

Retrocommissioning

Retrocommissioning employs a systematic approach to a building's mechanical systems. A team of engineers, field technicians, and tradesmen study the design and operation of a building to bring it to optimal operating conditions and identify energy conservation opportunities.



Krannert Center
for the Performing Arts

Retrocommissioning...

- Is a systematic approach to restoring optimal operating conditions to building mechanical systems
- Provides essential maintenance, improves customer satisfaction, saves energy and reduces the Urbana-Champaign campus carbon footprint
- Saves utility costs

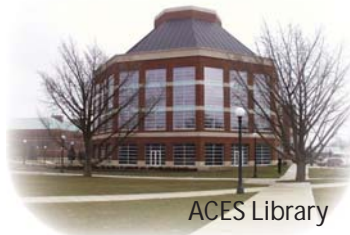
Elements

Retrocommissioning Team

- Multidisciplinary team composed of:
 - Engineers experienced in:
 - HVAC & Associated Controls
 - Energy conservation
 - LEED® guidelines
 - Journeymen
 - Electrical
 - Pipefitting
 - Sheet metal
- Current team members (Team qualifications and background information attached)
 - Karl Helmink, P.E.
 - Damon McFall, E.I.T.
 - Mike O'Brien, P.E.
 - Ted Carico
 - Todd Nicholas
 - Chuck Jenkins



Newmark Civil Engineering
Building



ACES Library

Building Criteria

- Buildings are selected using multiple criteria, with higher energy use buildings as higher priorities
 - Criteria may include:
 - High energy consumption
 - Building Age
 - Department request
 - Retrocommissioning team evaluation

Project Funding

- Retrocommissioning is funded through student fees provided to Facilities & Services.
 - For some larger projects, funding maybe taken from deferred maintenance resources provided the projects are also a part of the deferred maintenance backlog



Retrocommissioning Process



Turner Hall

Overview

- The process on the U of I campus is focused on reviewing and improving building mechanical air and hydronic systems, while maintaining occupant comfort
1. Engineers undertake a thorough investigation of available building documentation, energy usage history and similar pertinent data
 2. Field technicians and tradesmen gather data regarding operating conditions, sensor accuracy, equipment condition, and historic maintenance data in addition to conducting client interviews
 3. The composite teams discusses findings and then looks to restore mechanical systems to their original design or implement energy saving improvements
 4. The team takes the lead in making small changes and recommending larger projects to Engineering or Maintenance to sustain the building's energy savings strategies
 5. Capital projects are created and turned over to Engineering for funding and actualization

Execution

- Technicians adjust, experiment, and implement energy saving strategies at each air conditioning or heating unit in the building
 - Building occupants can expect:
 - Intermittent starting and stopping of building systems
 - Some noise
 - Perhaps some century old dust spewing out of air diffusers
- Team members stop at each room to make sure the thermostat is working properly, typically requiring investigation of the ceiling above
- A list of items may be developed and then handed over to a Maintenance crew to assist in following through on the needed changes
 - Maintenance crews may reside in the building a few months after the Retrocommissioning team has moved on
- Primary goal is maintaining occupant comfort while saving energy

Completion

- The most important and overarching result of retrocommissioning projects is the reduction in a building's energy usage
 - For completed projects, retrocommissioning has projected savings of \$1.8M annually
 - On average, the building saves 27% in energy usage and energy costs
- Buildings that have had retrocommissioning completed may experience increased monitoring of the building's systems to help maintain annual energy savings and occupants' comfort

Completed Buildings

- Retrocommissioning has already completed over 1.9 million square feet of system updates and upgrades in campus buildings, including work in:

<ul style="list-style-type: none"> ▪ ACES Library ▪ Newmark Civil Engineering Building ▪ Krannert Center for the Performing Arts ▪ National Soybean Research Center ▪ Turner Hall ▪ Smith Music Building 	<ul style="list-style-type: none"> ▪ Mechanical Engineering Laboratory ▪ Animal Sciences Laboratory ▪ Madigan Lab ▪ Chem-Life Science ▪ Wohler's Hall ▪ Loomis Lab
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