

Meet the Challenge



CHPS Commissioning Process



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What is Commissioning?



- **Quality Assurance Process**
 - Commissioning ensures that building systems are installed and operate according to the design intent
- **Pre-Design through Warranty**
- **Systems Related**
 - Mechanical / Electrical
 - Lighting
 - Controls

Common Construction Challenges



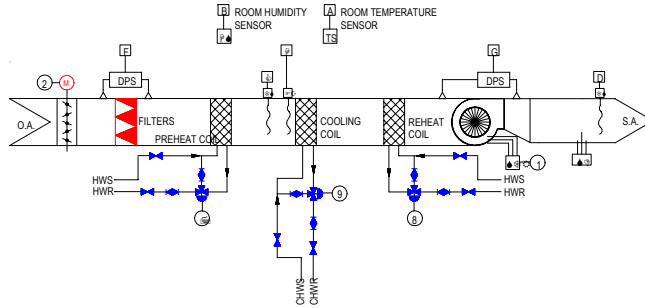
- Poor Quality of Finished Systems
 - Never Really Finished
 - Systems Don't Work Together
 - Functional Problems
- Schedule – “Never Enough Time”
- Disagreement over Quality Standards
 - Specification Enforcement
 - Design Intention
 - Substitutions

Why Commissioning?



- Building Performance Characteristics
 - Ideal Teaching Facilities
 - Healthy
 - Comfortable
 - Energy Efficient
 - Resource Efficient
 - Safe & Secure
 - Easy to Operate & Maintain
- Systems Are Complex

Why Commissioning?

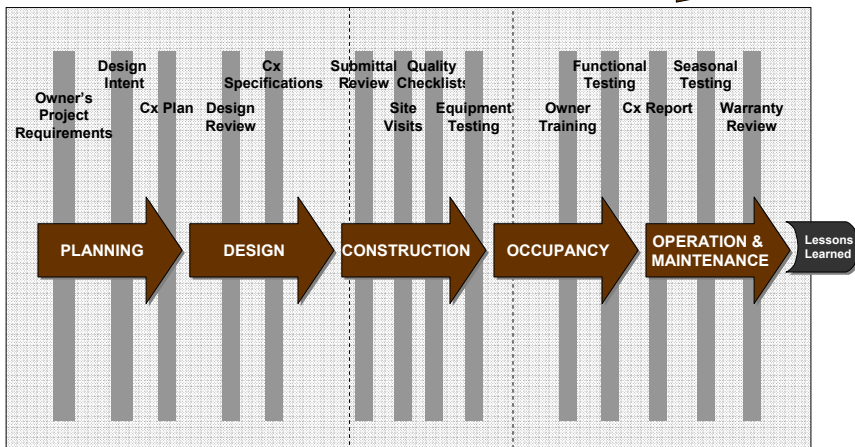


CONTROL SCHEMATIC DIAGRAM - AHU-2

Commissioning Tasks



COMMISSIONING PROCESS



The High Performance Cx Process 2006 Criteria



Three Levels of Commissioning:

- Abbreviated Commissioning (Prereq.)
- Standard Commissioning (1 Pt)
- Comprehensive Commissioning (2 Pts)

Abbreviated Commissioning



- Design Intent Documentation
- Commissioning Plan
- Commissioning Specification
- Pre-functional & Functional Testing
- Quality Meetings
- Operator Training
- Systems Manual

Standard Commissioning



- All Abbreviated Commissioning Tasks
- CD Document Review
- Commissioning Report
- O&M Manual Review
- 1 Year Warranty Review

Comprehensive Commissioning



- All Standard Cx Requirements
- Independent Party Required
- DD Document Review
- Contractor Submittal Review

Cost of Commissioning



- Dependent on Scope of Work
 - Economy of Scale
 - Number of Commissioned Systems
- Dependent on Complexity of Systems
- Dependent on Contract Method
- Industry Cost Range
 - Entire Building Cx 0.5% to 2% of Total Construction Cost
 - Typical School 0.3% to 0.75%

Benefits of Commissioning



- Higher Quality of Finished Product
- Fewer Change Orders
- Fewer Contractor Call Backs
- Lower Energy Bills
- Better Trained O&M Staff
- Reduced Operating Cost
- Teacher/Student/Parent Satisfaction

Commissioning Summary



- Cx is a Quality Assurance Process
- Design through Operation
- Three Levels of Commissioning
 - Abbreviated Cx (prerequisite)
 - Standard Cx (1 Point)
 - Comprehensive Cx (2 Points)

Thank you!



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Commissioning & CHPS Consultants

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