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CONSTRUCTION PHASE COMMISSIONING PROCESS

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ONLINE TRAINING BY KRISHNAJI PAWAR

LEED AP(BD+C),GSAS CGP,GCP,ISO 14001

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MODULE 4

Commissioning Test Procedures

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CONSTRUCTION PHASE COMMISSIONING PROCESS OVERVIEW

The Cx Team is responsible for ensuring that all members attend Construction Phase meetings and follow through on all associated action items. The meeting's success and the owner's satisfaction with the project hinge on everyone's active participation.

Learning Objectives

- Introduction and Construction Phase Overview
- Commissioning Test Procedures
- Performing Tests
- Commissioning Tests and Certification of Readiness
- Operational Sustainability & Reporting
- Progress Reports
- Final Report

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INTRODUCTION

- The construction phase is the third of the four phases we've identified for the building systems commissioning process.
- This phase comes immediately after the design phase and comes before the occupancy and operations phases.
- The third phase of the commissioning process outlined in the 2005 BEYOND SMART CITIES Commissioning Guidelines was the construction phase.
- The Commissioning Plan (Cx Plan), which was updated by the Commissioning Provider (CxP) during the Design Phase, is implemented during the Construction Phase.
- Consistent interaction between the CxP and the construction team, as well as frequent communication between the CxP and the design team, are essential to the construction phase's success.
- The CxP leads both the larger Commissioning Team (Cx Team) and the smaller Commissioning Provider Group (CxP Group) to ensure commissioning activities are completed correctly and on schedule
- Verifying building system compliance with the OPR or CFR is one of the most important priorities for the CxP during the construction phase.



COMMISSIONING TEST PROCEDURES

- Extensive, extremely detailed commissioning test procedures (CxTPs) must be developed and implemented, which is one of the primary reasons the prime contractor is required to hire a testing contractor.
- Consequently, the specifications must include fully-developed models of all CxTPs required for the current commissioning program.
- The specifications stipulate that the testing contractor must adapt the model CxTPs to the project's specifics and submit them to the CxA for review and approval.

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COMMISSIONING TEST PROCEDURES+

- A clause in the specification can account for this contingency by requiring the prime contractor to include a lump-sum dollar amount in the bid, which would be returned to the owner to pay for the final development of CxTPs by the CxA if the testing contractor is unable to make the necessary modifications.
- The training program for the owner's operations staff must be meticulously coordinated, with close coordination between the commissioning authority and the testing contractor.

PERFORMING TESTS

- Ultimately, actual testing will commence.Beginning the process is the contractor conducting commissioning tests on all specified equipment and systems.
- Commissioning test demonstrations of a sample of the components, equipment, and systems demonstrate the validity of the submitted commissioning test data.
- The sequence of commissioning tests is crucial.
- Some argue that testing should begin with system functional performance tests.
- In the case of larger, more complex systems, it becomes exceedingly difficult to determine which of the many components — one or more — was responsible for the functional failure.
- Only by beginning with testing the functional performance of components, then subsystems, and concluding with testing the functional performance of systems can the functionality of every system component be guaranteed.



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PERFORMING TESTS +

- As static tests become intersystem functional performance tests, testing procedures become more complex and time-consuming.
- As components become systems, more people must conduct and observe tests.
- Diagnostics and repairs are usually easy when component testing uncovers failures.
- However, component failures during system testing present a difficult diagnostic problem with many solutions.
- Starting system testing makes it harder to ensure that all components have been fully exercised through their full range of intended service, increasing the likelihood of undetected flaws in a functional system.

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