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# BUILDING COMMISSIONING

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# COMMISSIONING

- ***Commissioning*** will insure that all structural & mechanical systems have been installed properly, functionally tested, and are in conformity with the design intent.



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## What is building commissioning?

- Building commissioning is a systematic and documented process of ensuring that the owner's operational needs are met, building systems perform efficiently, and building operators are properly trained.



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## What is the goal of building commissioning?

- To deliver a facility that operates as it was intended.
- To provide a facility that meets the needs of the building owner and occupants.
- To provide appropriate training for facility operators on the operation and maintenance of the building systems.



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## When should the building commissioning process start?

- Building commissioning can be started near the end of construction. (good)
- Building commissioning can be started at the start of construction. (better)
- Building commissioning can be started during schematic design. (best)



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## When should the building commissioning process start?

- Benefits of early involvement – Design review, better building commissioning specifications, clear building commissioning expectations, and better bids.
- Early involvement by the commissioning agent may not carry a cost premium. It will reduce project design problems and will introduce building commissioning expectations early.



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## Develop building commissioning scope of work

- Before meeting with the commissioning agent develop a draft commissioning scope of work.
- Ask the facility owner and operator what were the problems they have encountered on previous construction projects.
- Do not limit your commissioning to just HVAC and controls. Envelope, and other complex systems should be considered.



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## Develop building commissioning scope of work

- Then use the Commissioning Guidelines for systems to be commissioned.
  - HVAC systems
  - Air distribution systems
  - Plumbing and piping systems
  - Heating and cooling plant equipment
  - Control systems
  - Electrical systems



## What should be budgeted for building commissioning?

- The following are the rules when helping a client budget for building commissioning.
- \$0.40 to \$1.50 per square foot depending on the complexity, size and location of the building.
- 1.0 to 2.0% of the total construction cost.



## Cost savings for building commissioning

- 8% - 20% reduction in operating costs for a building that is commissioned.
- 1.5 – 3.5 year simple payback on commissioning.  
Based on:
  - fewer change orders,
  - lower energy usage, and
  - reduced operational problems.



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## What does building commissioning involve?

- Verifying and documenting building systems' performance through all phases of a project from concept to occupancy.
- Testing HVAC systems' performance to ensure that they meet the needs of the building throughout the full range of operating parameters that may be encountered.



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## What does the Energy Code require?

- Systems Commissioning and Commissioning Requirements. (Section 1416.4 & Section 1513.7)
- Preliminary Commissioning Report. A preliminary report of test procedures and results. (1416.4.2.2.1)
- Final Commissioning Report. A complete report of test procedures and results shall be prepared and filed with the owner. (1416.4.2.2.2)
- Functional testing of the HVAC equipment and controls. (Section 1416.4)



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## What does LEED require for building commissioning?

LEED – Leadership in Energy and Environmental Design.

- LEED requires the use of an independent building commissioning agent.
- LEED requires Fundamental Building Systems Commissioning (required for all LEED certified projects).



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## Building Commissioning Resources

- Building Commissioning Association



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# Thank You

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