

Building Commissioning Attributes

The Building Commissioning Association (BCA) promotes building commissioning practices that maintain high professional standards, and fulfill building owners' expectations. To help achieve this, BCA identifies two important categories of commissioning practices:

- Essential Attributes of Building Commissioning consists of characteristics that BCA considers fundamental to building commissioning. Written agreement to conduct all commissioning projects in accordance with these Essential Attributes is required for BCA membership.
- Valuable Elements of the Building Commissioning Process includes recommendations to optimize the effectiveness of the commissioning process. The Valuable Elements are not membership requirements but are strongly recommended as valuable practices.

Believing that diverse and creative approaches to commissioning benefit our profession and its clients, BCA focuses on identifying critical commissioning attributes and components, rather than attempting to dictate a rigid commissioning process. Because the scope of commissioning varies between projects, BCA defines the basic purpose of commissioning as follows, in order to clarify context for these Essential Attributes and Valuable Elements.

Purpose of Building Commissioning

It is BCA's premise that, "The basic purpose of building commissioning is to provide documented confirmation that building systems function in compliance with criteria set forth in the Project Documents to satisfy the owner's operational needs. Commissioning of existing systems may require the development of new functional criteria in order to address the owner's current systems performance requirements.

Essential Attributes of Building Commissioning

BCA considers the following attributes to be so fundamental to effective building commissioning that all members agree in writing to adhere to them whenever they serve as a project's Commissioning Authority:

1. The Commissioning Authority (CA) is in charge of the commissioning process and makes the final recommendations to the owner regarding functional performance of the commissioned building systems.
2. The CxA is an objective, independent advocate of the Owner. If the CA's firm has other project responsibilities, or is not under direct contract to the Owner, a conflict of interest exists. Wherever this occurs, the CxA discloses, in writing, the nature of the conflict and the means by which the conflict shall be managed.
3. In addition to having good written and verbal communication skills, the CxA has current engineering knowledge, and extensive and recent hands-on field experience regarding:
 - a. Building systems commissioning,
 - b. The physical principles of building systems performance and interaction,
 - c. Building systems start-up, balancing, testing and troubleshooting,
 - d. Operation and maintenance procedures, and
 - e. The building design and construction process.
4. For each project, the commissioning purpose and scope are clearly defined in the CxA contract.
5. The CxA recommends the commissioning roles and scope for all members of the design and construction teams be clearly defined in:
 - a. Each design consultant's contract,
 - b. The construction manager's contract,
 - c. General Conditions of the Specifications,
 - d. Each division of the specifications covering work to be commissioned, and
 - e. The specifications for each system and component for which the suppliers' support is required.
6. Each project is commissioned in accordance with a written commissioning plan that is updated as the project progresses. The commissioning plan:

- a. Identifies the systems to be commissioned,
 - b. Defines the scope of the commissioning process,
 - c. Defines commissioning roles and lines of communications for each member of the project team, and estimates the commissioning schedule.
7. On new building commissioning projects, the CxA reviews systems installation for commissioning related issues throughout the construction period.
 8. All commissioning activities and findings are documented as they occur. These reports are distributed as they are generated, and included in the final report.
 9. The functional testing program objectively verifies that the building systems perform interactively in accordance with the Project Documents. Written, repeatable test procedures, prepared specifically for each project, are used to functionally test components and systems in all modes of operating conditions specified for testing. These tests are documented to clearly describe the individual systematic test procedures, the expected systems response or acceptance criteria for each procedure, the actual response or findings, and any pertinent discussion.
 10. The CxA provides constructive input for the resolution of system deficiencies.
 11. Every commissioning project is documented with a commissioning report that includes:
 - a. An evaluation of the operating condition of the systems at the time of functional test completion,
 - b. Deficiencies that were discovered and the measures taken to correct them,
 - c. Uncorrected operational deficiencies that were accepted by the owner,
 - d. Functional test procedures and results,
 - e. Reports that document all commissioning field activities as they progress, and
 - f. A description and estimated schedule of required deferred testing.

Valuable Elements of Building Commissioning

Building commissioning is of greatest value to the owner when it provides, throughout the many phases of design and construction, a means of continuously communicating their building systems criteria and rigorously verifying compliance with these. In order to accomplish this BCA recommends that the building commissioning scope include the following elements:

1. Prior to design, assist the Owner in evaluating the facility's requirements regarding such issues as energy conservation, indoor environment, staff training, and operation and maintenance.
2. Review all phases of design and construction documents for:
 - a. Compliance with design criteria,
 - b. Commissioning requirements,
 - c. Bidding issues,
 - d. Construction coordination and installation concerns,
 - e. Performance aspects, and
 - f. Facilitation of operations and maintenance, including training and documentation.
3. Review the equipment submittals for compliance with commissioning issues.
4. Verify or manage the scheduling and procedures used for system start-up.
5. Verify that the training for the owner's operating staff is conducted in accordance with the project documents.
6. Verify that the operations & maintenance manuals comply with the contract documents.
7. Prior to expiration of the construction contract warranty, assist the owner in assessing systems' performance and addressing related issues.