

Session 10 –roundtable – Labs and Controls Systems

- UIUC Controls group: Sanja Koric
and Jake Mathis

What does it take?

- Design of Labs equipment & Controls System, and System Architecture
- Installation
- Commissioning and BAS Integration
- Maintenance and Programming
- Graphics and web
- Licensing and Software upgrade and support

UIUC Vendors /TCC

- Siemens Apogee and Siemens BACnet
- Schneider Electric Building System SmartStruxure, and I/A Series (BACnet)
- DELTA V -utilities

Projects examples

– Vet Med ESCO

- Scope Overview (limited to controls)

- BSB

- » Upgraded all AHU controls
 - » DDC on all VAV boxes (~500)
 - » Installed Phoenix Lab Controls
 - » Removed individual exhaust fans and set a new heat recovery unit to common header everything together
 - Heat recovery loop is used as 1st stage of heat for AHUs

- SAC & LAC

- » Removed 10 existing AHUs and combined into four larger units with energy wheels to reduce maintenance costs
 - » Upgraded all AHU controls on existing units that were not replaced
 - » Added a large rooftop AHU with energy wheel to replace several AHUs
 - » Implemented Air-cuity systems in animal wards to provide demand response

Construction and Execution

- Contractors
 - ESCO (ESG) was general
 - TC was prime (consistent for all buildings), mechanical was prime (contractor varied in each building)
- Construction and execution - who buys what?
 - Mechanical
 - » VAVs, AHUs, VFDs,etc
 - TC
 - » Control valves, dampers, phoenix valves and controls
- Equipment (Air Valves)
 - Phoenix was selected for lab controls (talk about pros/cons)
 - » Other current alternatives include Accutrol (schneider hybrid), Siemens, CRC
- Room Layout and Devices
 - Supply air valve with reheat coil, general exhaust air valve, fume hood air valve, zone presence sensor, sash sensor, fume hood monitor device, occupancy sensor

Programming and Graphics

- Programming and Graphics
 - Integrations
 - » Phoenix --> Lon --> macroserver --> bacnet/ip
 - Relatively simple template for each room
 - Limited capability for overrides, factory has to make programming adjustments

ACH Rates & Pressurization

- --> have been using flow tracking instead of pressure
 - Occupied and working in front of the hood
 - Occupied with no one in front of the hood
 - Unoccupied
 - Process to store chemicals when not in use so hoods don't run 24/7
- Cx was done by a 3rd party contractor (Sieben) and UIUC Cx staff followed closely along

Other Projects

- Other projects with Fume Hood Controls
 - Beckman (Siemens)
 - MSEB (Siemens)
 - Chem Annex
 - More ESCOs
- Instrument Calibration

Open Discussion

