Genuine Ingenuity
Top 10 Commissioning Mistakes

Johnathan Woodside, P.E., LEED AP O+M, GBE, GGP

Steven Metzgar, CxA, LEED AP BD+C, EMP
What is Commissioning

A process of coordinating design and construction activities to ensure that; a design meets the owner’s project requirements, a design will function according to the design intent and the final product is completed and installed per the contract documents.
Gresham Smith Cx Process

- Pre-Design Phase
  - OPR Development/Review
  - Project Approach
  - Contract Scoping
  - BOD Review

- Design Phase
  - Cx Specification
  - Cx Design Review
  - Commissioning Plan
  - Witness Factory Testing
  - Submittal Reviews

- Construction Phase
  - Cx Kickoff Meeting
  - Review Start-Up Plan
  - Witness Start-Up
  - Pre-Functional Check
    - Site Visits

- Acceptance Phase
  - Functional Performance Tests
  - Training Personnel
  - O&M Review
  - Final Report

- Post Occupancy Phase
  - Systems Manual
  - Opposed Season Testing
  - Warranty Review
  - Lessons Learned Meeting
  - Revise Final Report
Common Mistakes
Chilled Water System
CHW System DP not verified with TAB
CHW minimum flow bypass valve
Chiller did not have DP sensor, it only had pressure transducers for reading DP
Heating Hot System
4 Verify Minimum Flow

5 Master/Slave Control
Control System
BACNet Capability with Equipment

Read/Write Capabilities
Design/
Construction Phase
Equipment not installed according to design
Design build needs more attention, not less attention
Overall Picture

Commission entire system and not piecemeal.
**Gresham Smith Cx Process**

- **Pre-Design Phase**
  - OPR Development/Review
  - Project Approach
  - Contract Scoping
  - BOD Review

- **Design Phase**
  - Cx Specification
  - Cx Design Review
  - Commissioning Plan
  - Witness Factory Testing
  - Submittal Reviews

- **Construction Phase**
  - Cx Kickoff Meeting
  - Review Start-Up Plan
  - Witness Start-Up
  - Pre-Functional Check Site Visits

- **Acceptance Phase**
  - Functional Performance Tests
  - Training Personnel
  - O&M Review
  - Final Report

- **Post Occupancy Phase**
  - Systems Manual
  - Opposed Season Testing
  - Warranty Review
  - Lessons Learned Meeting
  - Revise Final Report
Questions?