



## ***The Commissioning Process for Delivering Quality Constructed Projects***

*Daily Agenda: In-person Courses*

### **MONDAY**

- 7:30            *Registration / Check-in*
- 8:00            Welcome and Introductions
- 8:30            Overview of the Commissioning Process (CxP)
- What is the ASHRAE Guideline 0 commissioning process?
  - Current best practice
  - What is a quality delivery process?
  - Benefits of the commissioning process
  - What occurs in each phase of project delivery?
- 11:15          Pre-Design Phase Commissioning Tasks (Part 1)
- Developing the owner's project requirements (OPR)
  - Owner's workshop: preparation and participants, Nominal Group Technique (NGT), procedures and results
- 12:00          *Lunch*
- 1:00            The Owner's Project Requirements Workshop
- Executing an OPR workshop
  - Determining which questions to ask – project success criteria
  - Class activity: workshop in action
- 3:00            Developing the OPR Document
- Review of key OPR concepts
  - Typical information required
  - Steps in document creation
  - Review of example document
- 4:00            Pre-Design Phase Commissioning Tasks
- Planning the CxP effort
  - Commissioning plan fundamentals, key milestones, structure
  - Evaluating the benefits of pre-design phase involvement
  - The CxP as a strategic quality plan
- 5:00            *Daily Adjournment*

## **TUESDAY**

- 8:00 Workshop: Defining CxP Needs
- 9:15 CxP Activities in the Design Phase
- Pre-design meetings
  - Design checklists
  - Basis of design development
  - CxP design review process
  - CxPlan update
- 10:20 Design Review Workshop
- Group workshop using the four steps of a CxP design review procedure
- 12:00 *Lunch*
- 1:00 Design Review Workshop continues
- 1:30 Commissioning Specifications
- Format options
  - Types of requirements: contractor participation; maintainability; checklist implementation; shop drawings, training, and systems manual; testing and verification
- 3:00 Systems Manual and Training
- Systems manual (role in all phases)
  - Training (role in all phases)
- 3:45 Commissioning Process Checklists
- Purpose, goals
  - Use in all project phases
  - Construction checklists: development, tracking methods, verification, statistical sampling, checklist work session
- 4:55 *Daily Adjournment*
- 5:00 University of Wisconsin CxP Certification Exam Review (part 1, for 1 hour)

## **WEDNESDAY**

- 8:00 Construction Phase CxP Tasks
- Pre-construction activities (pre-bid, workshops, partnering)
  - Cx meetings and coordination, role of the CxA
  - Tracking commissioning activities
  - Cx schedule
  - Testing
  - Commissioning reports
  - Benefits/issues log

9:30	Commissioning Process Tests <ul style="list-style-type: none"> <li>• Developing test protocols</li> <li>• Confirmation of readiness</li> <li>• Implementation steps</li> <li>• Documentation</li> </ul>
10:30	Test Development Workshop
11:20	Integrating CxP with Contractor Efforts <ul style="list-style-type: none"> <li>• Quality processes</li> <li>• Overlaps and gaps</li> </ul>
12:00	<i>Lunch</i>
1:00	Electronic and Web-Based Commissioning Tools <ul style="list-style-type: none"> <li>• Computer tools for site tracking</li> <li>• Electronic systems manuals</li> </ul>
1:30	Acceptance Phase, First Year of Operation, and Beyond <ul style="list-style-type: none"> <li>• Training</li> <li>• Systems manual</li> <li>• Project CxP report(s)</li> <li>• Warranty review and seasonal testing</li> <li>• On-going commissioning</li> </ul>
2:00	Analyzing the Benefits of Commissioning: Case Studies <ul style="list-style-type: none"> <li>• Scope of commissioning</li> <li>• Detailed cost analysis</li> <li>• Benefits and lessons learned</li> </ul>
2:45	Special Topics in the CxP <ul style="list-style-type: none"> <li>• Review of LEED Cx process</li> <li>• Review of existing building Cx process</li> </ul>
4:00	<i>Course Adjourns</i>