



**AMERICAN SOCIETY OF PLUMBING ENGINEERS
CHAPITRE DE LA RÉGION D'OTTAWA REGION CHAPTER
CORPORATION À BUT NON-LUCRATIF – NON-PROFIT CORPORATION
318-1411A CARLING AVENUE, OTTAWA, ONTARIO, K1Z 1A7**

COMMISSIONING OF MECHANICAL SYSTEMS

Commissioning is a process for achieving, verifying and documenting the performance of building systems to meet the design documentation as well as the owner's functional and operational needs of the building within the capabilities of the intended design.

With the increased complexity of mechanical and electrical equipment provided in building projects, commissioning has become a necessity in the same way to ensure safety, full operational flexibility, economical performance and compatible interfaces between mechanical and electrical systems.

Why do it?

- To identify deficiencies;
- To improve operator familiarization;
- To improve occupant/user satisfaction/comfort;
- Helps to clarify and focus the designer's responsibilities;
- Can introduce operating staff to systems at an early date;
- Provides additional input to design proposals and approaches;
- Requires systems functional performance tests;
- Provides a basis for coordinating installation/operation and testing of electro-mechanical devices.
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Commissioning is typically involved in the following steps:

- Design including early proposals;
- Preview and final design; drawings and specification writing;
- Tendering; especially where changes may be made and/or credits sought;
- Equipment review of shop drawings including interface and multi-trade scheduling;
- Scheduling of site inspections; 50% to 80%; start-up, trouble shooting and as needed;
- Actual site inspections;
- Will depend on decision whether it should be full or spot commissioning.

Normally, full commissioning will take 1 to 3 days per system depending on the complexity of the project. It can cost from 1 to 2 ½ percent or more of the total mechanical package cost for comprehensive mechanical and electro-mechanical commissioning. Mechanically, it will include HVAC, EMCS, air and water balancing and sprinkler review and testing. Electrically, it includes controls, Fire Alarm, Security and Emergency systems.

The prime benefit of commissioning is that it provides continuing quality control with feedback. Deficiencies are resolved within the allotted project time, which results in savings in operational and maintenance costs to the owner. Finally, it provides a realistic means to finish a project on schedule without overruns or 'extras' and thus leads to a satisfied client.

There are many misconceptions about commissioning, what it is and whom it benefits. PWGSC understands its value and requires that it be performed as per their requirements on all projects. The level of involvement is quite different from most private sector perceptions, and is a result of



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considerable testing and evaluation. They will be demonstrating their expectations for proper commissioning at our April 10th ASPE meeting.

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