

MSBA Commissioning Roundtable

Presentation Panel on Project and Commissioning Closeout

Case Study from
Marathon Elementary School, Hopkinton

March 28, 2019



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AGENDA

- **Team Introduction**
- **Schedule Management**
- **Design Considerations**
- **Training**
- **Maximize Assets**
- **Post Completion**
- **Q & A**



MARATHON ELEMENTARY SCHOOL

Project Panel



Planning
Architecture
Interior Design



SCHEDULE MANAGEMENT

- Project Team Focused Approach to Scheduling
- Utilize Early Trade Packages to Establish Momentum Across Trades
- Using Individual Trade Schedules to Propel Lean Construction, Commissioning, LEED & Training
- Full Schedule Buy-In from Trade Contractors
- Schedule Focused on “the Brain of the Building” (i.e Mechanical Room)
- Finished two months ahead of schedule inclusive of four classroom addition
- Cooperation of Trade Contractors allowed the added building to fit into schedule and budget seamlessly
- Successful Building Turnover Starts Early in Construction Phase
- Run Transition Process Parallel with FFE Procurement Schedule
- Outline Owner Transition Process
- Quantify Building Loose Contents
- Attic Stock Considerations

148	GMP Development	78 days	Tue 8/23/16	Thu 12/8/16
149	Early Site & Foundation Packages Bidding	21 days	Tue 8/23/16	Tue 9/20/16
150	Early Steel Package Bidding	15 days	Thu 9/29/16	Wed 10/19/16
151	HESBC Review / Approve Early Trade Bid Award	3 days	Wed 9/21/16	Fri 9/23/16
152	Print & Distribute Bidding Documents	2 days	Mon 10/17/16	Tue 10/18/16
153	Advertise Trade Contractors	1 day	Wed 10/19/16	Wed 10/19/16
154	Subcontractor Bidding	15 days	Thu 10/20/16	Wed 11/9/16
155	CM GMP Development	20 days	Thu 10/20/16	Wed 11/16/16
156	Review & Scoping of CM GMP	5 days	Thu 11/17/16	Wed 11/23/16
157	HESBC Review / Approve Contract Award	5 days	Thu 11/24/16	Wed 11/30/16
158	Award Contract to CM - Notice to Proceed	1 day	Thu 12/1/16	Thu 12/1/16
159	Execute CM GMP Contract Amendment	5 days	Fri 12/2/16	Thu 12/8/16

DESIGN CONSIDERATIONS

- LEED v4 Flush-Out Criteria
- Used Option 1, Path 1, Flush-Out Before Occupancy
- Designer Matrix for all AHU Equipment and Building Space Requirements
- The Resulting Flush-Out Period was 16 Days - required to occur when construction ends and all interior finishes are installed



- The Mechanical Contractor provided a Flush-Out Data Log via Closeout Submittal
- Flush-out Data included: average space temperature, relative humidity, outside air flow and the air handling unit's outside air damper position
- Scheduled Commissioning of Building Systems after Flush Out

TRAINING Essential to Success of Team on Project

DRA Architects Implementation:

- Identify Facility Dept. Needs, Skill Set and Knowledge for Training
- Identify Pertinent Parties for Training and Provide List to Owner
- Include a Training Summary Spec. in the Front End

Colantonio Implementation:

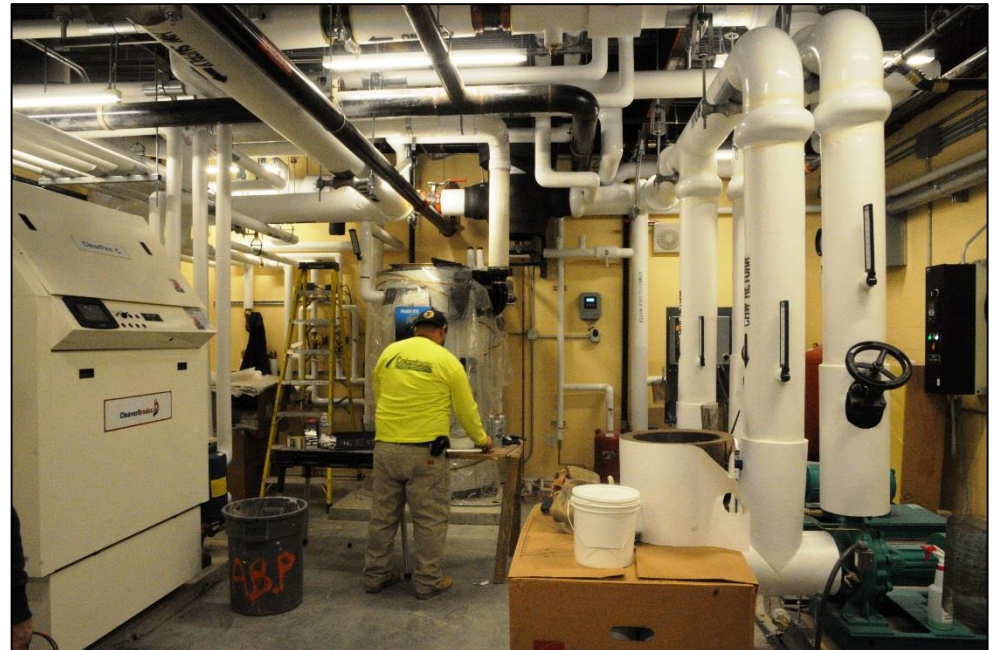
- Consolidate Training Outline as Part of the Submittal Process
- Very Thorough Training Follow-Thru and Scheduling
- List Video Recording Requirements for Continuity of Standards in Spec.
- Identify Key Team leaders from School Dept i.e. Principal, Facilities Directors, Dept. Head, etc.



MAXIMIZE ASSETS

Efficiency of CxA involvement:

- Envelope Field Testing requirements identified in design phase for feedback.
- CxA included on Procore distribution of Submittals, Meeting Minutes & Field Reports by AE team
- Scheduled field visits based on up to date info & communication with Compass
- Deficiency tracking achieved via Procore with PHOTOS following discussion in field with OPM & CM
- MEP CX: Scheduling site visits for equipment startups, functional testing and 3rd Party TAB requires significant coordination
- OPM & CM ensured the pre-functional checklists were complete with system operations complete by trade contractors prior to our visit



MAXIMIZE ASSETS

- Tracked the Commissioning Corrective Action Log Items Through Observations Tool in Procore
- Items Added as Observations, Assigned to Subcontractor for Corrective Action
- Procore Sends the Individual Notification that an Observation in their Court has been Created.
- A Reasonable Due Date is Set for the Subcontractor to Correct issue Noted on the Observation.
- When Corrective Actions Completed, Subcontractor Changes status to “Ready For Review”
- CM & CxA Notified of Status Change to review response as acceptable or not
- If Not Acceptable, Status is Changed to “Initiated”, Subcontracted to Review Comments and Resubmit.
- **Provided WIFI in the construction Zone for subs**

PROCORE[®]

POST COMPLETION

- Establish flow for User request to determine if it is a warrantee item or Owner wish list.
- Staff requests, fill out form to be vetted through the Principal and/or Facilities Director to determine responsible party.
- Facility Director to distribute warrantee request to CM or wish list to OPM/SBC for consideration.
- CM schedules investigation or repair with subcontractors/vendors
- OPM works with School Staff or Designer to provide more information on wish list to present to SBC for action.

OWNER CHANGE REQUEST		Hopkinton Marathon Elementary School	
<p>COMPASS PROJECT MANAGEMENT</p>			
<p>INSTRUCTIONS: Please use this form to request a change or modification to the project. This form will be used only to document and track all Owner Change Requests. Submittal of this form does not guarantee that the change or modification will be approved and/or implemented. Change requests originating from the school staff/facility will first be submitted to the Superintendent of Schools for approval, and if approved, then submitted to the ESBC for approval and inclusion in the project. Approval by the School Department does not guarantee that a change request will be approved and/or implemented by the PBC.</p>			
Owner Change Order Request #	1		
SCHOOL DEPT. TO COMPLETE	DATE OF REQUEST:	9/28/2017	
	REQUESTED BY:	Tim Persson	
	ROOM # or LOCATION:	Hallway to Music Room C112	
	CHANGE OR MODIFICATION DESCRIPTION:	Add a lockable door or gate at the hallway leading to the music room which connects to the cafeteria.	
	REASON FOR CHANGE OR MODIFICATION:	School Facilities wishes for the option to lock off the cafeteria space during outside school rental events to keep renters out of the cafeteria and music room spaces. This is an open hallway with stair that connects to the cafeteria space and ultimately the stage if the sliding partition is not closed.	
	PRIORITY OF REQUEST:	(CIRCLE ONE) CRITICAL HIGH LOW	
	SCHOOL DEPARTMENT AUTHORIZATION:	(Superintendent Signature) (Date)	
SCHOOL DEPT. DECISION DESCRIPTION:			
COMPASS TO COMPLETE	DATE RECEIVED:	9/28/17 - at job meeting	
	SPEC. SECTION OR CATEGORY:	Doors & Hardware	
	COMPASS COMMENTS:	Base condition is per plans & spec's. Order Magnitude Cost: \$6,000 This adds flexibility for building off hour management. The request is reasonable and we recommend proceeding.	
	CPM PCO #:	DRA - Proposal Request #40.	
ESBC APPROVAL: (PLEASE CHECK ONE)	APPROVAL TO PRICE	<input type="checkbox"/>	
	APPROVAL TO PROCEED	<input type="checkbox"/>	
	NOT APPROVED	<input type="checkbox"/>	
Chairman or Vice Chair Signature			



Marathon Elementary School Project Panel

THANK YOU!

**OPEN DIALOGUE
QUESTIONS & ANSWER**