

Facility Development Challenges in Today's Climate

And Architecture's Role in the Solution

# "To create, one must question everything."





## Facility Development Challenges in Today's Climate

And Architecture's Role in the Solution

Presenter:

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President



### Agenda

#### Figure 2. Supply-Chain Disruptions By Sector





Sources: U.S. Census Bureau; CEA Calculations.

1. Impact from Covid-19

# 2. OSF Changes

## 3. Other Jurisdictional Trends

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### 1. Pre-Covid

- Many industries operating in a 'just-in-time' methodology
- Shift to online retailing and the broader shift to technology driven supply chain management
- Low inventories have long been a result (risk management)



### 2. 2020 - Covid

- Manufacturing shut-downs across the globe (reduced supply)
- American consumers continued to spend buying up the little inventory that existed (steady demand in US)
- Construction industry continued without significant disruption
- Supply Demand imbalance for significant duration of time
- Businesses begin to adapt (namely Amazon)
  - Amazon rapidly expands warehousing capacity
- At this same time, many unemployed receiving large benefits
  - Further straining the supply-demand balance
- PPP and various other subsidies floods economy with cash
- Prices Rise (first signs of inflation)
- Supplies begin to run low





### 1. 2021 - Vaccines

- Businesses and Manufacturing open back up
- Consumer demand kicks up
- Pick-up in design/construction activity in late 2020
- Additional disruptions created additional supply issues
  - Suez Canal blocked
  - Colonial Pipeline Cyber Attack
  - Texas deep freeze and resulting power failures
  - Hurricane Ida
- Flood of goods as manufacturing picks up cripples global shipping industry and strains the domestic shipping systems
- Worker Shortage in many industries
- Construction prices rise and material lead times delays increase rapidly in second half of 2021

### 1. 2022 - 'Post'-Covid

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Post-COVID-19 era – GLOCALization

- Significant supply side disruptions (anticipated to begin easing)
- Significant worker shortages
- Significant amount of cash available in the bond market
- Federal Infrastructure investment \$\$Billions more in Demand
- Continued price inflation for construction projects
  - Continued low interest rates for charter school facility projects These low interest rates are currently mitigating the construction cost increases keeping things manageable for charter schools, however, we will continue to track construction costs. More increases could outpace the ability to finance facility projects.



### Impact from Covid-19

#### Change in supply chain by post-Covid19

Pre-COVID era - GLOBALization

## **Drastic Price Fluctuations**





### 1. Construction Costs up 20% from pre-Covid

Steel Prices up 300%

Lumber prices up over 300% (although currently up 150%) Copper and Aluminum Wiring up 40% Gypsum (Sheetrock) up 20% Sheet Metal up 25% HVAC prices up 100%

- 1. Prices continue to rise on the whole
- 2. Suppliers only holding prices for short time
- 3. Demand remains high

Good News: Interest Rates are down

# Supply-Chain Issues

August 2021 Building Materials Update	Price	Inventories	Deliveries
Overall	Increasing	Contracting	Delayed
Adhesives	Increasing	Contracting	Delayed
Appliances	Increasing	Contracting	Delayed
Copper	Increasing	Stabilizing	Delayed
Drywall	Increasing	Contracting	Delayed
Electrical Equipment	Increasing	Contracting	Delayed
Fabricated Metals	Increasing	Stabilizing	Delayed
Furniture	Increasing	Stabilizing	Delayed
Glass	Stabilizing	Contracting	Stabilizing
HVAC Equipment	Increasing	Contracting	Delayed
Janitorial	Stabilizing	Stabilizing	Stabilizing
Joist & Deck	Increasing	Contracting	Delayed
Lumber	Decreasing	Contracting	Delayed
Oriented Strand Board (OSB)	Stabilizing	Contracting	Delayed
Plumbing Fixtures	Increasing	Stabilizing	Stabilizing
PPE	Stabilizing	Contracting	Stabilizing
PVC	Increasing	Contracting	Delayed
Steel	Increasing	Contracting	Delayed
Transportation Equipment	Increasing	Contracting	Delayed
Warehouse & Logistics	Increasing	Contracting	Delayed

### 1. Material Shortages and Lead Time Issues

Steel Joists and Metal Decking: 10 – 14 months Roofing and Roof Insulation HVAC Equipment Metal Panels PVC and Plastics Adhesives

1. Material delays are in constant flux

2. Increasing Design Times for adjustments

3. Unknown how long this will continue

Good News: Domestic Manufacturing Up

# Solutions - Cost & Supply Issues

#### What do we NOT control?

- LEAD TIMES
- CONSTRUCTION & MATERIAL COSTS
- INTEREST RATES (CURRENTLY LOW)
- While we do not control these, the facility team MUST react to each of these and plan/design your project accordingly

#### What DO we control?

- PLANNING | DESIGN
  - 1. Collaborative design process has become increasingly important to deliver projects
    - Your facility team should be a highly collaborative group consisting of:
      - Finance Team
      - Contractor / Design-Builder
      - Architects
      - Engineers
      - Careful planning, design, and execution will improve quality and control costs
  - 2. Re-evaluate everything about the planning, design, construction process
    - Everything should be on the table (each project is unique)
      - Obvious things like Structural Systems (Wood, Steel, Concrete)
      - No-so-obvious things like the SIZE of your facility (good design)
      - Prototype Design?
    - Flexibility in the design solution (facility team needs to react quickly to market)
- BUDGET | SCHEDULE
  - Set a realistic budget and schedule and continuously track through all phases
  - Solicit multiple bids on each trade and negotiate each bid
  - Order materials early to minimize delays and cost impacts





The Gathering Place Charter School







# Solutions – The Gathering Place

**Project Parameters** 

- Began design in May 2020 (during the Covid shutdown)
- 27,000 sqft to house 400 students only 68sqft per student
- Construction Costs were rising
- Material shortages had surfaced
- Permitting took place virtually (all permit officials working from home)
- Construction started in October 2020
- Construction was completed on time in August 2021
- Total Cost \$5.8 million = \$214/sft = \$14,500 per student

#### How our Facility Development Team overcame the challenges

#### 1 Contracts

Communicating project goals virtually

Design team had to earn the trust of the school virtually – numerous design charrettes prior to contract

All new team working together

### 2 Material Selections

Understanding a rapidly changing market (what was available?)

Design team developed a completely unique, hybrid system of materials

Collaboration between Contractor, Architect and Engineers essential

### 3 Budget

Minimize expensive materials, don't necessarily eliminate them

Lower interest rates allowed the construction budget to increase

Continuously monitor pricing throughout design and construction

### 4 Schedule

Reacting to everything happening slower – lead times, permit timelines

Front loading the schedule – required more work upfront

School must be prepared to make more decisions earlier

## Solutions – The Gathering Place

### 5 Design

Focus on better design allowing the project to minimize square footage

- 1. Understand the utilization rate of your proposed facility
- 2. Use more 'flexible' spaces to be multi-functional
- 3. Combine collaborative areas into 'corridor's can you effectively eliminate corridors creatively
- 4. Create a masterplan for your overall facility needs to create the ability to phase in construction
- In the case of The Gathering Place, even though we had multiple buildings, the raised decking connecting the buildings eliminated 1 elevator
- 6. Minimize footprint on the site to minimize site costs

How does school design reflect post-Covid teaching pedagogies

- 1. In the case of The Gathering Place, more of the physical teaching space was moved outdoors
- 2. Is your school doing things differently post-Covid?
- 3. Designing to be 'touchless' (Restrooms, Natural Ventilation, etc.)
- 4. Outdoor covered space (with fans/heaters) is cheaper than enclosed spaces





Site Plan





# Summary

Contact Info

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What is early??

18-24 months for the average facility project design and construction (This does not include site acquisition, due diligence, etc)

Make sure you have a team of design and construction professionals actively working on your project

2. Identify the project challenges

Stay on top of each hurdle - communicate!

3. Re-evaluate the development process

Don't be afraid to innovate! Be flexible with your design solution

### Summary