





Energy & Operations Improvements with Existing Equipment

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- Sensors (calibration & location)
- OSA dampers (often break)
- Unneeded BAS overrides
- Schedules
- Lighting controls



Turn Things Off

- Sensors for lighting & terminal boxes
- Demand-control ventilation in select locations
- Check interval meter data for night loads, compare to other sites

- Enthalpy OSA control
- CHW temperature reset
- Duct static pressure reset
- Free-cooling mode (OSA WB & tonnage permitting)
- Discharge air temp reset

Adjust Zones

- Designers frequently use incorrect occupancy numbers
- Space occupancy changes
- Resurvey space
- Adjust box minimum and maximum settings to ASHRAE 62
- Check balancing

Retro-Commissioning

- May be necessary to make anything else work
- Scope & cost highly variable
- There is no fixed process
- Skill set of providers critical
- May reprogram, fix things, deviate from original design

- In early development
- Limited number of products
- Basic types: real-time (loaded to controllers); trend-based
- GSA R9: PACRAT (trend-based); NIST VPACC (real-time)

- Programmed to VAV controllers
- Totalizes errors, looking for several performance conditions
- Requires programmable boxes
- May be interfaced to CMMS for work order generation

- Trend data based
- Major equipment (central plant, AHUs)
- Requires significant training to configure
- GSA R9 runs quarterly
- May centralize data acquisition
- Must accommodate various trend formats