LET'S CONNECT

WHY COMMISSION A BUILDING?

Building Commissioning: Benefits and Value

PROTECTING THE OWNER

Building commissioning (Cx) is the quality-focused process of verifying and documenting that the building systems are designed, installed, tested, operated and maintained so that a facility operates as intended. It ensures that a building performs at peak efficiently and that – most importantly – it meets the expectations and requirements of the building's owner.

The aim of commissioning new buildings is to ensure that they meet, if not exceed, the performance and energy savings promised by their design.

SAVINGS AND SATISFACTION

INCREASED OWNER SATISFACTION

- **Impeccable Operation:** of the building per the owner's expectations.
- **Reduced Operating Costs:** realized by ensuring building system performance, minimizing consumption and maximizing savings.
- **Utility Incentives & Rebates:** savings are realized by meeting system performance requirements.

REDUCED ENERGY CONSUMPTION

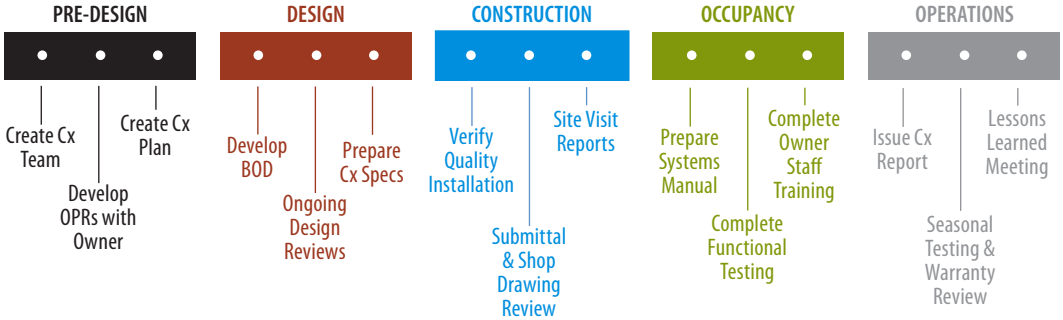
- **Set-Up and Optimization:** of equipment, system sequencing, controls, software, devices and instrumentation to ensure smooth, efficient, proper operation.
- **Complete Training:** of operations and maintenance personnel to ensure ongoing building performance and savings.
- **Full Compliance:** with code and rating systems.

OPTIMIZED OPERATIONS

- **Verification and Testing:** of design, installation and equipment operation to ensure systems are operating as intended.
- **Performance Benchmarking:** to document performance and evaluate the impact of future improvements.
- **Ongoing Savings:** are realized by ensuring intelligent operations.

ROI AT EVERY STAGE

Commissioning for new buildings offers distinct value at each stage of the construction process, from spearheading OPR development (Owner's Project Requirements) at the front end to ensuring complete maintenance staff training upon occupancy.



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Correcting Errors & Saving Money

FREQUENT MISTAKES AND MISSES

Several studies about the benefits of commissioning show significant operational cost savings and ROI for buildings that have been fully commissioned versus those that have not. Studies by the Lawrence Berkeley National Laboratory, Portland Energy Conservation Inc. (PECI), Texas A&M, and The International Energy Agency (IEA) have shown that energy inefficiencies abound in non-commissioned buildings, resulting in significant overexpenditures in operating cost and complaints from building occupants.

FREQUENT FAULTS THAT CAUSE ENERGY INEFFICIENCIES

According to the Lawrence Berkeley National Laboratory, numerous faults are frequently found in non-commissioned commercial buildings, among them:

1. Significant duct leakage
2. HVAC equipment left on when space unoccupied
3. Lights left on when space unoccupied
4. Airflow distribution not properly balanced
5. Improper refrigerant charge
6. Dampers not working properly
7. Insufficient evaporator airflow
8. Improper controls setup
9. Software programming errors
10. Improper controls hardware installation

ANNUAL SAVINGS FROM COMMISSIONING

A recent AIA Best Practices document (*"Building Commissioning: Analyzing Cost and Benefits"*) reveals significant energy and cost savings from commissioning mechanical systems in a new building:

BUILDING TYPE	ANNUAL ENERGY SAVINGS	ANNUAL COST SAVINGS
110,000 sq. ft. office	279,000 kWh	$22,320
22,000 sq. ft. office	130,800 kWh	$13,080
60,000 sq. ft.	336,000 kWh	$26,880

COST OF COMMISSIONING:

On average, commissioning costs about $1.16 per square foot or as little as 0.5% of the total cost for most new construction projects.

Entire Building (HVAC, Controls, Mechanical, Electrical)	.5%-1.5% of total construction cost
HVAC & Automated Control System	1.5%-2.5% of mechanical system cost
Electrical Systems	1%-1.5% of electrical system cost

Sources: Ron Wilkinson, ASHRAE Journal, 2000, and PECI.

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Ready? ***Let's get started.***

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