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Lessons Learned from Construction Projects

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STRONGER TOGETHER. SMARTER TOGETHER.

Introductions

Jaime Jordan, Analytic Advisor - Moderator
- *Analytic Advisor, Frontline*



Eric Miller, CSBO - Speaker
- *Assistant Superintendent of Business Services, Glenview SD 34*



Carrie Matlock - Speaker
- *President, DLA Architects*



Jim Leppert - Speaker
- *Sr. Project Manager, IHC*



Jordi Camps, CSBO - Speaker
- *Assistant Superintendent of Business Services, East Maine SD 63*



Agenda

- **Overview of projects at D63 and D34 and their timeline**
- **Critical aspects of large projects, factors to consider, and lessons learned from our experience:**
 - General Contractor vs. Construction Manager models.
 - Selecting Construction Company
 - Legal / Contractual Considerations
 - Trust and Communication
 - Board of Education
 - Community
 - Architect / Construction Company / Administration
 - School staff
 - Design Phase
 - Permitting
 - Construction Phase / Working with Construction Company and Subcontractors
 - Closeout Phase
 - Overall Budget Management of the Project.
- **Cost of construction in times of inflation.**

East Maine District 63 Projects

- **Gemini Middle School**

- Bid – 7/18 thru 1/20 (6 bid releases)
- Final Cost - \$34.5M
- Total Additions/New – 70K SF, \$326/SF or \$22.5M
- Total Renovations – 36.5K SF, \$204/SF or \$7.5 M
(includes MEP and other upgrades not included in total SF)
- Sitework - \$3M
- Track & Field - \$1.5M



- **Early Learning Center**

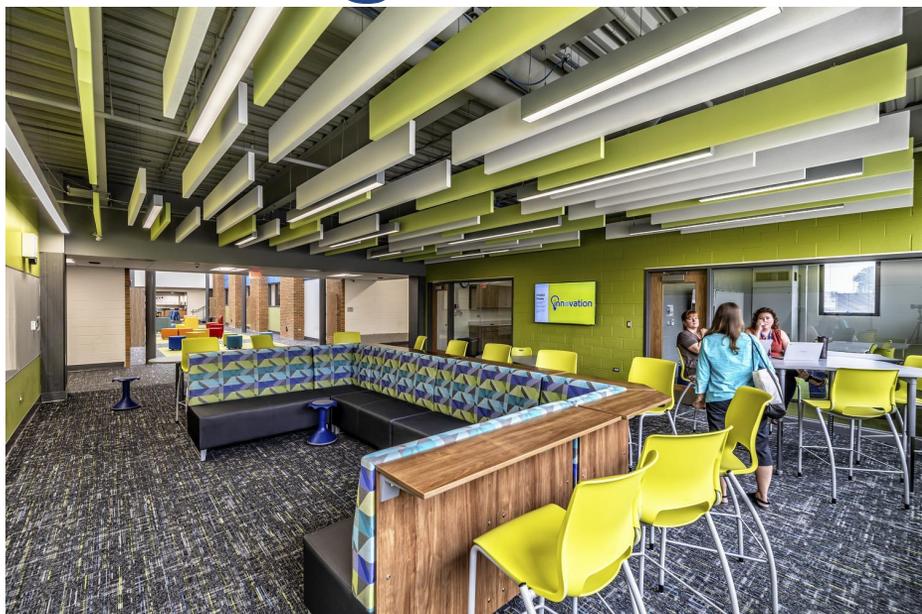
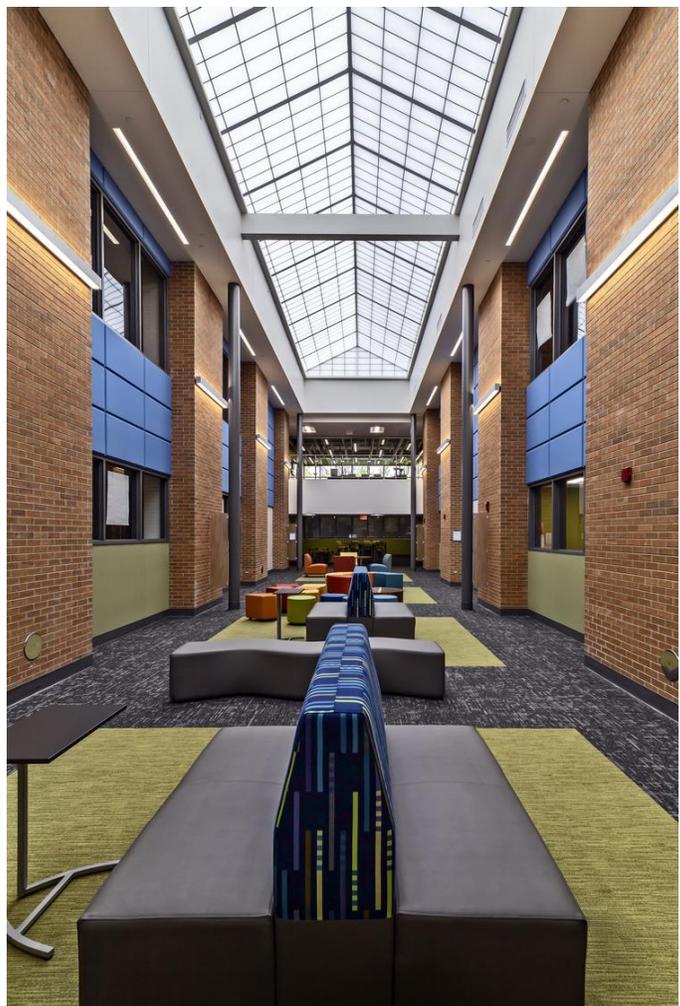
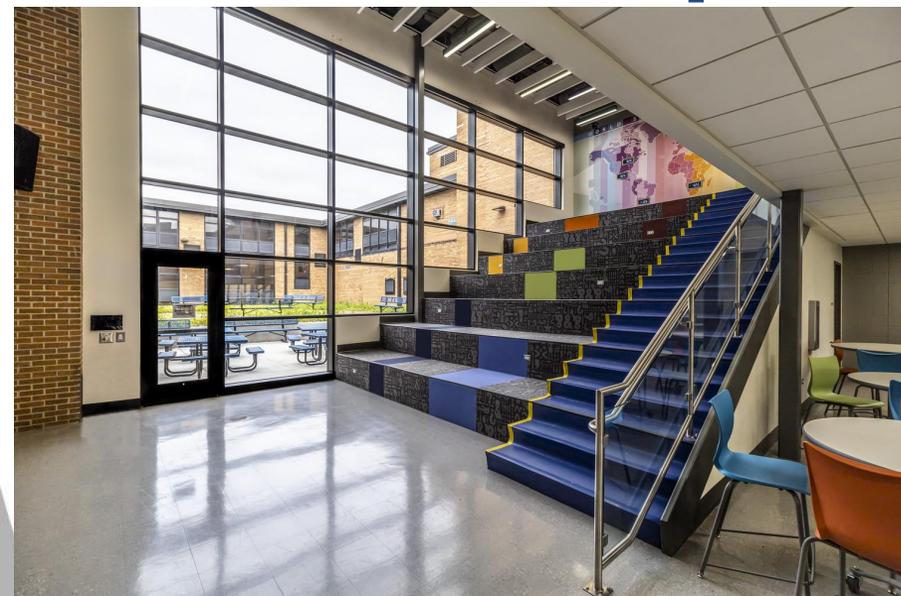
- Bid – 6/19 thru 1/20 (3 bid releases)
- Overall Final Cost - \$17.25M
- Total New – 38K SF, \$367/SF or \$14M
- Sitework - \$3.3M



East Maine District 63: Middle School Expansion and Remodeling



East Maine District 63: Middle School Expansion and Remodeling



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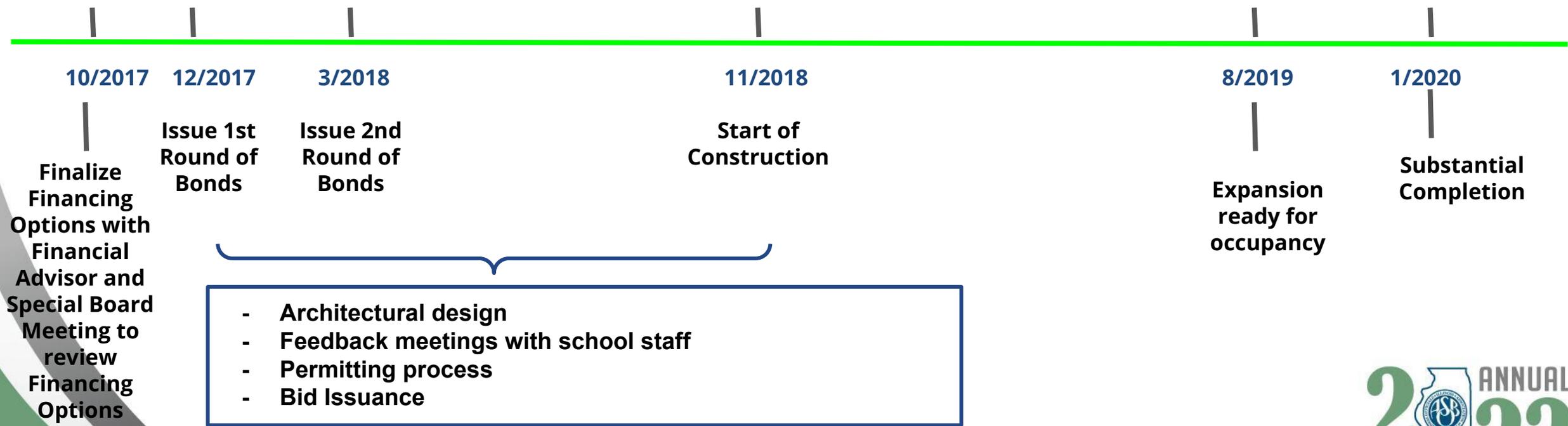
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East Maine D63 Timeline - Middle School Expansion



5/2015 Strategic Plan



East Maine District 63: New Early Learning Center



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East Maine District 63: New Early Learning Center



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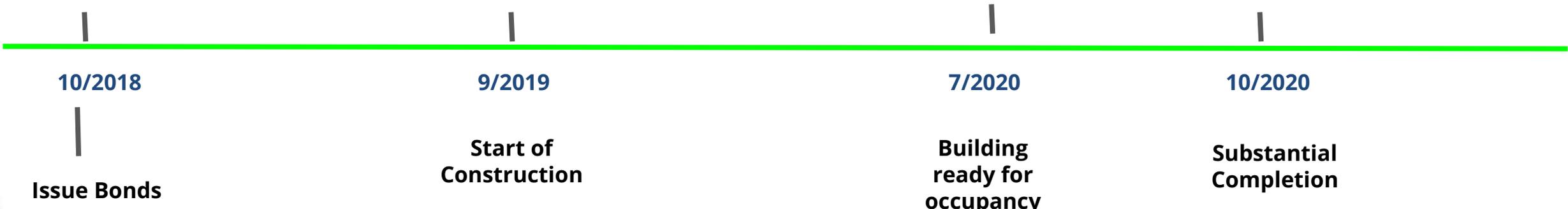
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East Maine SD63 - New Early Learning Center Timeline



5/2015 Strategic Plan



- Architectural design
- Feedback meetings with school staff
- Permitting process
- Bid Issuance



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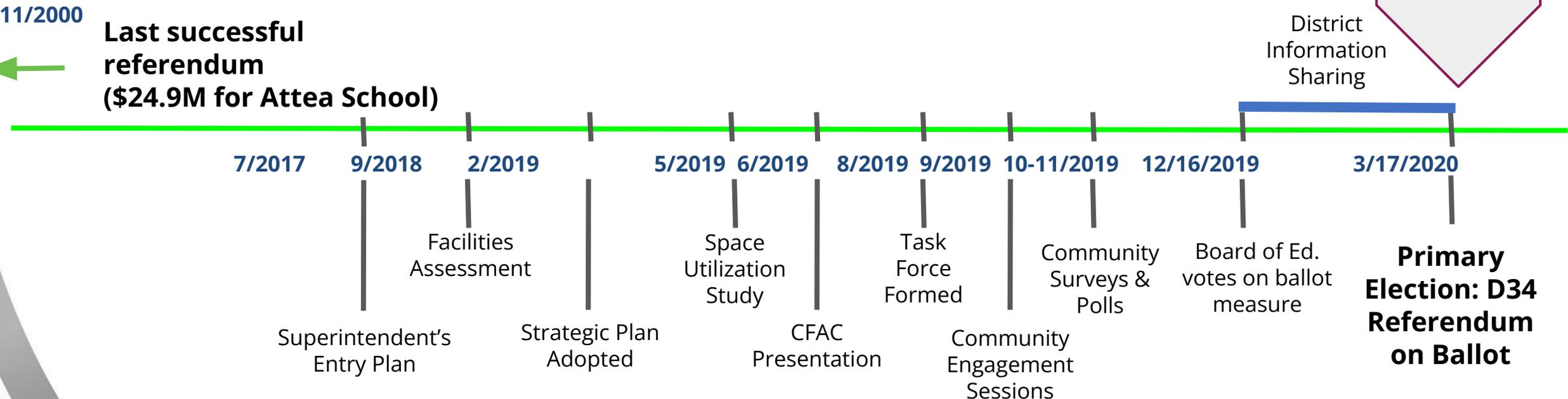
Glenview 34 Projects

- **\$150,000,000 overall budget (passed \$119M building bond referendum 3-17-20)**
- **6 year long duration - District wide**
- **Work Summary:**
 - \$50M renovation at oldest middle school
 - 3 additions for full-day kindergarten
 - Renovation of every instructional space throughout the District (i.e. classroom floors, lights, furniture)



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Glenview 34: Referendum Timeline



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Trust



- 
- Leading up to, when changes happen, for good or bad (i.e. bids, estimates)
 - Referendum - Once the trust is broken...
 - Communication is key to trust -
 - Keep promises! - careful what you promise
 - Can translate down the line to more possibilities
 - Who do you trust?



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Communication is the key to a project's success

Communication can alter:

- Relationships
- Trust
- Schedule
- Occupancy
- The definition of a word
 - What does “done” mean?



Construction Management vs General Contracting

Which one should you use?

Construction Management

Pros:

Selection Process

Advisor/Advocate to the owner - team member

Pre construction advice

Multiple bid packages

Can strategize and handle complicated projects upfront

Cons:

Cost isn't always understood until the end of the project

General Contracting

Pros:

One Contract

Cost is all in at the beginning

Responsible for their subcontractors

Cons:

Lowest responsible bidder

Not an advisor to the owner



Process to Evaluate and Select a CM

- Use IASBO Resources
- Proven track record on similar scope and size projects
- Who are you working with? Do they fit with the team dynamic?
- How important will you be to their organization?
- Ask your peers
- Have your architect help in the selection
- Has your architect and construction manager worked together before?

Legal Considerations

- Contract Signed with the CM and approved by the Board of Education
- Contract must have
 - Insurance Coverages: Obtain insurance coverage levels from District's insurance broker and include in contract
 - Workers Comp
 - General and Property Damage Liability
 - Personal Injury Liability
 - Builders Risk
 - Defines the Construction Manager Fee (% of what?)
 - Defines the responsibilities of the Architect, CM, and the District

Legal Considerations

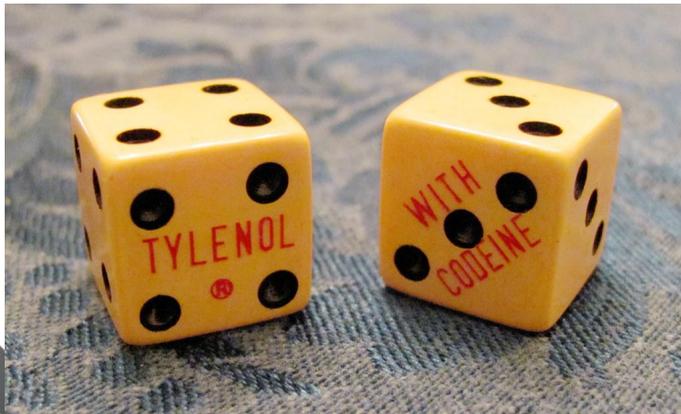
- Contract must have:
 - A defined process that explains how bills get paid.
 - Requires a “payment application” with architect approval.
 - A process that indicates who in the District has authority for approving change orders
 - CSBO (up to \$25 Thousand)
 - Superintendent (Higher than \$25 Thousand and up to \$50 Thousand)
 - Board of Education (Above \$50 Thousand)
 - A process that explains how a claim is handled.
 - Indemnification clauses for the District. CM indemnifies in the event of.....

Envisioning Process / Working with School staff and Students



Permitting

- Start **very very** early
- Establish relationship with the Village(s)
- You need drawings to get a permit
- Get things in writing
- Compromise
- Would you rather occupy the building or be right?



Managing Sub-Contractors

- Qualify and Establish Communication Standards
- Workforce and Scheduling Commitments
- Terms and Conditions of Contract Documents
- Keeping Contractors Apprised of the Schedule and Understanding Expectations - Monitoring Progress
- Managing Change Implications - Cost / Schedules
- Non-Performance Standards



Project Closeout

- Pre-Occupancy Expectations
- System Start-Up and Training
- Punchlist
- MEP Systems Commissioning
- Closeout Documentation
- Warranty Follow-Up

Commissioning Issues Log									
		Last Update	Project Name:		East Maine School District Early Learning Center				
		Previous Upd	Commissioning Provider:		CERx Solutions LLC				
Line Item	Status	System	Issue Summary	Contractor Responsibility	CxA Recommendations	Action Taken	Resolution Date	Closed Date	
46	In work	Heat Pump	CO2 sensor out of calibration	TCC	recalibrate CO2 Sensor	2/5: ICT will check onsite and recalibrate			
47	Closed	VVT	Graphics have wrong VVT shown for room B110	TCC	Fix graphics and show VVT B110 for room B110	ICT Completed		27-Dec-20	
58	Closed	DHW	Aquastat does not turn off DHW recirculation pump	Plumbing	Trouble shoot and repair Aquastat.	Wires in box were switched, working properly now			
59	Open	DHW	Thermometer on HW supply not reading accurately	Plumbing	Replace thermometer at DHW heater.	Plumber verified it is working properly as is			
60	Closed	Wall Heater	Electric wall heater inoperative	Electrical	Trouble shoot and repair heater			30-Dec-20	
61	Closed	Heat Pump	Circuit setters not insulated	Mechanical	Insulate circuit setters			26-Feb-21	
62	Closed	DHW	Took over 30 seconds to get hot water to sinks	Plumbing	Verify proper flow through the HWC balance valve serving these sinks.	Plumber checked this and verified HW lines were installed per plan			
					Change settings on motion sensors to be auto on, auto off (occupancy sensor mode) on all toilet rooms as noted.		15-Feb-21	26-Feb-21	
					Trouble shoot and repair			02-Feb-21	
					Set OA damper positions per the actual damper position required to meet OA CFM. Value to be obtain from TAB report.	2/4: Added CO2 damper max position to the setpoints. The balancer now can set this percentage based on his balance report.		08-Apr-21	



Project Cost Management and Administration

- Costs will fluctuate:
 - Bids will come in higher / lower than the original budget
 - Change orders will be necessary
 - Contractor's allowance will reduce the cost of the project if not used.
 - Project contingency budget
- We need to be able to answer the following question at any point in the project:
 - What is the total cost of the project compared to budget / funds available?
- Need a system of files that:
 - Compare baseline cost (budget) to actual bids and eventually final costs.
 - Track change orders and incorporates approved CO into the cost estimate
 - Provides payment approval

Project Cost Management and Administration

- Budget Document: 90% Estimate vs. Actual Bids vs. Bids +/- Change Orders

DESCRIPTION	90% ESTIMATE	ACTUAL BIDS	ACTUAL BIDS W/ CHANGE ORDERS
Milburn LLC -Interior Demolition	\$610,000	\$462,000	\$444,772.14
Parkway Forming, Inc. - Concrete	\$1,600,000	\$1,668,000	\$1,687,620.90
MPZ Masonry - Masonry	\$2,900,000	\$2,889,900	\$2,884,277.25
K&K Iron - Structural & Miscellaneous Steel	\$1,500,000	\$1,700,000	\$1,691,466.78
DBM Services, Inc. - General Trades	\$3,000,000	\$2,763,000	\$2,806,749.36
Kunde Woodwork - Home Ec & Art Room Casework			\$72,790.00
Malcor Roofing - Roofing	\$1,180,000	\$997,800	\$799,525.00
Krull Window - Aluminum Curtainwall, Storefront, Windows	\$1,100,000	\$923,564	\$940,693.22
Integrated Specialty Contractors - Acoustical Ceilings	\$700,000	\$834,000	\$744,800.71
TSI Commercial Floor Covering - Flooring	\$950,000	\$911,600	\$1,029,683.51
Oosterbaan & Sons - Painting	\$415,000	\$298,000	\$402,497.15
SUBTOTAL CONSTRUCTION COSTS	\$26,598,500	\$27,259,914	\$27,736,081.26

- Is the total within amount of funding?
- This total includes approved change orders



Project Cost Management and Administration

- Change Order Tracking File
- Approved change orders get added to the total estimate in the budget tracking

CE#	CI#	Description	Contractor	Reason/Explanation	Status	Estimated Cost	Final Status	Status Notes	Final Cost	Change Order	
										Allowance	Change Order
16		Delete water service line and 2 Fire Hydrants on east side and add 1 Fire Hydrant to water main on North Side per RFI #7		Drawing Revision	closed	(\$20,945.89)	approved		(\$20,945.89)		(\$20,945.89)
17		Slurry Fill Existing Water Service line under Area B		Phasing Issue	closed	(\$3,920.08)	approved		(\$3,920.08)		(\$3,920.08)
18		ELL Classroom Fire Extinguishers per Submittal #104416.01		Drawing Revision	closed	\$548.00	approved		\$548.00		\$548.00
19		Temp Sump Pump for Area F Basin		Construction Schedule	closed	\$920.37	approved		\$796.86	\$796.86	
20		Toilet Accessory Quantity Revisions per Submittal #102800.01		Drawing Revision	closed	\$1,275.20	approved		\$1,170.24	\$1,170.24	
21		Alternate #2 - General Trades - Door & Hardware Replacement		Alternate	closed	\$58,000.00	approved		\$58,000.00		\$58,000.00
		Alternate #2 - Aluminum Windows, Glazing - Door Replacement		Alternate	closed	\$30,726.00	approved		\$30,726.00		\$30,726.00
22		Alternate #3 - Electrical - Existing Gym Lights Replacement		Alternate	closed	\$35,200.00	approved		\$35,200.00		\$35,200.00
23		Alternate #1 - Painting - Locker Repainting		Alternate	closed	\$57,000.00	approved		\$57,000.00		\$57,000.00
24		RFP #06-Bleacher Revisions		VE	closed	(\$21,880.00)	approved		(\$21,880.00)		(\$21,880.00)
25		RFP #05-Courtyard Revisions		VE	closed		approved				
		- Concrete		VE	closed	\$15,467.78	approved		\$13,894.35	\$13,894.35	
		- Site Utilities		VE	closed	\$1,779.60	approved		\$1,779.60		\$1,779.60
		Stone Pathways			closed	\$22,583.24	approved		\$21,502.41	\$9,811.48	\$11,690.93
26		Alternate #6 - Plumbing & Electrical - Replace Duplex Storm Pump System			closed		approved				



Project Cost Management and Administration

- Payment File: Submitted on a monthly basis
- Total Contract column must match total estimated costs

Application and Certification for Payment and Sworn Statement for Contractor and Subcontractor To Owner

Project Title : GEMINI MIDDLE SCHOOL ADDITIONS & REMODELING-EAST MAINE

Arch/Eng: DLA ARCHITECTS LTD

Application Date : 11/30/2020
 Application No. : 27

Invoice No: 41884

Construction Manager:

IHC Construction Management
 385 Airport Road, Suite 100
 Elgin, IL 60123

Period From : 11/1/20 - 11/30/20

Change Orders Included :

Project Number : 18153 GEMINI MIDDLE SCHOOL

Item #	Contractor Work/ Material Contracted For	Adjusted Total Contract	Work Completed/ Material Stored To Date %	Dollar Value	Total Retained	Previously Paid	Net Amount Requested	Balance To Become Due (excludes retention still being held)
620	DUPAGE TOPSOIL INC-31a-Earthwork & Site Utilities	757,440.00	97.19%	736,184.07	73,618.40	662,565.67	0.00	21,255.93
625	ACTION FENCE CONTRACTING-32C-Fencing	172,800.00	97.11%	167,800.00	16,780.00	125,797.50	25,222.50	5,000.00
635	BREEZY HILL LANDSCAPING-32b Landscaping	184,700.00	53.11%	98,092.00	9,809.20	88,282.80	0.00	86,608.00
640	TROCH McNEIL PAVING-BP 06-Site Conc & Asphalt Paving	389,825.00	69.22%	269,824.40	26,982.44	242,841.96	0.00	120,000.60
	SubTotals	30,994,003.41	99.06%	30,703,882.28	471,397.67	30,090,528.21	141,956.40	290,121.14

Project Cost Management and Administration

Allowance Tracking Form				
Project Name:		Total Allowances:		
2021 Referendum Work		\$2,803,518.00		
Owner:		Allowances Used to Date:		
Glenview School District 34		(\$1,191,500.00)		
Architect:		Balance of Unused Allowance:		
FGM Architects		\$1,612,018.00		
Contractor	Total Allowance	Total Allowance Used	Allowance Balance	Last Updated
BP #1 - Riemer Engineering	\$525,000.00	(\$473,068.00)	\$51,932.00	April 7, 2022
BP #1 - Albrecht Enterprises	\$385,000.00	(\$290,142.00)	\$94,858.00	April 1, 2022
BP #2 - Mastership Construction Co	\$186,000.00	(\$36,635.00)	\$149,365.00	January 10, 2022
BP #3 - Monarch Construction	\$121,780.00	(\$40,312.00)	\$81,468.00	April 7, 2022
BP #3 - Hargrave Builders	\$119,100.00	(\$3,817.00)	\$115,283.00	April 1, 2022
BP #4 - Elens & Maichin Roofing	\$81,300.00	(\$10,208.00)	\$71,092.00	December 2, 2021
BP #4 - DCG Roofing	\$95,535.00	(\$19,349.00)	\$76,186.00	February 28, 2022
BP #5 - Madden Glass	\$145,080.00	(\$3,245.00)	\$141,835.00	April 7, 2022
BP #6 - RB Construction	\$120,500.00	(\$3,529.00)	\$116,971.00	April 1, 2022
BP #6 - Doherty Construction	\$110,540.00	(\$55,572.00)	\$54,968.00	March 8, 2022
BP #7 - Consolidated Flooring of Chicago	\$140,409.00	(\$11,951.00)	\$128,458.00	January 13, 2022
BP #8 - Nelson Fire Protection	\$124,895.00	(\$2,633.00)	\$122,262.00	March 9, 2022
BP #9 - Jensens Plumbing & Heating	\$188,500.00	(\$58,437.00)	\$130,063.00	January 13, 2022
BP #10 - DeKalb Mechanical	\$120,800.00	(\$89,409.00)	\$31,391.00	March 9, 2022
BP #10 - FE Moran	\$103,904.00	(\$43,198.00)	\$60,706.00	December 2, 2021
BP #11 - American Electric	\$117,655.00	(\$19,459.00)	\$98,196.00	April 7, 2022
BP #11 - Carey Electrical	\$117,520.00	(\$30,536.00)	\$86,984.00	March 29, 2022



Project Cost Management and Administration

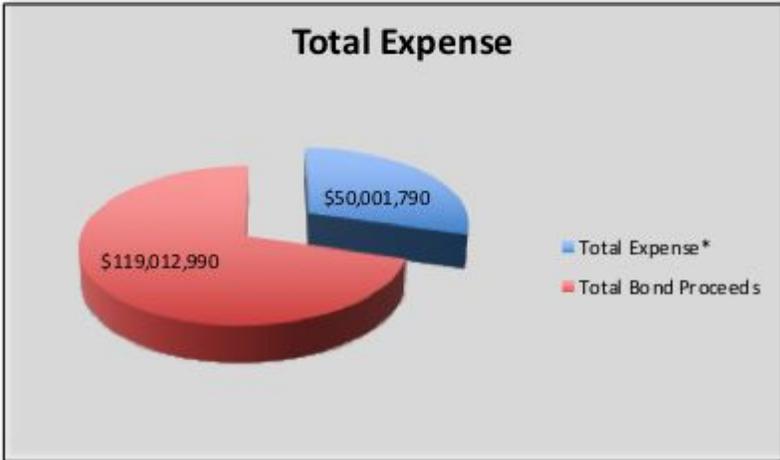


2022 Total Bond Proceed Expense Report

as of April 18, 2022

Architctural-FGM	\$9,095,782
Construction-Nicholas	\$40,906,009
Total Expense*	\$50,001,790
Total Bond Proceeds	\$119,012,990
Remaining Balance	\$69,011,200

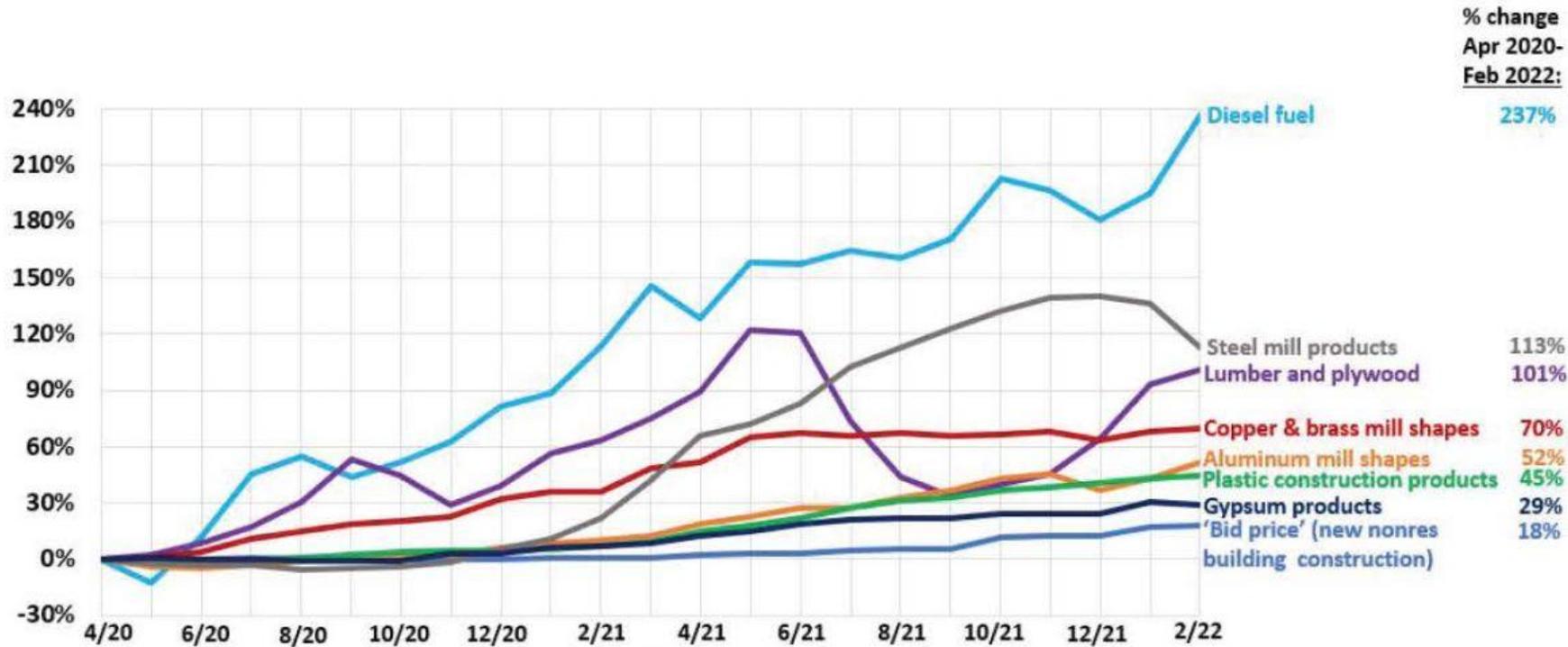
*All Capital Project Fund expenses may lag one month in arrears



Project Costs: Current Market Conditions

PPIs for construction bid prices and selected inputs

cumulative change in PPIs, April 2020-February 2022, not seasonally adjusted



Source: Bureau of Labor Statistics, producer price indexes, www.bls.gov/ppi

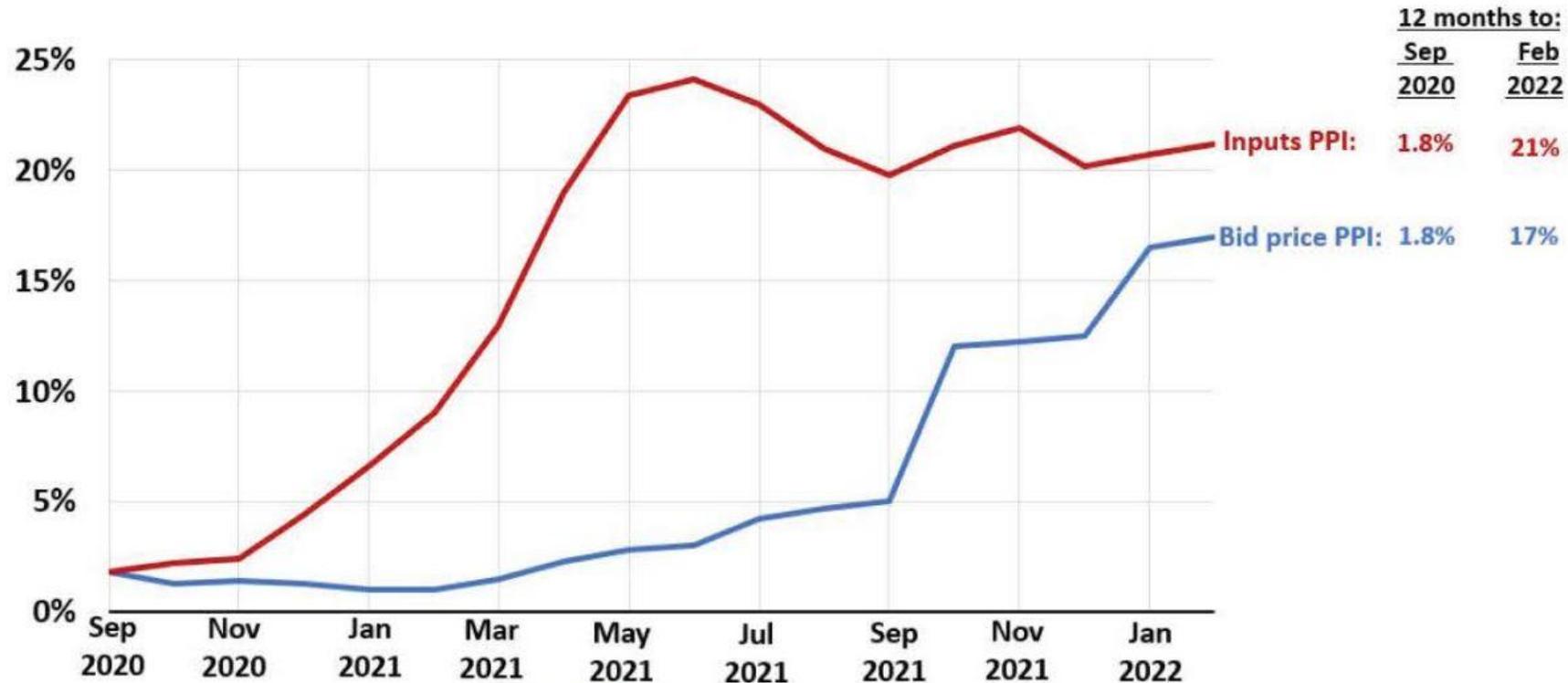


Project Costs: Current Market Conditions

Educational – Inputs PPI 21.3% vs. Bid PPI 12.6% (12 mo. Mar. 21' to 22')

Change in prices for inputs to new nonresidential construction

Year-over-year change in PPIs, Sep 2020–Feb 2022, not seasonally adjusted

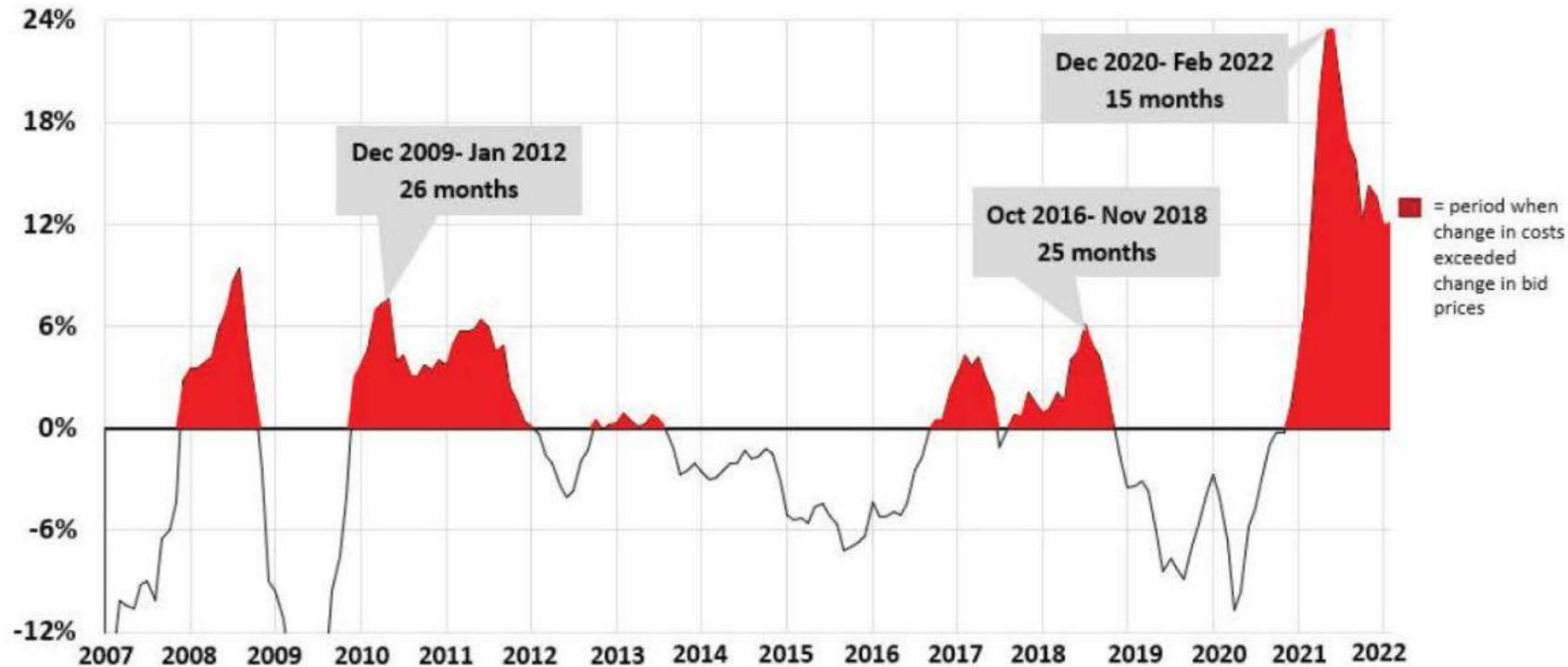


Source: Bureau of Labor Statistics, producer price indexes, www.bls.gov/ppi

Project Costs: Future Market Conditions

Cost squeeze on contractors can last two years or more

Difference between year-over-year change in materials costs vs. bid prices, Jan 2006–Feb 2022



Source: Source: Bureau of Labor Statistics, www.bls.gov/ppi, producer price indexes for goods inputs to nonresidential construction (material costs) and new school building construction (bid prices)



Project Costs: Dealing with Future Market Conditions

- Start with Realistic Expectations About Cost
- Timely & Credible Information About Material Costs and Supply-Chain Issues
- Consider Material Changes - Avoiding Volatile Items
- Timing Ordering - Early Bid Releases
- Purchase Before Use Options/Considerations (Storage, Security, Insurance, Design Changes, Early Payment)
- Price Adjustment Clauses (Shared \$ from Downward Markets) - Long Term Projects

Questions and Answers

We thank you for your time!

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