



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



- ▶ OPR Development/ Review
- ▶ Project Approach
- ▶ Contract Scoping
- ▶ BOD Review

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

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

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

- ▶ Systems Manual
- ▶ Opposed Season Testing
- ▶ Warranty Review
- ▶ Lessons Learned Meeting
- ▶ Revise Final Report



Common Mistakes



Chilled Water System



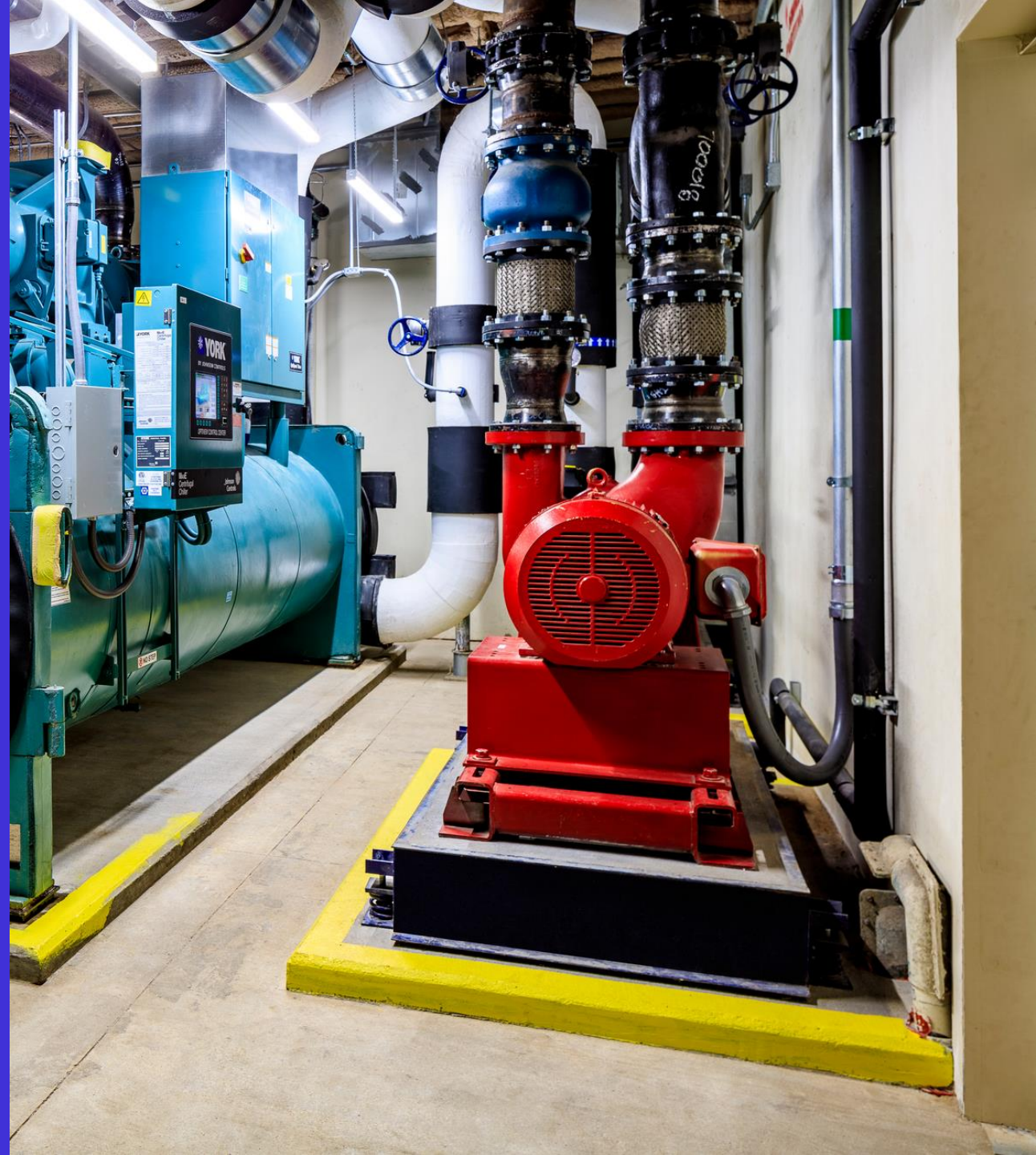


1

CHW System DP
not verified with TAB

2

CHW minimum flow bypass
valve





3

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

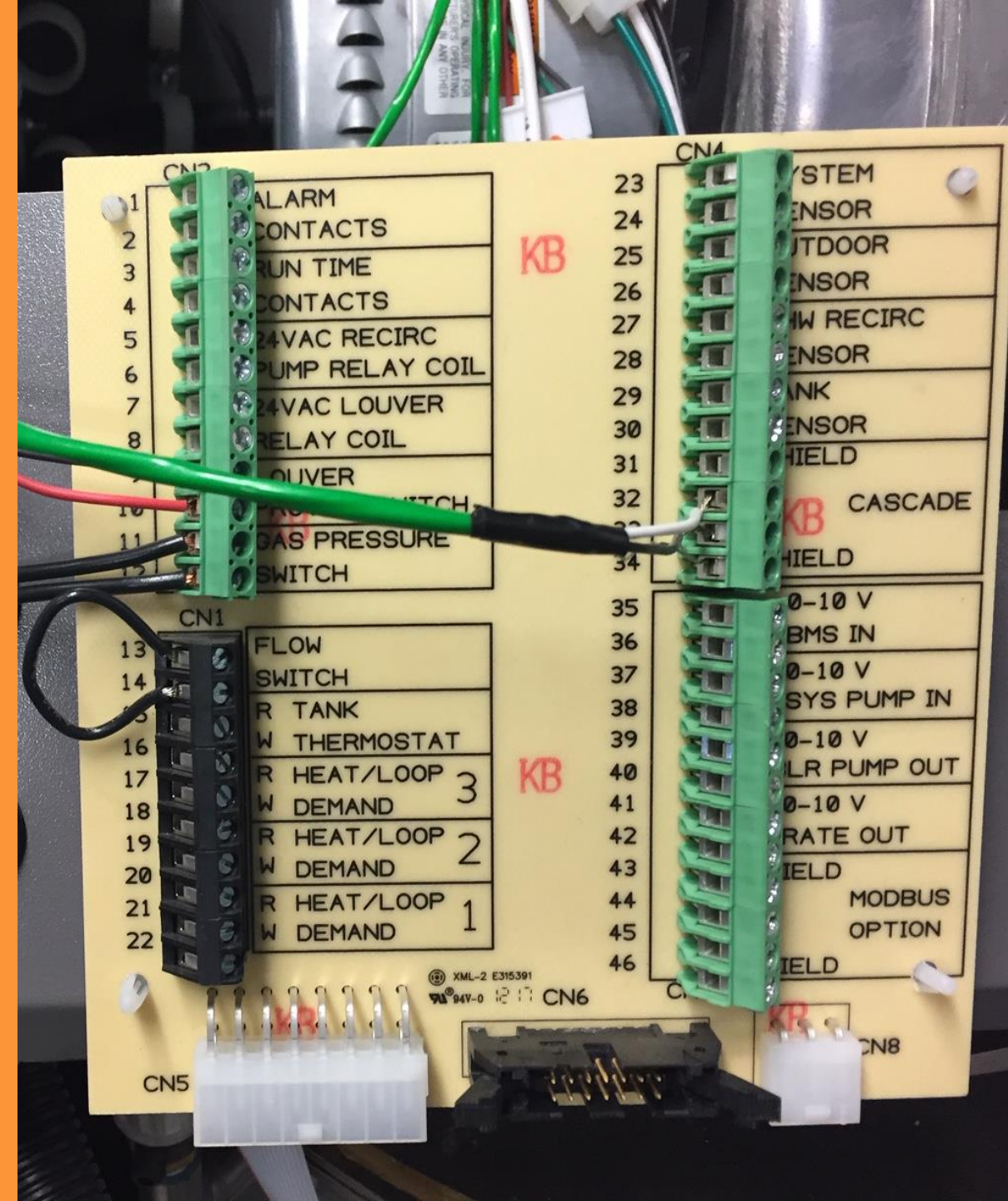




6 Isolation Valve
Operation

7 Firing Rate
Ramp Schedule

Control System





BACNet Capability
with Equipment



Read/Write
Capabilities

Design/ Construction Phase



9

Equipment not installed
according
to design





10

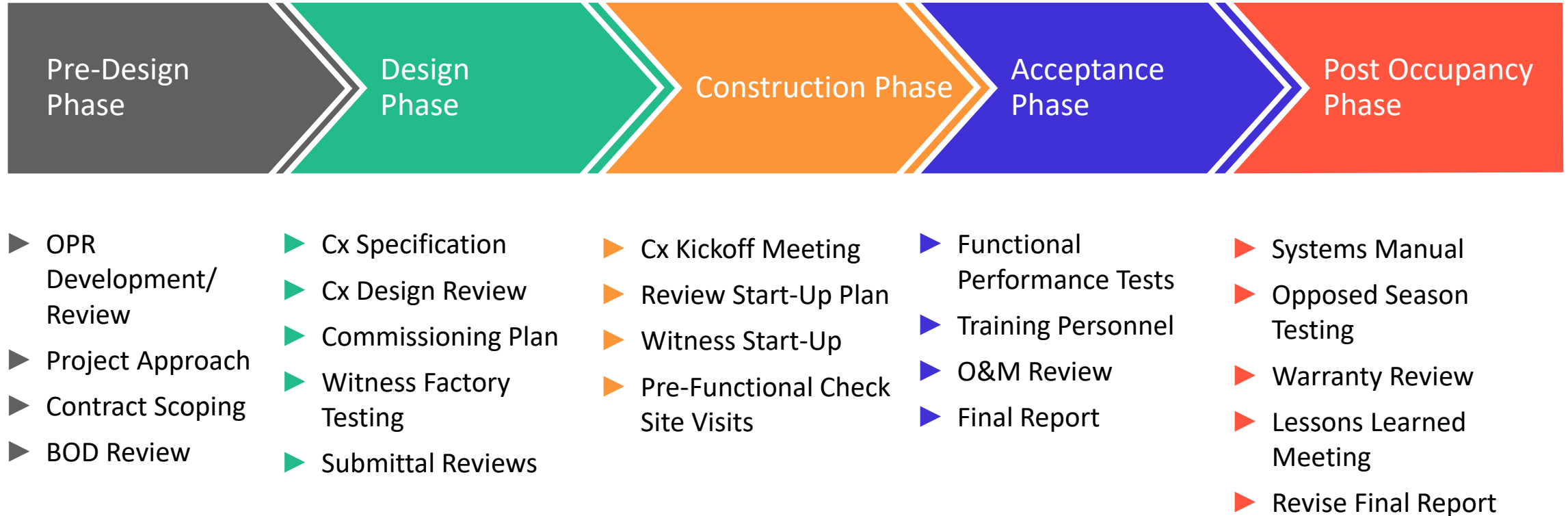
Design build needs more attention, not less attention

Overall Picture

Commission entire system and not piecemeal.



Gresham Smith Cx Process



Questions?