Commissioning - The What, The Why, The How

What to Expect from your Commissioning Provider

September 26, 2025

Farnsworth GROUP

Introductions / Agenda

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Introductions / Agenda

What is Commissioning?

The Approach and Process

Why do we do Commissioning?

What is Commissioning?

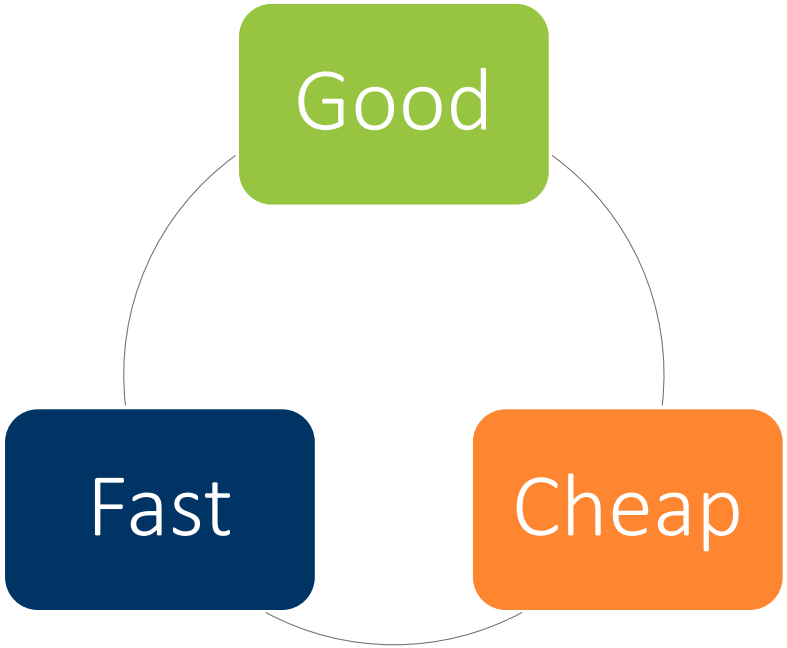
What is Commissioning?

Georgia Peach
Green Building Rating System

1. State of Georgia Requirements for Commissioning
The State of Georgia requires by law that commissioning be performed on state construction projects. The Energy Efficiency and Sustainable Construction Act of 2008 (codified in O.C.G.A. § 50-8-18) promotes effective energy and environmental standards for construction, rehabilitation, and maintenance of state-funded facilities. It provides a set of instructions for state agencies, design professionals, contractors, and building operators.

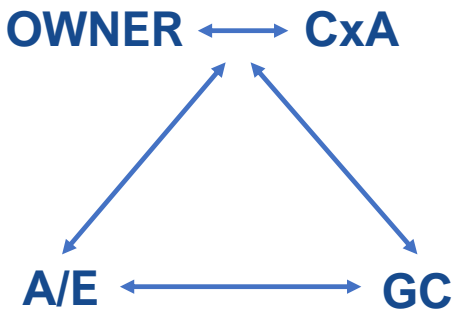
3. Georgia Peach Green Building Rating System
The Act includes a rating system entitled the Georgia Peach Green Building Rating System. Similar to the LEED rating system, the Peach rating encourages additional sustainable strategies for enhanced efficiency and conservation and promotes the use of Georgia-based products.

What is Commissioning?

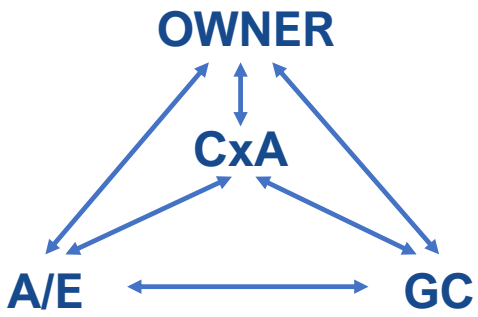


- Good + Fast — Won't be cheap
- Fast + Cheap — Won't be good
- Cheap + Good — Won't be fast

What is Commissioning?



TOP DOWN



HUB & SPOKE

What is Commissioning?

Steps to Manage Construction Risks

Inspection

- Determine what risks are most likely to affect your project
- Document which risks are most important

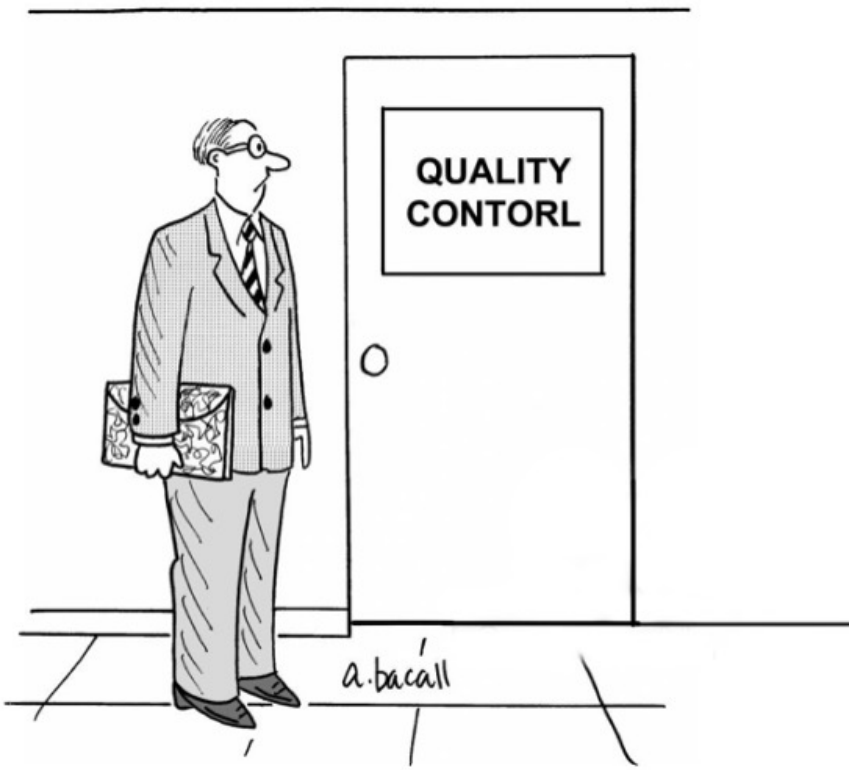
Qualification & Planning

- Asses the risks carefully
- Identify the possible outcome of these risks

Response Monitoring & Control

- Monitor risk responses and determine if the risk exposure has changed
- Monitor risk metrics, milestones, and effectiveness of your risk management solution

What is Commissioning?



What is Commissioning?

Quality Assurance

More process oriented

- Example: setting up review and approval process for construction drawings.

VS.

Quality Control

Focused on the final product

- Example: technical specs and a checklist to check the completed construction.

What is Commissioning?

Systems Included

Mechanical Systems	Plumbing Systems	Electrical Systems
Building Enclosure Systems	Fire Alarm	Network/IT
Access Controls	Medical Gas	Audio Visual

What is Commissioning?

Types of Cx

- New Building Commissioning
- Retro-Commissioning
- Re-Commissioning
- Continuous Commissioning

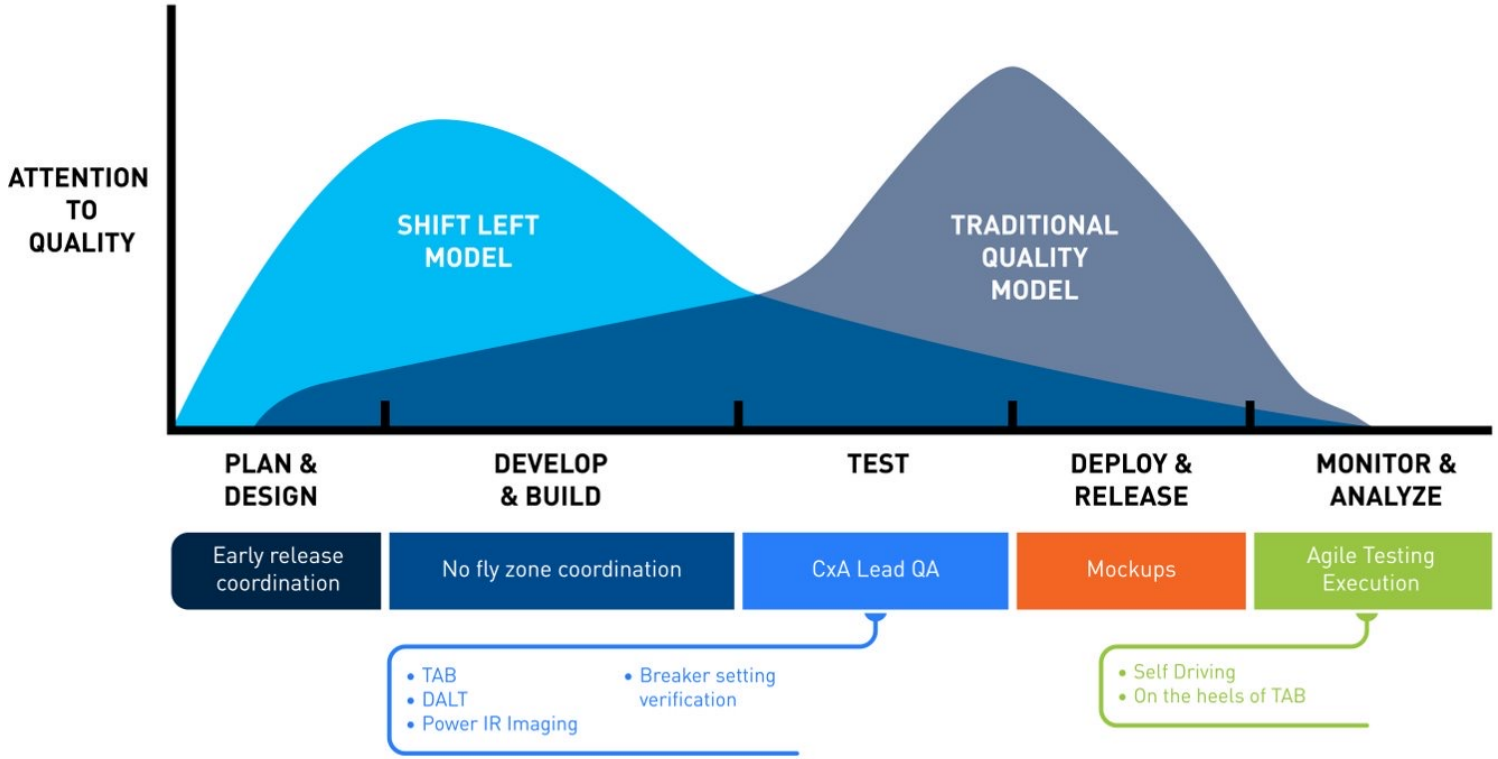
What is Commissioning?

Total Building Cx

The Approach and Process

Approach and Process

Shift-Left Planning



Approach and Process

Cx Requirements

Owner's Project Requirements (OPR)

- An informal set of goals that defines project success
- Can be developed via a Cx lead workshop or assembled from early-stage DP planning documents
- Documented and Managed by the CxA

Basis of Design (BOD)

- A formal response to the OPR
- Developed by the Design Professional and reviewed by the CxA
- Contains:
  - System narratives
  - Code compliance planning
  - Documents the intended path forward to meet space programming requirements

Approach and Process

Owner Defined Success

UNIVERSITY OF GEORGIA
Office of University Architects for Facilities Planning

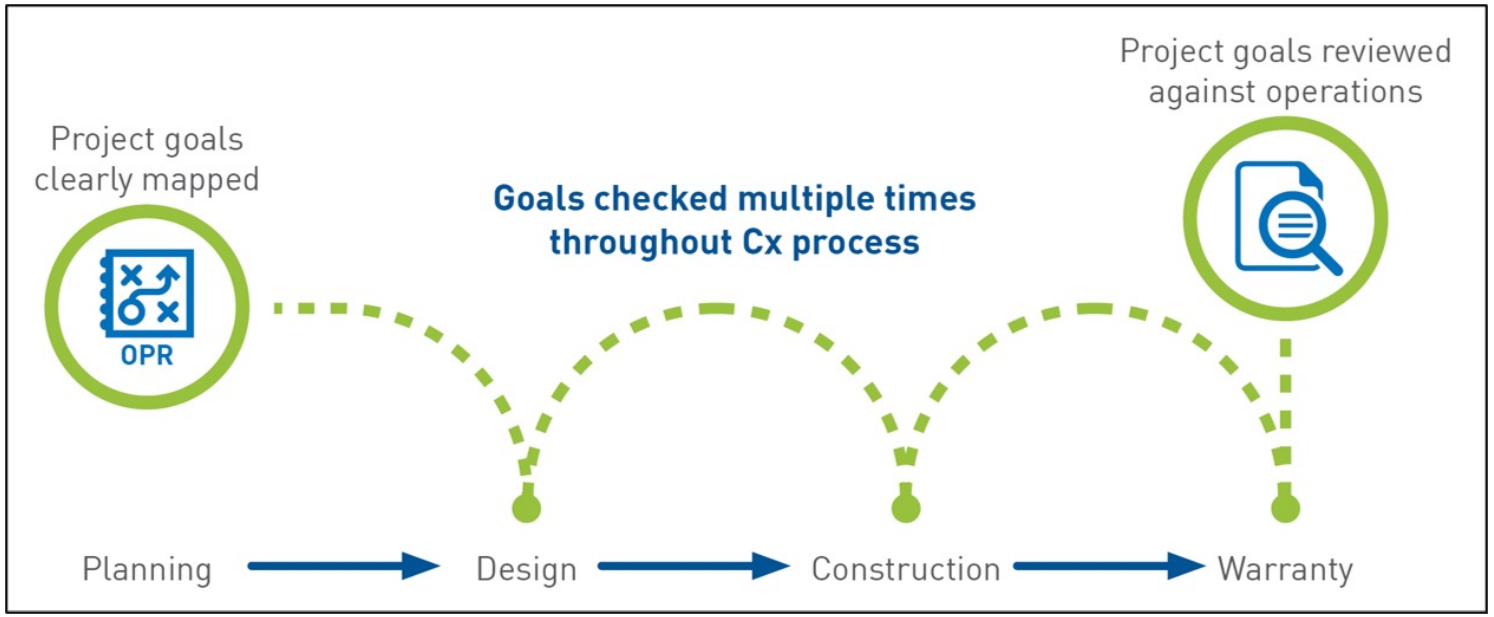
UNIVERSITY OF GEORGIA
Facilities Management Division

GSFIC COMMISSIONING GUIDE

ASTM INTERNATIONAL
Standards Worldwide

Approach and Process

Owner Defined Success



Approach and Process

Read the OPR

Approach and Process

Documentation of Variances

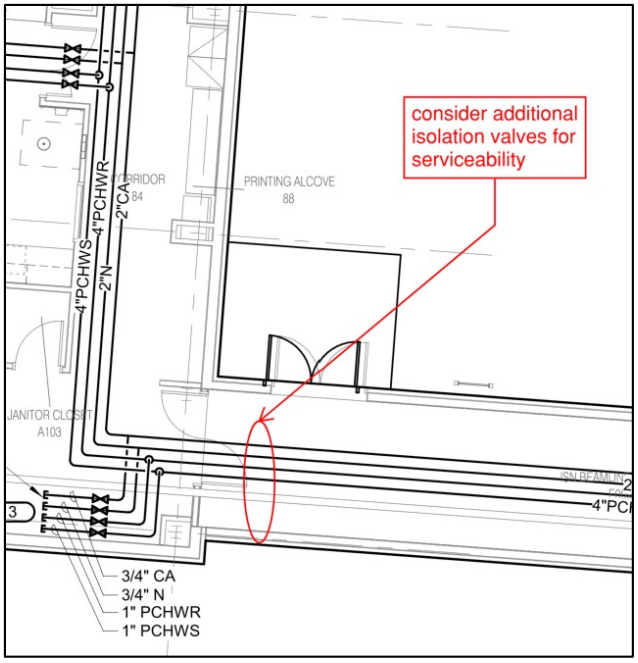
- Encourage team members to leverage standardized construction practices
- Dedicated Cx meetings to refresh open issues and communicate milestones
- Identify assumptions versus documented clarifications
- Own the process until every warranty issue is resolved

Best Practices

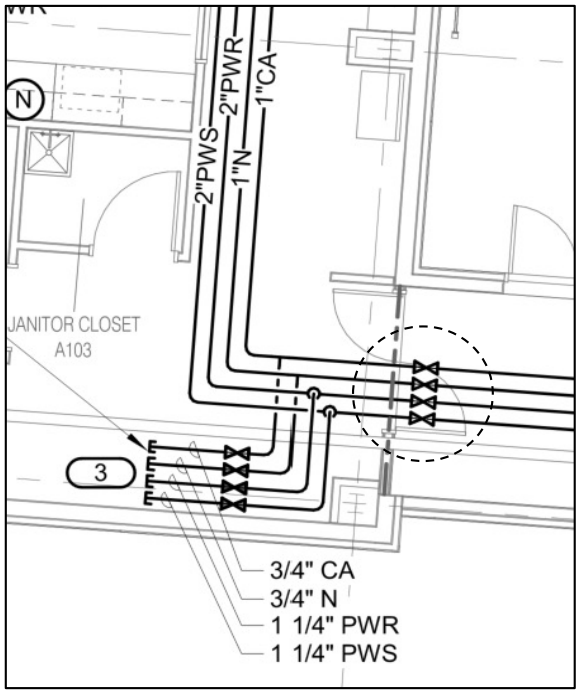
Approach and Process

Approach to Design Review

95% CD Design Review Comment



Improved 100% CD Documents



Approach and Process

Testing Matrix

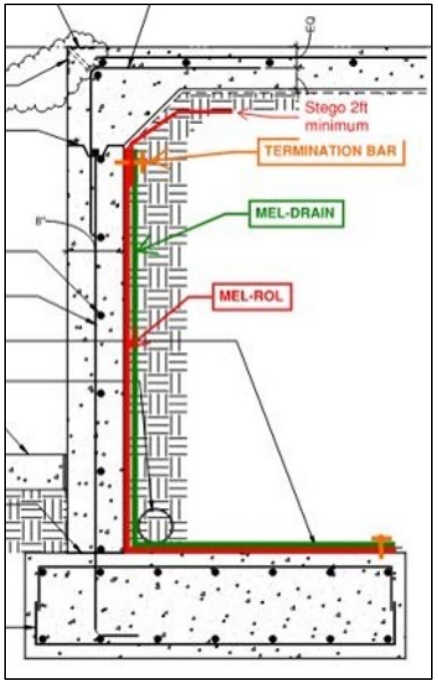
- The BECx Testing Matrix is a one-stop shop for all testing questions
- Developed, maintained, and promoted by the CxA

ABC Memorial Building - Building Envelope Testing Matrix

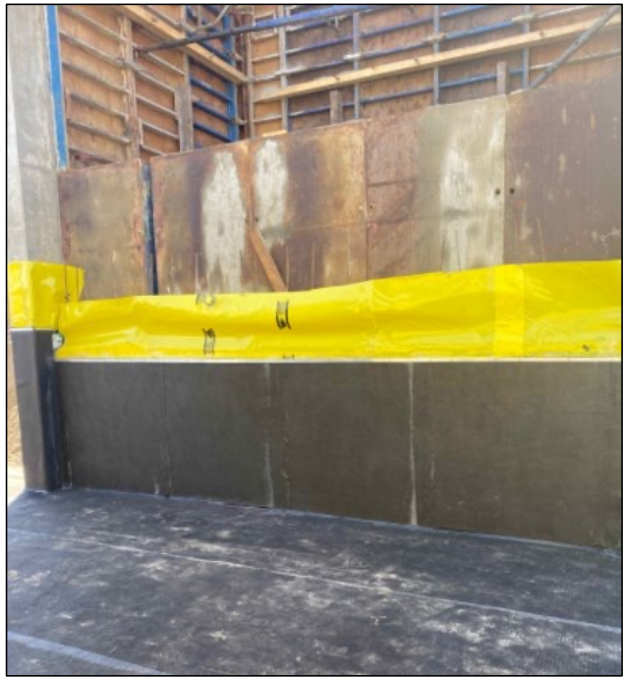
ID	Test	System	Test Required by ASTM 2813	Specification Section	Lab System Testing	Field Mockup Testing	In-Situ Field Testing	Required Sampling Rate	
				Typ. Drawing Location				Location	Quantity
1	ASTM E2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies	Modified Bituminous Sheet Air Barriers	No	072713-2.2-B		1		TBD	1
2	ASTM E1186 Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems	Modified Bituminous Sheet Air Barriers	Yes	0727713-3.4-C-1.		No	Yes	TBD	10 locations, each elevation
3	ASTM E783 Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors	Modified Bituminous Sheet Air Barriers	Yes	0727713-3.4-C-2.		No	Yes	TBD	10%
4	ASTM C1193 Standard Guide for Use of Joint Sealants, Appendix X1-Method A, Field Applied Sealant Joint Hand Pull Tab	Joint Sealants	Yes	079200-1.7-A-4a		No	Yes	TBD	20 locations, mixed detail type
	ASTM E779 Standard Test								

Approach and Process

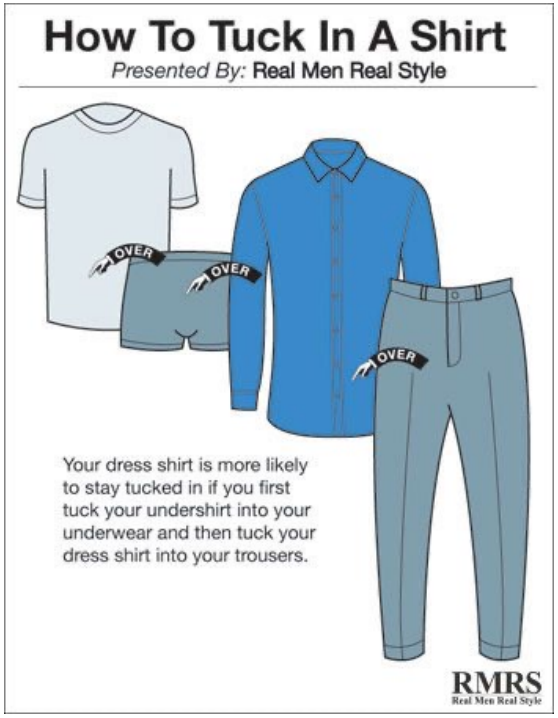
Approach to Submittal Review



Below-grade waterproofing – Design Review

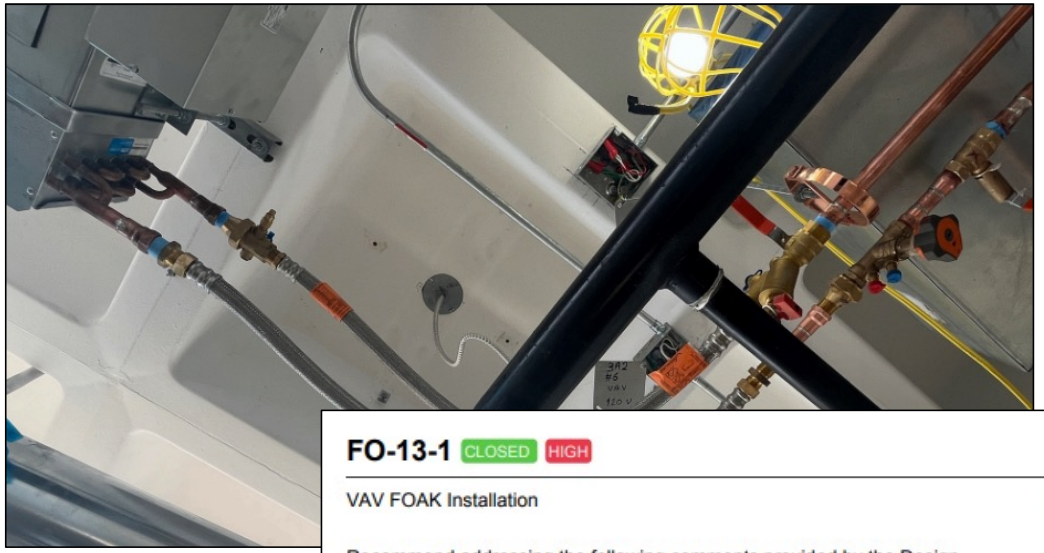


Below-grade waterproofing - Site observation



Approach and Process

First of a Kind



FO-13-1 CLOSED HIGH

VAV FOAK Installation

Recommend addressing the following comments provided by the Design Professional.

- Flex hoses should not be used. They were rejected in the first submittal review, see attached.
- The air vent should be installed pointing up, not to the side as it appears to be installed.

Assigned To	Mechanical Contractor
Asset	VAV 1-16
Discipline	Mechanical
Drawing	M-103
Due Date	2/10/2023
Created By	Matt Cale
Identified On	1/27/2023 9:09 AM

Approach and Process

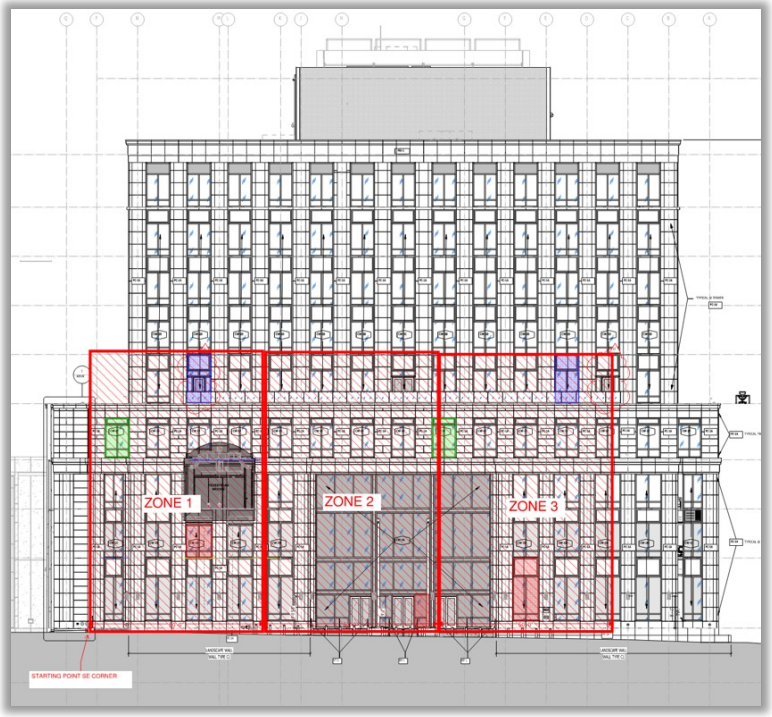
First of a Kind

WINDOW TESTING

LOWER PODIUM WINDOWS
- AAMA 501.2

UPPER PODIUM WINDOWS
- ASTM E 1105
- ASTM E 783

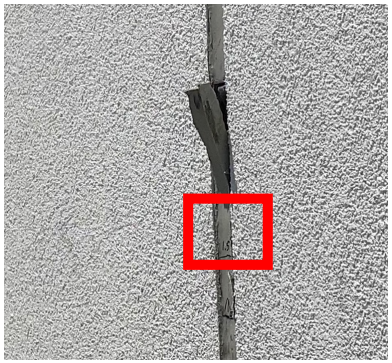
TYPICAL WINDOWS
- ASTM E 1105
- ASTM E 783



Approach and Process

Addressing Failed Tests

ASTM C1193



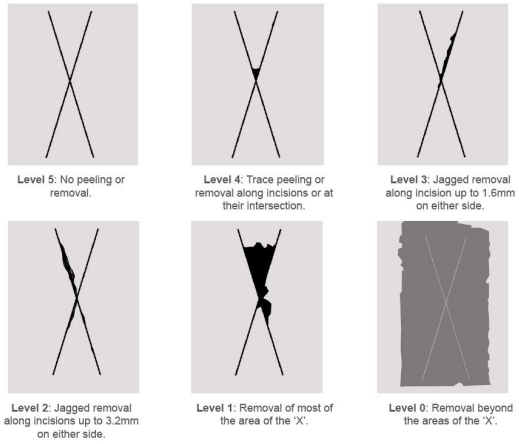
Required break point

Sealant pulls out past break point

Additional Systems to Cx

Gilding Adhesion

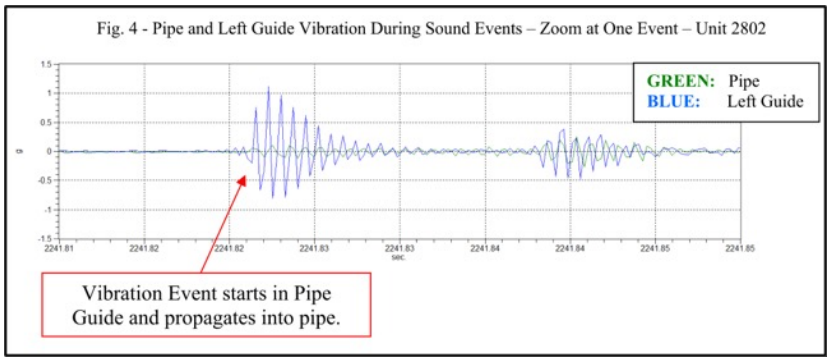
Quality Verification

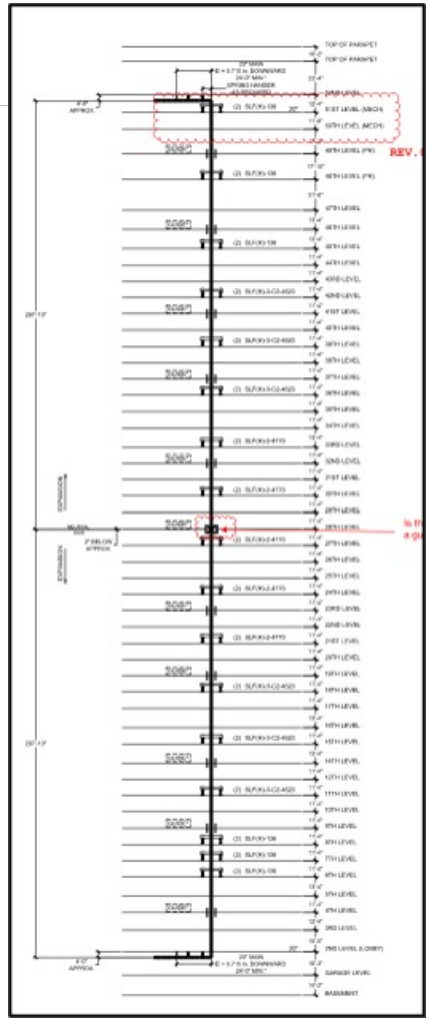


ASTM D3359

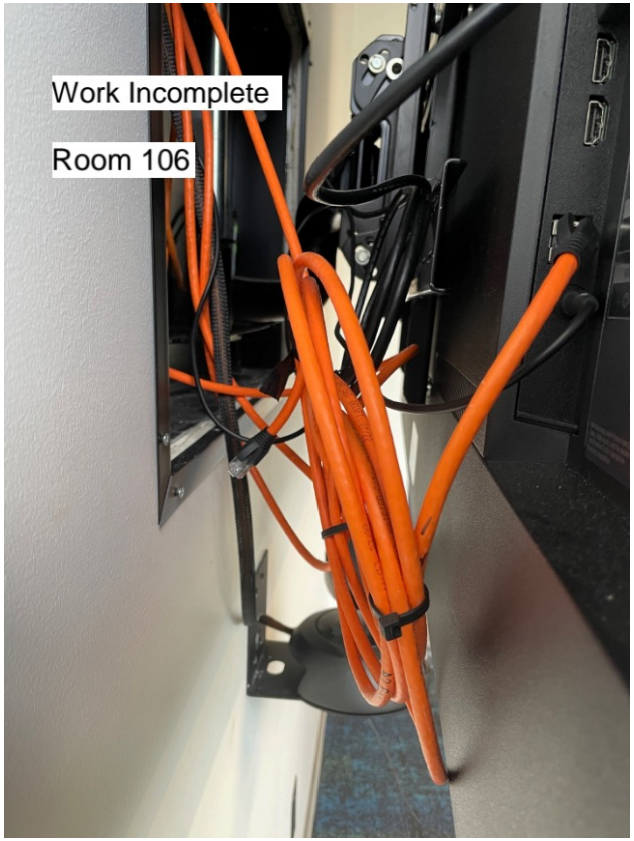
Vibration Propagation

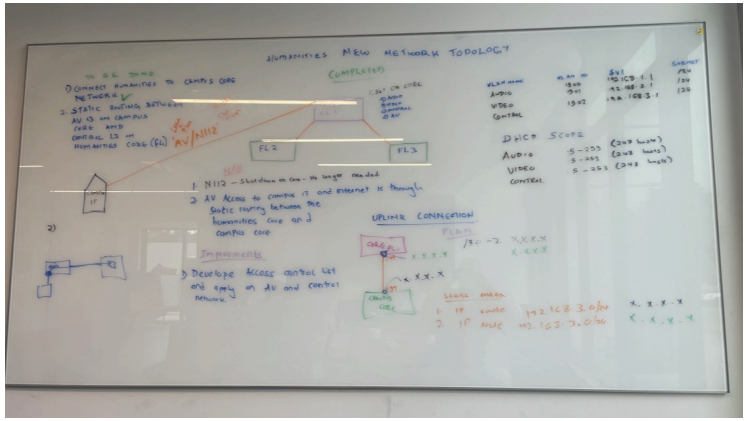
Fig. 1 - Left Pipe Guide in Unit 2802

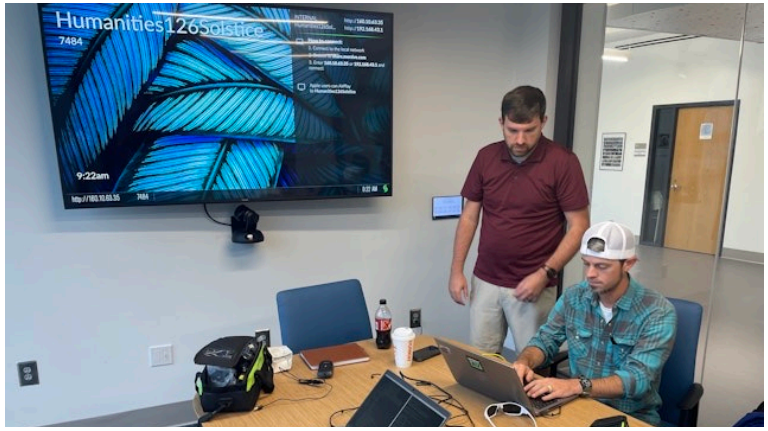




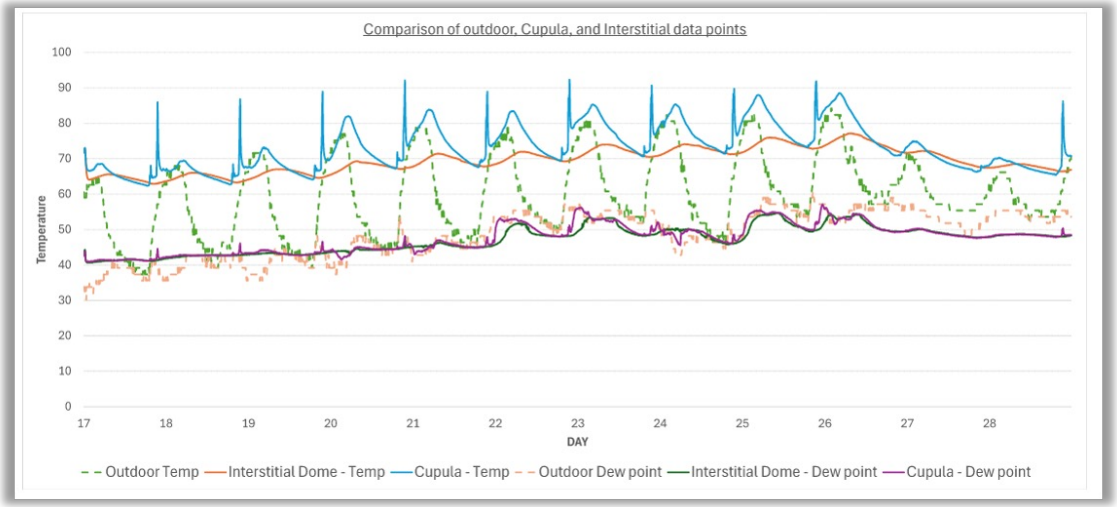
Audio Visual

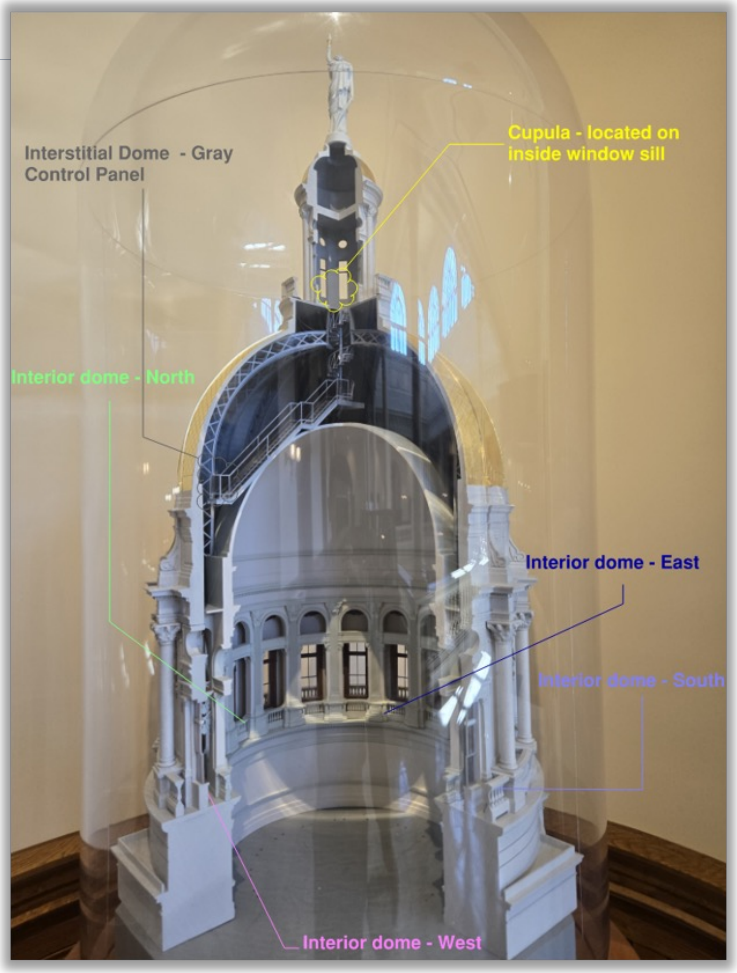






Humidity Investigations



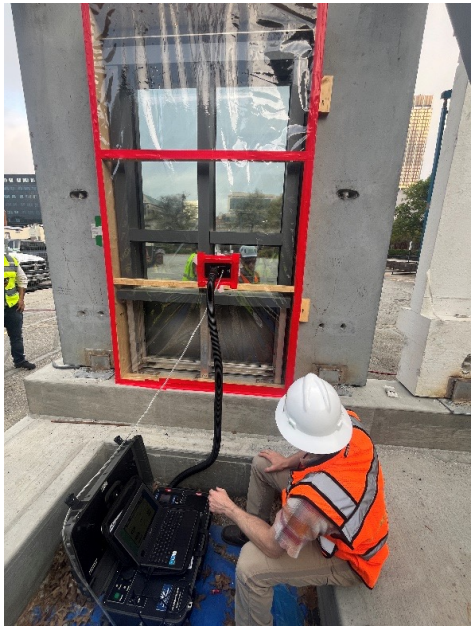


Why do we do Commissioning?

Pro Tips

Get more from your CxA

- Self-perform:
  - Test, adjust, and balance
  - Building enclosure testing
  - Controls programming (RCx)
- Draft Sequences provided by the CxA
- Be a quality process manager



Why do we do Commissioning?

Enhanced O&M Training

Extended Project Handoff

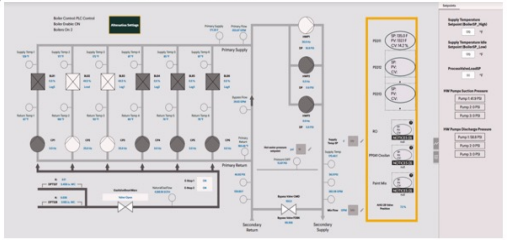
- Operational intent training is first
- Does not replace manufacturer or installer-led training
- Does review high-level operational goals
- Focuses on integrated systems
- Communicates lessons learned during functional testing
- Includes review of all BAS graphics
- Uses O&M documentation to improve familiarity

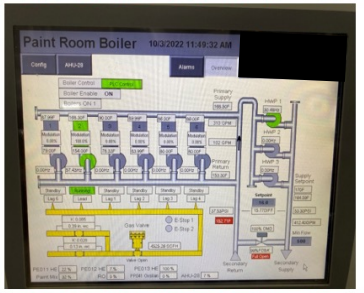
Project History

Paint Shop Request

The boiler controllers shall be integrated into the plants existing iconics Genesis 64 front end. The controls that are not integral to the boiler shall utilize WAGO PLC controllers and be integrated to the iconics Genesis 64 front end.

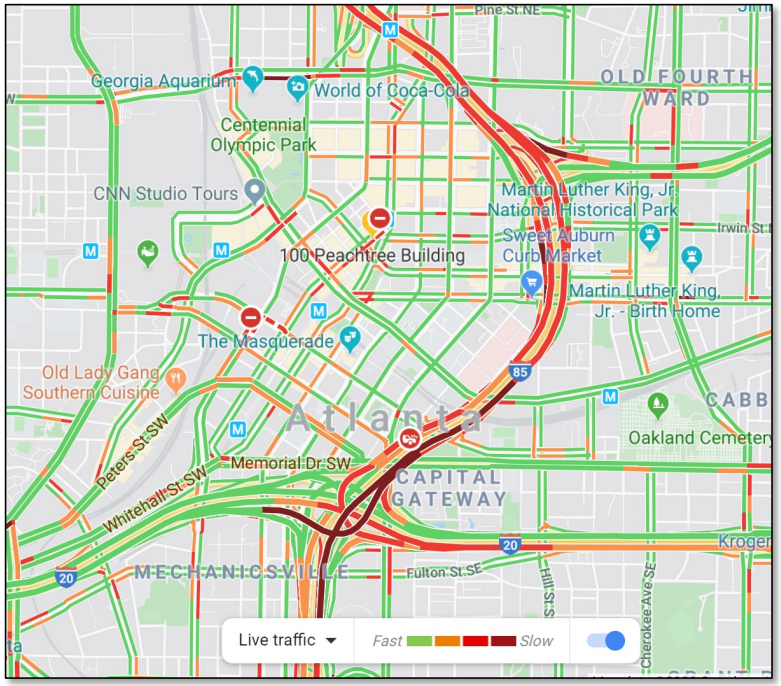
Project Team Provided

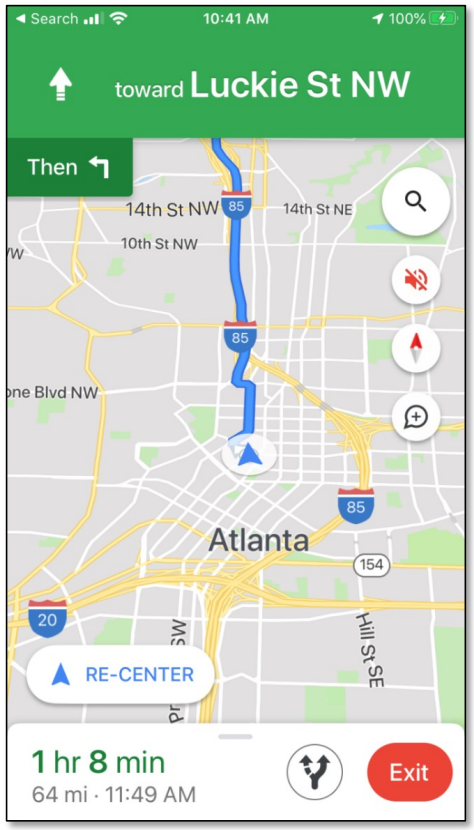




Why do we do Commissioning?

Visualize Success





Questions

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