



DOE Training

8 June 2023
Orlando, Florida

Introduction

Sam Giffin

- Director, Data Operations

Fun Facts

- Atlanta-based
- My other full-time job is chasing down my two kids
- When not working, you'll find me traveling

Agenda

- Gordian Cost Data Methodology
- National Cost Trends
- Q & A

RSMeans and Gordian

1942 – Robert Snow Means

1990 – Means for Lotus 123

1997 – CostWorks CD

2003 – RSMeans Online

1982

Harry H. Mellon creates Job Order Contracting to simplify and expedite a time-consuming construction procurement process

1990

Harry H. Mellon founded Gordian to help other organizations expedite project completion

2014

RSMeans Data joins Gordian, providing the most reliable and comprehensive construction cost database available

2015

Sightlines joins Gordian, providing facilities intelligence solutions that improve facilities planning and management

2017

4Clicks joins Gordian, providing comprehensive cost estimating and project management solutions

2018

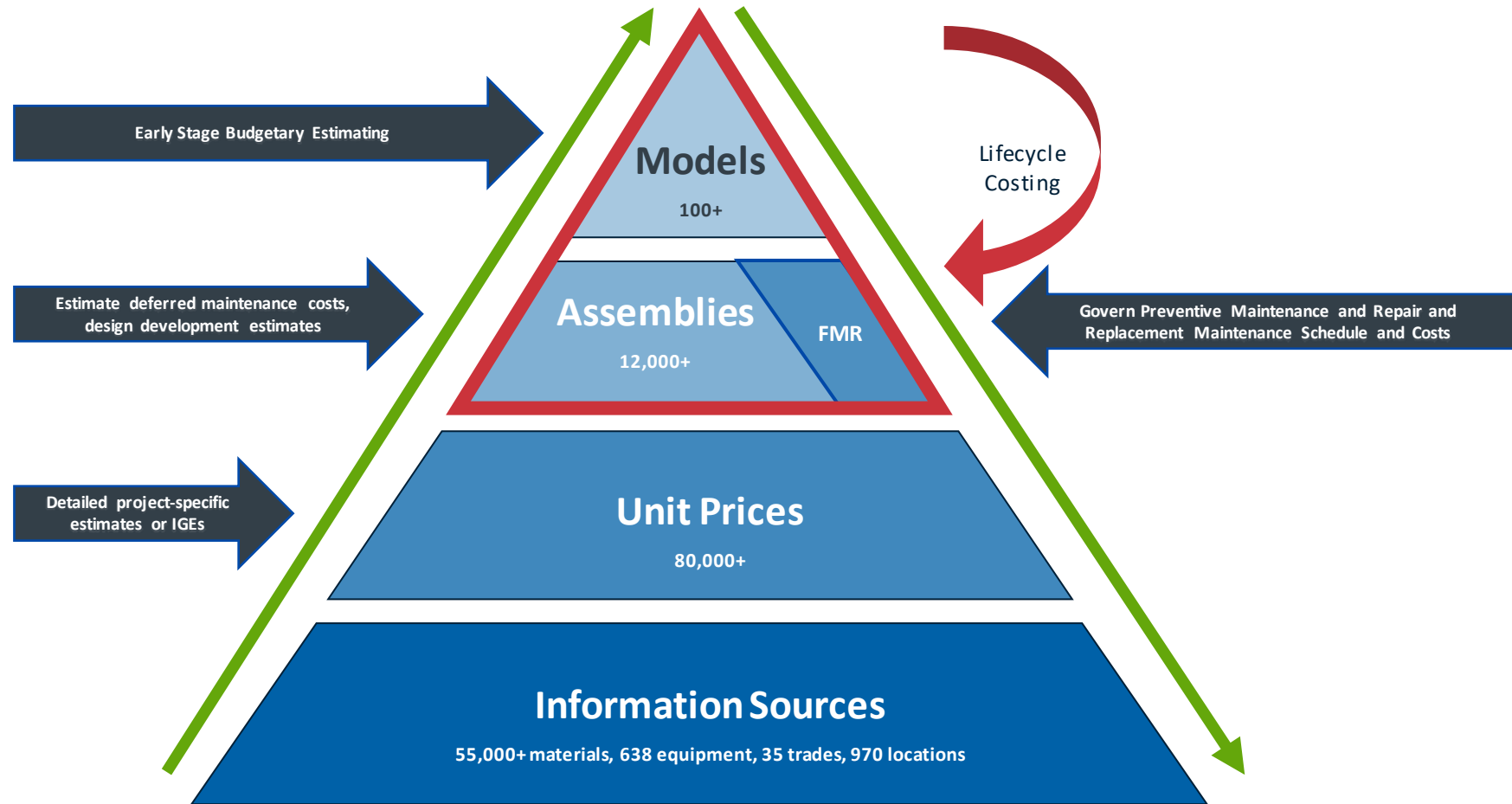
Gordian joins **Fortive**, furthering our ability to provide connected workflows, real-time data and powerful analytics for our customers

2021

VFA and **Kykloud Solutions** join Gordian's best-in-class portfolio of assessment and capital planning solutions

Gordian Cost Data Methodology

Review of RSMeans Database Structure

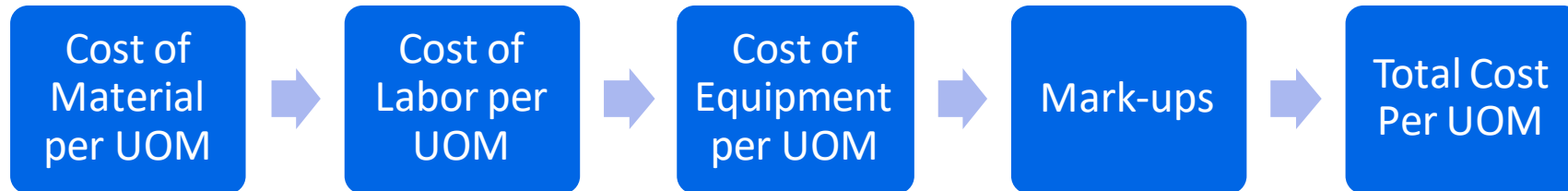


Construction Formats

- MasterFormat® 2022
 - The current industry-standard fifty divisional format for construction specifications
- UNIFORMAT II (ASTM E-1557-9)
 - Originally set up by the General Services Administration and the American Institute of Architects
 - Utilized by RSMeans to format assembly pricing

Unit Prices

- All costs are based upon the Unit of Measure



ID and Descriptions

- 12 Digit ID Number
 - First 6 or 8 digits follow CSI MasterFormat
 - Final 6 or 4 digits are set by RSMeans engineers
- Description of the installation or action
 - When in doubt, do not assume
 - Read carefully, be sure to review inclusions and exclusions
 - Check the crew to assist in understanding

Crew



Crew



Crew



Daily Output

- How many units of work the crew can install/perform in one eight-hour day
 - Based upon actual working conditions
 - Developed over an extended period to eliminate abnormal variations
- Includes time spent during a normal workday on tasks other than actual installation, such as.....

Daily Output

Material receiving, handling and site movement



Daily Output

Reading blueprints or specifications



Daily Output

Receiving instructions



Daily Output

Breaks and clean-up



Costs - Materials

- Mathematical average of all sources
- Includes:
 - Quantity sufficient for commercial construction project
 - Delivery to the job-site
 - Fasteners for a normal installation
- Does not include:
 - Sales tax

Costs - Labor

- Mathematical combination of wages and daily output
- Includes:
 - Union wages (30 major cities average)
 - Fringe benefits
- Does not include:
 - Overhead or profit

Costs - Equipment

- Mathematical combination of rental rate, hourly operating cost and daily output
- Includes:
 - Equipment rental, fuel, lubrication, maintenance
- Does not include:
 - Operator
 - Mobilization/demobilization

Types of Costs in RSMeans Data

- **Direct Costs:**

- Materials
- Labor (Fringes)
- Equipment

- **Indirect Costs:**

- Workers Compensation
- FUTA, SUTA, FICA
- Insurances
- Office Overhead
- Profit

Office Overhead

- Owner
- Principals/Manager
- Estimator(s)
- Clerks/Administrators
- Bookkeeper
- Office (Rent & Utilities)
- Accountant Fees
- Legal Fees
- Medical & Workers' Compensation
- Advertising
- Auto/Truck Expenses
- Association Dues
- Training & Travel
- Entertainment
- Bad Debts

Markups

- Material + 10%
- Labor Direct Costs + Indirect Costs (50% or more)
- Equipment + 10%

Costs – Including Overhead & Profit

- Mathematical combination of bare costs plus burdens and mark-ups
- Includes:
 - Installing contractor's overhead and profit
- Does not include:
 - General Conditions
 - General Contractor's overhead and profit

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Assemblies

- UNIFORMAT II Organization Structure
- 7 Elements
 - A Substructure
 - B Shell
 - C Interiors
 - D Services
 - E Equipment
 - F Special Construction & Demolition
 - G Sitework

Assemblies

- Groups of Unit Cost Lines that make up major components of a structure
- Composed of:
 - Unit Cost Line
 - Quantity
- Based on a convenient unit of measure

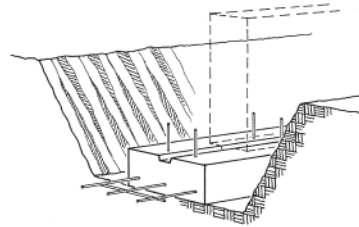
Assemblies

- Groups of Unit Cost Lines that make up major components of a structure
- Composed of:
 - Unit Cost Line
 - Quantity
- Based on a convenient unit of measure

Assemblies

A10 Foundations

A1010 Standard Foundations



The Strip Footing System includes: excavation; hand trim; all forms needed for footing placement; forms for 2" x 6" keyway (four uses); dowels; and 3,000 p.s.i. concrete.

The footing size required varies for different soils. Soil bearing capacities are listed for 3 KSF and 6 KSF. Depths of the system range from 8" and deeper. Widths range from 16" and wider. Smaller strip footings may not require reinforcement.

Please see the reference section for further design and cost information.

System Components	QUANTITY	UNIT	COST PER L.F.		
			MAT.	INST.	TOTAL
SYSTEM A1010 110 2500					
STRIP FOOTING, LOAD 5.1 KLF, SOIL CAP. 3 KSF, 24" WIDE X 12" DEEP, REINF.					
Trench excavation	.148	C.Y.		1.60	1.60
Hand trim	2.000	S.F.		2.40	2.40
Compacted backfill	.074	C.Y.		.33	.33
Formwork, 4 uses	2.000	S.F.	5.64	10.50	16.14
Keyway form, 4 uses	1.000	L.F.	.53	1.34	1.87
Reinforcing, fy = 60000 psi	3.000	Lb.	2.49	2.07	4.56
Dowels	2.000	Ea.	2.34	6.04	8.38
Concrete, f'c = 3000 psi	.074	C.Y.	12.95		12.95
Place concrete, direct chute	.074	C.Y.		2.11	2.11
Screed finish	2.000	S.F.		.90	.90
TOTAL			23.95	27.29	51.24

Assemblies

- Included:
 - All burdens and mark-ups
 - Items selected by RSMeans engineers
 - Quantities selected by RSMeans engineers
- Not included:
 - General Conditions
 - General Contractor's Overhead and Profit

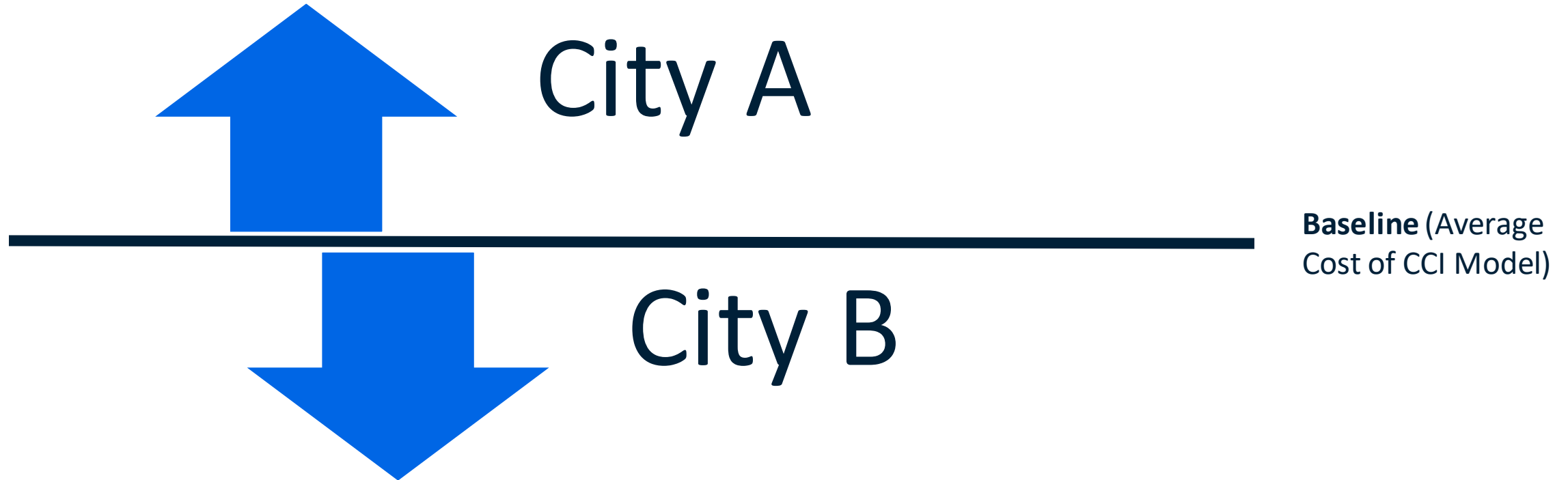
Models

- UNIFORMAT II Organization Structure
- Groups of Assemblies
 - Components of the specific building type
 - Quantified by mathematical algorithms
- Included:
 - All costs and all mark-ups except Sitework
- Not Included:
 - Contingencies

City Cost Index (Geographical Adjustment)

- The City Cost Index is a measurement of the differences in the cost of construction in a specific location as measured from a baseline.
- The baseline does not change during a **given year**. Therefore, because the City Cost Index is released quarterly, it also shows the changes over each quarter.
- RSMeans also produces a Construction Cost Index. The baseline for the Construction Cost Index does not change and is based on the costs as of January 1, 1993

City Cost Index (Geographical Adjustment)



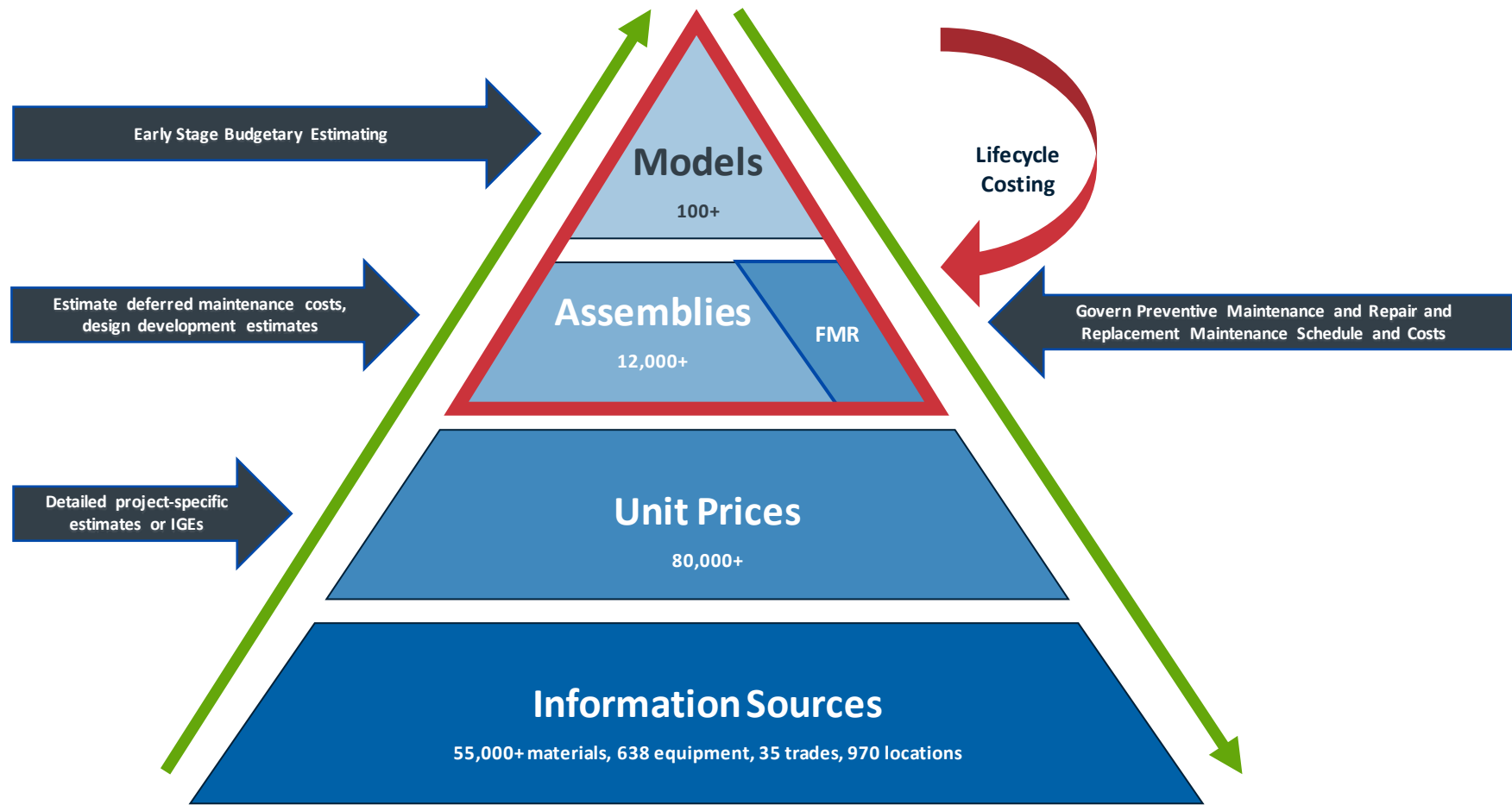
Construction Cost Index (aka Historical) (Time Adjustment)

- The Construction Cost Index is a measurement of the differences in the cost of construction in a specific location as measured from a baseline.
- The baseline does not change. It is based on the costs as of January 1, 1993

Construction Cost Index (Time Adjustment)



Review of RSMeans Database Structure



Formulas

- **Labor hours per unit** = [total crew L.H. per day]/daily output
- **Material price** = Material delivered to 20 miles (no sales tax)
- **Labor price** = [total daily bare labor cost/daily output]
- **Equipment cost** = [total daily bare equipment cost/daily output]
- **Crew equipment cost** = [weekly rentals/5] + [hourly operating cost × 8]

National Cost Trends

The background features a dark blue field with large, overlapping, light blue geometric shapes. These shapes include triangles and polygons that create a sense of depth and movement, resembling stylized architectural elements or abstract patterns.

Forces at Play



Pandemic



Material shortages



Supply chain issues



Inflation



International conflict



Cyber security
concerns

But first a **WARNING!**



Continued Price Volatility



85.7% of equipment costs saw an increase greater than 5%, with the majority of increases coming from operating costs like surging diesel prices. **The average equipment cost increase was 5.3%.**

46% of labor wages increased over 4% and were mainly held in check by union collective bargaining agreements (CBA). Wages are very likely to creep up as CBAs are renewed. **On average, labor wages climbed 3.4%.**



82.5% of construction materials in the RSMeans database experienced a significant cost increase, with an **average increase of 19%**. These soaring costs were driven by inflation, supply chain constraints and operating constraints.

Continued Price Volatility - Lumber

- 2023 lumber prices declined after climbing since 2020
- Typical seasonal peak observed in 2022 Q2
- Pricing regression expected to continue through 2023 Q2



Pine Boards



1/2" Plywood



Framing Lumber



Plyform



Continued Price Volatility - Steel

- Steady increases from 2021 continued through 2022
- Cost accelerations in late 2022 Q1/Q2 due to supply chain constraints
- Cost stabilizations through 2023 Q2



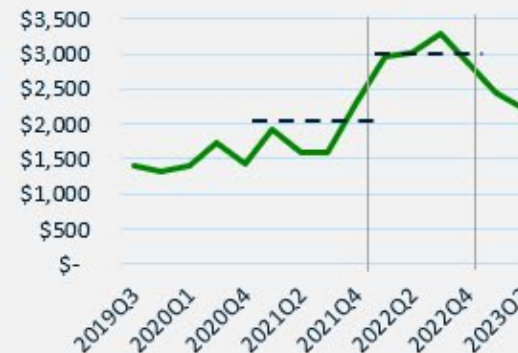
Open Web Joists, K Series



Metal Decking



Steel Sheet Piling



Structural Steel



Continued Price Volatility – Concrete & Masonry

- High price increases through most of 2022 driven by supply constraints
- 2023 H1 showing signs of price stabilization for most materials



Ready Mix Concrete



Hot Mix Asphaltic Concrete



3/4" Stone Aggregate



Concrete Block



Continued Price Volatility - Copper

- Significant escalations in 2022 Q2 driven by international supply chain
- Copper prices decreased through 2023 Q2



Electric Metallic Tubing (EMT)



Copper Wire



Continued Price Volatility - Insulation

- Supply shortages drove up prices in 2022 Q1 after two years of decline
- Prices increasing through 2023Q2



Fiberglass Insulation



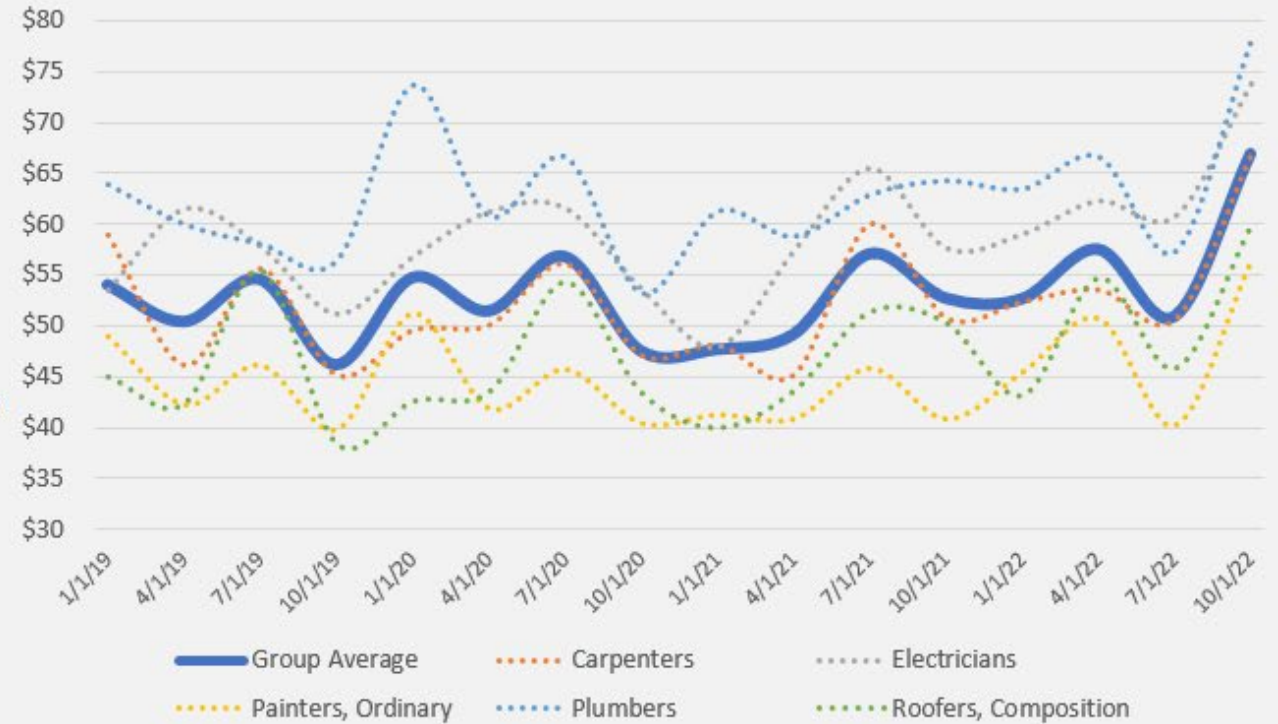
Polyisocyanurate Roof Insulation Board



Labor

- Seasonal volatility masks larger structural labor availability problems.
- Wage spikes in 2022Q4 were an over-correction after downturns in 22Q3

Common Construction Trades Total Cost (Base + Fringe)



Regional Insights

The background features a dark blue field with several overlapping, semi-transparent light blue geometric shapes. These shapes include large triangles and polygons that create a layered, architectural effect. The shapes are positioned primarily on the right side of the frame, with some extending towards the center.

Q&A

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