

ROLE OF COMMISSIONING IN EQUIPMENT PERFORMANCE

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“Commissioning is a quality focussed process for enhancing delivery of a Project”



Forward to ASHRAE Standard 202-2013

- **Commissioning process begins at project inception and shall go on through the life of the facility. Starts at predesign and does not end.**
- **Process shall include specific tasks to be performed to evaluate if the design, construction, testing, documentation, operation and training meets the owner's project requirements.**

➤ Using an integrated commissioning process results in a fully functional fine tuned facility with complete documentation and trained operations and maintenances personnel.



Stages of the Commissioning Process

1. Initiation – By Project Owner

- Determine scope of the process
- Select Cx Process team leader
- Select Cx Process team
- Establish Cx Budget



Stages of the Commissioning Process

2. Establish Owners Project Requirements

- List and define systems and assemblies to be commissioned.
- They shall have defined project performance and acceptance criteria.
- Needs to be regularly updated.

Stages of the Commissioning Process

3. Commissioning Plan

- Provide organization, documentation requirements and tools to evaluate and document.



Stages of the Commissioning Process

4. Basis Of Design

- How the design team proposes to meet Owner's Project Requirements.
- Enables owner to have better understanding of design issues.
- Secure owner's approval for critical design decisions.

Stages of the Commissioning Process

5. Vendor requirements

- Commissioning specifications to be developed for all systems and assemblies.
- Applicable specifications to be part of all contract documents.
- Vendors to provide necessary documentation.

Stages of the Commissioning Process

6. Design Review

- Verify compliance of design documents with OPR.
- To be completed before start of construction.



Stages of the Commissioning Process

7. Commissioning Submittal Review

- Verify compliance with OPR.
- Record of all submittal reviews to be given to owner.

Stages of the Commissioning Process

8. Construction review & testing

- Systems and assemblies comply with Owner's Project requirements as specified in Contract documents.
- Check lists, test procedures, report forms
- Test protocols.
- CA to direct, witness and document the test's.

Stages of the Commissioning Process

9. Issue / Resolution documentation

- Develop a log for issues and their resolution.
- Owner to review and accept issue resolution.



Stages of the Commissioning Process

10. Systems manual

➤ Contains information needed to understand operate and maintain the systems and assemblies.

- Equipment specifications.
- Approved submittals
- Manufacturer's O & M data
- Copy of warranties
- Contract information
- Emergency procedures
- Training plan
- Commissioning report.



Stages of the Commissioning Process

11. Training

- Training O & M personnel as well as occupants.
- Execution of training plan to be reviewed for acceptance.



Stages of the Commissioning Process

12. Post occupancy operation



- Delayed testing & seasonal testing
- Warranty issues
- Update systems manual, testing, documentation, issue / resolution logs, training report and final commissioning report.

Stages of the Commissioning Process

13. Commissioning Report

- Summary of the commissioning process and building operation.
- To owner and other required stake holders.



Beyond Occupancy

- Commissioning process can extend beyond initial commissioning
- Optimization of operational parameters under actual load conditions
- Seasonal fluctuations
- Load saturation

Functional Performance testing

Is the functional testing of interactions between systems that need to function together

On going commissioning

Continuation of commissioning process into occupancy phase to continually improve operation and performance of a facility. These can last through entire life of the facility

Retro commissioning

Commissioning process applied to an existing facility that was not previously commissioned

Design Review for Commissioning is different from Peer Review

- Commissioning Design Review will restrict to compliance with OPR , Co ordination between system and features and access for testing , commissioning and maintenance.
- It does not aim to enhance the quality of the design (Which is the function of a Peer Review)

THANK YOU