

Plant Sciences Lab #0256

Building Gross Sq.Ft.: 100,847

Retrocommissioning May 2014 —Jul 2014

Team Visit Period:

Principal Building Use: Offices, Classrooms, Greenhouses



Building & Occupant Overview

Plant Sciences Laboratory was built in 1988. There is only one major air handling unit serving the main building. The unit is a true dual duct VAV AHU with one supply fan and one return fan. Each of the greenhouses have a dedicated fan arrangement with a supply fan, exhaust fan and in most cases a swamp cooler. These units were not a focus during the retrocommissioning visit. There are also nine (9) fume hoods served by a dedicated fan and a general exhaust fan for the building. Building heat is provided by a hot water radiation system that also serves hot water to greenhouses and the main AHU hot duct valve. Cooling is provided by a dedicated chiller with an indoor cooling tower in the penthouse. The building controls consist of a combination of a Siemens modular for the AHU and Argus controls on the greenhouse units.

The facility's total metered energy during FY13 was 38,571 MMBTU.

Retrocommissioning Specifics & Results

The air handling units (AHUs) providing air conditioning were maintaining space conditions in offices and classrooms based on an assumed schedule without input from the people occupying the spaces. The primary energy conservation method was scheduling the AHUs off during tighter non occupied hours based on actual utilization. Exhaust grilles in most spaces were drastically reduced (or removed completely) since the original design intent of spaces have changed over the years. For example, a former dark room had been converted to a kitchenette and nothing had been addressed with respect to the ventilation, so over 450 cfm was cut from this room alone. Missing insulation on the steam entrance was corrected on steam and condensate lines alike.

To maintain comfort conditions, all thermostats and VAV's were calibrated and inspected for proper operation. There are approximately 58 VAV's in the building. The airflows were also balanced allowing in many cases for a reduction in flow to the spaces, resulting in fan energy savings without compromising comfort.



Project Highlights

- Rebalanced exhaust system and reduced overall flow by ~1,600 CFM
- Calibrated all sensors and transducers
- Visited each VAV and thermostat and calibrated accordingly
- Modified existing scheduling to better match building usage
- Verified outdoor air percentage is correct for space, was zero upon entry
- Added building pressure sensor and took time to ensure building will stay positive during normal operation
- Sealed mechanical room wall cavity to reduce unnecessary exhaust
- Insulated several steam and condensate lines