BEYOND SMART CITIES

CERTIFIED COMMISSIONING AUTHORITY CXA EXAM PREP

KRISHNAJI PAWAR, LEED AP BD+C,GSAS CGP,ISO 14001:2015,GCP
COMMISSIONING SPECIALIST CURRICULUM





RETROCOMMISSIONING

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LEARNING OBJECTIVES



- Retro-commissioning
- Retro-commissioning Process
- When is Retro-Commissioning Recommended?
- Retro-commissioning vs commissioning
- Retro-commissioning Process
- Retro-commissioning Report
- Benefits of Retro-Commissioning

RETRO - COMMISSIONING

- Retro-commissioning involves applying the commissioning process to an existing facility that was not previously commissioned. It encompasses evaluating, testing, adjusting and correcting building systems so that energy and resources are conserved, comfort is improved, productivity is maximized, and operations and maintenance procedures are enhanced to meet all of the owner's current facility requirements.
- Both Recommissioning and Retro-commissioning are performed on buildings that are functionally complete and normally already occupied.



RETRO-CXA VS. COMMISSIONING

- Unlike the Commissioning process for new construction, in Retro-commissioning there is no shared responsibility. This is the first of two major distinctions between Commissioning and Retro-commissioning.
- In Retro-commissioning, there is no Design Professional or construction contractor to share Commissioning responsibilities, activities, or results.
- In Commissioning, problems could often be attributed to design or construction flaws, and corrective action given to the appropriate party. However, in Retro-commissioning, the owner has the responsibility to correct any problems that are discovered.



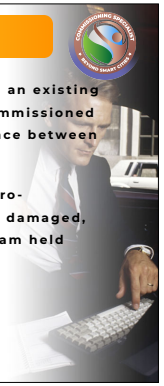
WHEN IS RETRO-COMMISSIONING RECOMMENDED?

In general, a retro-commissioning project can yield a higher return on investment in older buildings, or buildings that have never been commissioned before.However, there are many situations that indicate building systems must be checked and tuned:

- Recent occupancy change:
- Increasing energy consumption
- Increasing occupant complaints:



RISKS INVOLVED IN THE RETRO- CXA



Most of the major risks involved in Retro-commissioning an existing structure involve the fact that buildings being Retro-commissioned are usually occupied, which is the second major difference between Commissioning and Retro-commissioning.

There are also potential security risks involved with Retro-commissioning, as information, equipment, etc. could be damaged, lost, or thought stolen, with the Retro-commissioning team held liable.

RETRO-COMMISSIONING PROCESS



The steps of the Retro-commissioning process, each of which must be fully documented, are as follows:

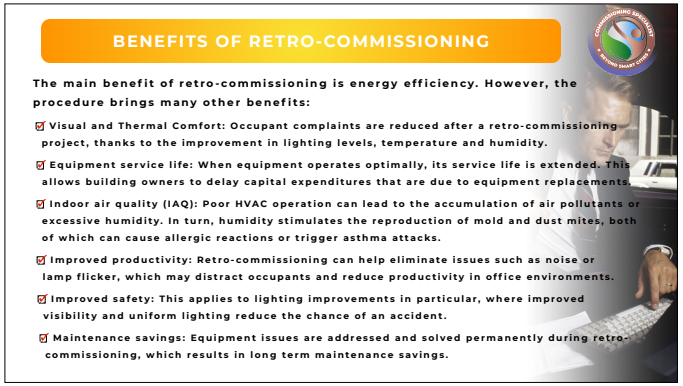
- ☑ Evaluate the project, including the entire scope and Retro-commissioning projects in order of importance; develop a Retro-commissioning plan and a cost estimate, variable for smaller projects which the owner may or may not decide are important to him/her.
- ☑ Complete individual component testing (Phase I).
- ☑ Document the results of component testing, including any recommendations.
- ☑ Complete systems testing (Phase II).
- ☑ Write a Retro-commissioning report.
- ☑ When necessary, make additional corrections & modifications, and re-test as required (Phase III)
- ☑ Transition the testing and actions to the building's operations and maintenance staff

RETRO-COMMISSIONING REPORT



To write a Retro-commissioning report, which is the fifth step of the Retro-commissioning Process, the Retro-commissioning Authority should evaluate the results of the Retro-commissioning Program thus far and prepare the report for the owner. After the report has been written, it should be reviewed with the owner. The report should be detailed (not just summarized) and the topics that should be covered include:

- ☑ All data and discussions for tests
- ☑ Any successes achieved or unsolvable problems encountered
- ☑ Improvements made
- ☑ Tangible and intangible benefits to occupants and costs, including any energy- use reductions
- ☑ Expectations of continued performance or possible future problems
- ☑ Recommendations for the owner's operations and maintenance staff for ensuring optimization of the Retro-commissioned systems and equipment


BENEFITS OF RETRO-COMMISSIONING
The main benefit of retro-commissioning is energy efficiency. However, the procedure brings many other benefits:
Visual and Thermal Comfort: Occupant complaints are reduced after a retro-commissioning project, thanks to the improvement in lighting levels, temperature and humidity.
Equipment service life: When equipment operates optimally, its service life is extended. This allows building owners to delay capital expenditures that are due to equipment replacements.
Indoor air quality (IAQ): Poor HVAC operation can lead to the accumulation of air pollutants or excessive humidity. In turn, humidity stimulates the reproduction of mold and dust mites, both of which can cause allergic reactions or trigger asthma attacks.
Improved productivity: Retro-commissioning can help eliminate issues such as noise or lamp flicker, which may distract occupants and reduce productivity in office environments.
Improved safety: This applies to lighting improvements in particular, where improved visibility and uniform lighting reduce the chance of an accident.
Maintenance savings: Equipment issues are addressed and solved permanently during retro-commissioning, which results in long term maintenance savings.


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