

Building Commissioning/Energy Performance Contracting



INBALANCE, LLC

www.inbalancebuildings.com

430 N. Michigan Avenue

Second Floor

Chicago, IL 60611

866.930.6111

What is building commissioning?



Building Commissioning is - a systematic and documented process of ensuring that the building owner's operational needs are met, building systems perform efficiently, building operation and maintenance manuals are up to date, and building operators are properly trained.

Types of building commissioning



- **New Building Commissioning:** is used on new buildings or major renovations of existing buildings.
- **Re-Commissioning:** is used on buildings that have been previously commissioned.
- **Retro-Commissioning:** is performed on buildings that have never been commissioned.

What is new building commissioning?



- **New building commissioning** – ideally starts in the pre-design or design phase of a project and goes through construction.

The focus is typically on the heating ventilating and air conditioning. Other systems to consider include the building envelope, emergency power, and any other system that has been a problem for the building owner on previous construction projects.

What is re-commissioning?



- **Re-commissioning is** - to commission a building that has been commissioned before. This commissioning is done to ensure that the building is operating optimally and all systems are functioning as originally intended.
- Studies have suggested that buildings should be re-commissioned every three to five years.

What is retro-commissioning?



Retro-Commissioning is -

- **Retro-commissioning or (RCx) is** - to commission a building that has never been commissioned. This commissioning is done to establish a benchmark for performance, and to ensure that the building is operating optimally and all systems are functioning as originally intended.
- A systematic process for improving and optimizing a building's operations and maintenance.
- Usually focused on energy-using equipment such as mechanical equipment, related controls, and lighting.

What are the benefits of retro commissioning?



The many documented benefits resulting from retro commissioning include:

- Improved system operation: beyond preventive maintenance
- Improved equipment performance
- Increased O&M Staff Capabilities and Expertise
- Increased asset value
- Energy savings
- Improved Occupant Comfort
- Improved indoor environmental quality (IEQ)
- Improved building documentation

What is the goal of retro-commissioning?



- To identify and fix existing problems, such as indoor air quality, ongoing maintenance and system failures, and to improve the energy efficiency of the building.
- To provide a facility that meets the current needs of the building owner and occupants.
- To provide training for facility operators on the operation and maintenance of the existing building systems.

What does retro-commissioning involve?



- Verifying and documenting existing building systems' performance.
- Testing HVAC systems' performance to ensure that they meet the current needs.
- Identifying and recommending low cost and no cost solutions to existing building problems.

When to retro-commission



- If the building has never been commissioned.
- If the original usage of the building has changed.
- If the building is experiencing:
 - occupant comfort complaints.
 - indoor air quality problems.
 - higher energy costs.
 - numerous operation and maintenance problems.

Developing the retro-commissioning work plan



What should be budgeted for retro-commissioning?



- \$0.40 to \$1.20 per square foot depending on the complexity, size and location of the building.
- General housekeeping done before commissioning can help reduce costs.
- Assigning maintenance staff to assist the commissioning agent can also help reduce the cost and it provides a good training opportunity.

Estimated Savings from Retro Commissioning



Field data shows that the typical energy cost savings and operating cost savings from retro commissioning ranges from 5% to 15% with a payback period of less than 2 years. Savings vary depending on the building type, its location, and the scope of the retro-commissioning process. A comprehensive study found average cost savings in the following ranges:

<u>Description</u>	<u>Range of Savings</u>
Value of Energy Savings per year	\$0.11 - \$0.72/sq. ft.
Value of Non-Energy Savings per year	\$0.10 - \$0.45/sq. ft.

Hatfield Courthouse Example



- General Services Administration (GSA) initiated a full retro-commissioning study of the Hatfield Courthouse, a U.S. federal courthouse located in Portland, Oregon. Built in 1997, the Hatfield Courthouse features 21 floors and a gross square footage of 589,000.
- The Retro-Commissioning process resulted in a 10% reduction in energy use and significant improvements in building comfort and system operations.
- Retro-Commissioning also increased the building's ENERGY STAR rating from 65 to 75.
- The project cut annual utility costs by about 10 percent, or \$56,000.
- The project cost (including investigation and implementation, and project oversight costs) was \$180,554.
- Incentives and tax credits brought that number down to \$154,772, or about \$0.29 per square foot.



Are there incentives available for retro-commissioning?



YES!

- ComEd Custom Application incentives are available for retro-commissioning, thru the Smart Ideas Program
- Utility companies in other geographic areas have similar incentive programs
- Retro-commissioning services can be performed at NO initial cost, with fees paid through a Performance Contract

To learn more, please contact us



www.inbalancebuildings.com

Call us: (866) 930-6111

Email us: info@inbalancebuildings.com