



Regulating Airflow for Energy Savings

Savings Summary

Commercial Project

- 174,060 kWh annual savings
- 204.9 kW peak demand reduction
- 4,929 therms annual savings
- Incentive: \$26,325

Industrial Project

- 765,998 kWh annual savings
- 55 kW peak demand reduction
- 6,065 therms annual savings
- Incentive: \$58,500

Overall payback
10 months

Total Calculated Energy Savings
\$234,000

The Challenge

Laboratory ventilation systems are designed not only to condition the space, but also to remove harmful chemicals from the air, particularly in the event of an accident. Since airflow continues even when labs go largely unoccupied, energy costs and emissions continue to accumulate — and because of the wide variety of laboratory types, few standardized codes exist to help designers conceive custom, energy-efficient solutions.

When an international medical diagnostic and blood test developer and manufacturer set out to build a new 135,000 square foot research building with multiple laboratories in Pleasanton, California, designers faced a challenge: how to design a large, multi-lab facility and still keep energy costs and emissions down. Additionally, the team was determined to meet LEED registration requirements and capture other ways to save.

The Solution

To ensure a safe, sound and cost-efficient design, the company turned to Pacific Gas and Electric Company (PG&E). After a thorough analysis of the design documents, in collaboration with an engineering firm, PG&E came back with a comprehensive plan, including initial cost estimates, available incentives, and paybacks.

Commercial Savings Plan

- Low-emissivity (Low-E) Glass
- Occupancy sensors for lighting
- High efficiency T8 lights
- Demand-controlled ventilation
- “Cool roof” roofing system that absorbs less solar heat

Industrial Savings Plan

- Retrofits for existing chillers that would service the new building with variable frequency drives (VFD) and optimal staging
- Low pressure drop air delivery systems
- Unoccupied airflow setback
- Reduction in air changes per hour (ACH) from 12 to 10

After carefully reviewing the recommendations PG&E and the engineering firm set forth, the company's designers ended up implementing all but one of them — only the VFD on the chiller was rejected due to an already planned replacement of it the following year.

Results

With an estimated incremental cost (after incentives) of \$182,000 and an annual calculated energy savings of \$234,000, the project was considered a great success. This resulted in a simple payback of just under 10 months. The design will save about 940,000 kilowatt hours (kWh) every year over the base design and achieve over 250 kilowatts (kW) in demand reduction capacity. Design assistance from PG&E was provided at no additional cost.

Learn More

To learn more about PG&E's energy audits, technical assistance and energy management incentives for laboratories, call your account manager or the PG&E **Business Customer Service Center** at **1-800-468-4743**, or visit www.pge.com/mybusiness.