Design-Phase Commissioning – Optional or Required?

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Presentation Description

- Present the whys, the hows, and the power of design-phase commissioning.
- Show the value of a comprehensive team and strategies for a consequential design review.
- Teach attendees how to use design-phase commissioning to fix problems before construction and to help the design team meet the Owner’s Project Requirements.
- Address the financial benefits of DR, scheduling DR for maximum benefit, the mechanisms of the design review process, and presentation and communication strategies that enable the design team and owner to fully consider alternative approaches proposed in the design review process.
Learning Objectives

At the end of this session, participants will be able to:

1. Understand the methodology and process of meaningful design-phase Cx
2. Identify and include relevant project players with the knowledge and skill to address technical design challenges and solutions
3. Use presentation strategies to enable the designer and owner to seriously consider suggestions
4. Support optimized system performance through design review
PRESENTATION HIGHLIGHT MARKERS

- Look for this symbol for themes about money
- Look for this symbol for themes about time
- Look for this symbol for themes about effort
- Look for this symbol for themes about questions or surprises
CX DURING DESIGN?

Pre-design and design-phase tasks outnumber the “traditional” construction-phase tasks.

**Cx Activities**

- Construction
- Post-occupancy
- Pre-design
- Design-Phase

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LEED ENHANCED COMMISSIONING

- Construction and Post-occupancy
- Designate CxA
- Document OPR & BOD
- Review OPR & BOD
- Develop Cx Plan
- Write Cx Specs
- CD Design Review
THE RIDDLE OF THE OPR
CART-HORSE INVERSION!

NCBP Issue 1: The OPR and the BOD are frequently not being developed by the project team nor utilized for the Cx process.
AVOID THE INVERSION
Solve the riddle

Use a design charrette to produce the OPR

- Have the right stakeholders in the charrette
- Forms the basis for the next design steps
- Changes after this cause redesign

Best Practice Solutions:

- Assign a champion
- Begin early, before schematic design
- Verify and measure success throughout the project by comparing the design documents against the OPR, and keep the OPR up-to-date throughout the project
WHAT CONSTITUTES AN OPR?

OPR contains...

- Cost
- Schedule
- Architectural Planning
- Mechanical and Electrical preferences or restrictions

...to answer this question

- What story do I want this building to tell?
REVIEW THE BOD

Reviewed against the OPR...

...to ensure that...

...the building’s story is told.
NCBP Issue 2: Commissioning Design Reviews are being **inconsistently performed**. The CxA may be brought in late to the project or the intent and role of the design review is unclear.
WHY DR?
Early detection

Ideally
- 3 reviews
- 3 review back-checks
- Review comments and responses should be documented
CX DR IS A SUSTAINABILITY CONCEPT

Not limited to mechanical systems...

- Encompasses envelope, lighting, intangible environmental aesthetic elements
- Commissioning of wall systems
- Commissioning of unique or novel ideas

...and it begins during design!
THE COMMISSIONING PLAN
Wait...during design?

- Cx Specs
- Design-Phase Requirements
- Contractor Requirements
COMMISSIONING SPECIFICATIONS
Because I said so

Do

- Include language detailing contractor participation in commissioning
- Include all testing that will be required by the contractor
- Include documentation requirements of contractor testing
- Include Project Closeout requirements, including training, O&M Manuals
- Include commissioning requirements across all affected sections

Don’t

- Repeat or recapitulate penalty clauses for delays or retesting in the technical sections
- Name subcontractors by trade (i.e. Controls Contractor)
- Define who will witness testing beyond the Owner
COMPLEMENTARY CX TASKS
Parallel design tasks

Commissioning Authority

Review OPR → Review BOD → Cx Plan → Cx Specs → Design Review

Design Team

Write BOD → SD/DD Docs → CD Docs and Specs

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CULMINATION OF COLLABORATION

The design now tells the building’s story.
The commissioning team and the design team worked together to tell the story that was developed in the OPR.
Commissioning provides year-to-year operational savings, but the commissioning process provides many project benefits.
IN CONCLUSION
Design-phase Cx can keep you out of trouble
THANK YOU

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