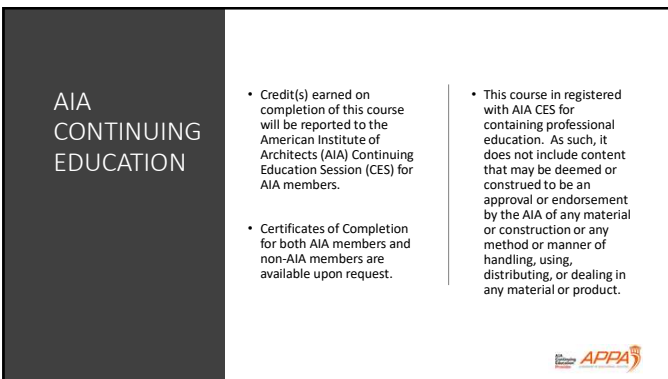




1




2



3

Our Audience this afternoon


- What role do you have at your university/institution?
- Campus Architect
- Construction Project Manager
- Construction Manager
- Physical Plant Trade
- Other



4

Have you encountered disruptions on your construction projects?


- Yes
- No



5

What types of disruptions?


- COVID-related
- Labor
- Supply Chain: materials and logistics
- Construction Cost Increases
- Project Delays



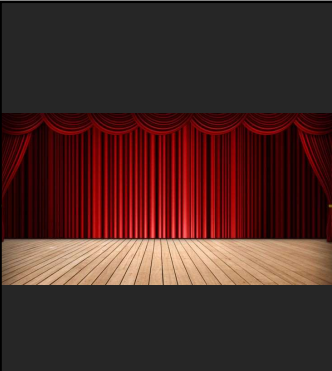
6

What has the impact been to your construction project of these disruptions?

- Extended construction schedule
- Increased construction cost
- Missed academic calendar
- Lower quality of work
- Substitution of materials
- All of the above




7

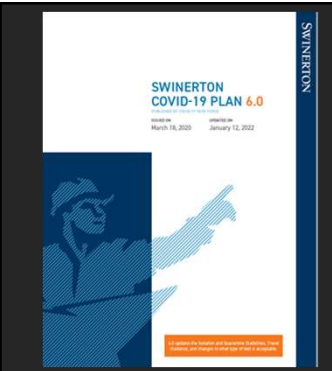


Setting the Stage

- Unprecedented disruptions to our lives
- The Pandemic
- Hybrid Work
- The Great Resignation
- Hyper-inflation




8



The Pandemic


- Keeping staff safe
- Closing of campuses/offices
- Learning to work remote/virtual
- Keeping construction projects moving
- On-going challenges

9



Hybrid Work

- Flexibility
- Home School and After School
- Aging Parents
- Relocation



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The Great Resignation

- Over 40 million workers have left the workforce
- Multiple Reasons
 - Relocation
 - Remote work
 - Family Care
 - On-going concerns about the pandemic
 - Searching for satisfaction




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Labor

- 2008
- Retiring baby boomers
- Different career dynamics
- Lower population and immigration
- The future workforce does not exist





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Hyper-Inflation

- Construction Cost Index
 - Q1 8.4%
 - Q2 8.5%
 - Q3 10.4%
 - Q4 5.7%
- Building Cost Index
 - Q1 14.9%
 - Q2 15.3%
 - Q3 5.7%
 - Q4 9.8%


Construction Cost Index
ENR: 200 hours of skilled labor at the 20-city average of Common labor rates plus 25 cwt of standard structural shapes at mill pricing, plus 1.128 tons of Portland cement, plus 1,088 board feet of lumber.

Building Cost Index
ENR: 69 hours of skilled labor at the 20-city average of Bricklayers, carpenters and iron workers, plus 25 cwt of standard structural shapes at mill pricing, plus 1.128 tons of Portland cement, plus 1,088 board feet of lumber.

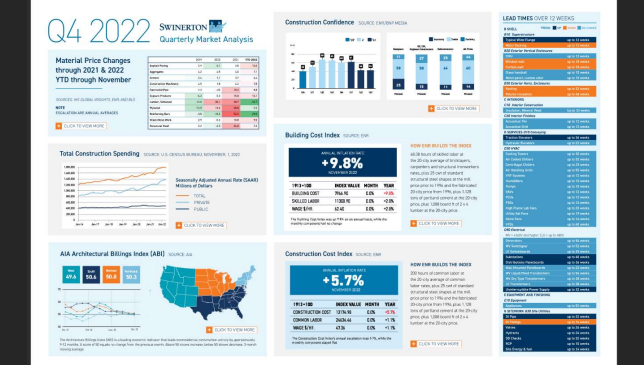



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Hyper-Inflation



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MECHANICAL
HVAC AHU and Fan Coil Units (FCU) up to 52 weeks
Generators up to 51 weeks
HV Switchgear up to 52 weeks
LV Switchgear up to 53 weeks
Substations up to 52 weeks
Distribution Panels up to 51 weeks
New Electrical Enclosures up to 52 weeks
HV Liquid Filled Transformers up to 54 weeks
HV Dry Type Transformers up to 53 weeks
LV Transformers up to 53 weeks
Utility Service Equipment up to 52 weeks

EQUIPMENT AND FINISHES
FIB Equipment up to 52 weeks
Painting up to 53 weeks
Site Work up to 52 weeks

SITINGWORK & Site Utilities
SD Pipe up to 52 weeks
SD Concrete up to 53 weeks
MVA's up to 24 weeks
HVARS up to 24 weeks
SD Checks up to 52 weeks
RCP up to 52 weeks
Site Entry & Exit up to 53 weeks

MECHANICAL (cont.)
Cooling Towers up to 30 weeks
Air Cooled Chillers up to 32 weeks
Centrifugal Chillers up to 23 weeks
Air Handling Units up to 55 weeks
VAV Systems up to 32 weeks
Humidifiers up to 15 weeks
Pumps up to 32 weeks
MVA's up to 32 weeks
FCUs up to 12 weeks
FID's up to 32 weeks
High Pressure Lab Fans up to 25 weeks
Utility Set Fans up to 19 weeks
Inline Fans up to 14 weeks
VFD's up to 42 weeks

LEAD TIMES OVER 12 WEEKS

B. TOWER
BIP Superstructure up to 12 weeks
BIP/SDR Frame up to 12 weeks
Steel Decking up to 12 weeks

BIP Exterior Vertical Enclosures
FCU up to 12 weeks
AHU Unit up to 12 weeks
Condenser up to 12 weeks
Steel Decking up to 12 weeks
Metal Panel Construction up to 12 weeks

BIP Exterior Horizontal Enclosures
Roofing up to 12 weeks
Structural Steel up to 12 weeks

C. INTERIORS
CIP Interior Construction up to 12 weeks
Mechanical Room Work up to 12 weeks
CIP Interior Finishes up to 12 weeks
Architectural Fire up to 12 weeks
Electrical CIP up to 12 weeks

D. SERVICES BIP Community
Traction Elevators up to 34 weeks
Specialty Elevators up to 34 weeks

Long Lead Times

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Group Discussion

- What are some of the strategies that you have used at your university to manage the disruptions to your construction projects?

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Procurement

- Owner Furnished/Contractor Installed (OFICI)
- Pre-purchase Long Lead Items
- Campus Standards
- Procurement Capabilities
- Piggyback Agreements

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A central diagram with 'PROJECT MANAGEMENT' in a blue cloud. Surrounding it are icons and labels: 'Analysis Planning Time', 'Teamwork', 'Control', 'Results', 'Communication', and 'Cost'. The APMA logo is at the bottom left.

Project Delivery

- Construction Manager/General Contractor (CMGC)
- Design-Build
 - Traditional Design-Build
 - Progressive Design-Build
- Program Management/Construction Management (PMCM)

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Contract Language

- "The Parties acknowledge and agree that, due to current extraordinary circumstances and market demands, there is the potential for material cost increases to various construction materials. Because of the unpredictable nature of such material shortages, price protection cannot be guaranteed for trades whose work includes the construction materials referenced herein. The construction materials affected include, but are not limited to all steel-related products, all wood-related products, concrete, petroleum related products, etc. Contractor has not included an escalation factor or contingency in the GMP. Contractor will use reasonable efforts to minimize any such price impacts; however, in the event the Cost of Work increases due to such material cost increase beyond Contractor's reasonable control, the Contract Sum shall be increased accordingly. In the event material (s) shortages impact the critical path schedule activities, Contractor is entitled to an extension of time."

A graphic with a teal background, a white box containing 'TERMS AND CONDITIONS', a signature line, and a green checkmark with the word 'Agree' below it. The APMA logo is at the bottom right.

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Contract Language

- "The GMP does include projected escalation and escalation allowances as indicated in the bid tallies. Any additional extraordinary escalation costs above or below these costs will be funded and/or refunded through Owner Contingency. "Extraordinary escalation" is defined as unforeseen escalation over 5% per year for this clarification. Reasonable escalation is included. According to the Department of General Services (DGS) California Construction Cost Index (CCCI), the Annual Percentage increase was less than 5% every year from 2011 through 2020."

A photograph of a hand holding a blue pen, signing a document titled 'CONTRACT'.

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Final Thoughts


- Disruptions will continue
- Labor will continue to be a challenge
- Supply chain and logistics will be episodic
- Planning for construction is critical
- Need to find new and innovative ways to deliver projects




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AIA CONTINUING EDUCATION

- This concludes The American Institute of Architects Continuing Education Systems Course




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Thank you!

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