



International Code Council

STANDARD FOR COMMISSIONING ICC 1000-201x

Public Comment Draft #1

Copyright ©2015 International Code Council, Inc.

The ICC Commissioning Consensus Committee (IS-COM) has held 5 public meetings to develop the first public comments draft of the ICC 1000-201* Standard for Commissioning. Public comments are requested on this first public comments draft. The public comment deadline is April 13, 2015. Go to <http://www.iccsafe.org/cs/standards/IS-COMSC/Pages/default.aspx?usertoken={token}&Site=icc> for more information.

TABLE OF CONTENTS

Chapter 1: Administration.....	6
Section 101 General.....	6
Section 102 Applicability	6
Section 103 Compliance Alternatives	6
Section 104 Referenced Documents	6
Section 105 Submittal Documents	6
Chapter 2: Abbreviations and Definitions	7
Section 201 General	7
Section 202 Acronyms.....	8
Section 203 Definitions	8
Chapter 3: Commissioning Provider and Specialist	10
Section 301.1 Commissioning Provider and Commissioning Specialist	10
Section 301.2 Commissioning	10
Section 301.3 Commissioning provider and Commissioning Specialist Requirements ..	11
Chapter 4: Commissioning Process	11
Section 401 Commissioning Process	11
Section 402 Documentation of Code Required Commissioning ...	11
Section 403 Commissioning Plans.....	11
Section 404 Commissioning Review of Design Documents.	12
Section 405 Commissioning Review of Construction Submittals.....	13
Section 406 Commissioning Issue and Resolution Logs ...	13
Section 407 Commissioning Testing	13
Section 408 Project Documentation and Systems Manual	14
Section 409 Commissioning Report.....	15
APPENDIXES	
Appendix A: Commissioning Process Compliance Checklists and Forms.....	16
CF-1: Code-Required Commissioning Compliance Form.....	16
CF-2: Commissioning Plan Compliance Form	17
CF-3: Commissioning Review of Submittals Compliance Form	19
CF-4: Commissioning Issues and Resolution Log Compliance Form	20
CF-5: Commissioning Testing Compliance Form	21
CF-5A: Equipment and Assemblies Tested	22

CF-6: Documentation and Systems Manual Compliance Form....	23
CF-7: Commissioning Report Compliance Form	24
Appendix B:	25
Section B.101 Owners Project Requirements	25
CF-1B: Owners Project Requirements Compliance Form	26
Appendix C:	27
Section C.201 Basis of Design	27
CF-1C: Basis of Design Compliance Form	28
Appendix D:	30
Section D.301 Training	30
CF-1D: Training Compliance Form	31

CHAPTER 1 ADMINISTRATION

101 GENERAL

101.1 Purpose: This standard provides requirements relating to the application of the overall commissioning process described in commissioning process standards. This provides criteria for code officials, owners, and agencies to accept, implement, enforce and document the commissioning provisions established in codes and standards.

101.2 Scope: This standard establishes minimum requirements for the application of the process of commissioning as required by the local authority having jurisdiction.

102 APPLICABILITY

102.1 Applicability. The commissioning process of buildings and systems shall comply with this standard.

103 COMPLIANCE ALTERNATIVES

103.1 Compliance alternatives. Nothing in this standard is intended to prevent the use of alternatives to those prescribed by this standard, where equivalence is provided, and such equivalence is approved by the administrative authority adopting this standard.

104 REFERENCED DOCUMENTS

104.1 Reference documents. The codes and standards referenced in this standard shall be considered part of the requirements of this standard to the prescribed extent of each such reference.

105 SUBMITTAL DOCUMENTS

105.1 General. Documentation of the commissioning process shall be submitted as described below, and shall contain the information required by the applicable codes and this standard.

105.2 Commissioning documentation required at permit application. At the time of permit application, the following shall be provided for each system for which codes require commissioning.

1. Documentation to identify each of the applicable commissioning requirements in code according to section 402.
2. The Preliminary Commissioning Plan developed in accordance with Section 403.2.
3. A statement within the construction documents that require commissioning to be performed in accordance with this standard and applicable codes.

4. Confirmation that design documents have been reviewed by the Commissioning Provider in accordance with Section 404.
5. Where an Owner's Project Requirements (OPR) document is required by an applicable code, documentation that the OPR has been provided in accordance with the requirements of Appendix B.
6. Where a Basis of Design (BOD) document is required by an applicable code, documentation that the BOD has been provided in accordance with the requirements of Appendix C.

105.3 Commissioning documentation required before issuance of the Certificate of Occupancy or final inspection. Prior to issuance of the certificate of occupancy, documentation shall be provided demonstrating that the Final Commissioning Plan was completed prior to the start of functional performance testing, and that the following commissioning work has been completed. Where no Certificate of Occupancy will be issued, this documentation shall be submitted before the final inspection.

1. Materials and equipment submittals for each system for which applicable codes require commissioning have been reviewed by the commissioning team for conformance to code requirements, according to Section 405.
2. Commissioning Issue and Resolution Logs have been maintained in accordance with Section 406.
3. Equipment testing for each system for which code required commissioning has been performed and witnessed by the commissioning team, and is in accordance with Section 407.
4. A systems manual has been developed in accordance with Section 408
5. Where training is required by an applicable code, building operations and maintenance personnel have been trained on operation and maintenance of the commissioned equipment and systems, in accordance with Appendix D.
6. The preliminary commissioning report has been completed in accordance with Section 409 and provided to the owner.

CHAPTER 2 ABBREVIATIONS AND DEFINITIONS

201 GENERAL

201.1 General. For the purpose of this standard, the terms listed in Section 202 have the indicated meaning.

201.2 Undefined terms. The meaning of terms not specifically defined in this document or in referenced codes and standards shall have ordinarily accepted meanings such as the context implies.

201.3 Interchangeability. Words, terms and phrases used in the singular include the plural and the plural the singular.

Section 202 Acronyms

202.1 The following acronyms are used throughout the guideline.

BOD	Basis of Design
CF	Compliance Form
Cx	Commissioning
CxA	Commissioning Authority
CxP	Commissioning Provider
HVAC	Heating, Ventilating and Air Conditioning
O&M	Operations and Maintenance
OPR	Owner's project Requirements

Section 203 Definitions

Acceptance: A formal action, taken by a person with appropriate authority (which may or may not be contractually defined) to declare that some aspect of the project meets defined requirements.

Basis of Design (BOD): 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.

Checklists: Project and element-specific checklists that are developed and used during all phases of the commissioning process to verify that the Owner's Project Requirements are being achieved. Checklists are used for general evaluation, testing, training, and other design and construction requirements.

Commissioning: (Cx): Commissioning Process.

Commissioning Authority (CxA): See Commissioning Provider

Commissioning Plan (Cx Plan): A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the Commissioning Process. The commissioning plan establishes the commissioning process guideline for the project and the commissioning team's level of effort by identifying the required commissioning activities to ensure that the code requirements are met.

Commissioning Process: A quality-focused process for enhancing the delivery of a project. The process focuses upon verifying and documenting that all of the commissioned systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the code requirements.

Commissioning Progress Report: A written document that details activities completed as part of the Commissioning Process and significant findings from those activities.

Commissioning Provider (CxP): An individual or agency identified by the owner that is responsible for the overall building commissioning process and who leads, plans, schedules, and coordinates the commissioning team to implement the Commissioning Process. Other commonly used terms for this individual or agency include, but are not limited to; commissioning authority or commissioning agent.

Commissioning Report, Preliminary: A document that records all of the Commissioning Process activities occurring prior to final inspection or issuance of the Certificate of Occupancy, together with the results from those activities.

Commissioning Report, Final: A document including the Commissioning Process activities occurring after issuance of the Certificate of Occupancy and the results from those activities, together with the contents of the Preliminary Commissioning Report.

Commissioning Specialist: An individual who works on a project to conduct commissioning on a specific technical area or system.

Commissioning Team: The individuals and agencies that are responsible for implementing the Commissioning Process.

Commissioning Testing: The evaluation and documentation of the equipment and assemblies, delivery and condition, installation, proper function according to the manufacturer's specifications, and project documentation to meet the criteria in the codes.

Construction Checklist: A form used by the commissioning team to verify that appropriate materials and components are correctly installed, functional, and in compliance with the codes.

Construction Documents: Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the element of a project necessary for obtaining a building permit.

Contract Documents: Documents that detail the Owner's needs, as well as regulations, laws, and jurisdictional requirements. Contract Documents frequently include price agreements, construction management processes, sub-contractor agreements or requirements, requirements and procedures for submittals, changes, and other construction requirements, timeline for

completion, and the Construction Documents.

Design Review: A review of the design documents to determine compliance with the codes, including coordination between systems and assemblies being commissioned, features and access for testing, commissioning and maintenance, and other reviews required by the commissioning plan.

Evaluation: The process by which specific documents, components, equipment, assemblies, systems, and interfaces among systems and their performance are confirmed with respect to the criteria required in the codes.

Functional Test: Functional Testing is the process of verifying that a material, product, assembly, or system is properly installed and operates in accordance with design and manufacturer's specifications.

Commissioning Report: A document that records the activities and results of the Commissioning Process and is developed from the Commissioning Plan with all of its attached appendices.

Issues and Resolution Log: A record of design, construction, and operations questions, problems or concerns from the owner, designers, contractors and the Commissioning Team during the course of the Commissioning Process.

Owner. The individual or entity holding title to the property on which the building is constructed.

Owner's Project Requirements (OPR): A written document that details the requirements of a project and the expectations of how it will be used and operated. This includes project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information. (The term Project Intent or Design Intent is used by some owners for their Commissioning Process Owner's Project Requirements.)

Owner's Representative. An individual or entity assigned by the owner to act and sign on the owner's behalf.

Performance Test: Performance Testing is the process of verifying that a material, product, assembly, or system meets defined performance criteria. The methods and conditions under which performance is verified are described in one or more test protocols.

Systems Manual: A system-focused composite document that includes the design and construction documentation, facility guide and operation manual, maintenance information, training information, commissioning process records, and additional information of use to the Owner during occupancy and operations.

Test Procedure: A written protocol that defines methods, personnel, and expectations for tests conducted on components, equipment, assemblies, systems, and interfaces among systems to verify compliance with the codes.

Training Plan: A written document that details the expectations, schedule, duration and deliverables of Commissioning Process activities related to training of project operating and maintenance personnel, users, and occupants.

CHAPTER 3 COMMISSIONING PROVIDER AND SPECIALIST

Section 301 Commissioning Provider and Commissioning Specialist

301.1 Commissioning Provider and Commissioning Specialist. Commissioning personnel shall perform the commissioning work as required by this section.

301.2 Commissioning. Where commissioning is required by code, it shall be performed by qualified and certified commissioning providers and commissioning specialists.

301.3 Commissioning provider and Commissioning Specialist Requirements. Commissioning providers and commissioning specialists performing code required commissioning of any part of the commissioned systems shall be certified by an organization accredited to the criteria set forth in International Accreditation Service (IAS) AC 476 or ISO 17024. Documentation shall be submitted to the code official verifying certification of commissioning personnel.

CHAPTER 4 COMMISSIONING PROCESS

Section 401 Commissioning Process

401.1 Commissioning Process. Commissioning process management shall be provided as required by this section.

401.2 Commissioning Process Management. A qualified Commissioning Provider shall be designated to coordinate the commissioning process and the work of any Commissioning Specialists, and to submit the documentation required by code. Qualified Commissioning Specialists shall be designated to commission systems for which specialized technical certification or licenses are required. Where all of the commissioning work is accomplished by one commissioning specialist, that specialist is permitted to assume the duties of a commissioning provider.

Section 402 Documentation of Code Required Commissioning

402.1 Documentation of Commissioning Requirements in Applicable Codes. Code requirements for commissioning shall be documented as required by this section.

402.2 The following documentation shall be provided for each instance of an applicable commissioning requirement in an applicable code or standard.

1. Applicable code requirements, with code section reference numbers and including any environmental, sustainability, or efficiency requirements of those codes;
2. Description of technical approach to compliance;
3. Equipment and systems to be commissioned;
4. Specific process requirements for the commissioning of each element, including: logs, reviews, reports, evaluation, testing and documentation requirements; and
5. Training requirements where required by code.

Section 403 Commissioning Plan

403.1 Commissioning Plan. The Preliminary Commissioning Plan and Final Commissioning Plan shall be provided as required in Sections 403.2 and 403.3 and shall be specifically created for each individual project.

403.2 Preliminary Commissioning Plan. At the time of permit application, a Preliminary Commissioning Plan based on applicable codes shall be provided. Contents of the Preliminary Commissioning Plan shall comply with applicable code requirements and include:

1. Overview of the proposed commissioning process;

2. Schedules developed for commissioning activities in the design, construction and occupancy phases of the project;
3. Roles and responsibilities for the Commissioning Team throughout the project. The responsibilities shall delineate the duties of the commissioning provider, commissioning specialists, owner, inspectors, contractors, suppliers, and other agencies;
4. Documentation of communication procedures including the distribution of the Commissioning Plan and other documentation during the design and construction processes, including the development and utilization of the Issues and Resolution Logs and a preliminary listing of required reports, reviews and approvals;
5. Design documentation review procedures, submittal evaluation procedures and report formats;
6. Preliminary list of operations, systems and assemblies that will be commissioned and/or inspected;
7. Format for commissioning checklists, commissioning testing forms and Commissioning Progress Reports;
8. Guidelines and formats that will be used to develop the Systems Manual, Training Plans, and Final Commissioning Report;
9. Procedures to be followed when evaluation results do not meet the code requirements or construction document requirements.

403.3 Final Commissioning Plan: The Final Commissioning Plan shall be completed before the start of functional and performance testing. It shall update the Preliminary Commissioning Plan as required and include the following information:

1. Detailed description of Commissioning Process activities, the schedule of activities and the list of operations, systems and assemblies that will be commissioned or inspected, including evaluation procedures and performance criteria.
2. Final listing of required reports including format, reviews and approvals.
3. Detailed testing procedures and checklists for functional testing and performance testing for all commissioned systems and assemblies, including verification of sequences of operation and, where relevant, conditions under which the testing will be performed.

Section 404

Commissioning Review of Design Documents

404.1 Commissioning requirements. Construction documents shall require the commissioning procedures required by code and by this standard for all applicable systems and equipment.

404.2 Commissioning Design Reviews. The Commissioning Provider shall review equipment and systems in the design documents to evaluate compliance with commissioning requirements in applicable codes.

404.3 Design Review Response. The design team shall respond to the design review report and document the modifications made to the design documents prior to completion of the

construction documents.

Section 405

Commissioning Review of Construction Submittals

405.1 Commissioning Submittal Reviews. A review of construction submittals for commissioned systems and assemblies shall be performed by the Commissioning Provider to evaluate compliance with code commissioning requirements and the commissioning plan.

405.2 List of Submittals. The Commissioning Provider shall identify those construction submittals required to be provided by the Contractor for review of the systems being commissioned.

405.3 Submittal Report. The submittal review report shall include a listing of the submittals reviewed, the date reviewed and a summary of any properties or procedures identified that do not meet code commissioning requirements or the requirements of this standard.

Section 406

Commissioning Issue and Resolution Logs

406.1 The Commissioning Provider and Commissioning Team shall develop an Issues and Resolutions Log with supporting documentation.

406.2 Contents. The contents of the Issue and Resolution Logs shall include:

1. All open and continuing items, with status and responsible person or organization for resolution;
2. Procedures to maintain and distribute the issues and resolution log throughout the project until all issues are resolved or acknowledged by the Owner; and
3. Resolution(s) shall be included in the log and acknowledged by the owner.

Section 407

Commissioning Testing

407.1 Checklists and test procedures. The following shall be established and fully documented prior to testing.

1. Project-specific construction checklists and commissioning testing procedures;
2. Where test data results are required for specific equipment or systems, there shall be an item in the associated Construction Checklist for the test data to be submitted to the Commissioning Provider;
3. A listing of the entities responsible for executing each of the tests; and
4. A uniform and effective process to document Commissioning testing of and interaction between commissioned equipment and systems.

407.2 Evaluation. Evaluation of the equipment and systems shall include the following:

1. Verification that the installed equipment and systems match those defined in the construction documents and approved construction submittals;
2. Verification that the equipment and systems were properly installed and are accessible for testing and maintenance; and
3. Test results for the installed equipment and systems shall be compared to the relevant requirements of the specifications, submittals and codes;

407.3 Test reports. Completed test reports including checklists and test procedures shall be submitted to the project team for review and to the Commissioning Provider for evaluation and inclusion in the Commissioning Report.

Section 408

Project Documentation and Systems Manual

408.1 Project Documentation. The project documentation shall include documentation needed to understand, operate, and maintain the building's equipment and systems, and shall include the documentation required by applicable codes and standards.

408.2 Systems Manual. The systems manual shall be submitted to the owner prior to project completion and before issuance of the certificate of occupancy. The systems manual shall include the following information for all commissioned systems:

1. Table of Contents;
2. Information for each commissioned equipment element or system including:
 - o Manufacturer's operation and maintenance data for installed equipment, systems and assemblies including wiring diagrams and schematics;
 - o Warranties, where provided;
 - o Contractor, supplier, or service agency listing and contact information;
3. Facility Operations;
 - o Facility guide, including operating plan, building and equipment operating schedules, setpoints and ranges, sequences of operation, and emergency procedures;
 - o Maintenance plans, procedures, checklists, schedules and records;
 - o Janitorial and cleaning plans and procedures.

408.3 Training materials and records. Where training is provided as part of the commissioning process, the systems manual and preliminary commissioning report shall be provided prior to the training, and records of the training shall be included in the final commissioning report.

408.4 Commissioning Reports. Commissioning reports shall be provided according to the requirements of Sections 409.1 and 409.2.

408.5 Record documents. Construction record documents, including record drawings, specifications and approved submittals, shall be delivered to the owner within 90 days of issuance of the Certificate of Occupancy.

Section 409 Commissioning Report

409.1 Preliminary Commissioning Report. The preliminary commissioning report shall be delivered to the owner and the code official prior to the final inspection or issuance of the Certificate of Occupancy and shall include the following:

1. Table of contents.
2. Documentation of the commissioning activities included in the commissioning plan and those required by code and by this standard, including any delayed testing.
3. The final commissioning plan, including functional test and performance test procedures used and the criteria for test acceptance.
4. The list of code-required commissioning and the design and submittal reviews required by the Commissioning Plan.
5. The results of all evaluations, start-up data, functional tests, and performance tests, and reports for code-required commissioning.
6. Issue logs and disposition of all deficiencies found during testing and evaluation, including corrective measures used or proposed.
7. A resolution plan identifying any tests that are deferred and issues that are unresolved or incomplete, plus the conditions for completion and the individuals responsible for completion.

409.2 Final Commissioning Report. The final commissioning report shall be delivered to the owner within 30 days of final completion of the commissioning work required by code and by this standard, and shall include the Commissioning Process activities occurring after issuance of the Certificate of Occupancy and the results from those activities, together with the contents of the Preliminary Commissioning Report.

Appendix A : COMMISSIONING PROCESS COMPLIANCE CHECKLISTS AND FORMS

Templates CF-1 through CF-7 provides optional guides for collecting and documenting the information associated with the Commissioning Process activities. Other formats are acceptable.

CODE-REQUIRED COMMISSIONING COMPLIANCE FORM CF-1 Submitted with Permit Application		
Project Name: _____		
Project Address: _____ Permit Number: _____		
ITEM #	CODE-REQUIRED COMMISSIONING (CRC) ITEMS	PAGE NUMBER IN CRC DOC.
General Commissioning Process (401)		
a	Commissioning process scope and requirements, including logs, reviews, reports and listing of equipment and systems requiring commissioning, with installation, evaluation and testing requirements.	
Code Requirements (402)		
b	Code requirements, including indoor temperature, humidity, and ventilation requirements, and other environmental, sustainability, and efficiency goals and benchmarks where required by codes or jurisdiction.	
Documentation (408)		
c	Project documentation requirements and formats including Commissioning Plans, Commissioning Reports, and Systems Manual.	
Commissioning Provider Acknowledgement I have reviewed the CRC document and verified that it includes all of the code required commissioning documentation listed in this form: Name: _____ Company Name _____ Provider Signature: _____ Date: _____		

**COMMISSIONING PLAN COMPLIANCE FORM
CF-2**

Project Name: _____

Project Address: _____ Permit Number: _____

ITEM #	PRELIMINARY COMMISSIONING PLAN ITEMS (403.2) Submitted with permit application	PAGE NUMBER IN Cx PLAN
-----------	---	---------------------------

General Project Information (403.2 (1) & (2))

a	Overview of the commissioning process and schedules developed for each phase of the project, from design through occupancy.	
---	---	--

Roles and Responsibilities (403.2 (3))

b	General roles and responsibilities for the Commissioning Team throughout the project. The responsibilities shall delineate the duties of the commissioning providers, commissioning specialists, inspectors, contractors, suppliers, and other agencies.	
---	--	--

Communication Channels (403.2 (4))

c	Documentation of general communication channels including the distribution of the Commissioning Plan and documentation during the design and construction processes. This includes the development and utilization of the Issues and Resolution Logs and a preliminary listing of required reports including format, reviews and approvals.	
---	---	--

Documentation and Submittal Review (403.2 (5))

d	Project construction design documentation review and submittal evaluation procedures and report formats.	
---	--	--

Commissioned Equipment and Systems (403.2 (6))

e	The preliminary list of operations, equipment and systems that will be commissioned and/or inspected, including performance criteria.	
---	---	--

Checklists, Forms, Logs and Reports (403.2 (7))

f	Preliminary format for Commissioning checklists and testing forms and Commissioning Progress Reports.	
---	---	--

Systems Manual, Training Plans and Final Commissioning Report (403.2 (8))

g	Guidelines and formats that will be used to develop the Systems Manual, Training Plans, and Final Commissioning Report.	
---	---	--

Resolution Process (403.2 (9))

h	Procedures to follow whenever Commissioning Process evaluation results do not meet the code requirements or the construction document requirements.	
---	---	--

ITEM #	FINAL COMMISSIONING PLAN ITEMS (403.3) Submitted with permit application	PAGE NUMBER IN Cx PLAN
-----------	---	---------------------------

a.	Detailed description of Commissioning Process activities, the schedule of activities and the list of operations, systems and assemblies that will be commissioned or inspected, including evaluation procedures and performance criteria.	
----	---	--

b.	Final listing of required reports including format, reviews and approvals.	
c.	Detailed testing procedures and checklists for functional testing and performance testing for all commissioned systems and assemblies, including verification of sequences of operation and, where relevant, conditions under which the testing will be performed.	
d.	All of the Preliminary Commissioning Plan items have been updated as required to reflect any project changes.	
Commissioning Provider Acknowledgement – Preliminary I have reviewed the Preliminary Commissioning Plan and verified that it meets the requirements of this standard for code-required commissioning. Name: _____ Company Name _____ Provider Signature: _____ Date: _____		
Commissioning Provider Acknowledgement – Final I have reviewed the Final Commissioning Plan and verified that it meets the requirements of this standard for code-required commissioning. Name: _____ Company Name: _____ Provider Signature: _____ Date: _____		

COMMISSIONING REVIEW OF SUBMITTALS COMPLIANCE FORM CF-3 Submitted before final inspection		
Project Name: _____		
Project Address: _____ Permit Number: _____		
ITEM #	COMMISSIONING SUBMITTAL REVIEW ITEMS	PAGE NUMBER IN Cx REVIEW DOC.
General Project Submittal Information (405.2)		
a	Commissioning Provider shall identify construction submittals to be provided by the Contractor for the systems being commissioned. The Commissioning Provider shall review the construction submittals concurrently with the designers and provide comments to the designer.	
Systems To Be Commissioned and Documentation Process (405.3)		
b	The submittal review report shall include a listing of the submittals reviewed, the date reviewed and a summary of the submitted equipment/materials properties that appear not to meet code requirements.	
Commissioning Provider Acknowledgement I have reviewed the submittals documents and verified that they meet the applicable code requirements. Name: _____ Company Name: _____ Provider Signature: _____ Date: _____		

COMMISSIONING ISSUES AND RESOLUTION LOG COMPLIANCE FORM
CF-4
Submitted before final inspection

Project Name: _____

Project Address: _____ Permit Number: _____

ITEM #	COMMISSIONING ISSUES AND RESOLUTION LOG ITEMS	PAGE NUMBER IN Cx ISSUES LOG
-----------	---	---------------------------------

General Project Information (406.2 (1))

1	All open and continuing items, with status and responsible person or organization for resolution.	
---	---	--

Log Procedures (406.2 (2))

2	Procedures to maintain the log throughout the project until all issues are resolved or accepted by the Owner.	
---	---	--

Log Distribution (406.2 (2))

2	Procedures to distribute the logs to the Commissioning Team at intervals prescribed in the Commissioning Plan.	
---	--	--

Resolution (406.2 (3))

3	Resolution of each issue in the log with final approval by owner.	
---	---	--

Commissioning Provider Acknowledgement

I have reviewed the Issues Log and verified that it meets the applicable code requirements.

Name: _____

Company Name: _____

Provider Signature: _____ Date: _____

COMMISSIONING TESTING COMPLIANCE FORM
CF-5 Submitted before final inspection

Project Name: _____

Project Address: _____ Permit Number: _____

ITEM #	COMMISSIONING TESTING ITEMS	PAGE NUMBER IN Cx TESTING DOC.
--------	-----------------------------	--------------------------------

Checklists and Test Procedures (407.1)

a	Project-specific Construction Checklists and Commissioning testing procedures shall be established for review by Owner and appropriate team members.	
b	The test procedures shall list the entities responsible for executing each of the tests.	
c	Whenever a test data result is required for a specific system or assembly, there shall be an item in the associated Construction Checklist for the test data to be submitted to the Commissioning Provider.	
d	There shall be a uniform and effective process for documentation of testing to provide Commissioning testing of and interaction between commissioned equipment, systems, and assemblies. Commissioning team shall refer to applicable Commissioning technical resources tailored to their specific projects.	

Evaluation (407.2)

e	Vital information on the equipment or materials supplied. Information shall detail what equipment/material was specified and submitted. What was actually delivered on the site shall be documented and verified.	
f	Proper installation of the systems and assemblies. Evaluation shall focus on the physical installation of the systems and assemblies, on their ability to meet the contract documents requirements, and on accessibility for Commissioning, testing, and maintenance operations.	
g	Testing procedures, conditions and successful Commissioning testing results of systems and assemblies.	

Test Reports (407.3)

h	Completed test reports including checklists and test procedures shall be submitted to the project team for review and the Commissioning Provider for evaluation and inclusion in the Commissioning Report.	
---	--	--

Commissioning Provider Acknowledgement

I have reviewed the Commissioning Testing documents and verified that it meets the applicable code requirements.

Name: _____

Company Name _____

Provider Signature: _____ Date: _____

Equipment and Assemblies Tested (CF-5A)

REPORT #	SYSTEM/EQUIPMENT TESTED	PAGE/TAB NUMBER IN COMMISSIONING REPORT

DOCUMENTATION AND SYSTEMS MANUAL COMPLIANCE FORM**CF-6****Submitted before final inspection**

Project Name: _____

Project Address: _____ Permit Number: _____

ITEM #	SYSTEMS MANUAL ITEMS	PAGE NUMBER IN SYSTEMS MANUAL
	Table Of Contents	

Code-Required Commissioning requirements (402.1)

a	Listing of all equipment and systems required by applicable codes to be commissioned.	
---	---	--

Record Documents Evaluation (408.5)

b	Construction record documents including; record plans, specifications and approved submittals.	
---	--	--

Systems and Assemblies Information (408.2 (1))

c	Facility, systems and assemblies information including: 1. Manufacturer's operation and maintenance data for installed equipment, systems and assemblies including wiring diagrams and schematics. 2. Warranties, where applicable. 3. Contractor, supplier, or service agency listing and contact information.	
---	--	--

Operation Information (408.2 (2))

d	A facility operations guide, including an operating plan, building and equipment operating schedules, setpoints and ranges, sequences of operation, system and equipment limitations and emergency procedures.	
	Maintenance Plans and Janitorial plans.	

Training (408.3)

e	Where training is provided, training plans, materials and records shall be provided.	
---	--	--

Preliminary Commissioning Report (408.4)

f	A preliminary commissioning report in accordance with Section 409.	
---	--	--

Commissioning Provider Acknowledgement

I have reviewed the Systems Manual and verified that it meets the applicable code requirements.

Name: _____

Company Name: _____

Provider Signature: _____ Date: _____

PRELIMINARY COMMISSIONING REPORT COMPLIANCE FORM CF-7		
Project Name: _____		
Project Address: _____ Permit Number: _____		
ITEM #	PRELIMINARY COMMISSIONING REPORT ITEMS	PAGE NUMBER IN Cx Report
Commissioning Scope (409.1 (2))		
a	Documentation of the commissioning activities included in the commissioning plan required by adopted codes and the OPR including delayed testing.	
Commissioning Plan (409.1 (3))		
b	A copy of the final commissioning plan, including functional and performance test procedures used during the commissioning process and measurable criteria for test acceptance.	
Design Documents and Reviews (409.1 (4))		
c	A copy of the design and submittal reviews as required by the commissioning plan.	
System Evaluations (409.1 (5))		
d	The results of all evaluations, start-up data, functional and performance tests, and reports by suppliers, contractors, inspectors, and commissioning providers.	
Issues and resolutions (409.1 (6))		
e	Issue logs and disposition of all deficiencies found during testing, including details of corrective measures used or proposed.	
Open Items (409.1 (7))		
f	A resolution plan approved by the owner or the owner's representative identifying the deferred tests and issues that are unresolved or incomplete and any required conditions for completion.	
Commissioning Provider Acknowledgement I have reviewed the preliminary commissioning report and verified that it meets applicable code requirements. Name: _____ Company Name: _____ Provider Signature: _____ Date: _____		

Appendix B – Owners Project Requirements

B.101 Owners Project Requirements

B.101.1 Contents. The contents of the Owner's Project Requirements (OPR) for submission to the jurisdiction shall include the following information applicable to the code requirements:

1. Facility size, location, user requirements, including space usage, occupancy, operation and project schedules, codes, standards, and indoor environmental requirements, including temperature, humidity, and ventilation.
2. Commissioning process requirements, including logs, reviews and reports and listing of equipment, systems and assemblies requiring commissioning with installation evaluation and testing requirements.
3. Commissioned equipment, systems and assemblies requirements, including maintainability, access, and operational performance requirements.
4. Environmental, sustainability, and efficiency goals and benchmarks for code requirements.
5. Project documentation requirements and formats including; Basis of Design, Commissioning Plans and Reports, and the Systems Manual.
6. Training requirements for owner's operation and maintenance personnel and occupants.

Template CF-1B provides an optional guide for collecting and documenting the information associated with the Commissioning Process activities. Other formats are acceptable.

OWNER'S PROJECT REQUIREMENTS COMPLIANCE FORM CF-1B Submitted with Permit Application		
Project Name: _____		
Project Address: _____ Permit Number: _____		
ITEM #	OWNER'S PROJECT REQUIREMENTS ITEMS	PAGE NUMBER IN OPR DOC.
Project Program		
a	Facility size, location, user requirements, including space usage, occupancy, operation and project schedules and codes, standards and indoor environment requirements, including temperature, humidity, and ventilation.	
Commissioning Process		
b	Commissioning process requirements, including logs, reviews, reports and listing of equipment, systems and assemblies requiring commissioning with installation evaluation and testing requirements.	
Systems and Assemblies		
c	Commissioned equipment, systems and assemblies requirements, and warranty provisions including maintainability, access, and operational performance requirements.	
Environmental Quality and Efficiency Requirements		
d	Environmental, sustainability, and efficiency goals and benchmarks for code requirements.	
Documentation		
e	Project documentation requirements and formats including; Basis of Design, Commissioning Plans and Reports, and Systems Manual.	
Commissioning Agency Acknowledgement I have reviewed the OPR document and verified that it meets the owner's project requirements. Name: _____ Company Name: _____ Agency' Signature: _____ Date: _____		

Appendix C – Basis of Design

C.201 Basis of Design

C.201.1 Basis of Design (BOD). The BOD shall be completed at the start of the design phase of the building project, and updated as necessary during the design and construction phases.

C.201.2 Contents. The BOD document shall include compliance with the requirements of the applicable code and the following:

1. Description of the design team's proposed technical method to meet the requirements;
2. Coordination of applicable technical and code requirements as well as the commissioning requirements for systems and assemblies being commissioned;
3. Design criteria and design assumptions in agreement with the OPR and code requirements;
4. Requirements for sustainable design and other certifications when required; and
5. Requirements that systems, assemblies, and equipment be located, installed, commissioned and maintainable, and that training be provided to operations and maintenance staff.

Template CF-1C provides an optional guide for collecting and documenting the information associated with the Commissioning Process activities. Other formats are acceptable.

BASIS OF DESIGN COMPLIANCE FORM CF- 1C Submitted with permit application		
Project Name: _____ Project Address: _____ Permit Number: _____		
ITEM #	BASIS OF DESIGN ITEMS	PAGE NUMBER IN BOD DOC.
Technical Approach		
a	Description of the design team's technical approach to each of the Owner's requirements.	
Codes and Commissioning		
b	Coordination of applicable technical and code requirements as well as the commissioning requirements for the systems and assemblies being commissioned.	
Assumptions		
c	Design criteria and design assumptions in agreement with the OPR and code requirements.	
Sustainability and Related Criteria		
d	Requirements for sustainable design and other certifications when required.	
Maintenance and Training		
e	Requirements that systems, assemblies, and equipment be located, installed, commissioned and maintainable, and that training be provided to operations and maintenance staff.	
Commissioning Agency Acknowledgement I have reviewed the Basis of Design and verified that it meet the owner's project requirements. Name: _____ Company Name: _____ Agency' Signature: _____ Date: _____		

Appendix D - Training

D.301 Training

D.301.1 Contract documents. The training of the operating and maintenance staff of the facility shall be required in the contract documents and include the development and application of a training plan.

D.301.2 Contents. The contents of the training plan shall include:

1. Outline of instructional topics that shall address the design, construction, operation, and maintenance of commissioned systems, assemblies, and equipment. A review and utilization of the Systems Manual shall be included in the training process;
2. Learning objectives and training delivery methods, training materials and instructor requirements locations and duration for each instructional topic in conformance to the OPR and commissioning Plan; and
3. Requirements and format for training reports, records and recording criteria.

D.301.3 Records. Archival of instruction, delivery of instruction, and training materials shall be provided as specified in the Contract Documents and per the OPR and commissioning plan. A copy of the Training Plan, training materials, and records shall be included in the final Systems Manual.

Template CF-1D provides an optional guide for collecting and documenting the information associated with the Commissioning Process activities. Other formats are acceptable.

TRAINING COMPLIANCE FORM CF- 1D		
Project Name: _____ Project Address: _____ Permit Number: _____		
ITEM #	TRAINING ITEMS	PAGE NUMBER IN TRAINING PLAN
General Training Information		
a	Outline of instructional topics shall address the design, construction, operation, and maintenance of commissioned systems, assemblies, and equipment. A review and utilization of the Systems Manual shall be included in the training process.	
Objectives and Methods		
b	Learning objectives and training delivery methods, training materials and instructor requirements, locations and duration for each instructional topic in conformance to the OPR and commissioning Plan.	
Materials and Records		
c	Requirements and format for training report, records and recording criteria.	
Commissioning Agency Acknowledgement I have reviewed the training plan and verified that it meets the owner's project requirements. Name: _____ Company Name: _____ Agency' Signature: _____ Date: _____		