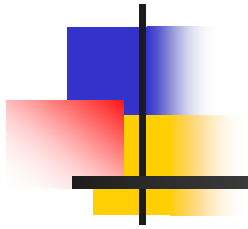


ASHRAE/NIBS Guideline 0-2005



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For
Jeff Traylor, EMCOR



Guideline 0-2005

- **Committee Consensus of Current Practice of Building Commissioning Process**
- **Some Aspects are Current Best Practices**
- **Orientated to Owner's Project Requirements**



Guideline 0-2005

- Orientated to Verification
- Team Commissioning Process
- Integration into existing owner's project delivery process for best results



ASHRAE Guideline 0-2005

- TPS, Sections 1-8, and Annexes are part of the mandatory requirements to “state” that you are complying with Guideline 0-2005



ASHRAE Guideline 0-2005

The Commissioning Process

- FORWARD

- Quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meet defined objectives and criteria.



ASHRAE Guideline 0-2005 – The Commissioning Process

- FORWARD

- The Commissioning Process begins at project inception during the pre-design phase and continues for the life of the facility through the occupancy and operation phase.



ASHRAE Guideline 0-2005 – The Commissioning Process

- FORWARD

- The Commissioning Process includes specific tasks during each phase in order to verify that the design, construction, and training meets the Owner's Project Requirements



The Fundamental Objectives of The Commissioning Process are to:

- (a) Clearly document Owner's Project Requirements;
- (b) Provide documentation and tools to improve quality of deliverables;
- (c) Verify and document that systems and assemblies perform according to the Owner's Project Requirements;

.



1. PURPOSE

1.1. The purpose of this guideline is to describe the Commissioning Process capable of verifying that a facility and its systems meet the Owner's Project Requirements.



2. SCOPE

2.1. The procedures, methods, and documentation requirements in this guideline describe each phase of the project delivery and the associated Commissioning Processes from pre-design through occupancy and operation without regard to specific elements, assemblies, or systems, and provides the following:

- (a) overview of Commissioning Process activities,
- (b) description of each phase's processes,
- (c) requirements for acceptance of each phase,
- (d) requirements for documentation of each phase, and
- (e) requirements for training of operation and maintenance personnel.



3. UTILIZATION

3.1. The application of this guideline will depend on the Owner's Project Requirements and how the project will be designed, built, and operated. The process described in this guideline is written for a **generic project** and must be adapted to each project.



4. DEFINITIONS

Basis of Design: A document that records the concepts, calculations, decisions, and product selections used to meet the Owner's Project Requirements and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.



5. PRE-DESIGN PHASE

5.1. Introduction

5.1.1. Pre-Design is a preparatory phase of the project delivery process in which the Owner's Project Requirements are developed and defined. Information about the project is gathered, including program requirements, community context, codes and regulations, site and climate, facility context and function, facility technology, sustainability, cost, schedule, and the client's (including owner, occupants, operators, and maintenance personnel) needs and capabilities.



5. PRE-DESIGN PHASE

5.1. Introduction

5.1.2 This phase is critical to the Commissioning Process because the documented Owner's Project Requirements form the foundation for the (programming), design, construction, and occupancy and operation of the facility, and are the basis for the commissioning plan and schedule. - - - - -

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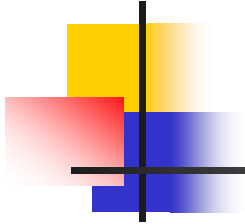
5.1.3 Pre-Design Phase Commissioning Process **objectives** include the following:

- (a) Developing the Owner's Project Requirements. (Details in 5.2.2)
- (b) Identifying a scope and budget for the Commissioning Process. (Details in 5.2.3)
- (c) Developing the initial Commissioning Plan. (Details in 5.2.4)



5.2 Pre-Design Phase Commissioning Process Activities

- Like:
 - OPR,
 - Scope,
 - CxPlan,
 - Issues Log Procedures,
 - Issues Report



5.3 Pre-Design Phase **Acceptance**
Requirements

5.4 Pre-Design Phase **Documentation**

5.5 Pre-Design Phase **Training**
Identification Requirements



Other Phases

6. DESIGN PHASE

7. CONSTRUCTION PHASE

**8. OCCUPANCY AND OPERATIONS
PHASE**



Index to Annexes

Annex A is Normative and all others are Informative

- A. Guide for Developing Supplementary Technical Guidelines for the Commissioning Process**
(Note: labeled as “not used” in all supporting Guidelines)
- B. Commissioning Flow Chart (Normally labeled as Not Used in supporting Guidelines)**
- C. Cost and Benefits of the Commissioning Process (Normally labeled as Not Used in supporting Guidelines)**
- D. Commissioning Process Documentation Matrix (Normally labeled as Not Used in supporting Guidelines)**
- E. Commissioning Process Request for Qualifications (Normmaly labeled as Not Used in supporting Guidelines)**



Index to Annexes

- F. Roles and Responsibilities**
- G. Commissioning Plan**
- H. Acceptance Plan**
- I. Owner's Project Requirements Workshop Guidance**
- J. Owner's Project Requirements**
- K. Basis of Design**
- L. Specifications**



Index to Annexes

M. Construction Checklists

N. Quality-Based Sampling Example

O. Systems Manual

P. Training Manual and Training Needs

Publications, Articles, References, Codes, Regulations, and Standards are applicable to supporting technical guidelines, at least for the 0-2005 guideline.



ANNEX A. Guide for Developing Supplementary Technical Guidelines for the Commissioning Process

Annexes to Technical Guidelines

Annexes are to be used to provide additional information, examples of documentation, examples of specifications, acceptances procedure details, and other requirements that are not required to achieve compliance with the technical guideline, but will assist in implementing the Commissioning Process for the specific technical system or assembly. This is the place to illustrate best practice and to provide information on how to achieve best practice and economy design, including costly practice that is based upon designs that do not provide value to owners.



ANNEX A. Guide for Developing Supplementary Technical Guidelines for the Commissioning Process

The purpose of this annex is to provide the recommended format and content for the Total Building Commissioning Process supporting technical guidelines. The National Institute of Building Science is facilitating the development of a number of technical topic guidelines to support the effective implementation of the Total Building Commissioning Process. These guidelines will be developed by various professional, technical and trade organizations. For example, the technical guideline for heating, ventilating, air-conditioning and refrigeration (HVAC&R) will be developed by ASHRAE.



Other Annexes in Technical Supporting Guidelines

- Q – Publications, Articles, References, Codes, Regulations, and Standards**
- R – Integration Requirements**
- S – Interference and Coordination with other Systems and Assemblies**
- T – Communications What, When and Who (includes code inspections, etc.)**



Other Annexes in Technical Supporting Guidelines

U – Test Procedures and Data Forms

V – Pre-Design CxP Specific Needs

W – Design CxP Specific Needs

X – Construction CxP Specific Needs

Y – Occupancy & Operations CxP Specific Needs

Annex Z (and, if needed, Annex AA, BB, and beyond) can be used as required for other topics that are determined useful for a specific assembly or system.

Checklists for each Phase, Pre-design, Design, Construction, and Occupancy & Operations will be developed in Annex M, unless there are key reasons they are included in new Annexes, Z and higher.

Goals of TBCxP



- Document owner's goals and requirements
- Keep project team focused on owner's goals
- Prevent or eliminate problems inexpensively
- Lower overall costs for the owner
- **Increase profits for project team by decreasing costs**