Noyes Chemistry Lab

Building Gross Sq.Ft.: 184,700

Retrocommissioning January 2019-April 2019 **Team Visit Period:**

Principal Building Use: Offices, Classrooms, Labs

Building & Occupant Overview

Noyes laboratory was built in 1902 and has had major renovation in several phases throughout the last decade. The utility bills at Noyes are \$800-900k/year, but the bills will be reduced by \$200,000/year due to renovations by the retrocommissioning team. 50-60% of the building has VAV with room level DDC controls.

There are multiple exhausts in the building including: ~150 fume hoods (~100 instructional), >100,000cfm lab exhaust, and several fume hoods with no make-up air.

We provided recommendations for future building improvements.



Project Highlights

□ Replaced failed transducers for VAV boxes

□ Reduced average hours of exhaust from 84 hrs/week to 32 hrs/week

2nd exhaust fan runs only when needed from 24x7 to 3 days (30hrs)/week

- Projected 40% reduction in total energy
- Projected savings \$300,000/year
- □ 65% reduced exhaust
- □ 38% reduced EF energy
- □ Add VFDs (z) to large SOHP fume hood exhaust fans
- □ Identified hot water heating pipes that were reversed.

Retrocommissioning Specifics & Results

The retrocommissioning team worked to replace failed transducers for VAV boxes, reduce average hours of exhaust from 84 hrs/week to 32 hrs/week, and have 2nd exhaust fans run only when needed (reducing the time from 24/7 to only 30hrs/week. This resulted in a 65% reduced exhaust leading to cooling and heating savings. Additionally, there was a 38% reduction in exhaust fan energy, by going down from two exhaust fans to one whenever possible.

Energy reduction is projected to decrease by 40% with an annual savings of \$300,000. Exhaust fans were turned off in vacant labs and the make-up unit was turned off during the summer.

The retrocommissioning team also worked with teaching staff to get teaching lab chemicals put away nightly to reduce occupied airflow and fume hood use. There is great opportunity for energy savings as room assignments and teaching methods change. Good cooperation was achieved with the departments input.

