

# 11 KEYS TO AN EFFECTIVE COMMISSIONING PROJECT

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Commissioning

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The objective of commissioning is to ensure that systems are installed, functionally tested, and capable of being operated and maintained to conform with the design intent and the owner's needs. The process is commonly defined as one of testing system performance and correcting identified problems to ensure that new systems begin their life cycle at optimal productivity and efficiency.

Over more than 15 years and millions of square feet of commissioning projects, GBA has identified several key strategies that help produce the best results for owners and other stakeholders.

## THESE 11 STEPS ARE PIVOTAL TO OUR PHILOSOPHY

### 1. START EARLY

Engaging the commissioning team early allows the Cx team to become involved with the owner through the review of the owner's project requirements, the design team through the design review process, the facilities operations staff through the evaluation of the building space and infrastructure, and the contractor through the document creation phase. As a result, commissioning can become fully integrated with the rest of the project team.



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## 2. ENTHUSIASTIC PARTICIPATION BY ALL TEAM MEMBERS

For optimal results, the commissioning process requires active participation by the owner and all members of the project team, not just the commissioning provider. In particular, the contractor is responsible for ensuring that issues identified by the Cx team are resolved. Owners must send a clear message that they have invested in the commissioning process; this reduces the possibility that other team members will view issues identified by the commissioning provider as low priorities. Commissioning is about resolving problems; an adversarial approach does not produce the best results.



## 3. PRODUCTIVE INTERACTION WITH THE ENGINEER OF RECORD

An excellent commissioning provider will understand how to approach the design team with comments that are constructive and appropriate to the stage of the project documents. In full-service firms, commissioning providers can tap the expertise of their companies' design teams to provide high-quality design reviews, going beyond simple "commissionability of systems" to feedback that is more "big picture" in nature.



## 4. FIELD MOCK-UPS OF EQUIPMENT

Depending on the project, mock-ups can greatly reduce the risk of unexpected problems. For instance, if a hospital design calls for 50 similar Isolation Rooms to be installed, a mock-up could be prepared for the project team to review before installation commences.

## 5. REALISTIC EXPECTATIONS

Every construction project entails issues and challenges. Hiring a commissioning provider does not guarantee a problem-free process. However, forming a relationship with a qualified Cx firm is an excellent tactic for reducing the number and severity of problems.



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## 6. DETERMINATION OF APPROPRIATE LEVEL OF EFFORT

For maximum effectiveness, commissioning specifications must be integrated with the overall project specifications. The commissioning spec should include a detailed description of the responsibilities of the construction team, details of the commissioning process, reporting and documentation requirements including formats, deficiency resolution, pre-functional checklist requirements, contractor pre-startup testing requirements, contractor startup requirements, contractor post-startup/test and balancing/controls testing requirements, functional checklist requirements, training, O&Ms, record document requirements, and retesting responsibilities. The Cx provider should also work closely with construction managers and general contractors to determine, and specify a base allocation for, time that trade contractors should include for commissioning.

## 7. COOPERATION

A good commissioning provider will set the tone for cooperation early, and will demonstrate this commitment by meeting with the project team in person and by allocating ample person-hours to design-phase and project site meetings. This approach does come with a cost, but it is very advantageous to the owner in terms of project success.

## 8. PROBLEM RESOLUTION

A commissioning provider that can help the project team solve the problems identified through commissioning adds tremendous value. GBA suggests corrective action for each issue we identify. In addition, it's beneficial to differentiate who owns the problem (design or construction). Parallel commissioning logs—one for the design team and one for the contractor—can significantly reduce finger-pointing and confusion about who “owns” specific problems.

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## 9. NON-PROPRIETARY WEB-BASED COMMISSIONING TOOL.

Non-proprietary web-based commissioning tools, such as CxAlloy, can be useful in keeping the project team informed 24/7. With such a tool, by the time commissioning engineers leave the job site, the issues log can already be updated.

## 10. STAFFING AND SCHEDULES

For maximum results, the commissioning provider should work closely with the construction manager/general contractor and subcontractors – especially the testing, adjusting, and balancing contractor and controls contractor – to coordinate commissioning and construction activities. Generally, providers should be ready to augment their staffing as projects wrap up during functional performance tests, even if most of the construction phase has only required one or two commissioning staff members.

## 11. FINISH STRONG BY ENGAGING OPERATIONS STAFF

A concentrated effort should be made by the commissioning provider to engage the owner's facilities operations staff in functional performance testing, then follow up with classroom and field training. This approach greatly improves the odds that the facility will perform as designed for the long term.

### HOW GBA CAN ASSIST

Our emphasis on owner engagement, early team involvement, enthusiastic participation, interaction with the Engineer of Record, field mock-ups of equipment, realistic expectations, cooperation, problem resolution, appropriate staffing and scheduling, and a smooth project hand-over are all critical components of a proven and effective commissioning process.

The *ASHRAE GreenGuide* contains an excellent summary of the correct approach to commissioning: "Commissioning is not an exercise in blame; it is rather a collaborative effort to identify and reduce potential design, construction, and operational problems by resolving them early in the process at the least cost to everyone."

GBA stands ready to discuss your commissioning project. Contact us at [info@grummanbutkus.com](mailto:info@grummanbutkus.com).