

Retro-Commissioning Services

Systematic Identification of Building Deficiencies



TRANSPARENT, SYSTEMATIC TESTING THAT REPLACES SUBJECTIVE INTERPRETATIONS OF BUILDING CONDITIONS WITH TIMELY, TANGIBLE DATA ON FUNCTIONAL PERFORMANCE

CM3 has been delivering installation and maintenance services for HVAC and Building Automation Systems for more than 20 years.

In our experience, the complex infrastructure of buildings, combined with their maintenance and actual usage, can cause these systems to move away from their original design. This diminishes comfort, shortens equipment life, and increases energy consumption.

CM3's retro-commissioning services help customers enhance efficiencies and comfort by baselining their operations and illuminating pathways for repair and refurbishment, rather than total replacement.

THE RETRO-COMMISSIONING STUDY

Our multi-faceted Retro-Commissioning Study eliminates the costly engineering analyses that typically recommend equipment replacement. Instead, the RCx Study identifies cost-effective pathways for repair and refurbishment.

-  A systematic process to quickly identify deficiencies and prioritize repairs based on severity and impact
-  Performed by a standardized review and test of each mechanical system
-  Comprehensive report with repair recommendations

Testing

Pre-functional Testing

- » Verification of original installation
- » Documentation of mechanical faults

Functional Testing

- » Testing and verification of DDC or Pneumatic outputs
- » Verification of DDC analog inputs using calibrated testing equipment
- » Verification of digital inputs and safeties where applicable

Reporting

Equipment Overview Report

Includes pre-functional and functional testing documents along with photographs and notes from field personnel.

Corrective Action Report

Corrective Actions are itemized by building then by unit. Each issue regardless of size or impact will have a single line entry and photograph (where applicable).

WHEN TO USE RCX

- » Baselineing a building
- » Operations staff turnover
- » Developing a new project/ renovation
- » Purchase of a building

WHY CHOOSE RCX OVER BUILDING ASSESSMENTS

Unlike Building Assessments conducted by Engineering Firms which typically focus on estimated equipment lifecycles, the Retro-Commissioning Study delivers an in-depth, functional look at the actual equipment. It identifies the real-time status of the equipment, not expected lifecycles, and specifies what can be done to correct, enhance and extend the useful life of that equipment.



RCX AS A FACILITIES MANAGEMENT TOOL

The Retro-Commissioning Study illuminates the pathway for repairs and refurbishment and is part of a comprehensive facilities management program, involving repairs, maintenance and ongoing monitoring.

RCx Study

- » Determine Study Scope of Work
- » Complete Field Study
- » Identify Corrective Actions
- » Provide Recommendations
- » Provide Turnkey Solutions
- » Identify Funding Solutions
- » Identify Incentive Opportunities
- » Determine Improvement Scope of Work

RCx Repairs

- » Customize Scope of Work
- » Implement Corrective Actions
- » Update Issues Log
 - » Open vs Closed
 - » Before/After photos
 - » Customer sign-off
 - » Incentive close-out
- » Submit Project Close-Out Report
- » Verification of Success

Continuous Services

- » Monitoring
- » Ongoing Measurement & Prioritization of Repairs
- » System Testing & Performance Verification
- » Maintenance & Corrective Actions
- » Documentation for Funding/ Incentives
- » Regular Reporting to Key Stakeholders

Future/ Phased Solutions

- » Continuous Services (MBCx)
- » Maintenance Programs
- » Update RCx Study (3 - 5 years later to monitor success, reform, & improve)



BENEFITS

- » Decreased downtime of mechanical equipment (versus replacement)
- » Increased building comfort
- » Provides a detailed analysis of tested equipment
- » Provides actionable data with detailed corrective actions
- » Returns building to its optimized commissioned state
- » Allows for more effective implementation of energy conservation measures and strategies
- » Provides a dashboard for verification and tracking of your investment (when MBCx is requested)

DIAGNOSTICS EXAMPLES

- » Damper actuators and Variable speed drives not adjusting
- » Unconnected flexible ductwork
- » Belts and valves malfunctioning
- » Control systems components not following prescribed control sequences
- » Incorrect sequences of operation
- » Energy management systems not updated to reflect system modifications
- » Changed facility uses and partition configurations causing suboptimal air flow
- » Controls sensors improperly placed, out of calibration, or permanently overridden
- » Equipment problems: breakdown of dielectrics, degraded fluids, failed batteries, leaking seals, and flattened bearings
- » Hot and chilled water valves passing water resulting in comfort complaints and higher energy consumption

TYPES OF COMMISSIONING

Commissioning (Cx)

Designed for a newly constructed building or major building addition. Applied from project inception to initial occupancy.

Retro-commissioning (RCx)

Applied to buildings that have not been commissioned or have been modified without additional commissioning. A starting point for the building improvement process. All building systems are baselined for their performance.

Re-commissioning

Applied to buildings that have already been commissioned. A process that typically involves both testing and repairs.

Monitor-Based Commissioning (MBCx)

Advanced testing that uses AI-based technology to focus on building operations, energy performance, and end-user comfort. This approach can immediately alert to deficiencies and/or proactively prevent them.

Once a building is analyzed and the appropriate commissioning services are provided, any energy conservation measures implemented will help improve peak efficiency.

ENERGY PROGRAMS & GRANTS

CM3 participates in many utility, local, state, and federal energy efficiency initiatives as a Trade Ally or Approved Energy Provider. As new programs are implemented in our customer's territories, CM3 continues to apply and qualify as an approved energy efficiency partner wherever our customers need us. And, for all projects, we assist our customers with rebate and grant documentation.

Examples:

