The Commissioning Process for Delivering Quality Constructed Projects

Detailed Topic Agenda: Online Courses

Day 1

<table>
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<tr>
<th>Topic #</th>
<th>Title</th>
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<tr>
<td>1</td>
<td>Introduction and Course Orientation</td>
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</table>
| 2 | 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? |
| 3 | Pre-Design Phase Commissioning Tasks (Part 1)  
  - Developing the owner’s project requirements (OPR)  
  - Owner’s workshop: preparation and participants, nominal group technique, procedures and results |
| 4 | The Owner’s Project Requirements Workshop  
  - Executing an OPR workshop  
  - Determining which questions to ask – project success criteria  
  - Group activity: OPR workshop in action (continues on Day 2) |

Day 2

| 4 | The Owner’s Project Requirements Workshop continued |
| 5 | Pre-Design Phase Commissioning Tasks (Part 2)  
  - 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 |
| 6 | Group Workshop: Defining CxP Needs |
| 7 | Developing the OPR Document  
  - Review of key OPR concepts  
  - Typical information required to develop needs  
  - Steps in document creation  
  - Group Activity: discussion of example document |
8  CxP Activities in the Design Phase (continues on Day 3)
   • Pre-design meetings
   • Design checklists
   • Basis of design development
   • CxP design review process
   • CxPlan update

Day 3
8  CxP Activities in the Design Phase continued
9  Design Review Workshop
   • Group workshop using the four steps of a CxP design review procedure
10 Commissioning Specifications
   • Format options
   • Types of requirements: contractor participation; maintainability; checklist implementation; shop drawings, training, and systems manual; testing and verification
   • Group specifications activity
11 Commissioning Process Checklists
   • Purpose, goals
   • Use in all project phases
   • Construction checklists: development, tracking methods, verification, statistical sampling
   • Group checklist work session

Day 4
12 Systems Manual and Training
   • Role of the Systems Manual in all project phases
   • Structure and content
   • Role of training in all phases
   • Types of training; timing
13 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
14 Commissioning Process Tests
   • Developing test protocols
   • Confirmation of readiness
   • Implementation steps
   • Documentation
   • Test procedure group workshop
Day 5

15 Integrating CxP with Contractor Efforts
   • Quality processes
   • Overlaps and gaps

16 Acceptance Phase, First Year of Operation, and Beyond
   • Training
   • Systems manual
   • Project CxP report(s)
   • Warranty review and seasonal testing
   • On-going commissioning

17 Electronic and Web-Based Commissioning Tools
   • Computer tools for site tracking
   • Electronic systems manuals

18 Analyzing the Benefits of Commissioning: Case Studies
   • Scope of commissioning
   • Detailed cost analysis
   • Benefits and lessons learned

19 Special Topics in the CxP
   • Review of LEED Cx process
   • Review of existing building Cx process