CFM savings x $7.50/CFM/year = $25,260/year

Vivariums

5,005 CFM savings x $7.50/CFM/year = $37,538/year

Total Savings

$62,798/year

OptiNet™
Energy Savings, Safety, and Comfort for Today's Smart Buildings

AIRCUITY®

39 Chapel Street ▪ Newton, MA 02458 ▪ 617.641.8800 ▪ 617.969.3233 fax ▪ www.aircuity.com