Retro-Commissioning—Case Study

Retro-Commissioning

Ethicon

Somerville, NJ

Project details

In an effort to understand the energy/conservation reduction benefits of Retro-Commissioning (Retro-Cx) a building’s HVAC/mechanical system, PSE&G, under the New Jersey Commercial & Industrial Building Operation and Maintenance Program, provided the funds to complete two pilot Retro-Cx case studies.

Initially built as a manufacturing facility for sutures, the facility has undergone numerous renovations since it was built in 1957, manufacturing takes up less than 15% of the facility with the rest serving as admin/office space and product storage. The retro-commissioning pilot study involved design reviews, field-testing, and engineering analysis to uncover and resolve issues pertaining to the building’s HVAC/mechanical systems including the air handlers and air distribution systems.

Project elements included development of the current design intent, review of the BMS and building’s operating schedule, trending and data logging to identify areas not in conformance, design and installation reviews, functional testing of the air handlers and air distribution systems, performance testing of the VAV boxes, damper operation, flow meter calibration, and verification of the system balance and air flow to the various spaces. In addition, physical inspections of the air handlers for proper filtration, air intake and condensate drainage as well as spot readings of CO₂ were taken to evaluate IAQ related issues.

The study identified 231 energy conservation/reduction issues. Half of the opportunities involved optimizing the operating schedule for the air-handling units during normal and off-hours. Other sizable opportunities for savings include modifications to eliminate unnecessary steam consumption, utilization of optimal start to decrease run time of all units, calibration of a supply airflow meter, rebalancing of VAV systems (variable air volume) and calibration/repair of various sensors.

With project and implementation costs of $53K and combined annual electrical and gas savings estimated at $48K, the project’s payback period is 1.1 years.

Project Profile

- **Type of facility**—Pharmaceutical—multi-use (admin, manufacturing and product storage)
- **Size**—180K Sq. Ft.
- **System**—Chillers, Cooling Towers, AHUs, vav boxes, Boilers, etc.
- **Financing**—PSE&G under the NJ Commercial & Industrial Building Operation & Maintenance Program.
- **Annual Energy Savings**—$48K in gas & electric savings
- **Project & implementation Costs**—$53K
- **Payback**—1.1 years