



## Using retro-commissioning to verify your systems' performance

From saving energy and conserving water to reducing carbon dioxide emissions and improving indoor environmental quality, retro-commissioning (RetroCx) is a quality-oriented process that documents the performance and energy efficiency of an existing building's systems against defined objectives and criteria.

This systematic process can help building owners identify low-cost operational and maintenance improvements in existing systems as a method of bringing the systems up to the design intentions and improving usage performance.

When you are ready to verify your building's performance, let Hanson's experienced team help you.

## The Retro-Cx Process

The Retro-Cx process consists of four phases: planning, investigation, implementation and hand-off/acceptance.

### Planning Phase

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- Select in-house team
- Define scope, objectives and deliverables
- Engage RetroCx provider
- Develop RetroCx plan
- Hold a kick-off meeting

### Investigation Phase

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#### Data Collection

- Collect as-built building documentation
- Collect utility bills – typically monthly bills for past three years with charges broken down where possible (i.e., consumption, demand, fuel charge, tax, etc.)
- Complete a site assessment
- Obtain trend logs from Building Automation System and/or field-installed data loggers
- Complete functional performance testing
- Analyze trend logs, reviewing equipment status and compare against schedules, identifying analog readings that appear out of range, checking for alignment with sequence of operations, etc.
- Determine interactivity of various measures
- Consider all costs for implementation: capital, O&M, replacement
- Include projected escalation in utility rates
- Calculate payback/return on investment
- Develop master list of findings

#### Analysis

- Analyze utility bills (calculate benchmark numbers, compare against database averages, establish weighted unit cost for utilities)

### Implementation Phase

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- Meet with client to select measures from those recommended under the investigation phase
- Develop a detailed implementation plan, defining scopes of work, budgets and schedules
- Engage internal O&M personnel or outside contractors to perform work
- Verify and document results

### Hand-Off/Acceptance Phase

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- Develop persistence strategies
- Offer building operator training
- Engage staff, explain roles and responsibilities
- Learn to spot “energy saving opportunities”
- Train senior operators to be future trainers
- Determine supporting documentation, including re-commissioning plan
- Provide final RetroCx report

## Highlights of our experience

Our Retro-Cx project experience includes services for:

- Duke University, Levine Science Research Center MER Phase II, Durham, N.C.
- Orlando Health Main Campus, West Central Energy Plant, Orlando, Fla.
- Brevard County Schools, Brevard County, Fla.
- Koke Mill Medical Complex, Springfield, Ill.
- Turlington Building, Tallahassee, Fla.
- Eastern Illinois University, 14 facilities on campus, Charleston, Ill.
- Memorial Health Systems, data center upgrade, Springfield, Ill.

