

INTENT OF NEW CONSTRUCTION POST OCCUPANCY COMMISSIONING

The intent of PSE's Post Occupancy Commissioning (Cx) Program is to provide the owner with optimized systems that minimize energy consumption, meets the owner's energy use goals. The process provides resources (On Going Cx Plan, Facility Guide, On Going Training Plan, and Investigation Details/Cx Report) so the owner and operator can continue to efficiently operate and maintain their building systems.

COMMISSIONING AGENT EXPERIENCE REQUIREMENTS

All of PSE's commissioning programs require a minimum level of experience in addition to a high-level understanding of building energy using systems. Successful providers also have strong interpersonal skills, as well as the ability to investigate, implement, and verify energy efficiency opportunities.

PSE maintains an updated [list of prequalified Cx professionals](#) that are qualified to participate in all of PSE's commissioning programs for those wishing to find a qualified professional to commission their facility. If you have a person you wish to use that is not preapproved, you can [submit the Cx professional application](#) to receive preapproval.

POST- OCCUPANCY COMMISSIONING PLAN

The Post Occupancy Cx Plan is intended to provide the owner and O&M staff with a plan and description of the systems that should be optimized to achieve and maintain efficient operation while supporting the Owner's Project Requirements (OPR).

Included	Commissioning Plan Requirements
1	Overview of project, Commissioning Goals (coordination with owner and O&M staff). Describe what you are planning to do and what should be done in the future
2	Provide a description of the systems that will be optimized and how that will be achieved. Account for future system maintenance as well as what systems or equipment that should be excluded.
3	Discuss how optimizing these systems will support the OPR.
4	Explain the process you will use to compare, analyze, and report the tests and associated findings and how this will save energy. Explain how this should be done into the future.

INVESTIGATION REPORTS

The Post Occupancy Cx Investigation Report focuses on specific systems selected for optimization that will provide the most energy savings. Investigation Details and the Cx Report shall document the Functional Tests and procedures performed during Post-Occupancy Commissioning. Resolutions that were made and unresolved items must be included.

Included	Investigation Report/Cx Report Requirements
1	Executive Summary of work completed including the following: The Scope of Work, Post Occ processes and procedures, test results, resolved and unresolved findings and their energy impact.
2	List of Optimized Systems that were targeted (refer to the Investigation Details sheets). Include the

		following: Test/Checks/Analysis, results and dates of tests performed, verification of improvements, and trend data (refer to trend point list).
	3	Provide a list of additional systems that are good candidates for potential savings .(i.e. large energy user, highly sensitive to scheduling or other variables, etc
	4	Energy use analysis of baseline energy and post commissioning work and how it meets the OPR/BOD.

ON GOING TRAINING PLAN AND TRAINING LOG SHEET

Training ensures the operators understand the key elements that affect energy efficiency in the building and how to maintain and fine-tune the building systems into the future.

Included	<u>On Going Training Plan Requirements</u>	
	1	Summary of Training for the O&M staff, including completed sign in sheets documenting at least 50 hours of training and staff time has been completed by operations staff.
	2	Description of energy consuming systems and energy efficiency features and measure for staff.
	3	Identify systems that were optimized and include SOO, settings, procedures, etc.
	4	Analyze energy usage from benchmarks in DDC system
	5	Recommendations for future opportunities (include schedules, fine tuning, and calibration)
	6	Review of On-Going Commissioning Plan

FACILITY GUIDE

The Facility Guide provides owners and operators with information about the building systems so they can understand and operate them efficiently and meet the facility energy use goals.

Included	<u>Owner Project Requirements</u>	
	1	Owner Project Requirements (OPR) updated to the Current Facility Requirements (CFR)
	2	Energy Efficiency Operations & Checks (part of On-Going CX Plan)
	3	Energy Use Benchmarks (pre and post Cx) including adjustments for weather and scheduling.
	4	Description of Systems Operations (lighting, HVAC, energy using systems).
	5	Schematics, SOO, set points, and facility operational parameters that support the CFR.
	6	Functional Performance Test and procedures with associated set points.
	7	On-Going CX plan: regularly monitored and checked to maintain efficiency and how and by whom this will be done. Specific parameters, trends and tests to be performed/analyzed with the results that are expected and energy benchmarking are included.

The Commissioning Agent, Owner, and Operator/Maintenance Staff are to initial that each requirement has been completed. Please submit at the end of the Post Occupancy work with the above documents.

Completed by CxA	Confirmed by Owner	Confirmed by Operator	Item No.	Requirements
			1	Owner Requirements: Commissioning Agent, Owner, and O&M staff met to discuss the OPR, owner's energy use goals and the current facility requirements (CFR).
			2	<u>Energy Use analysis</u> : Energy use and operations of building for energy

POST OCCUPANCY PROGRAM DETAILS

				efficiency has been reviewed to observe for efficiency and seasonal variation including swing months. Complete PSE Energy Date Investigation Details sheet.
				<u>Post-Occupancy CX plan</u> : developed and documented with i systems identified for optimization for energy efficiency improvements and Process and procedures to test systems
			3	Investigation: Pre and Post schedules, set points, seasonal operations, operational issues, energy use, occupant comfort issues, control overrides, and key control sensor calibration has been reviewed and addressed. PSE provided Investigation Details sheets are completed for systems commissioned.
			4	<u>CX Report</u> provided to PSE and the owner with the following elements:
			4 A.	Test results, analysis, resolved and unresolved findings are documented.
			4. B	Low Cost/No Cost improvements (i.e. temperature set point changes, schedule changes, etc.) and resulting energy savings.
			4.C	Building Energy Use Systems have been identified and documented in the Investigation Details, Training Plan, and Facility Guide.
			4.D	<u>On-Going Commissioning Plan</u> : A list of additional systems to be optimized for future savings and checks and tests to sustain energy efficiency improvements and address facility/occupancy changes. Details communicated to the owner and staff.
			5	<u>Facility Guide</u> : including updated sequence of Operations, set points and settings, schematics schedules, investigation results, and On-Going CX plan.
			6	<u>O&M Training</u> : 50 hours of training has been scheduled and attended by owner and O&M staff. Sign in sheets are included in submitted documents. Training included results from the tests and impact to energy use and optimization procedures, settings, schedules, etc. regarding energy efficiency improvements and benchmarks that support the Current Facility Requirements (CFR).

Commissioning Agent Signature

Date

Owner Signature

Date

O&M Staff Signature

Date