COAA®

Maryland/DC Chapter

Owners Forum

March 24, 2026


Let's Talk About COAA!
Video
www.coaa.org
COAA Construction Owners Association of America

National Conferences

The mortar is stronger than the bricks

COAA Connect Fall 2026
Savannah, GA
Dates TBD

COAA Maryland/DC Chapter

We create opportunities to connect and learn through:

- Fall Workshops
- Owners Forums
- Networking mixers
- Hard hat tours

Leadership group meets monthly to plan these events

If you are interested in joining the leadership group, talk to Jimmy Patel or Chris Tenneson

What is an Owners Forum

A Platform for owners to connect, share, and learn from one another

A place to have open dialogue around best practices, challenges, and successes in capital projects

Works best with active participation

Look for one little nugget to take back to your workplace to do your job better

DESIGN-BUILD:
111 MASSACHUSSETTS AVENUE

WASHINGTON, DC

GEORGETOWN UNIVERSITY

COAA OWNERS ONLY FORUM

Katherine Willams
Director
Georgetown University,
PFM, Capital Projects

Mark Cutair
Senior Project Manager
Whiting-Turner

Stacy Brinegar
Principal / Project Manager
SmithGroup

Nathan Voth
Vice President /
Design-Build Manager
Whiting-Turner

INTRODUCTIONS

ABOUT THIS PROJECT

- Complete gut and reconstruction
- 400,000+ GSF
- 11 stories total (eight above and three below)
- Raised up two elevators
- Removed faced, demo structure and replaced
- **Progressive design-build**

CONCEPT & PROGRAMMING

2022-2023
Programming
Block/Stack
Concept Design

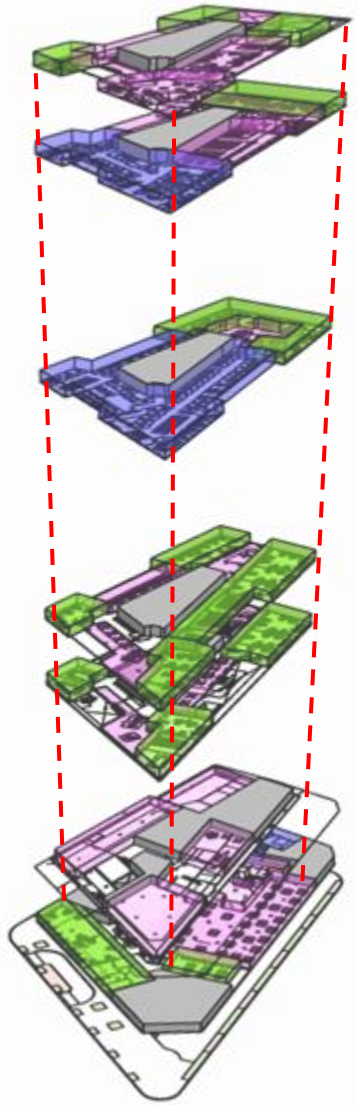
- OFFICES
- COLLABORATION (ENCLOSED & OPEN)
- CLASSROOMS & CLASSLABS
- SERVICE

7-8 EXECUTIVE EDUCATION

4-6 INSTRUCTION/OFFICE

2-3 INSTRUCTION/COLLABORATION

1-B1 MAIN LOBBY/COMMONS/RETAIL
MULTIPURPOSE/EVENTS



Departmental Schools:

- McDonough School of Business
- School of Continuing Studies
- Earth Commons
- School of Health
- School of Nursing

Additional Departments/ Services:

- Student Services/Financial Aid
- ARC Testing Center
- Library Services
- Mission and Ministries
- Graduate and Faculty Lounges
- Computer Labs
- Rentable Events Spaces

LEVEL B1

LEVEL 1

LEVEL 2

LEVEL 3

LEVEL 4

LEVEL 5

LEVEL 6

LEVEL 7

LEVEL 8

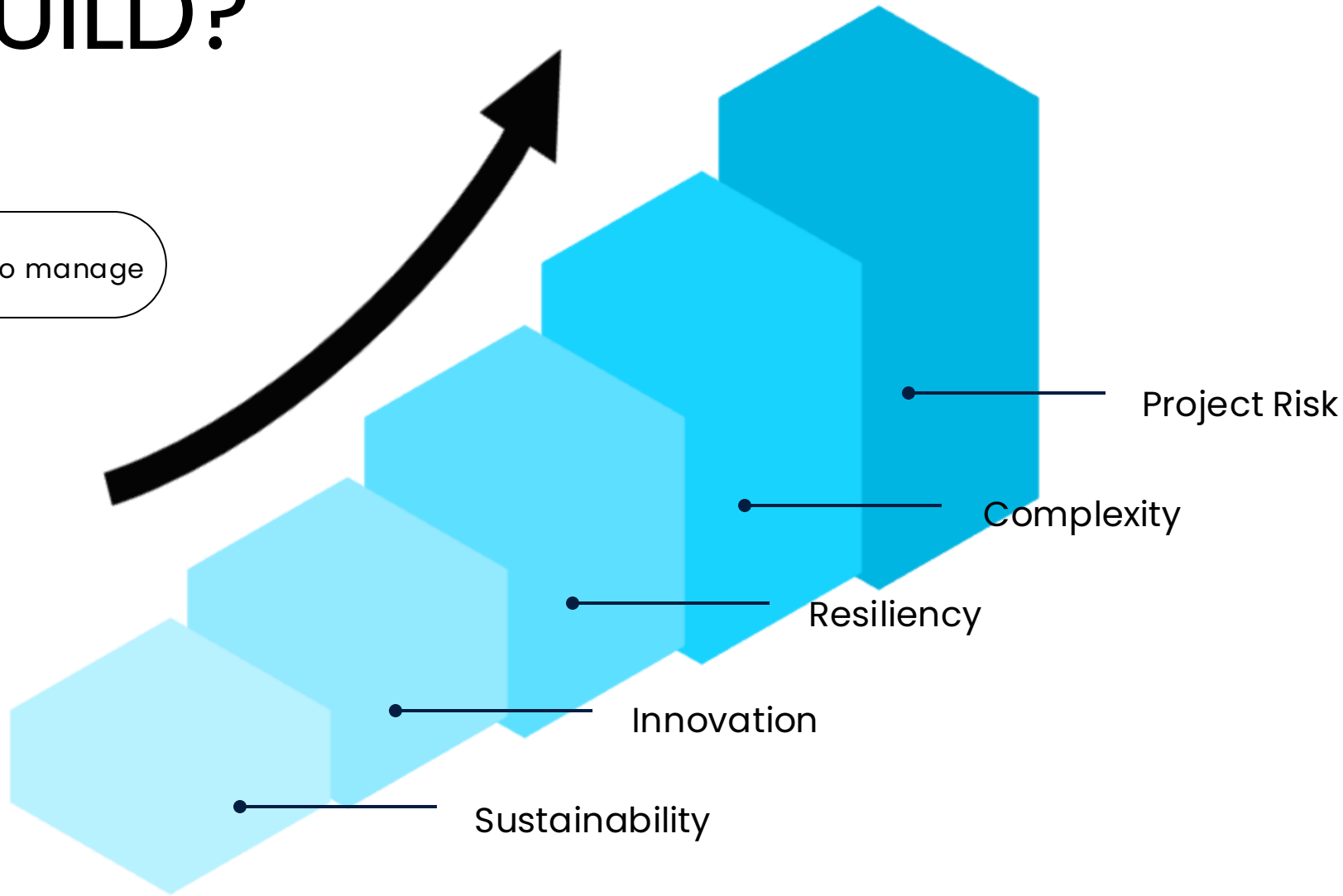
FINAL FLOOR PLANS

Mission Statement

Through respect, trust, and collaboration, we commit to work as One Team to deliver a highly successful and innovative project. By enhancing the environment, we will instill pride within our community and embody Georgetown University's Jesuit Values, while laying a path for the future. We will focus on optimizing value, while prioritizing safety, quality, fun, and sustainability.

WHY MOVE TO PROGRESSIVE DESIGN-BUILD?

higher expectations = more risk to manage



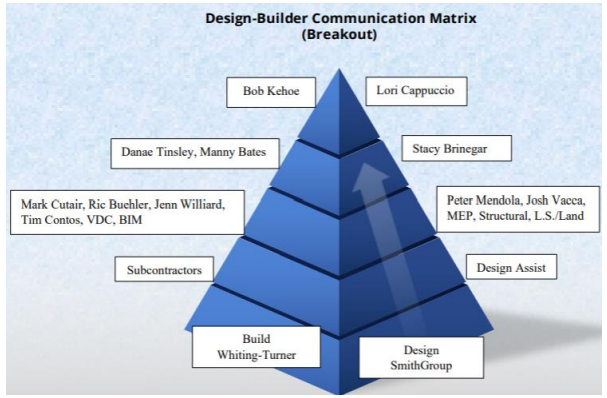
ADVANTAGES

- Single point of responsibility
- One team, one agenda = unified goals
- Open and respectful communication
- Leverage expertise of the full team
- Owner stays engaged in design
- Integrate a design-construction balance
- Keep quality and design excellence prioritized

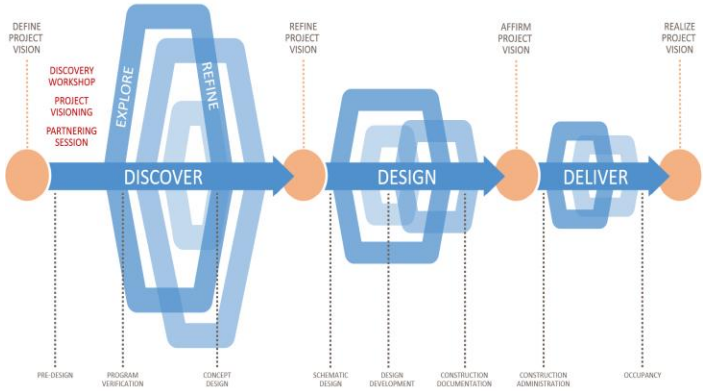
DESIGN-BUILD

TOOLS & PROCESSES

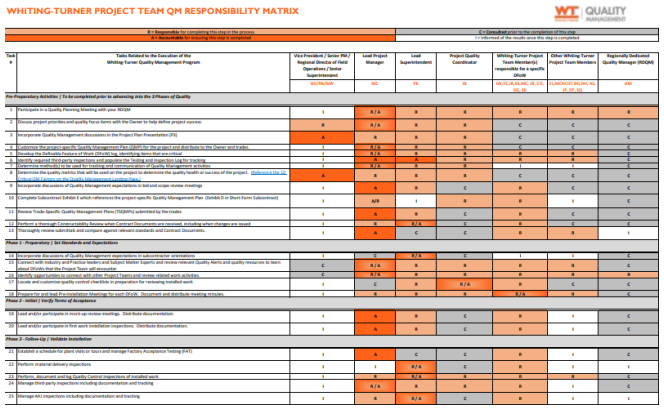
Team Alignment



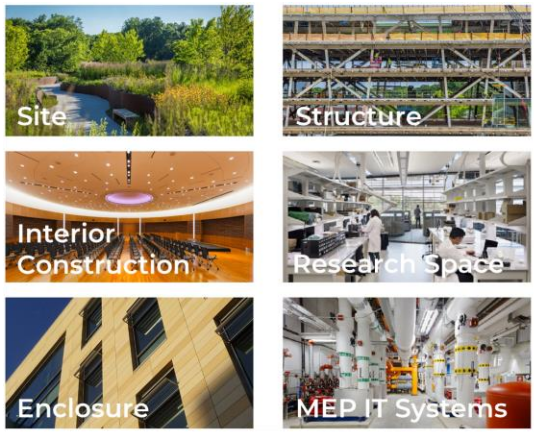
Workplan



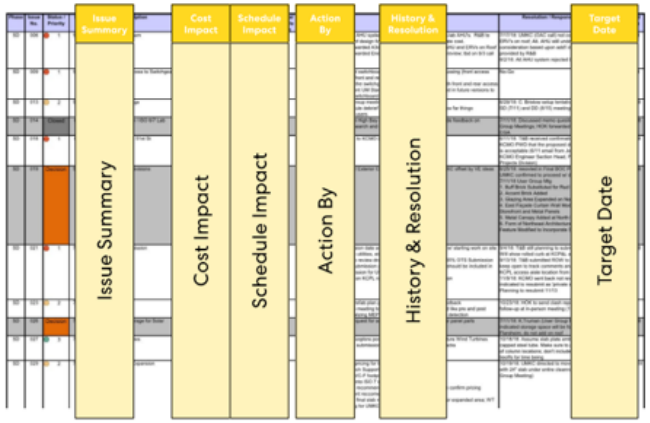
Assigning Responsibilities



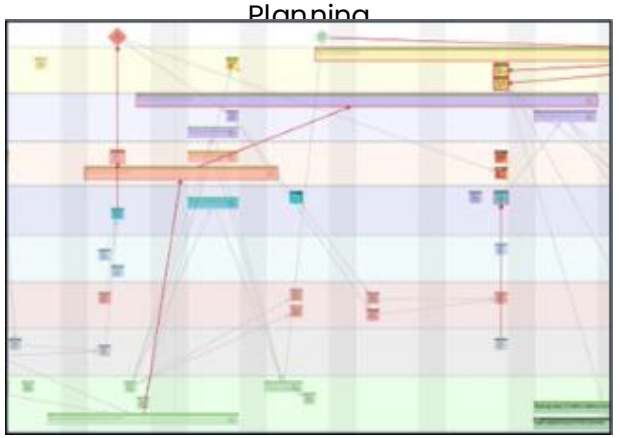
Target Value Delivery



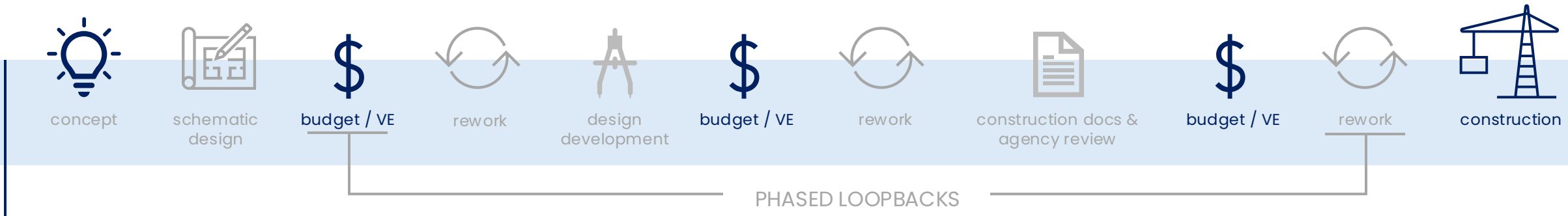
Decision Tracking



Design Phase Pull Planning



TARGET VALUE DESIGN

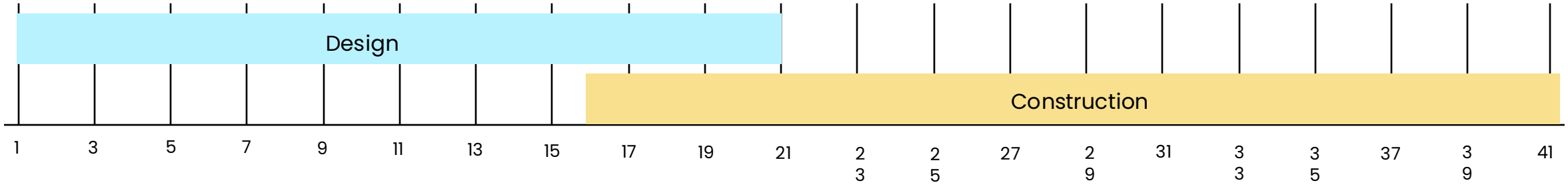


traditional

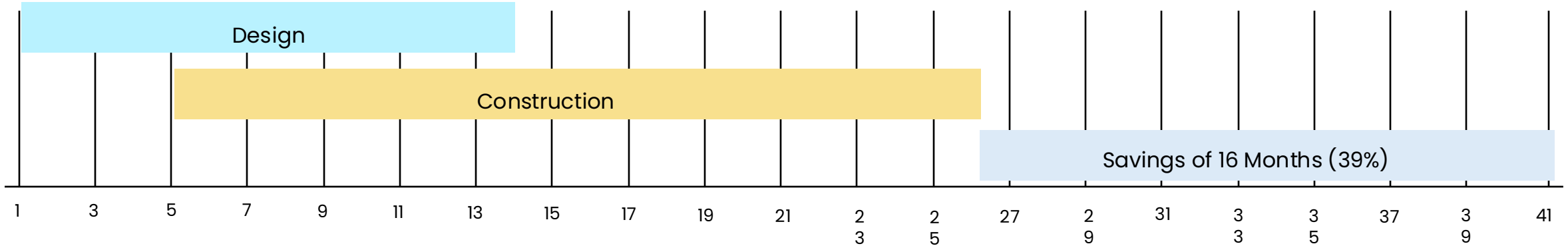
TARGET VALUE DELIVERY

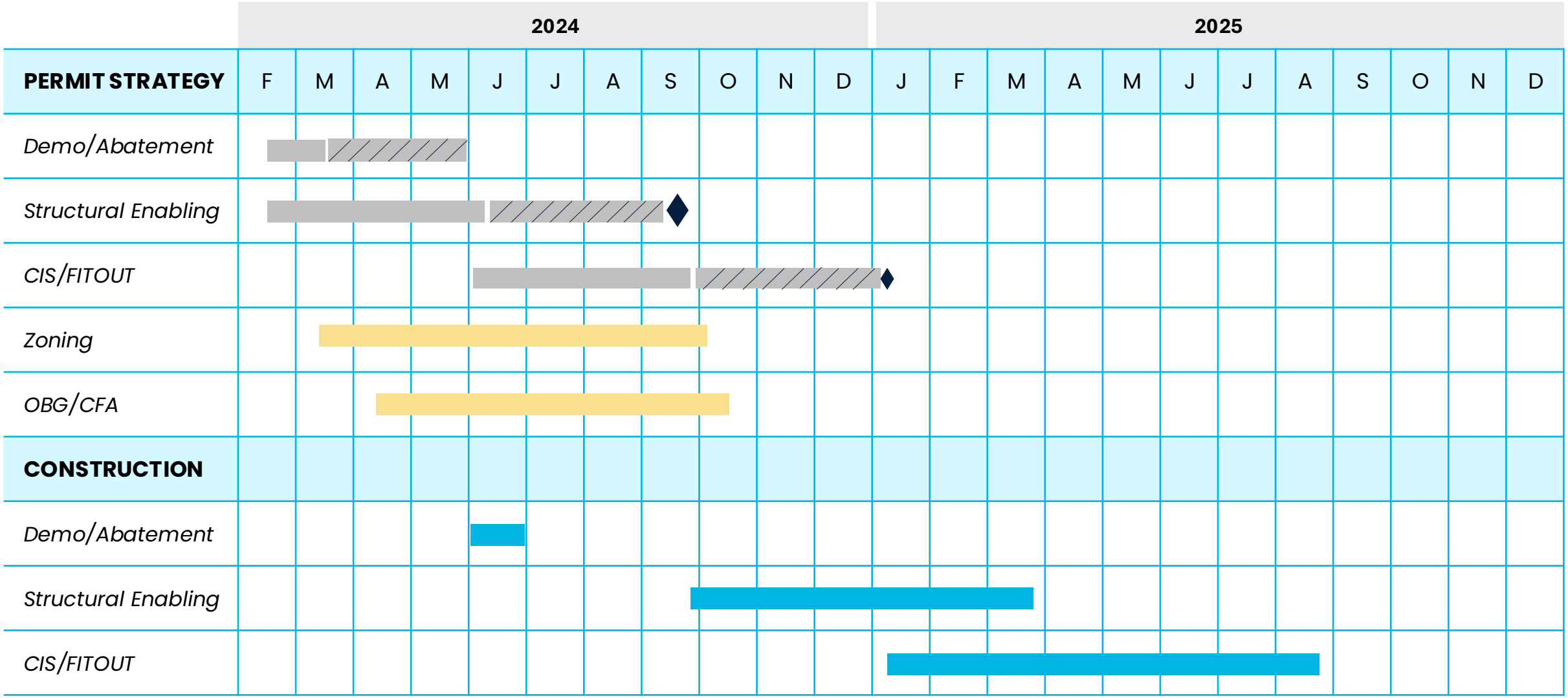
LEADING THE DESIGN EFFORT

Typical CMAR Project Schedule

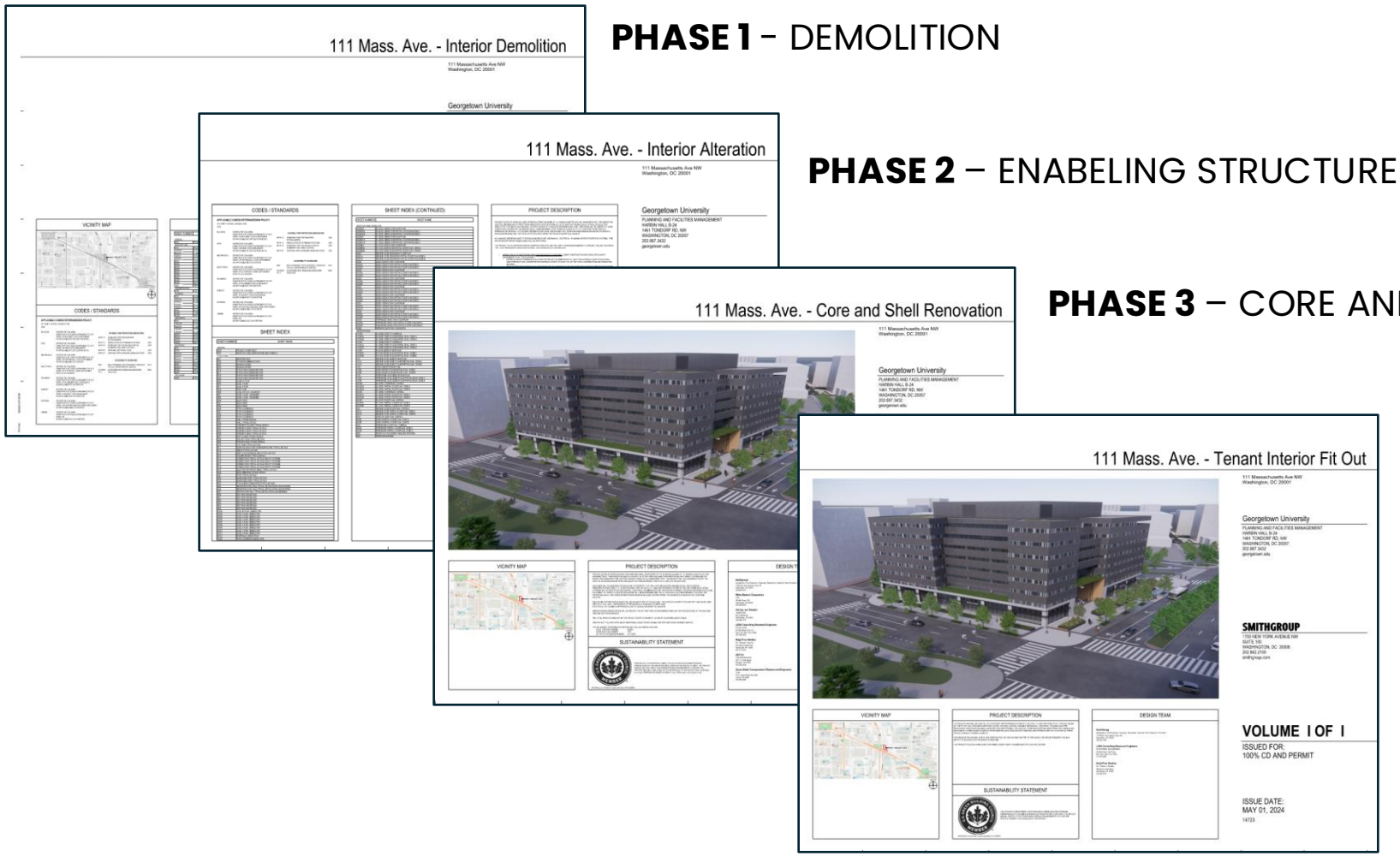


Accelerated Design-Build Schedule





PERMITTING DC



PHASE 1 – DEMOLITION

PHASE 2 – ENABELING STRUCTURE & SYSTEMS

PHASE 3 – CORE AND SHELL/STREETSCAPE

PHASE 4 – TENANT INTERIOR FIT OUT

PLAN AND RE-PLAN THE PROJECT

WHITING-TURNER SMITHGROUP GU

DATE:	TITLE:	A3 DECISION MATRIX
September 6, 2023	7th FLOOR CLASSROOM STRUCTURE & ENVELOPE	A3-001

111 MASS AVE.

BACKGROUND

Creation of (2) double-height Classrooms on the 7th floor requires selective demolition of structure, new structure and modification to exterior envelope.

CURRENT CONDITIONS

CIP concrete waffle-slab single-floor structure with granite-faced precast panel and ribbon windows.

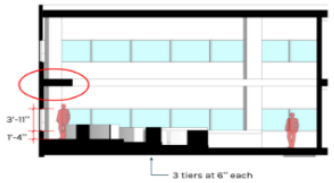
GOAL

Determine the most cost-effective option to accomplish modification, balanced against exterior aesthetic and potential Zoning impact.

LOGISTICS / PLANS

OPTION A (baseline):
Selective Slab Demo with New Steel Installation

Selectively remove concrete slabs while retaining perimeter beam structure. Install new structural steel from interior while retaining existing perimeter stone/precast façade.



PROS

* Does not require new façade that may be subject to Zoning Review.
* Does not require lane closures along H Street.
* Original concept.

CONS

* Complex sequence of shoring, demolition and new steel installation, including jacking steel.
* Large concrete perimeter beams extends into classroom space mid-height.
* Creates an odd interior condition for preofessional level education.
* Added transfer beams will reduce headroom on Level 7 & Roof.

OPTION B:
Demo Roof & Level-8 Slab with New Curtainwall

Remove existing facade and completely demo roof level and level-8 structure. Install new structural steel frame and new exterior curtainwall facade.

PROS

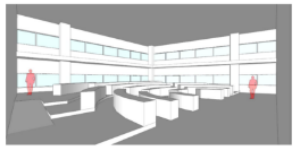
* More straight-forward, less risky means & methods.
* No concrete perimeter beams extending into classroom space mid-height.
* New roof structure offers more design flexibility with insfrastructure on the roof, green toof, & storm water.
* Improved ability to crrate interior environment in keeping with prefessional level education.

CONS

* New façade may be subject to Zoning Review. Assumed risk of this is low but Zoning okay is needed

OPTION C:
Demo Roof & Level-8 Slab & Re-use Façade

Remove existing facade and completely demo roof level and level-8 structure. Re-install stone/precast façade and new ribbon windows.



PROS

* Does not require new façade that may be subject to Zoning Review.
* More straight-forward, less risky means & methods.
* More aligned with original concept.
* No concrete perimeter beams extending into classroom space mid-height.
* New roof structure offers more design flexibility with insfrastructure on the roof, green toof, & storm water.
* Improved ability to crrate interior environment in keeping with prefessional level education.

CONS

* Potential risk of removing & re-installing stone/precast panels. Could require re-fabrication or mofication of panels.

PROPOSAL

WT/SG RECOMMENDATION

If cost & schedule are primary drivers, proceed with Option A as the most cost-effective solution. To maximize long-term value of the space and reduce some construction risk, proceed with Option B though at a cost add to the budget.

OWNER ACCEPTANCE

OPTION A ☐
OPTION B ☐
OPTION C ☐

RELEVANT COST OF WORK

Design & Construction Cost

Option A	$	[redacted]
Option B	$	[redacted]
Option C	$	[redacted]

RELEVANT COST OF WORK DELTA

Cost Delta Relative to Baseline Pre-SD Estimate

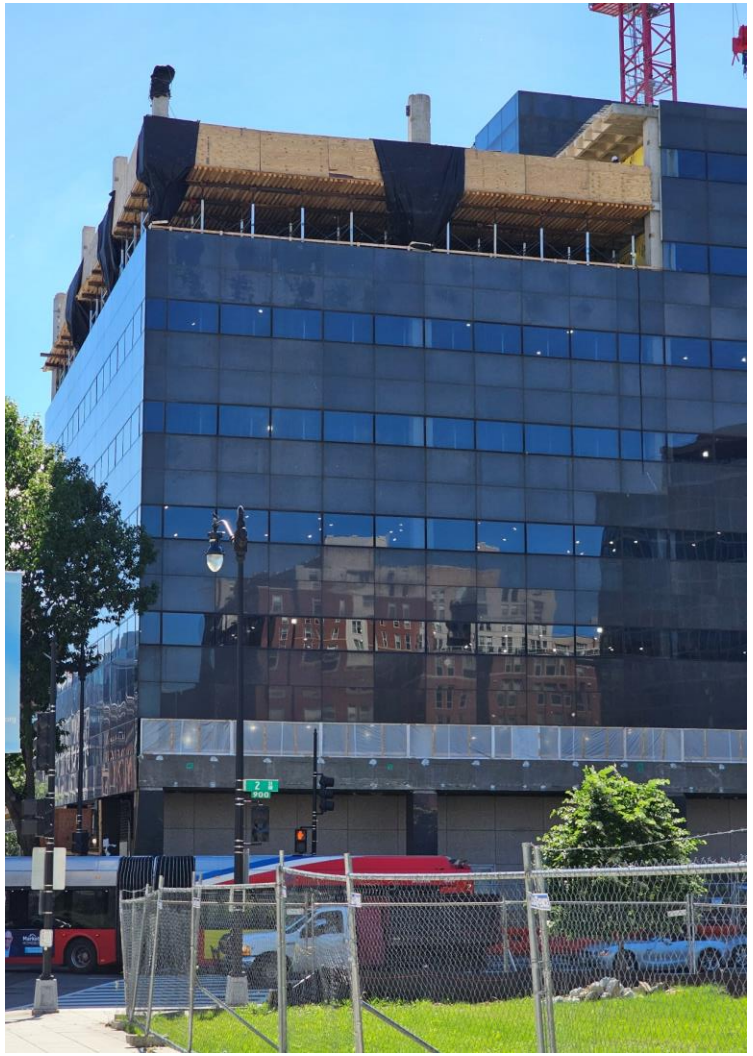
Option A	$	[redacted]
Option B	$	[redacted]
Option C	$	[redacted]

SCHEDULE ANALYSIS

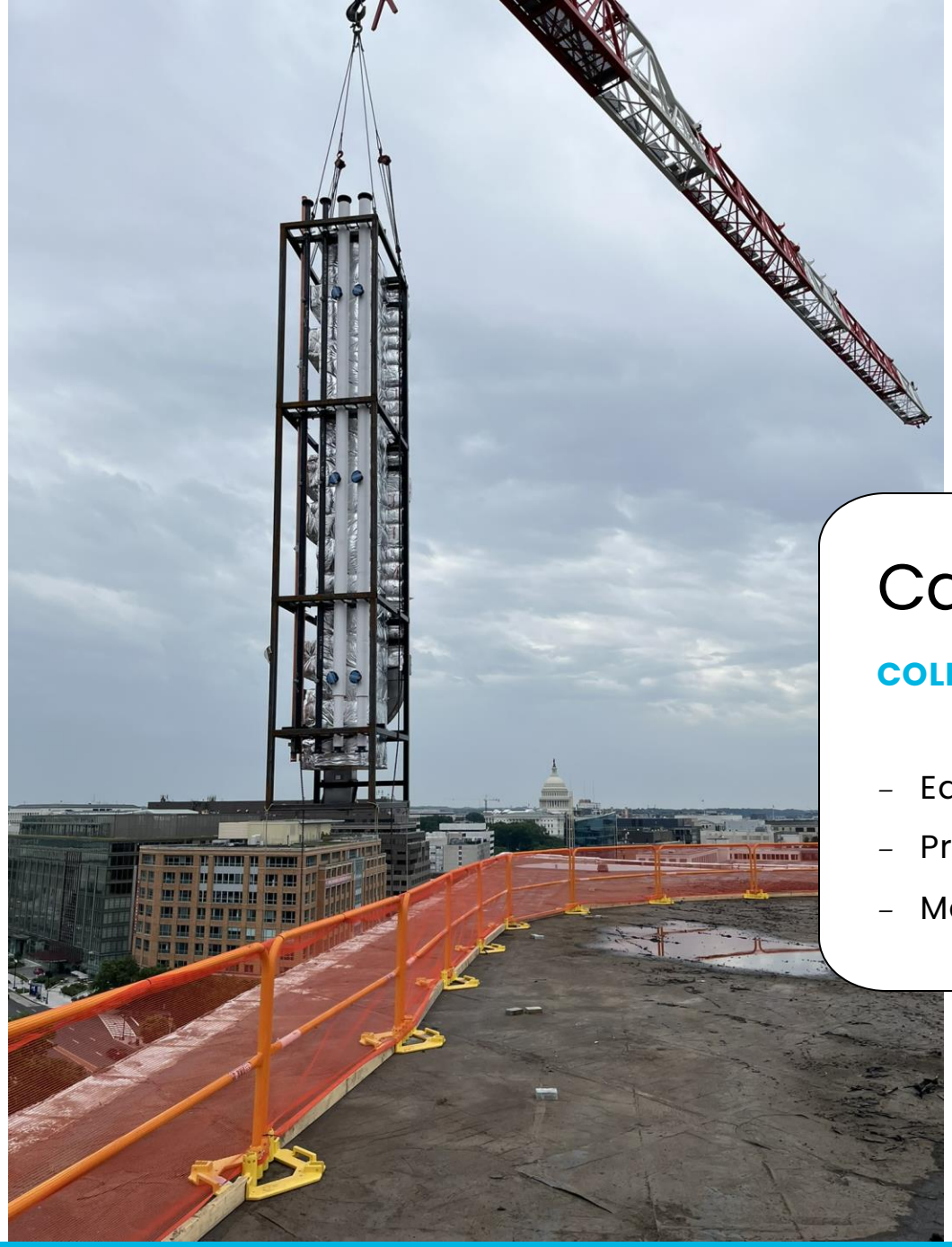
Schedule Delta Relative to Baseline Schedule

Option A	Likely shortest Schedule Duration
Option B	Potential Zoning/Permit Delay
Option C	No Net Change

← CHOOSING BY ADVANTAGE



CARVING OUT SPACE

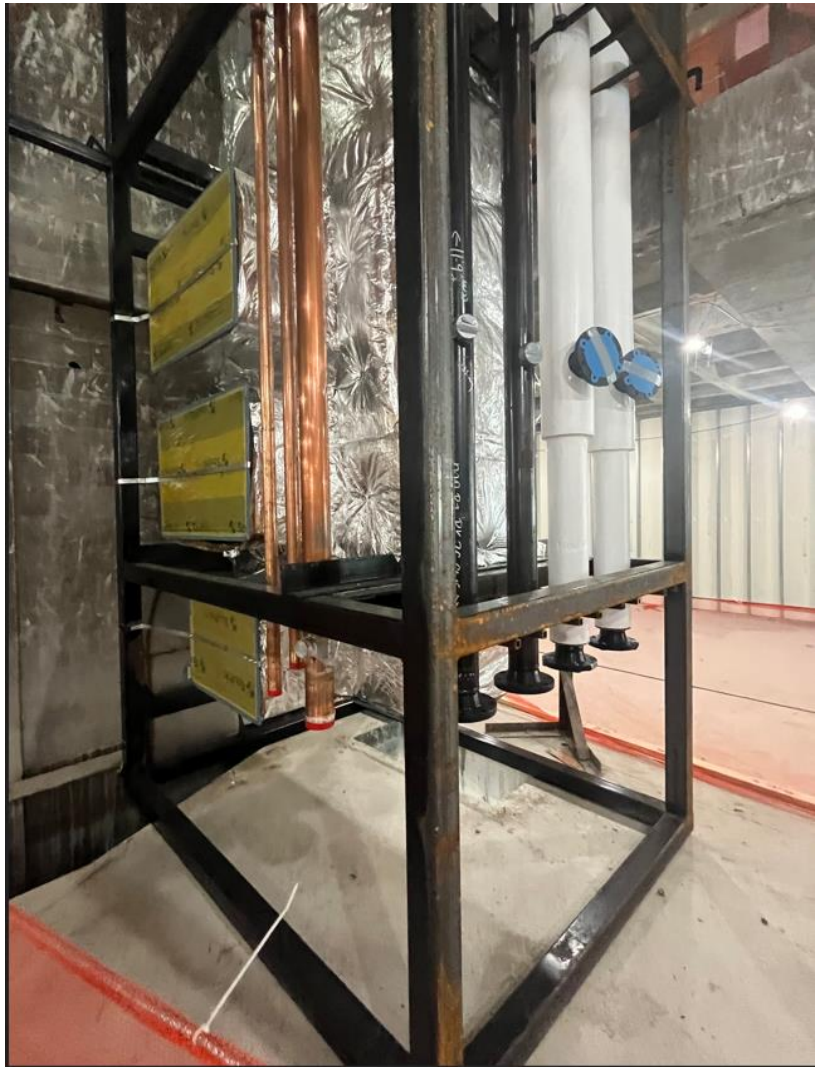


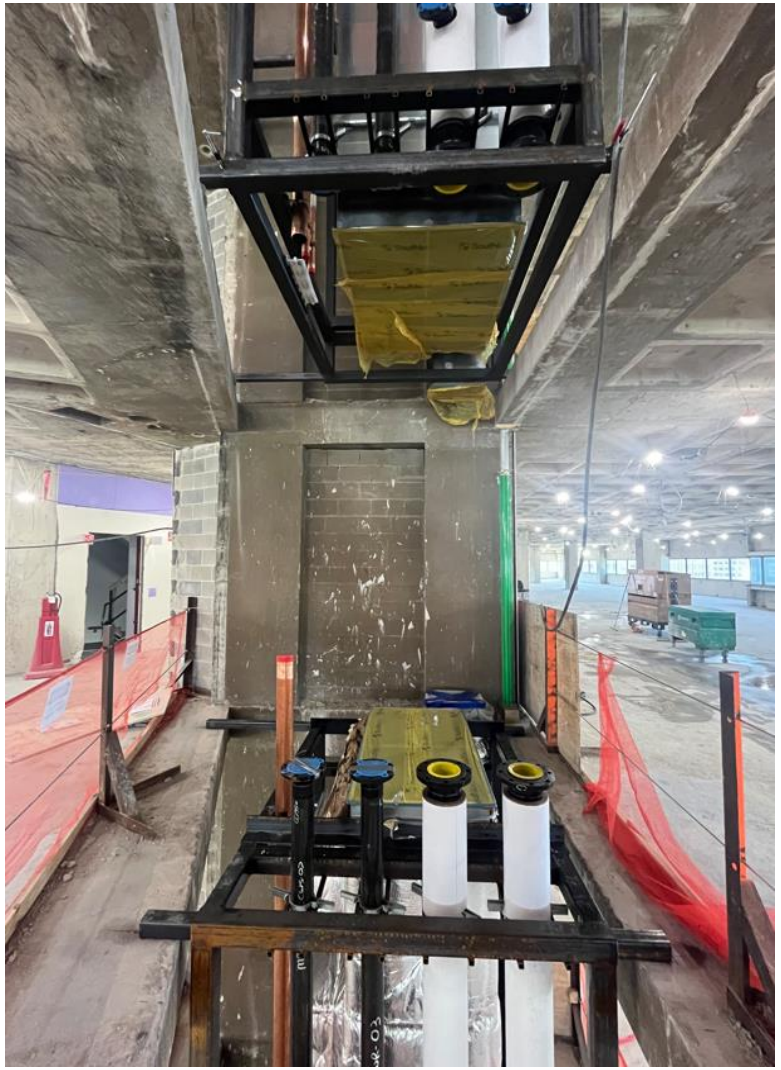
Case Study: Risers

COLLABORATION AT ITS PEAK!

- Early BIM Coordination
- Prefabrication
- Major equipment release at schematic design

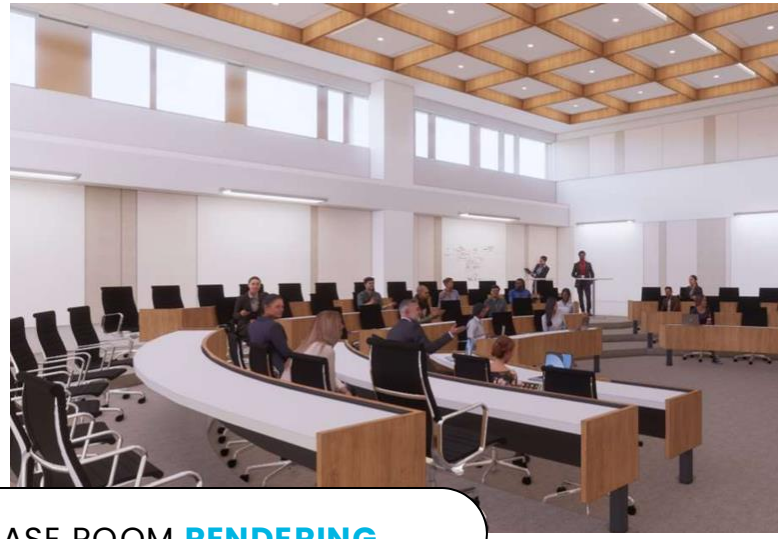
CHALLENGES OF GOING FAST: PREFAB



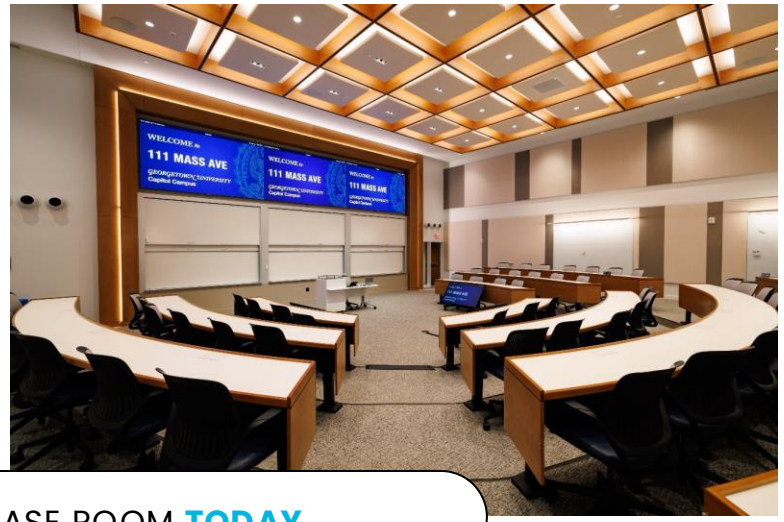


WHY DESIGN-BUILD?

- **Single Point of Responsibility**
- Improved Collaboration & Innovation
- Reduced Claims & Change Orders
- **Cost Certainty Earlier**
- Owner's Desire for Simplified Management
- Better Alignment with Performance-Based Requirements
- Budget Constraints or Guaranteed Cost
- **Faster Project Delivery**
- Flexibility During Development



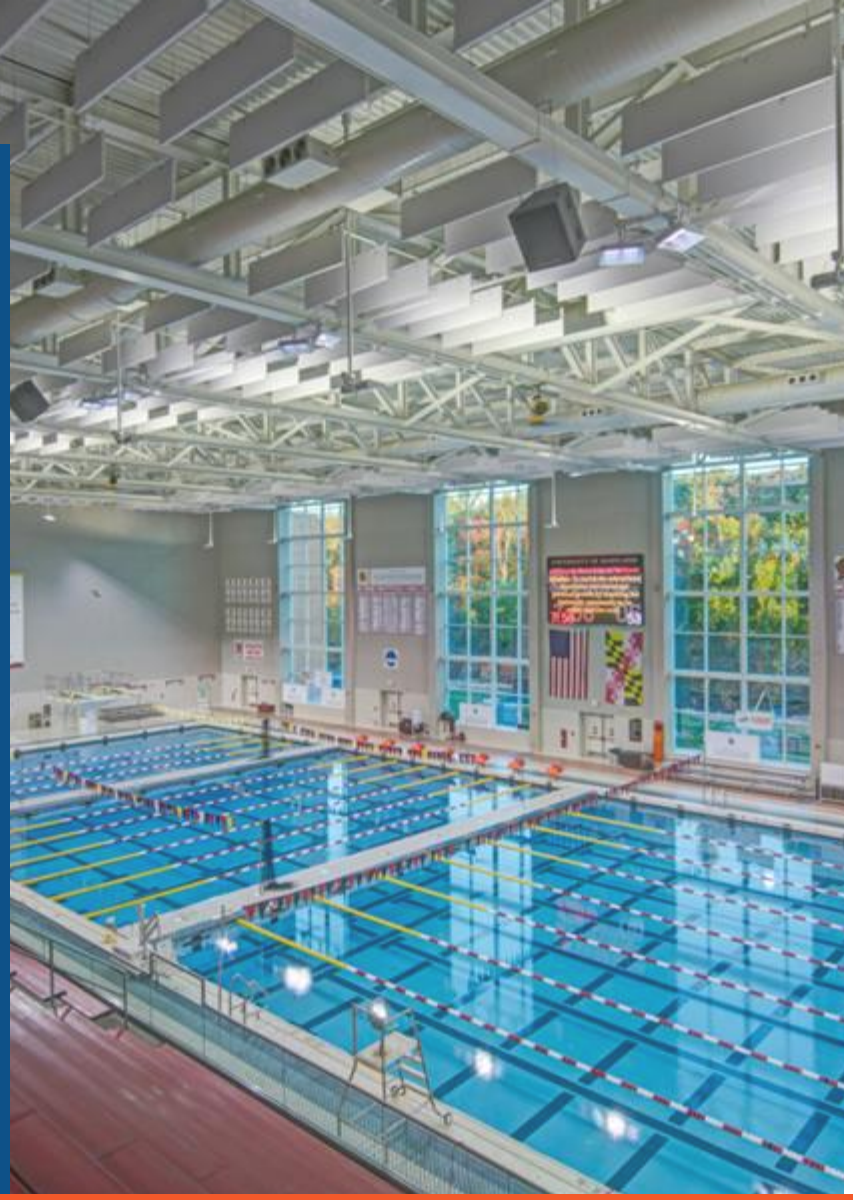
CASE ROOM **RENDERING**



CASE ROOM **TODAY**

COAA OWNERS ONLY FORUM

Thank you!

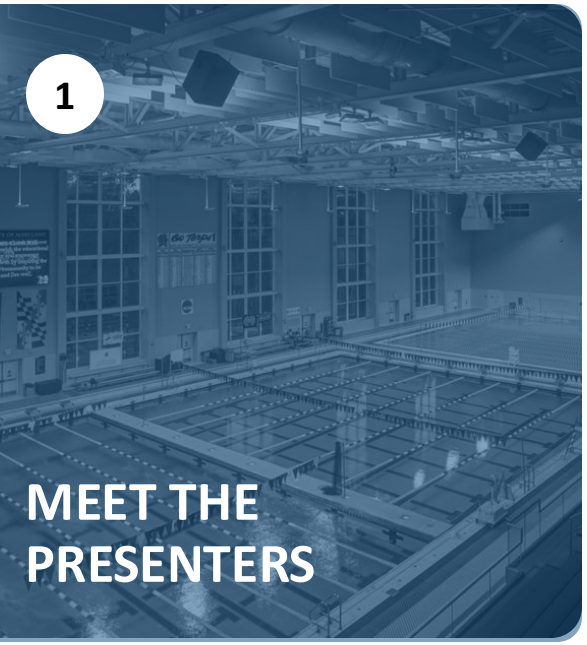


Construction Owners Association of America

CM at Risk Delivery Method

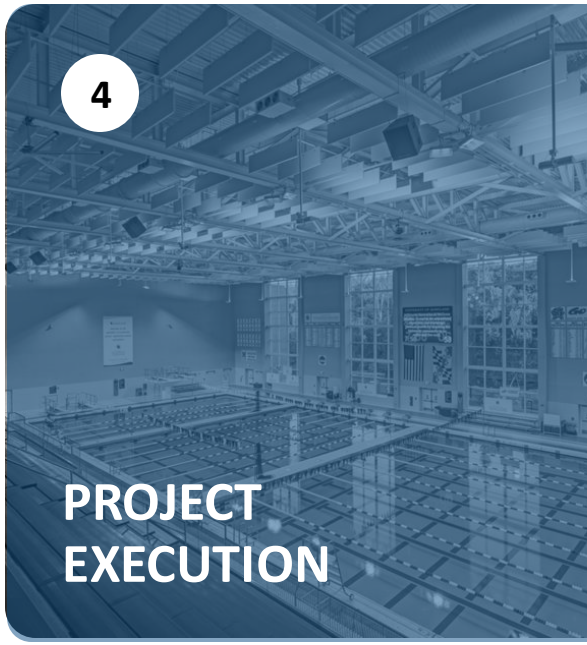
March 24, 2026

Agenda


1
MEET THE PRESENTERS


2
WHAT WAS THIS PROJECT?


3
WHY CM AT RISK?


4
PROJECT EXECUTION

MEET THE PRESENTERS

CHRIS TENNESON

Johns Hopkins University

CLIFF MILSTEAD

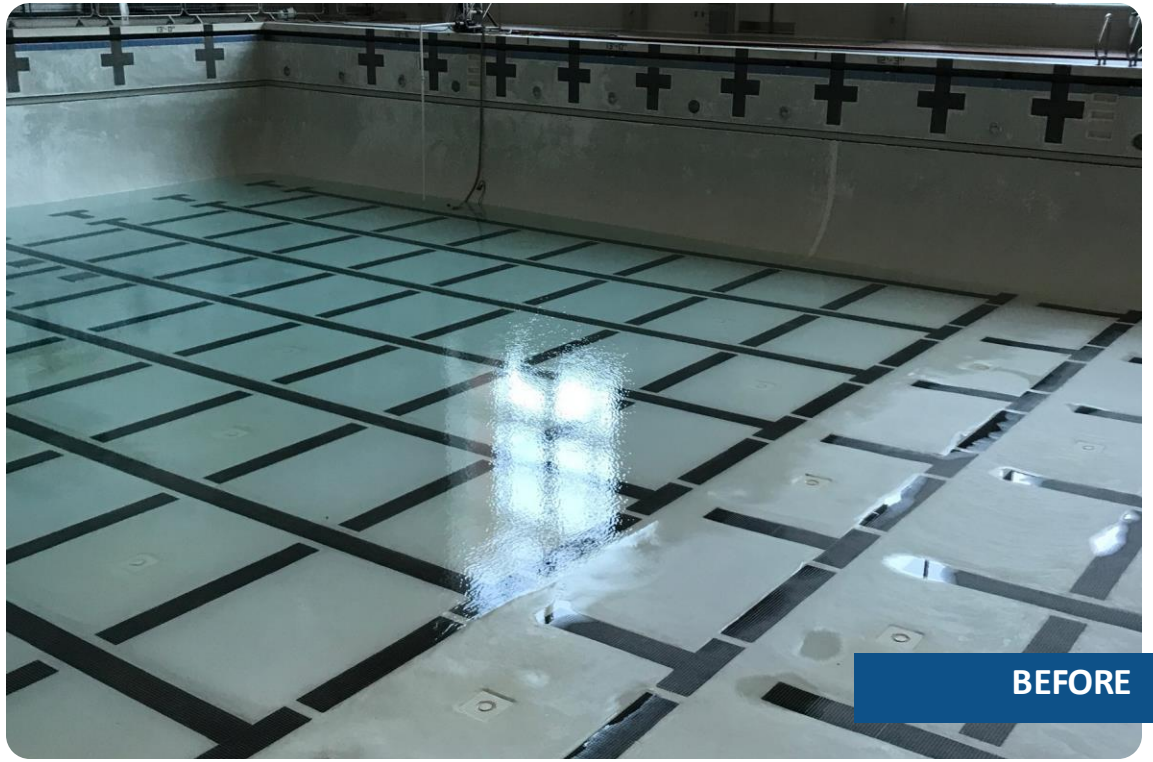
Plano-Coudon Construction

MERISSA DETWILER

Plano-Coudon Construction

UMD EPPLEY RECREATION CENTER

AFTER



BEFORE

- Natatorium renovation at the University of Maryland's Eppley Recreation Center, including full equipment, plaster, and tile replacement of the Olympic-sized competition pool.
- Modernized critical pool infrastructure with new filtration, pumps, heaters, piping, UV system, and chemical treatment equipment
- Delivered the project on an accelerated schedule to return the facility quickly to university teams, lessons, and rentals.

CT

WHY CM AT RISK?

- **Initial Delivery Method:** Design began assuming a traditional delivery method
- **Shift to CMAR:** As schedule demands increased, the team determined CM at Risk was the better delivery approach.
- **Long-Lead Procurement**
- **Two GMP Strategy:** Heater design was accelerated to allow a long-lead equipment GMP at ~50% CDs, with remaining scope included in a second GMP.
- **Key Challenge:** Tight schedule constraints drove procurement and delivery decisions.

CT

PRECONSTRUCTION

- **Long-Lead Procurement:** Coordinated early bidding and procurement of long-lead items.
- **Site Logistics:** Careful planning for staging and site coordination.
- **Budget Challenge:** Controls package bids came in higher than anticipated; Team collaboration to rescope and bring costs back within budget.
- **Risk Management:** The CMaR approach allowed use of allowances to account for unknowns and protect the client.
- **Team Collaboration:** CMaR fosteres strong relationships and transparent conversations to navigate challenges.

CM

CONSTRUCTION

CHALLENGE

- Unforeseen existing conditions: Electrical bonding issues, pump alignment, and integration with existing PWPs.
- Existing piping and valves required evaluation and coordination during construction.
- Lane marker tiles found to be noncompliant with racing standards.

SOLUTION

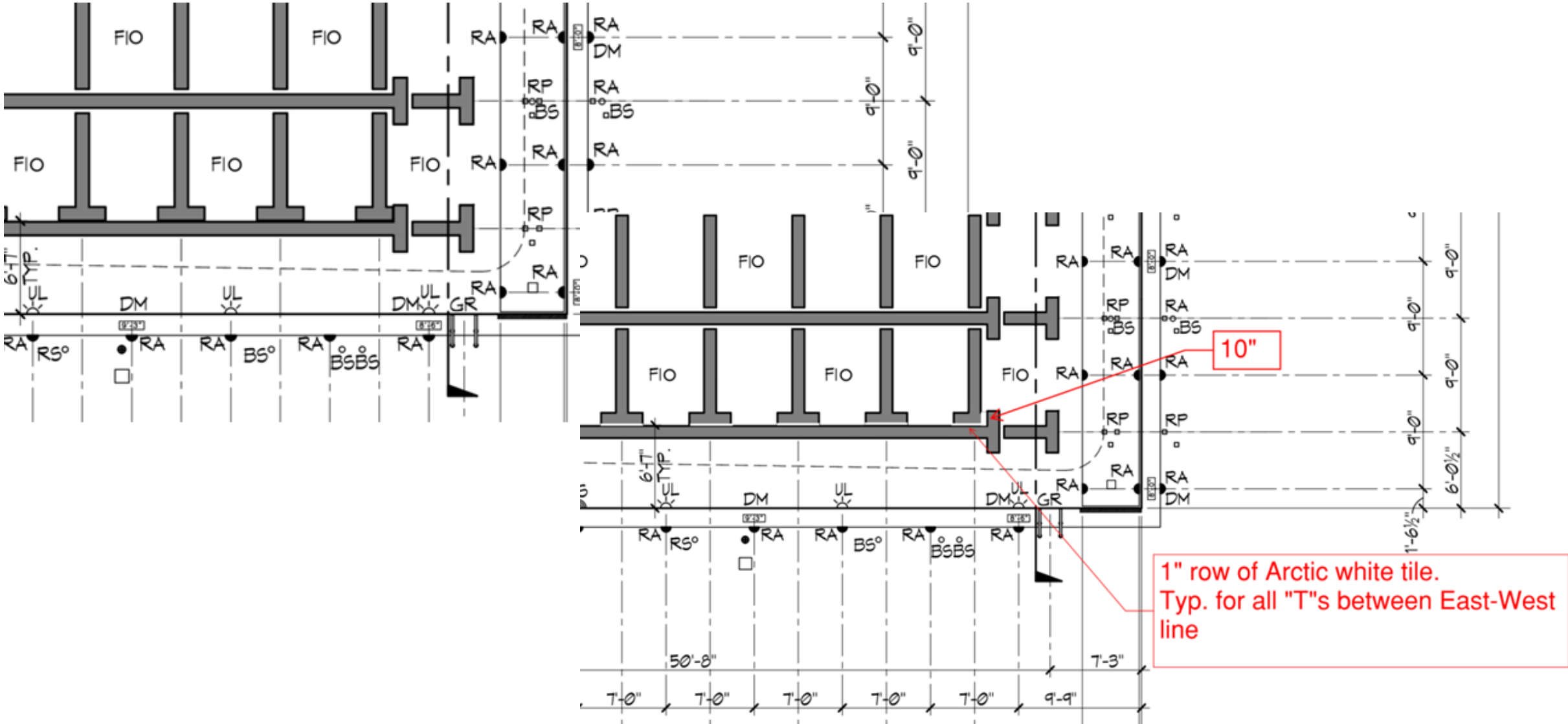
- The team collaborated in the field to quickly troubleshoot and evaluate alternatives.
- Instead of removing large areas of installed tile and plaster, the team adjusted the tile pattern by replacing select black tiles with readily available white tiles.

RESULT

- Achieved lane marker compliance without extensive demolition.
- Minimized schedule impact and avoided significant rework.
- Maintained project momentum through proactive problem-solving and collaboration.

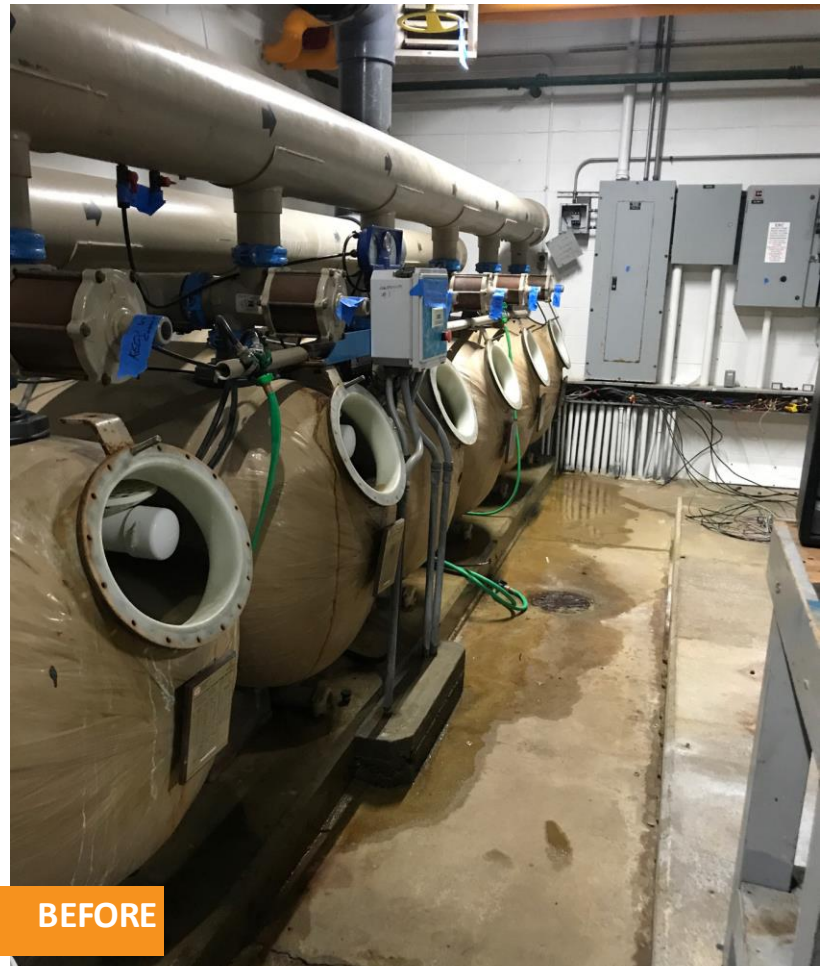
MD

CONSTRUCTION | *LANE MARKER SOLUTION*



MD

CONSTRUCTION | *PUMP ROOM*



BEFORE

AFTER

MD

IN SUMMARY...

- Since we were able to work through the various problems we encountered in a **collaborative** way, we:
  - ...finished **on-time.**
  - ...final contract value finished **below** the GMP value after realizing shared savings from the contract.

Construction Owners Association of America

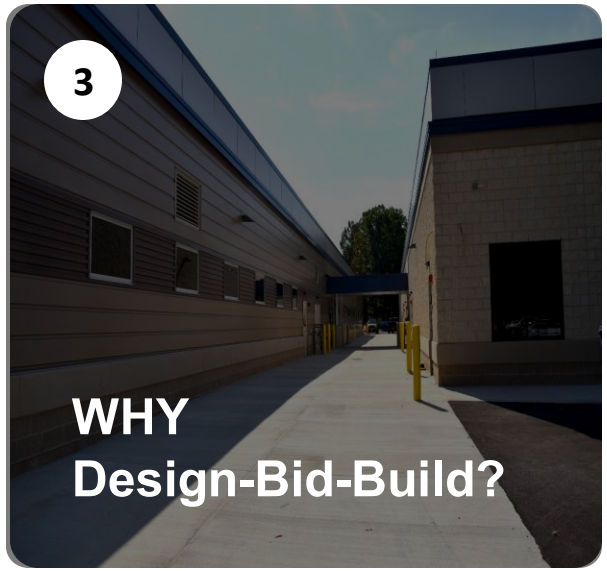
DESIGN-BID-BUILD

March 24, 2026

AGENDA


1
MEET THE PRESENTERS


2
WHAT WAS THIS PROJECT?


3
WHY
Design-Bid-Build?


4
PROJECT EXECUTION

MEET THE PRESENTER

ROB TIROCCHI
Project Executive
Harkins Builders

MERISA DETWILER
Plano-Coudon Construction

USSS K9 TRAINING CENTER

BEFORE

AFTER

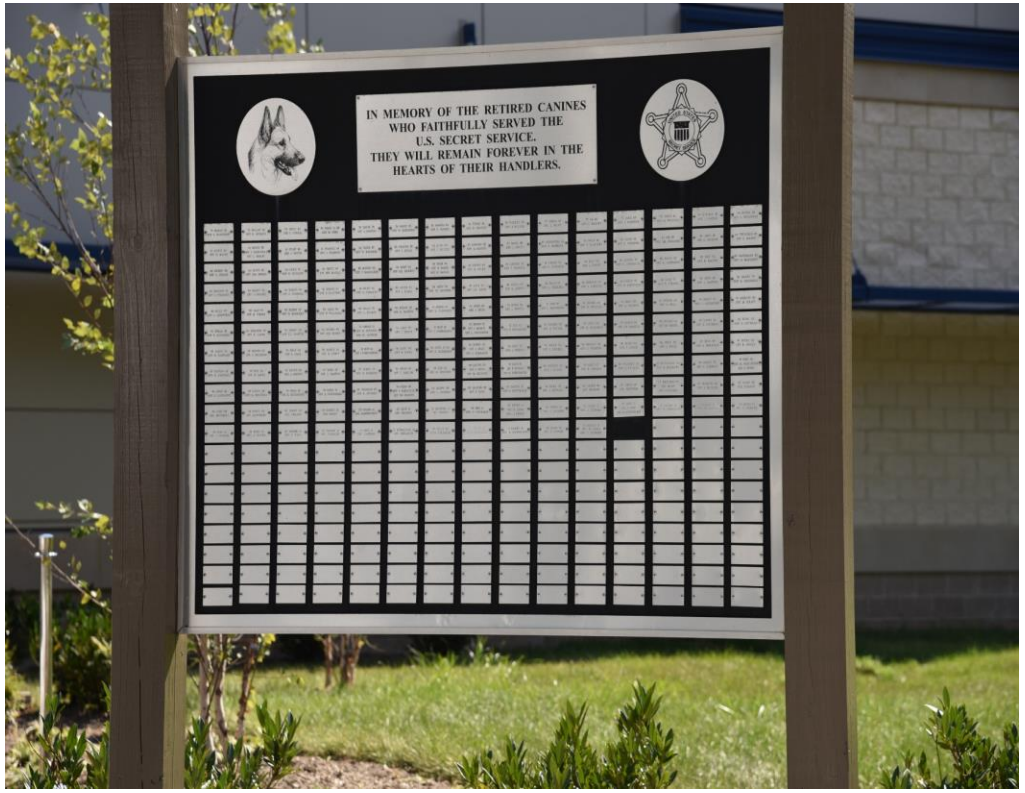
- Tear down and full replacement of existing facility
- Had to maintain full operability of the training facility
- Award amount = **$9.6M**

WHY Design-Bid-Build?

- **Very Specific needs:** The Owner had very specific needs and requirements that are hard to translate to a Design-Build (D/B) RFP.
- **Inexperienced Owner:** First significant project in several years, if not decades, for this US Secret Service Campus.
- **Clear design responsibility:** In-House design capabilities of the US Corps of Engineers.
- **Budget Constraints:** Owner needed to maintain a strict budget, and as a Federal entity, the only other option available at the time was D/B.

BID PHASE

- **RFI's:** There was no preconstruction phase; the only indication of any issues or concerns came in the form of formal RFI's. There were over 500 Prebid RFI's.
- **Competition:** Owner solicitation advertisement garnered bid submissions from seven GCs with a tight margin, providing a level of cost certainty.
- **Contingency:** Due to this being an open bid, the owner was able to get very competitive bid pricing that bulked up their project contingency.



CONSTRUCTION

CHALLENGE

- Adjustments to the K9 kennels
- 251 construction RFI's
- Not allowing the relationship to turn adversarial
- Long lead materials – eight months to procure the generator

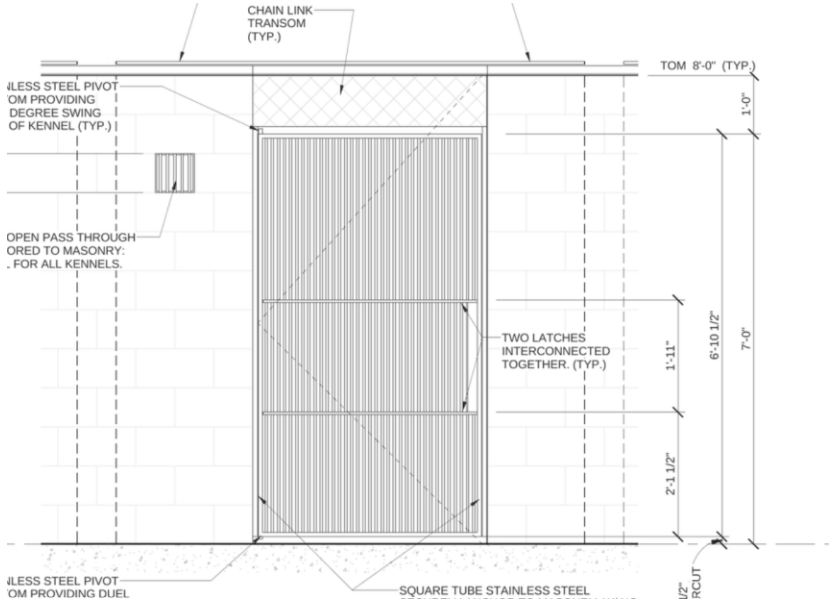
SOLUTION

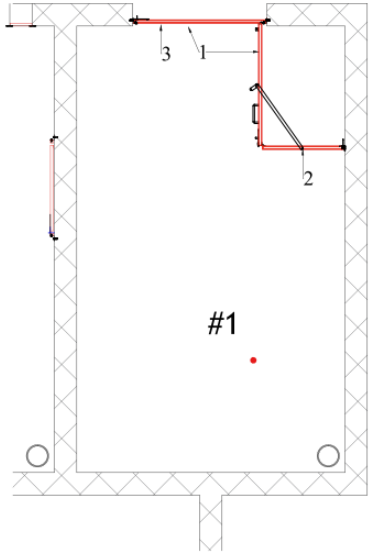
- Several mock-up variations and fine tuning
- Constant follow-up from all parties
- Continuous dialogue and developing common goals
- Attempted to reduce lead time for generator with alternates but was unable to shorten duration

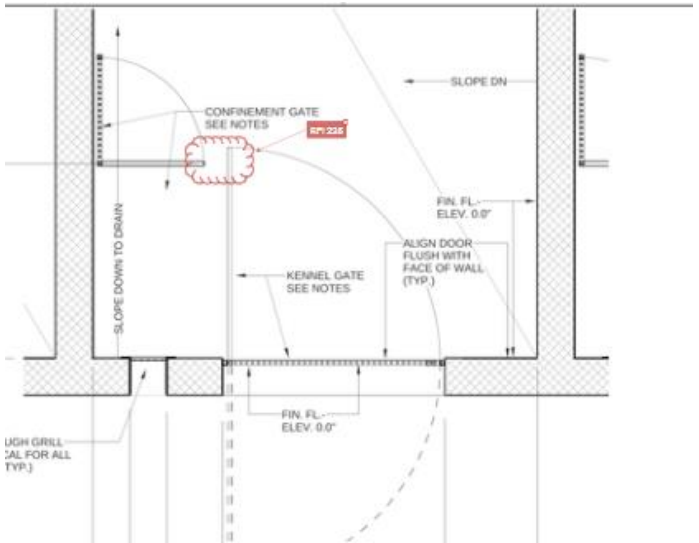
RESULT

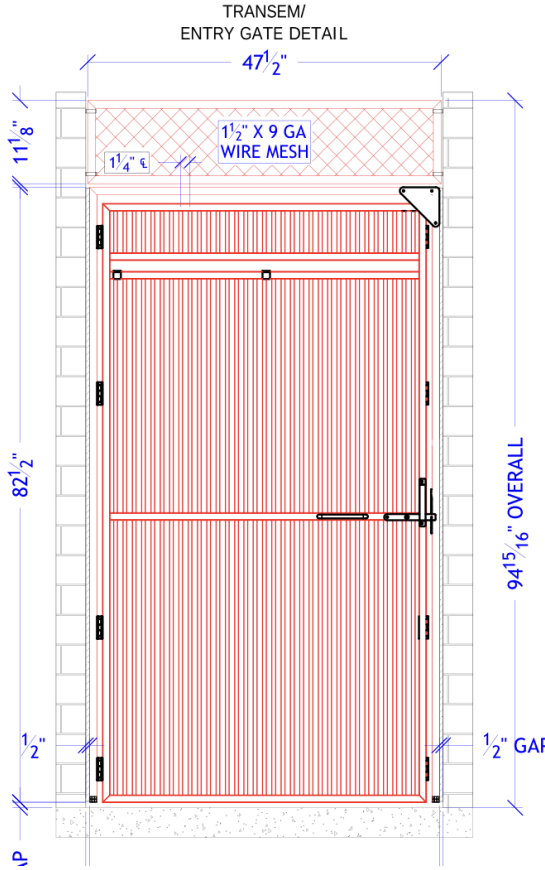
- Longer than anticipated lead time for submittals and fabrication - 59 days
- Time lost and $178K additional cost
- Lost time and efficiency
- Change order time extension to allow for generator to be fab and delivered

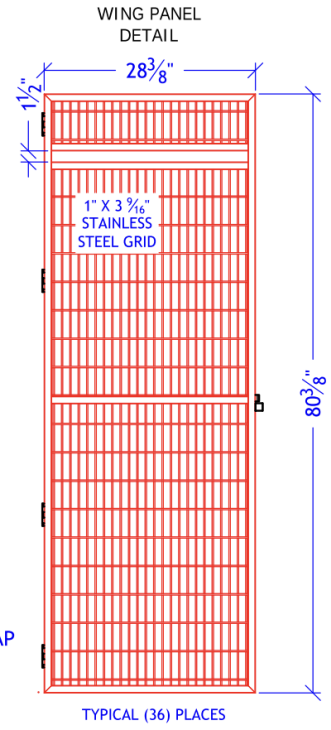
CONSTRUCTION | *KENNEL GATE SOLUTION*





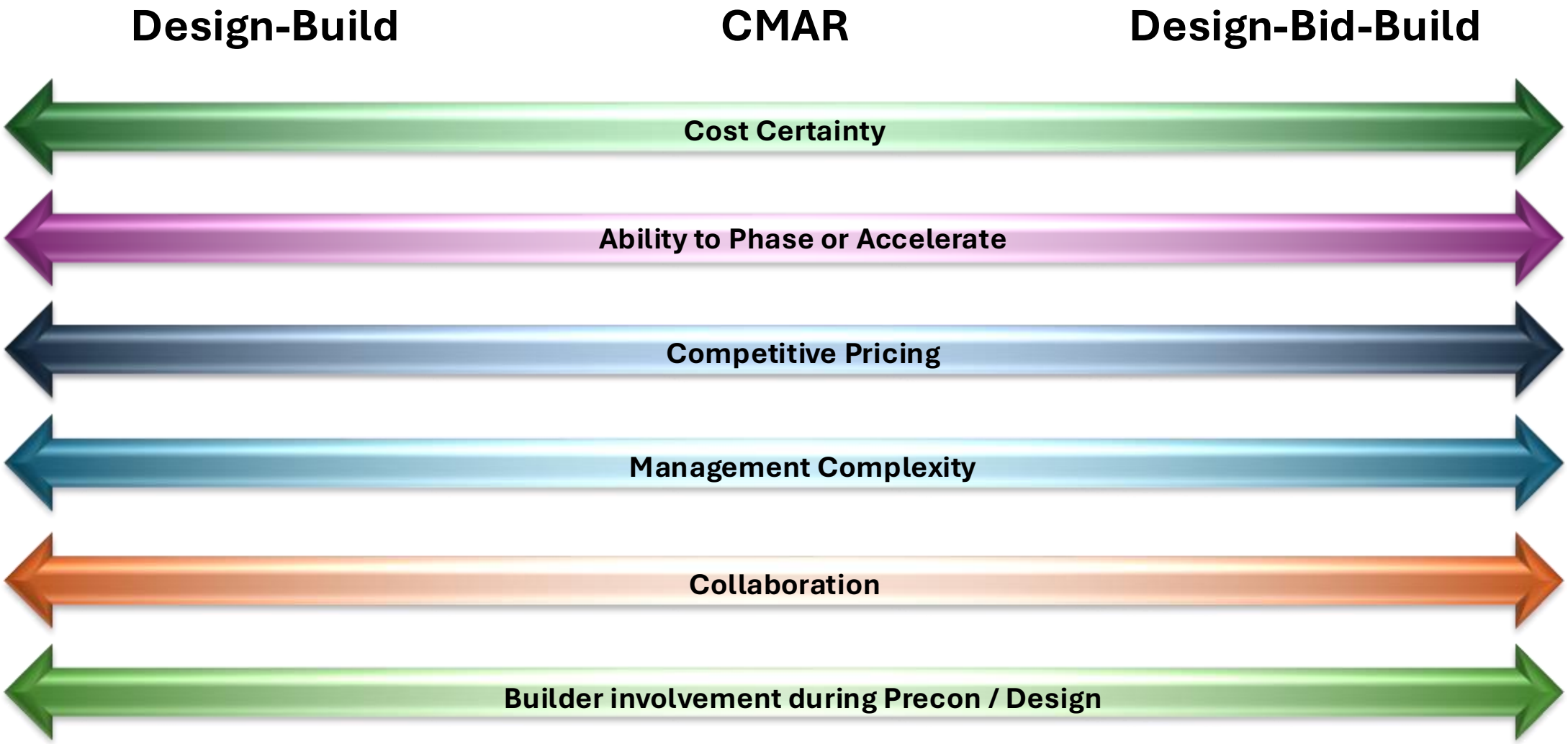






IN SUMMARY

Delivery Method Summary



Q&A

Katherine Willams
Director
Georgetown University, PFM, Capital Projects

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Senior Project Manager
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Principal / Project Manager
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Plano-Coudon Construction

MERISSA DETWILER
Plano-Coudon Construction

ROB TIROCCHI
Project Executive
Harkins Builders

Johns Hopkins University Applied Physics Lab

Jimmy Patel

Project closeout (closure)


Begin with the
End in Mind

AIA Contract Documents

SUBSTANTIAL COMPLETION

WHAT is it ??

Substantial completion occurs when the project or designated portion is functional for the owner's intended use

What is included in Substantial Completion?

- Certificate of Occupancy
- Life Safety Systems operational
- Major Building Systems Operational
- Punch List created
- Building Automation System available
- Initial O & M information provided
- Initial training
- Access & control transferred
- Certificate of Substantial completion issued

COMMISSIONING COMPLETED BY SUBSTANTIAL COMPLETION?

It's always the goal, yet the date slips. Why?

What is included in Substantial Completion?

- Pre-Functional testing – All major equipment installed and started
- System startup and Initial Operation – Systems support normal occupancy
- Initial Functional testing – Critical Systems
- Life Safety commissioning and certifications
- Building Automation System – Basic Functionality

What may not be included in Substantial Completion?

- Full functional performance testing
- Resolution of all commissioning issues
- Final commissioning reports
- System optimization

Commissioning vs Construction Timeline

DESIGN PHASE
• Commissioning Planning (OPR, BOD, Cx Plan)

CONSTRUCTION PHASE
• Early: Submittal Reviews
• Mid: Pre-Functional Checklists & Startup
• Late: Functional Testing (Systems Verification)

SUBSTANTIAL COMPLETION (SC)
• Systems Operational
• Life Safety Approved
• ~80–90% Commissioning Complete

CLOSEOUT PHASE
• Issue Resolution
• Seasonal Testing
• Final Commissioning Report
• System Optimization

Construction builds the building – Commissioning proves it works

PUNCHLIST

Best Practice

- Centralized punch list log
- Software tools like Procore, e-Builder, PMWeb, etc

Avoid Spreadsheets floating around


OPERATION
&
MAINTENANCE

What do they need at Substantial Completion?

- Life Safety and Occupancy
- Core systems operational
- Building Automation System
- Critical Documentation
  - Equipment list (major assets)
  - System one line diagram
  - Emergency procedures
  - Quick start guides for key systems
- Training
- Commissioning status transparency
- Access and Control
- Contacts and Support

PROJECT CLOSEOUT

Certifies that all contract work is fully completed, punch list items are resolved, and the contractor has no remaining obligations

Final Closeout

- Punchlist completion
- As-builts
- BIM model
- O & M manuals
- Warranties
- Final commissioning reports
- Testing and Certification reports
- Training and Turnover
- Asset and Facilities Integration
- Spare parts and Attic stock
- Financial closeout
- Contractual closeout
- Vendor Rating

Close out Timeline (SC to FC)

Project Size	Typical Closeout Duration (Substantial Completion → Final Closeout)
Small projects (< $5M)	**2 months**
Medium projects ($5M–$25M)	**2-4 months**
Large/complex projects ($25M+)	**4-6 months**
Mega Projects ($100M+)	**12-18 months**


LESSONS
LEARNED

WHAT WENT WELL?

CLOSEOUT

- A/E punch list support
- Willingness in supporting warranty calls
- Review of O & M’s have been timely
- Division 1 (close out) documents were clear
- Format and technology of punch list (pics and floor plans)

WHAT COULD HAVE BEEN BETTER?

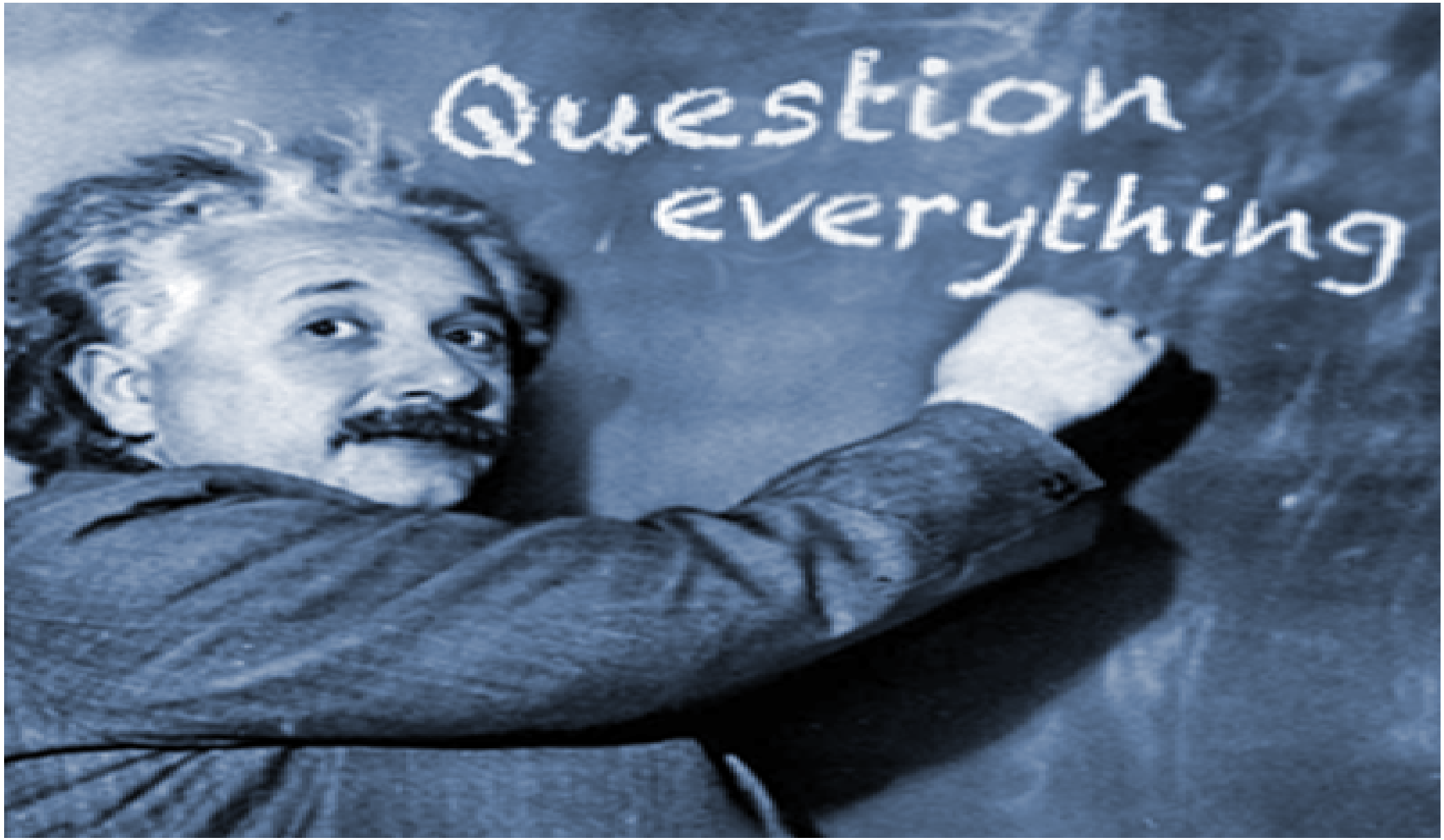
CLOSEOUT

- Align Substantial completion expectation
- Commissioning and testing of complete systems
- Partnering from Day one
- Red Zone (80%) meetings
- Division 1 expectations and buy in

If starting project today, what would you be sure to do?

CLOSEOUT

- Substantial completion before it was complete
- Technology set up between all parties
- BIM/O & M data delivery
- Coordinated REVIT model
- Clearer punch list sign off process
- Misalignment on substantial completion in documents AIA versus Exhibit D
- Change orders resolution timeframe
- Systemic issues for commissioning closeout
- Planned adequate timeline for commissioning


Question
everything

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Commissioning Services

Johns Hopkins University

Applied Physics Laboratory

Meet Your Presenters

James Givens, CxA, EMP, CQM

Division Manager

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Jon Logue, BCxP, CQM

Project Manager

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Ish Keener, PE, SE

Director of Building Enclosures

SUSTAINABLE BUILDING PARTNERS

Agenda

1. What Is Commissioning?
2. Types Of Commissioning
3. Lessons Learned / Legends from Field
4. Questions & Answers

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What is Commissioning?

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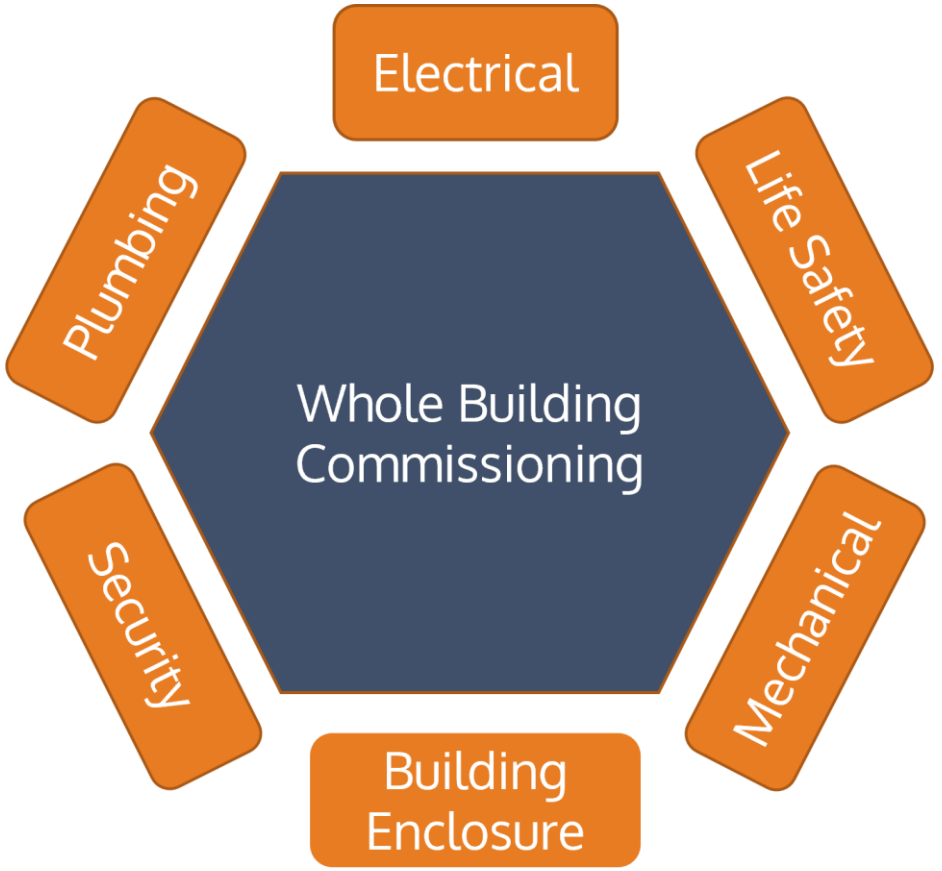
What is Commissioning?

- ASHRAE defines commissioning as a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria”.

What is Commissioning?

- A process of bringing all systems together to operate a building in harmony



Commissioning Process By Phase

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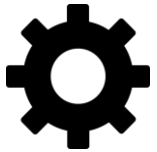
Project Initiation

- Establish Cx Process
- Owner Project Requirements (OPR)

Design & Pre-Construction Phase

- Design Review
- Develop Cx Specs
- Prepare Cx plan
- ATC Integration Meeting
- Cx Schedule integration



Construction & Acceptance Phase

- Kickoff Meeting
- PFCs and mock-ups
- Conduct Cx meetings & site visits
- Equipment Start-up
- Cx Issues log tracking
- Witness FPTs
- BAS & GUI Review
- O&M reviews
- Staff Training Reporting
- Cx Deliverables

Post-Construction Phase

- 10-month pre-warranty review
- Seasonal Testing
- Supplemental Cx documentation

What is Commissioning?

- Commissioning is **NOT**…

1. A replacement for Contractor QA/QC processes
2. A one-time event
3. An enhanced “Punch-Out” process
4. Just some Functional Testing at the end of (or during) a project

Types of Commissioning

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Types of Commissioning

New Construction

- “Ground Up” New Projects
- Additions
- Renovations
- Rehabilitations
- Major Equipment Replacements

Building Enclosure

- Building Enclosure Cx / BECx
- Process is like MEP Systems Cx
- Involves; Slabs on Grade, Waterproofing, Exterior Walls, Air/Vapor Barriers, Insulation, Fenestrations, Roofing, Flashing, etc.
- For Existing Buildings, focus may include; Forensic Investigations, Condition Assignments, Lifecycle Cost and Upgrades Analyses

Existing Building

AKA: Retro-Commissioning and/or Re-Commissioning / RCx

“Tune Up” Existing Systems

Addresses Underperforming Equipment/Systems

Analyze Current Facility Usage (Compare Against Original Design)

Energy Savings / Incentives

THESE ARE GENERALIZATIONS – VARIATIONS EXIST – EACH PROJECT SCOPE WILL BE UNIQUE

New Construction Commissioning

Building Enclosure Commissioning

The system you can't reboot.

- MEP systems can be reprogrammed, retuned, replaced
- The enclosure gets buried behind finishes — you get one shot
- Assemblies have grown more complex; skilled labor has not kept pace
- BECx applies the same rigorous process as MEP Cx — to the passive systems that protect everything inside

What is Existing Building Commissioning?

Re-Commissioning

- Do, and do it, and do it again!
  - Building has been previously commissioned
  - Implies documents are available for review
  - Intent is to first get building or system operations back to original design conditions

Retro-Commissioning

- Heading back in time…
  - Building has never been commissioned
  - Status of available documents is unknown
  - More of a discovery or interpretation of original design intent/conditions
  - Cx team are the contractors

BECx for Your Existing Buildings

Building on campus

- Original construction quality issues concealed for years
- Significant cost ($ + pain in the … factor) to remediate

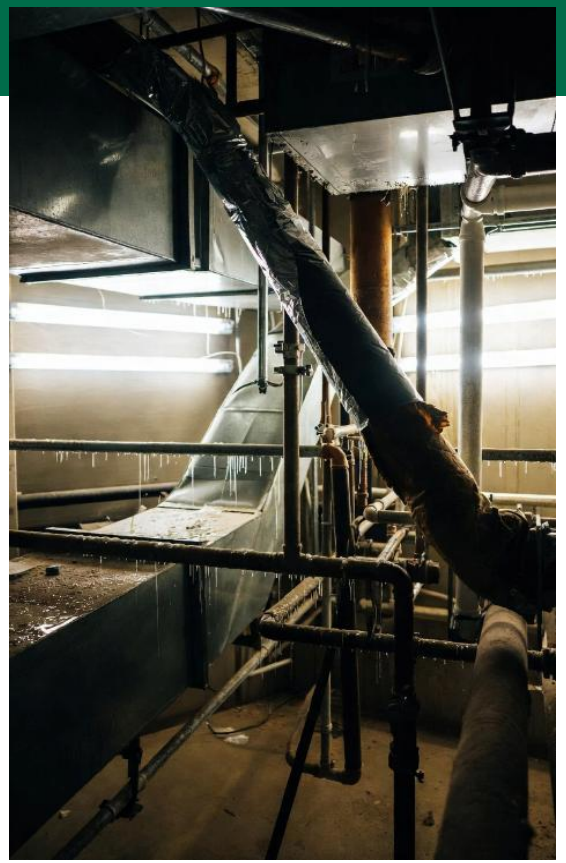
Know what you have before you plan what's next

Forensic Investigation
Identify root causes of enclosure (+ MEP!) failures through targeted testing and analysis

Condition Assessment
Evaluate current enclosure (+ MEP) performance and remaining service life

Lifecycle Cost Analysis
Compare repair vs. replacement options with long-term cost projections

Lessons Learned



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Understand Client Needs

1. How do you define a successful project?

   A. OPR

2. How familiar are you with the Cx process?

3. What are your expectations beyond the RFP?

   A. Who is driving the bus?

When should the Commissioning Process begin?

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As soon as possible.

1. What are the goals of the project?
   A. Owner's Project Requirements

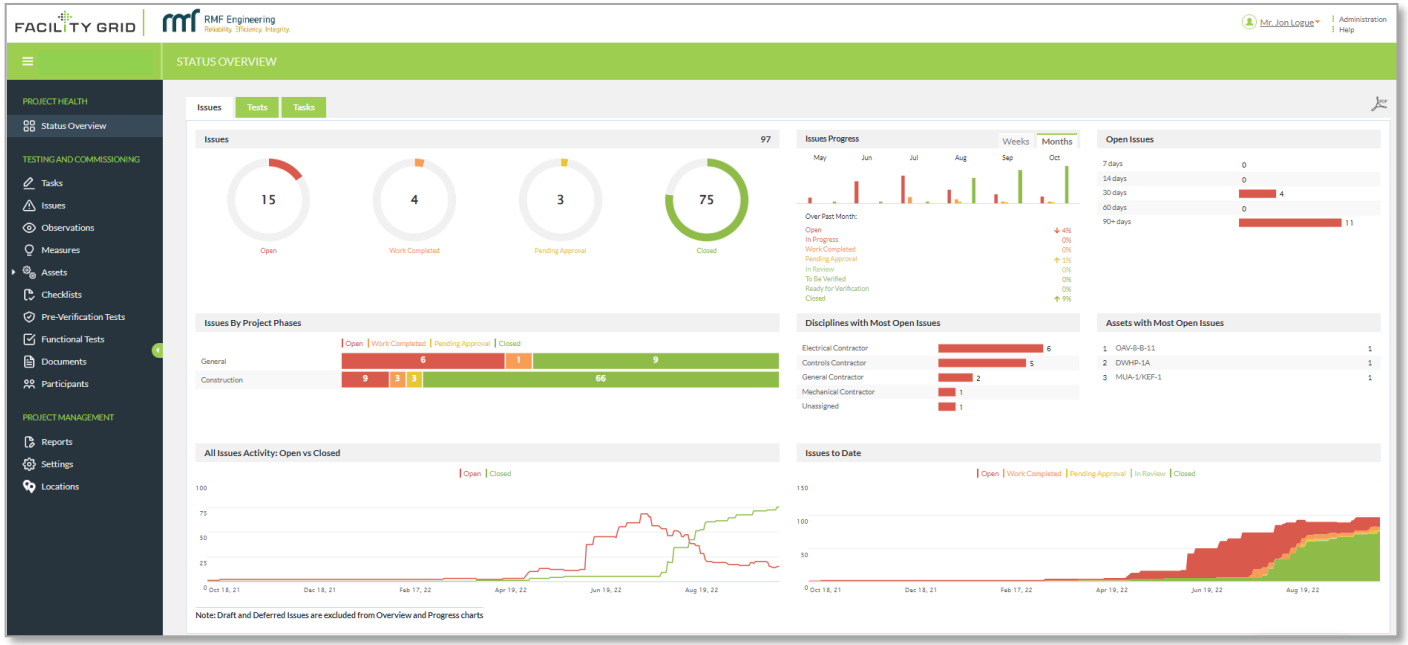
2. Include a review of the design
   A. Review prior to 50% CDs required by LEED

3. The CxA will facilitate a review of controls integration
   A. Factory equipment controls vs. Building Automation Systems

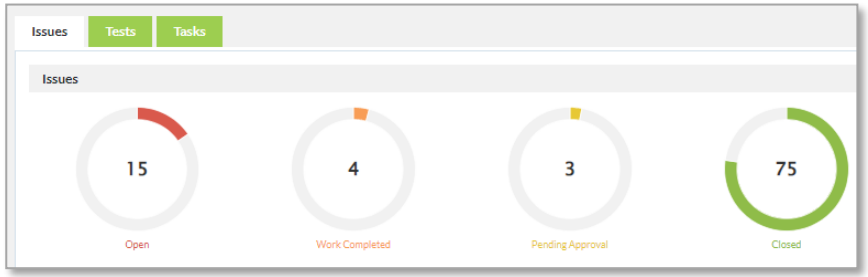
Communication

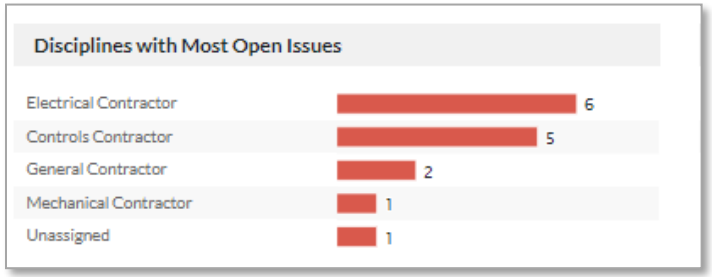
FACILITY GRID
Commissioning Software

- Web-based reporting
- Issues status & tracking
  - Every issue logged
  - Assigned responsibility
  - Linked to PFCs and FPTs
  - Continuous tracking
  - Live updates



Keep Everyone Informed





Commissioning Milestone Schedule Integration

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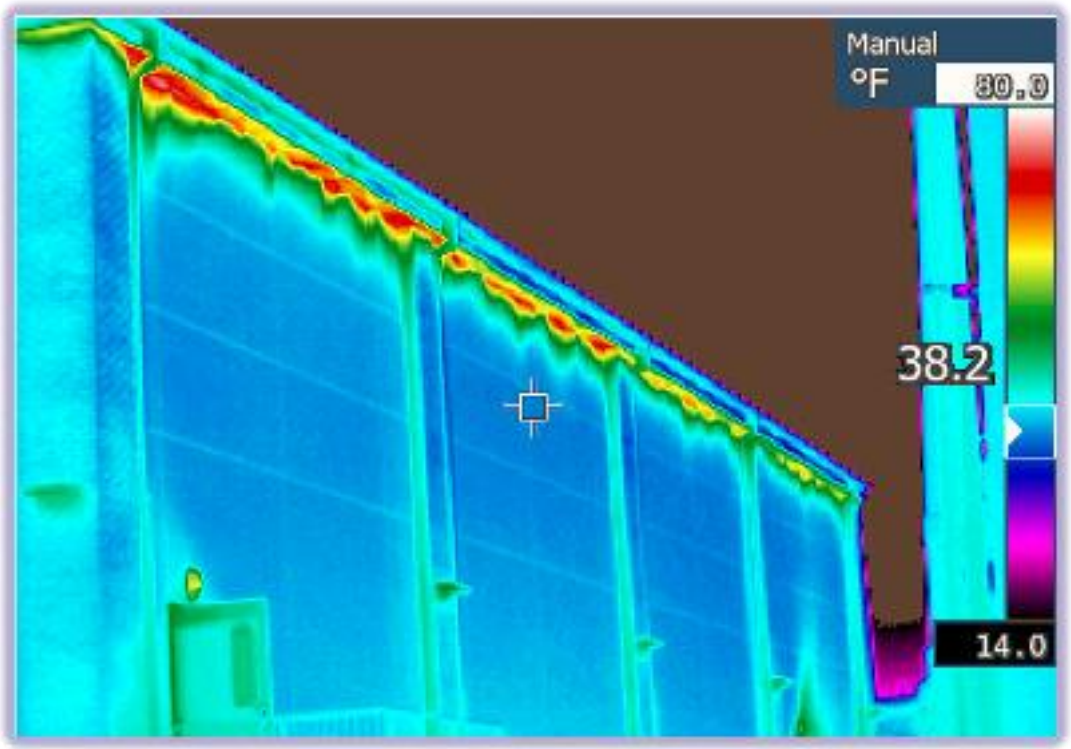
- Specifications
  - Recommended time of durations
  - Set the expectation
- Prerequisites
  - Checklists
  - TAB
  - Controls Point to Point
  - PVTs
- Contractor QC Process
  - Cx does not replace this.
  - Did the subs actually do the pretesting, or did they just check the boxes?

What We Find

Without BECx, failures hide until it's too late

- Water intrusion behind finished walls
- Concealed corrosion and structural degradation
- Condensation and mold from air barrier gaps
- Premature cladding staining and sealant failures



RMF Functional Testing is Different

Where is the O&M Manual?

- Fan Performance / FPTs
  - Physically verify system performance
  - TAB validation
    - Not just start/stop and/or control sequences
- Exhaust fan not performing per design requirements
  - Project team could not explain/resolve

Results

- Enabled Proper Operation of Critical Exhaust Air System
- Ensured Personnel Safety and Comfort
- Prevented Project Delays and a Possible Re-Design Effort!

The Results Are In:

- "We have discovered that retro commissioning a building is one of the few low-cost solutions available to us that leads to significant energy, carbon and financial savings. Between 2018 and 2024, ***the energy use index of the Rockville District Court declined 46%***. After our success with this project, we scheduled several more candidate buildings to undergo a similar process and we're looking forward to tracking the savings at those facilities over the next few years."

CHANGING Maryland *for the Better*

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Click Here to complete a three-question customer experience survey

The Owner's Bottom Line

What BECx Costs

~$1.16/sf
for new construction BECx services

~$0.30/sf
for existing building assessments

13–16% average savings
in maintenance and energy costs

Lawrence Berkeley National Lab meta-analysis

BD+C's analysis of BECx ROI

What Failures Cost

Up to 70%
of all construction defect claims involve the enclosure

5–10x
the original install cost to remediate

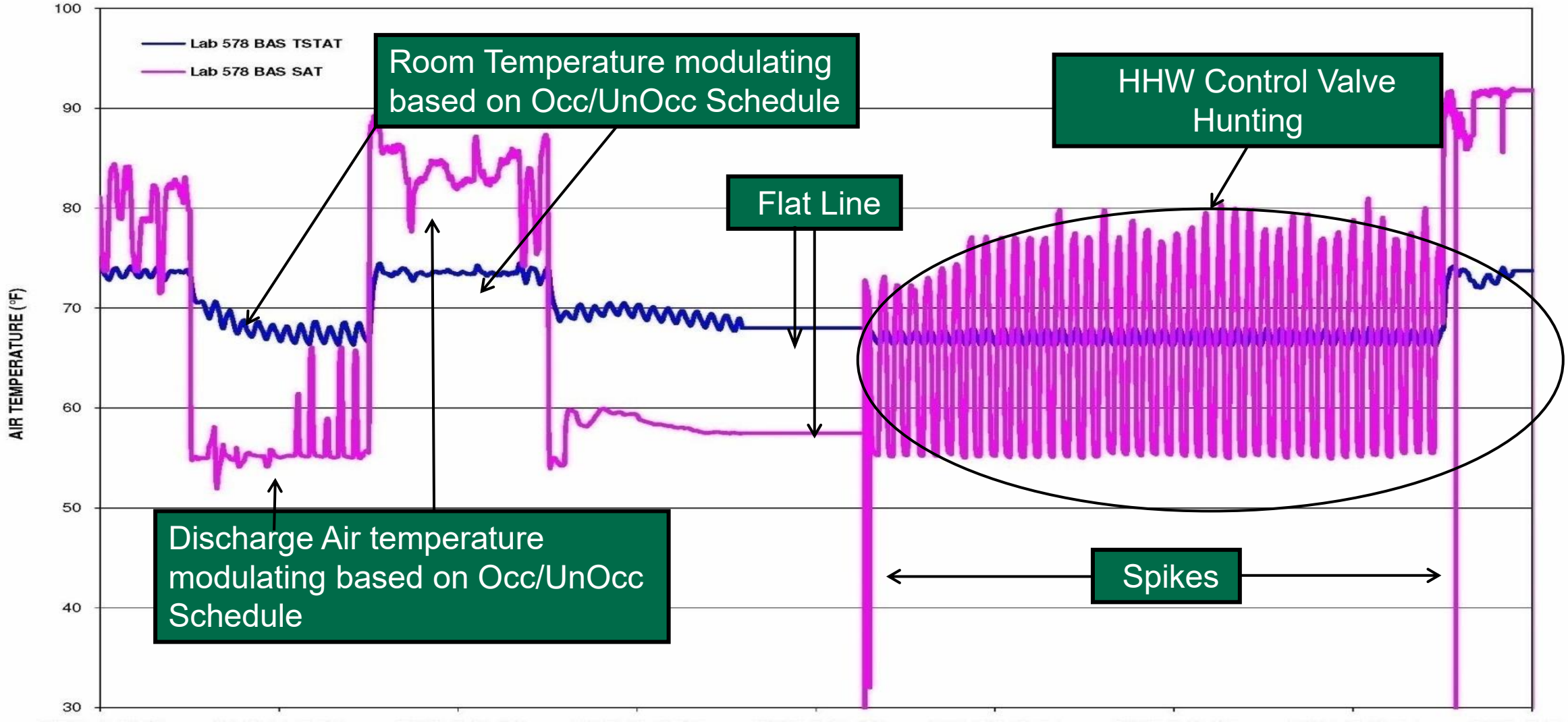
operational disruption

False Load Testing - Data Centers

- The importance of knowing the systems can handle the load before it is too late!
  - Understand the occupants needs
  - Work with your client & designers
  - Ensure proper selections & installation of load banks by the contractor
  - Review the Test Plan
  - Witness the testing
  - Report, review, and discuss results

The “P” in FPT!

Long term performance verification



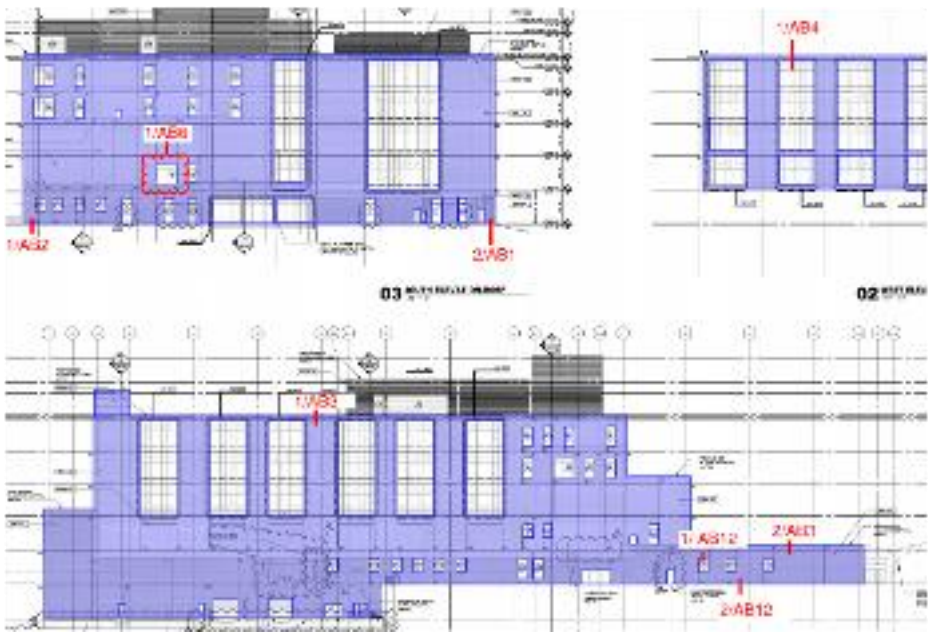
What We Catch Before It's Too Late

The BECx process in action

- Submittal and shop drawing reviews
- Pre-installation meetings with trades
- Functional performance mockup testing
- Field water and air leakage testing
- Ongoing observations and deficiency tracking

What This Means for You

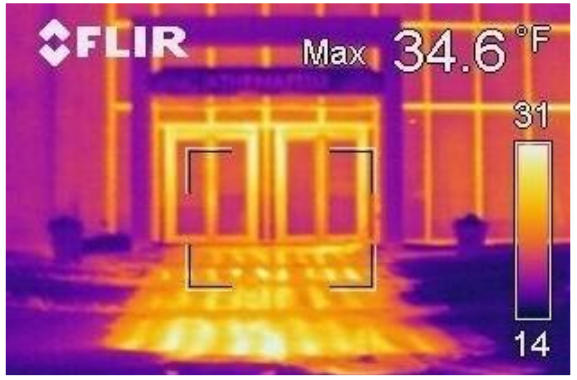
- Issues caught during construction — not after occupancy
- Verified performance before finishes conceal the work
- Documented quality record for the life of the building

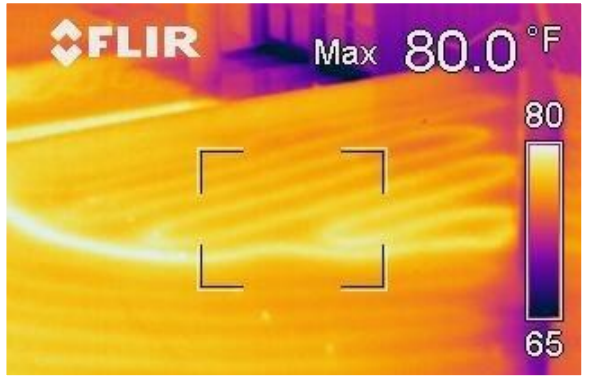


Goucher College

Athenaeum

- Time & Place of Testing
- Seasonal Testing
- Trending Review
- Load Conditions





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Thank You!