TOTAL BUILDING COMMISSIONING AND COMMISSIONING THE BUILDING ENVELOPE

High-Performance Building
Congressional Caucus Coalition

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Total Building Commissioning

... the systematic process of ensuring that the performance of the facility and its systems meet the functional and operational needs of the owner and occupants.
Commissioning (Cx)

“Commissioning” is often associated with

- Performance certification of HVAC
- Final construction phase inspections, tests and turnover practices
- Single objective verification
Objectives of Total Building Commissioning

“New” comprehensive documentation of

- owner’s project requirements
- basis of design decisions and strategies
- tests to verify system performance
- training for building operation and maintenance
Benefits of Total Building Commissioning

- improved occupant comfort
- improved resource use
- improved environmental conditions
- improved system and equipment function
- improved building operation and maintenance
- improved building productivity

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“These figures are based, of course, on supernatural numbers.”
Concept     Design     Construction     Acceptance     Occupancy

Benefits and Cost Savings

Cost to Change
TBC Guideline Objective

Provide for a
- uniform
- integrated
- comprehensive
approach for the commissioning of all major building systems
TBC Commissioning Guidelines

Provide

- procedures and guidance for the commissioning of a specific building system
- identification and documentation of system specific performance objectives and requirements
- identification and documentation of possible design strategies to meet owner project requirements
- development of specification sections for verification procedures and O&M documentation and training
Guideline 0: The Commissioning Process

Provides the

- overall understanding of the building commissioning process
- basic terminology and definitions
- responsibilities of the commissioning participants
- model framework for commissioning plan
- model framework for owner’s project requirements and basis of design
- model framework for commissioning guide specifications
- model framework for commissioning reports
Guidelines 1-11: Building Systems

Provides a process for

- recording the owner’s project requirements
- documenting the design team’s basis of design
- developing commissioning project specifications
- verifying the functional performance of the building system
Verification Procedures

- responsibilities
- testing requirements
- testing conditions
- reporting protocols
- acceptance criteria
- acceptable test methods
- scheduling requirements
- documentation requirements
TOTAL BUILDING COMMISSIONING PROCESS

(Used as the foundation of ASHRAE Guideline 1, NIBS Guideline 3, and other Total Building Commissioning Process technical guidelines)

Guideline 1-2007 HVAC&R Technical Requirements for The Commissioning Process

NIBS Guideline 3-2006 Exterior Enclosure Technical Requirements for The Commissioning Process

Guidelines 2-200X & 4-200X through 14-200X Technical commissioning guidelines dealing with structure, electrical, lighting, interiors, plumbing, etc.
Exterior Enclosure
Technical Requirements
For the Commissioning Process

This Guideline is for Use with
ASHRAE Guideline 0-2005:
The Commissioning Process
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Building Commissioning
by the WBDG Project Management Committee
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Introduction

Building Commissioning is a rapidly growing A-E-C Project Management practice that is being embraced by public and private organizations because of its benefits in improved project delivery results.

This section of WBDG organizes commissioning information, guidance, and resources under three broad principles, including Determine Project Performance Requirements, Plan the Commissioning Process, and Document Compliance and Acceptance. It is important to note that all three principles are applied over the life-span of a capital design and construction project, and that it takes a multi-disciplined effort involving owners, design professionals, construction managers, and commissioning providers to achieve optimal results from the commissioning process. This will provide an overview of commissioning drivers, benefits, goals, and principles and general commissioning guides, standards, and resources.

Definition

ASHRAE Guideline 0, The Commissioning Process, defines commissioning as “a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria”. Commissioning is an all inclusive process for all the planning, delivery, verification, and managing risks to critical functions performed in, or by, facilities. Commissioning ensures building quality using peer review and in-field or on-site verification. Commissioning also accomplishes higher energy savings.