

The background features a dark blue gradient with a pattern of lighter blue hexagons of varying sizes and opacities. A stylized, geometric logo, resembling a cube or a complex letter 'Z', is repeated in a larger, semi-transparent form across the background.

Construction Cost Trends:

Costs and Project Insights

Before we get started....



**Participants'
audio is
muted.**



**Post questions in
the Questions
panel on your
GoToWebinar
menu.**



**The webinar is
being recorded
and will be shared
at the conclusion
of the event.**

Agenda

- Where Are We and How Did We Get Here?
- What the Data Says – current Material, Labor and Equipment trends
- Actionable Insights
- Enhanced Estimating Experience

Speakers



Sam Giffin

Director, Data Operations
Gordian



Michael Guckes

Senior Economist
ConstructConnect



Laura Cook

Director, Product Management –
Estimating
Gordian

In your opinion, **what is the most significant challenge** currently facing the construction industry?

Project Trends and Insights

Project Trends and Insights Overview

- Where are we and how did we get here?
- How can we use economics and data to inform us about construction costs yesterday, today and tomorrow?
- Operational inputs focus: 1.) Capital 2.) Labor 3.) Materials



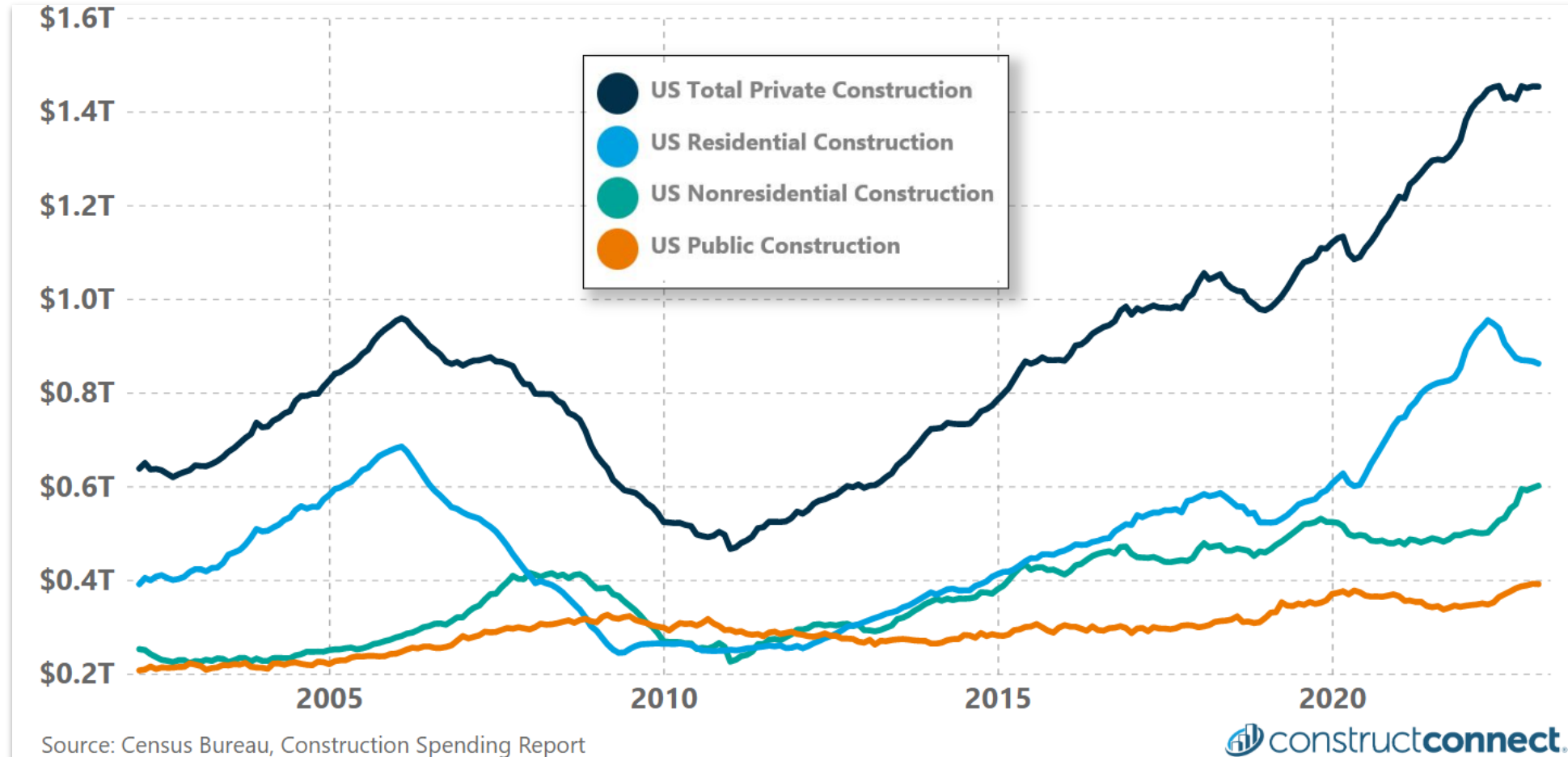
If you don't know where you're going any road will get you there.

-Lewis Carroll

How Did We Get Here?

Construction spending by summary category

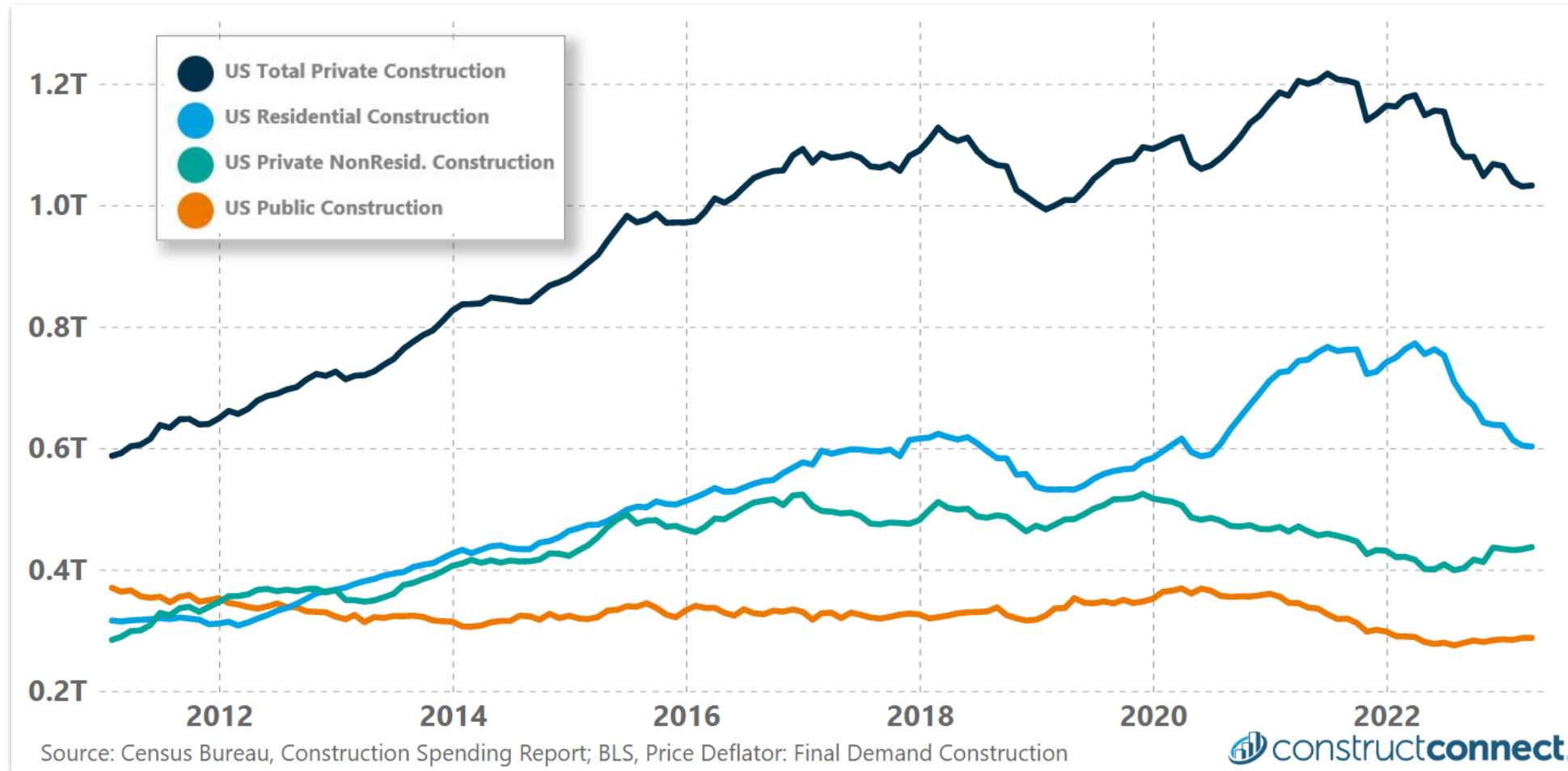
(\$, Seasonally adjusted annual rate, "SAAR")



How Did We Get Here?

Real construction spending by summary category

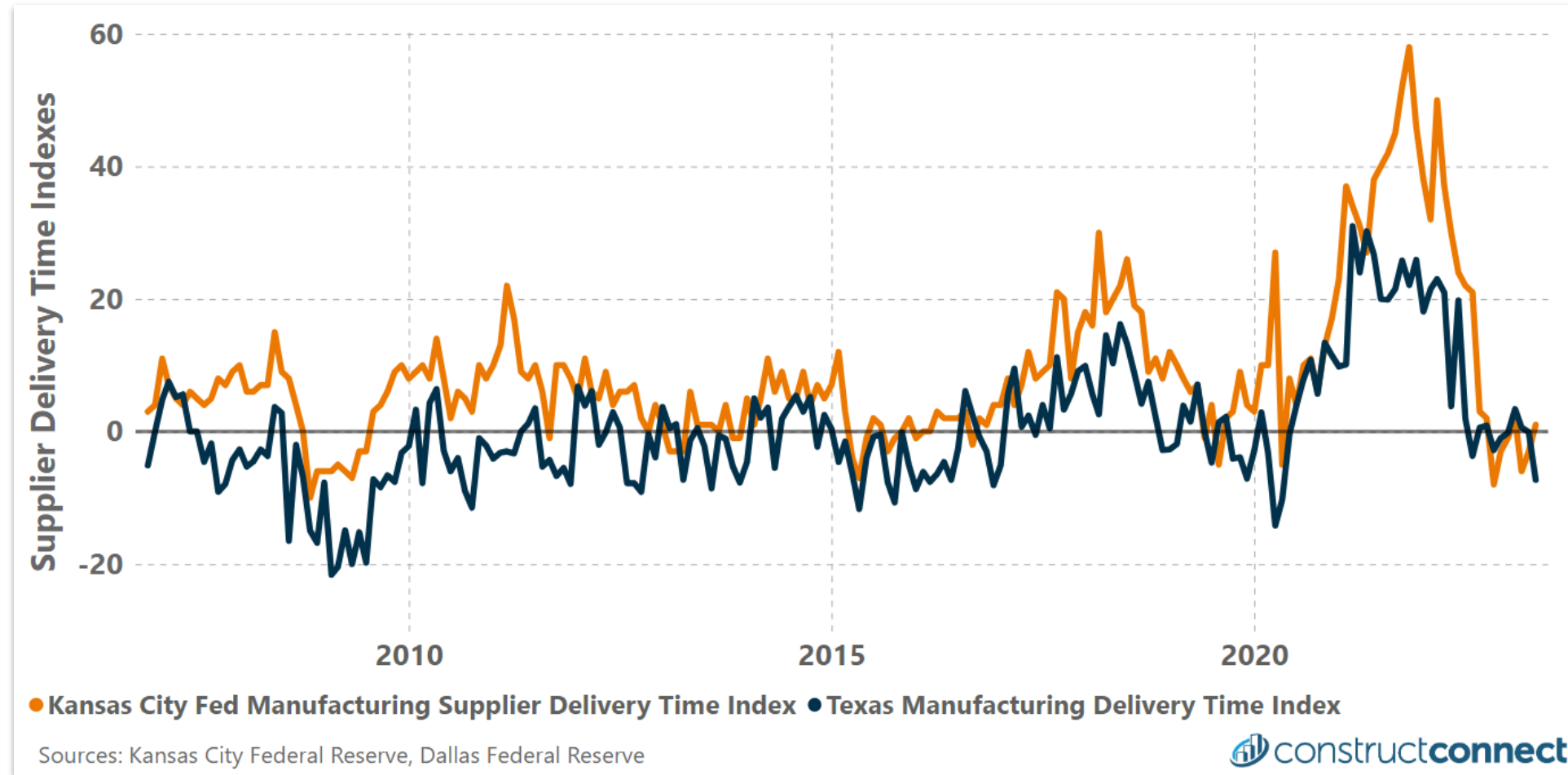
(Inflation adjusted 2019 dollars, seasonally adjusted annual rate, "SAAR")



How Did We Get Here?

U.S. supplier delivery measures

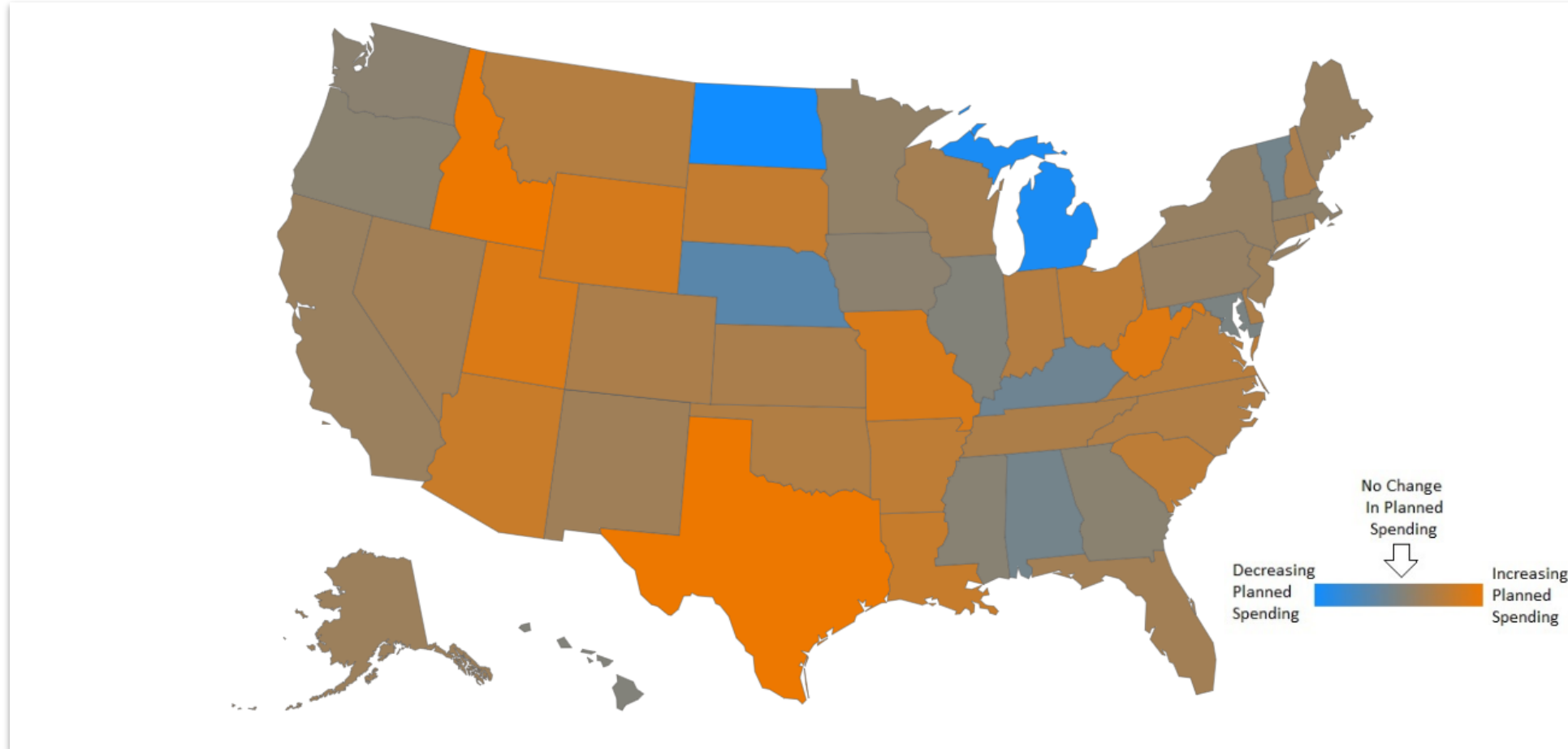
2023 readings point to quickening deliveries and hence more slack in supply chains



Geography Means More Than You Might Think

Expansion index, state level: June 2023 data release

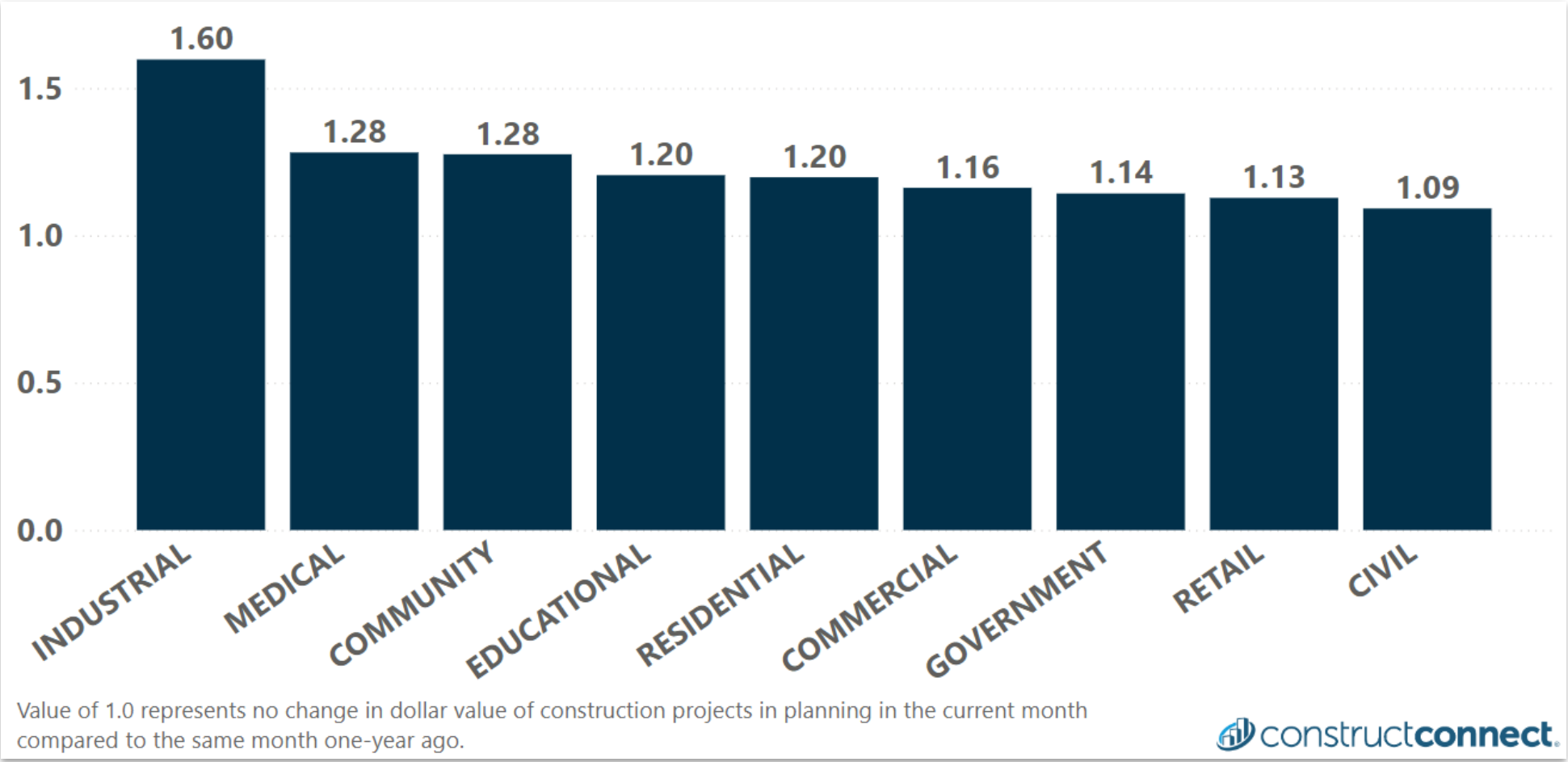
Ratio of total dollar value of construction project in the latest month compared to the same month last year



Having a Geography and Vertical Strategy is Critical

Average expansion reading by vertical

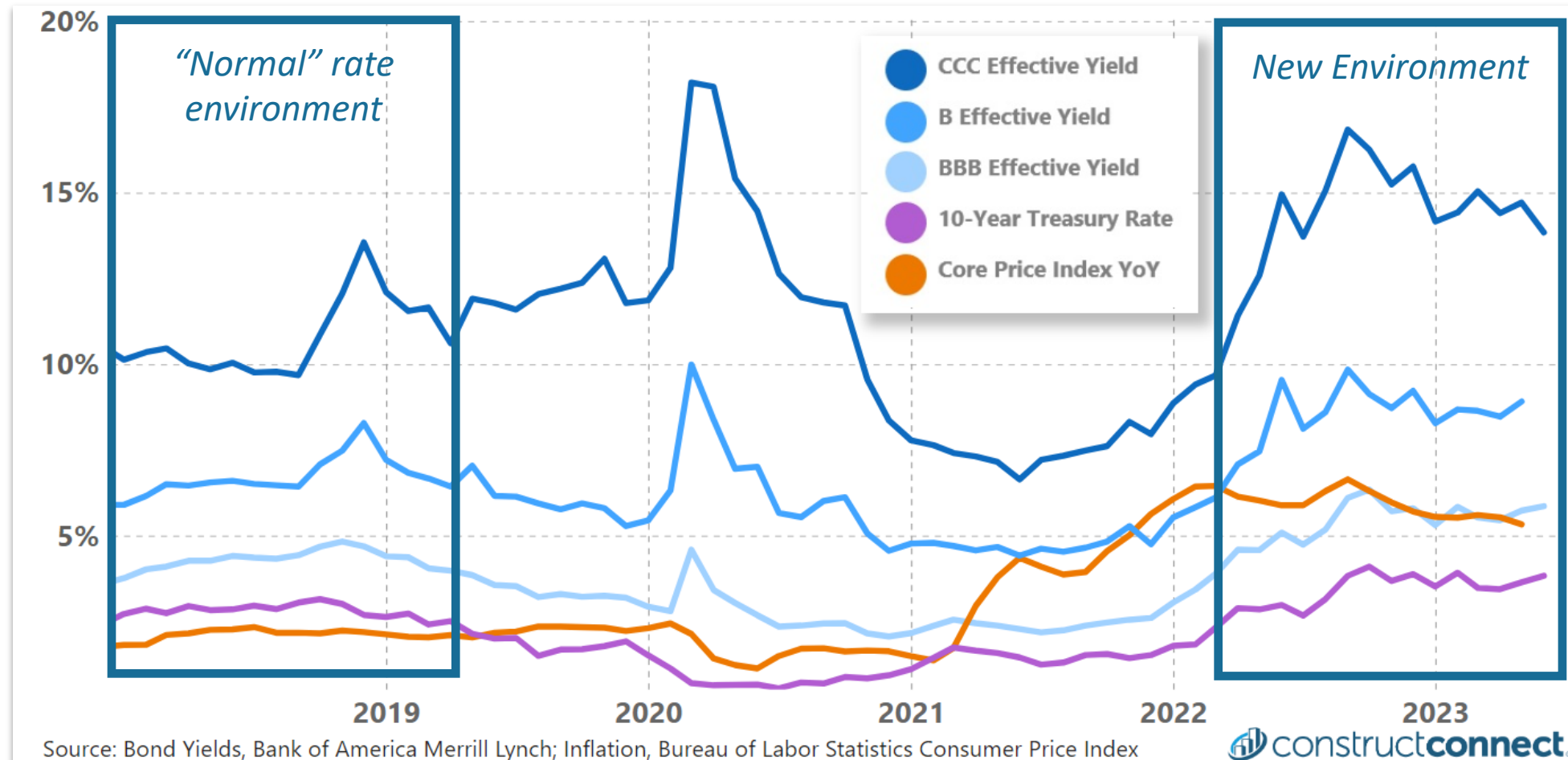
June 2023 data release, USA only



Cost Input #1: Capital

The “cost” of money is fundamentally driven by inflation rates

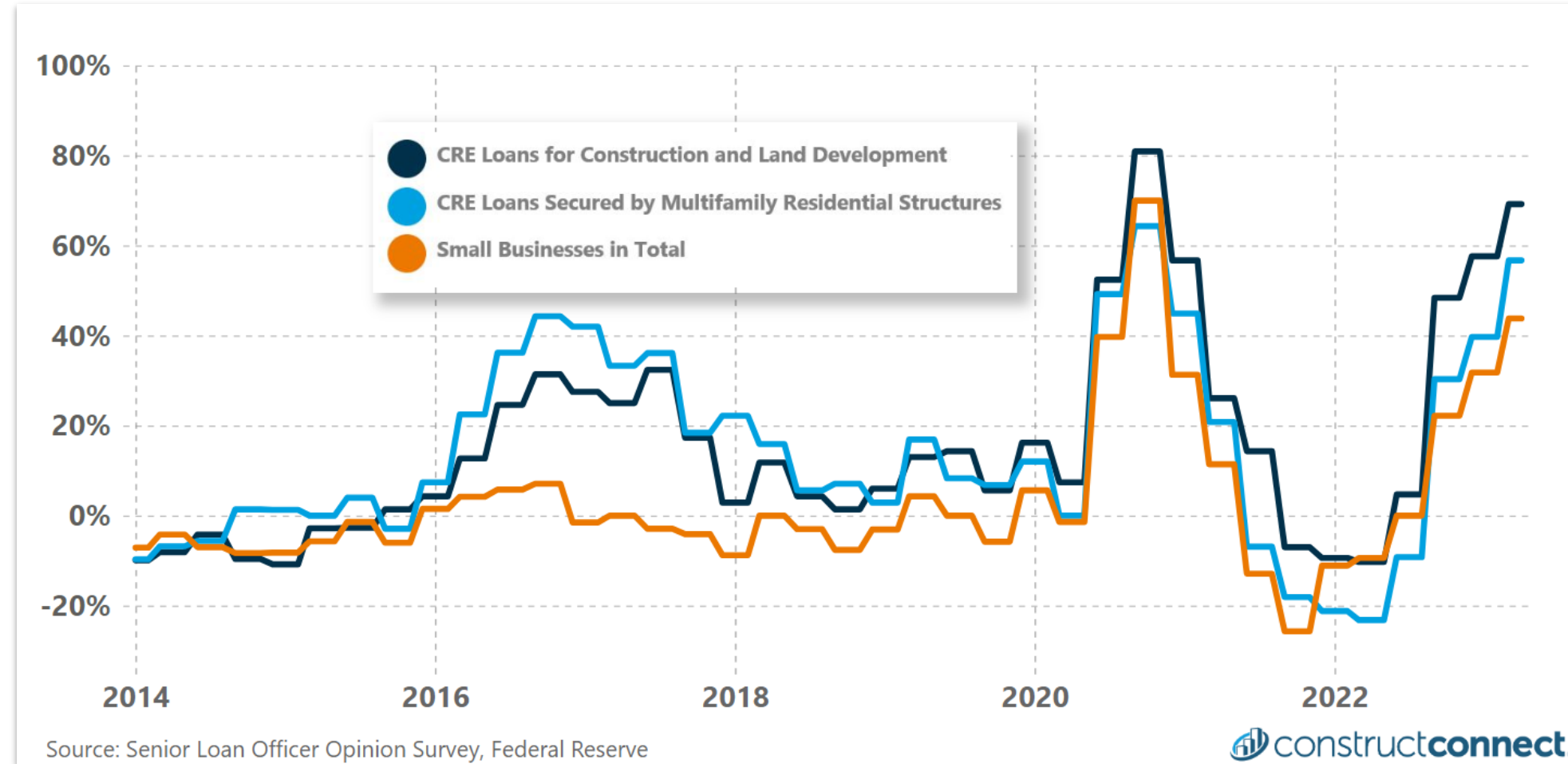
Borrowing at or below the rate of inflation is the exception, *not* the norm



Cost Input #1: Capital

Banks have quickly tightened loan standards on developers since mid-2022

Figures are net percentage of U.S. banks reporting tightening standards by loan type

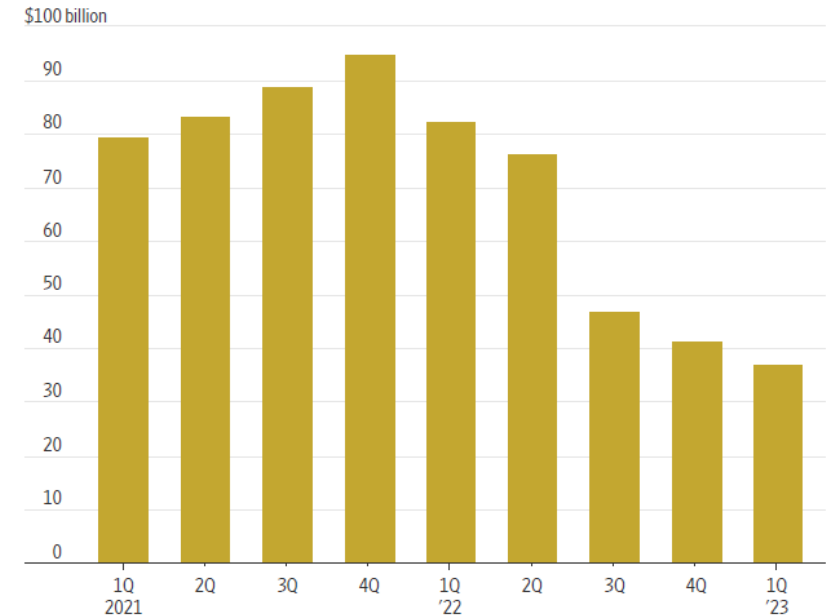


Cost Input #1: Capital

Alternative Avenues for Capital Exist For Construction

- Private Capital and Private Equity
 - There are more than 204 Construction and Engineering PC/PE firms (Axial.net)
- 2022 Collapse in tech firm valuations has left PE firms with cash but too few "traditional" places to deploy it.

Venture Investors Get Less Generous
U.S. venture capital deal activity by quarter

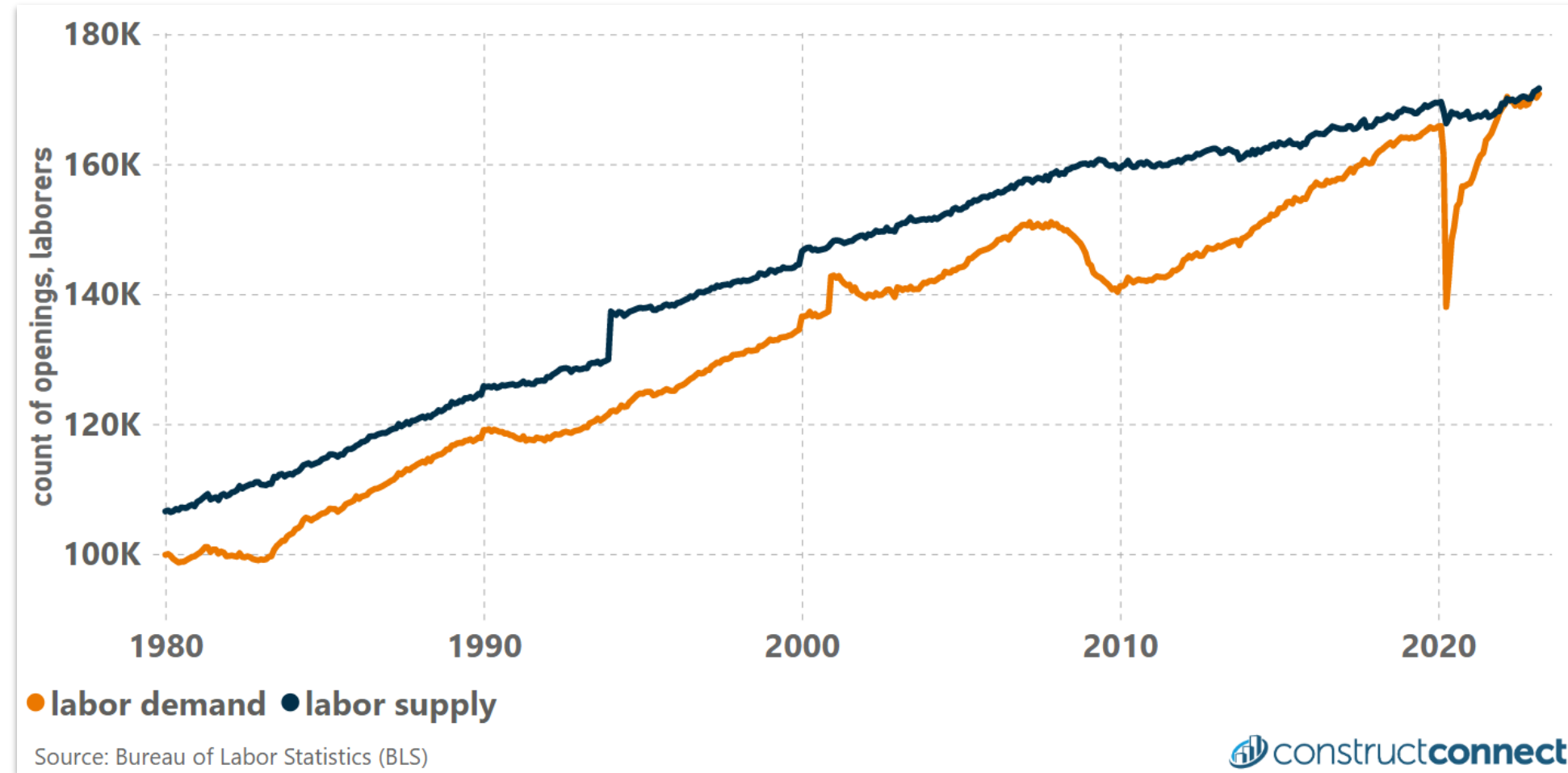


Source: The Q1 2023 PitchBook-NVCA Venture Monitor

Cost Input #2: Labor

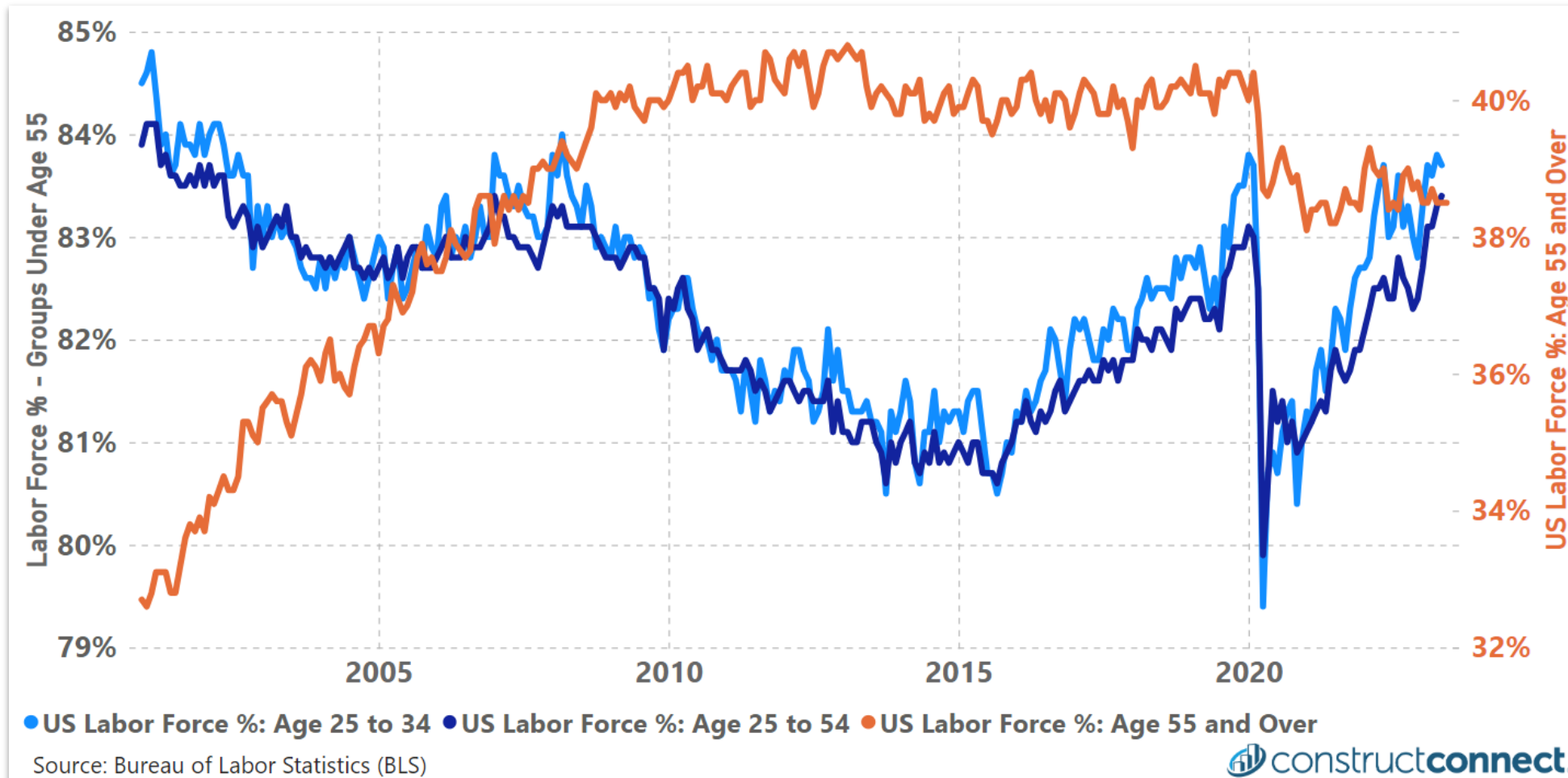
The balance of construction labor supply and demand has never been tighter

Rising demand coupled with a post-pandemic plateau in supply continues to send wages higher



Cost Input #2: Labor

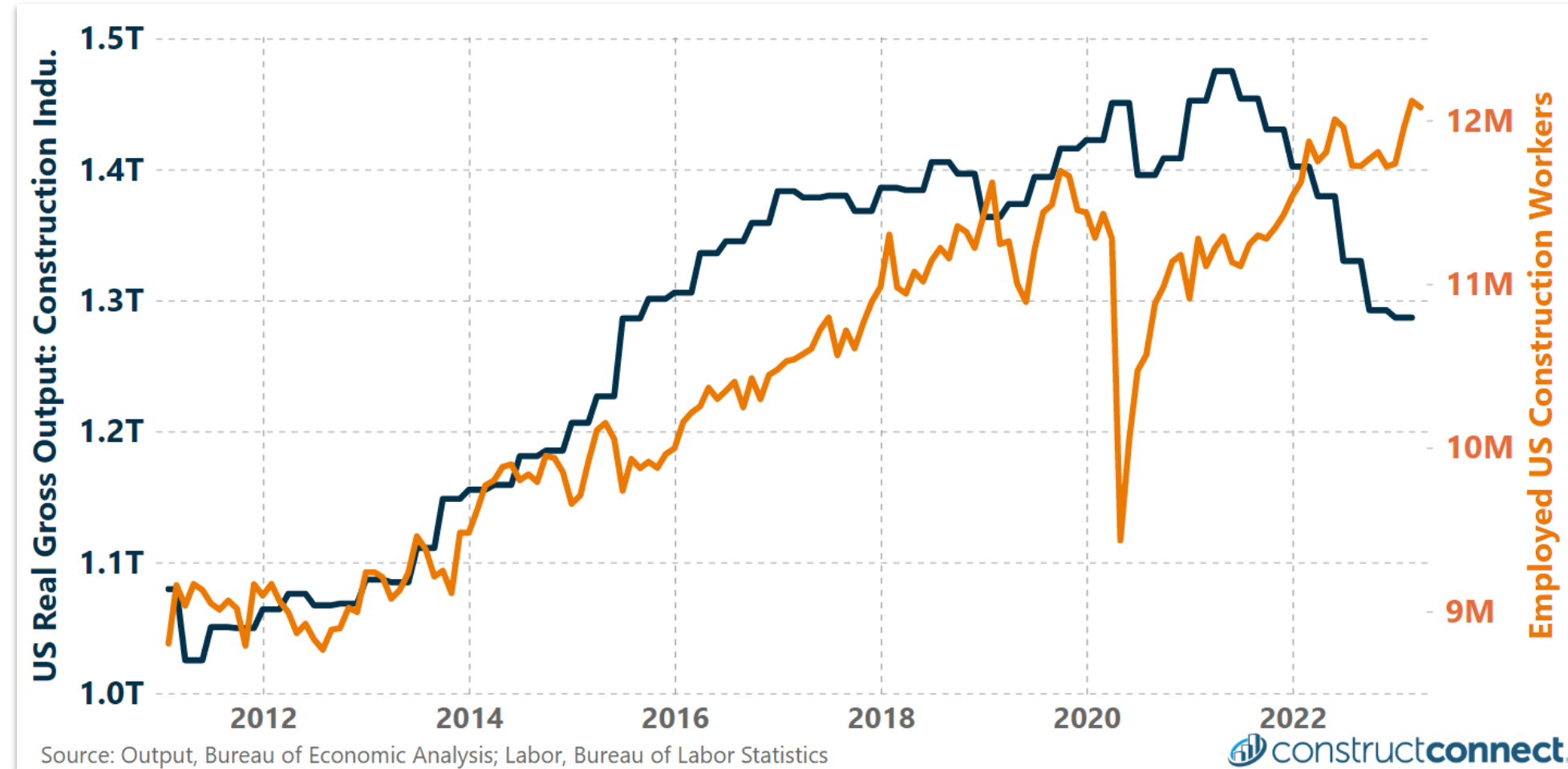
Has COVID permanently altered the shape of the labor force?



Cost Input #2: Labor

U.S. real construction output contrasts with labor levels

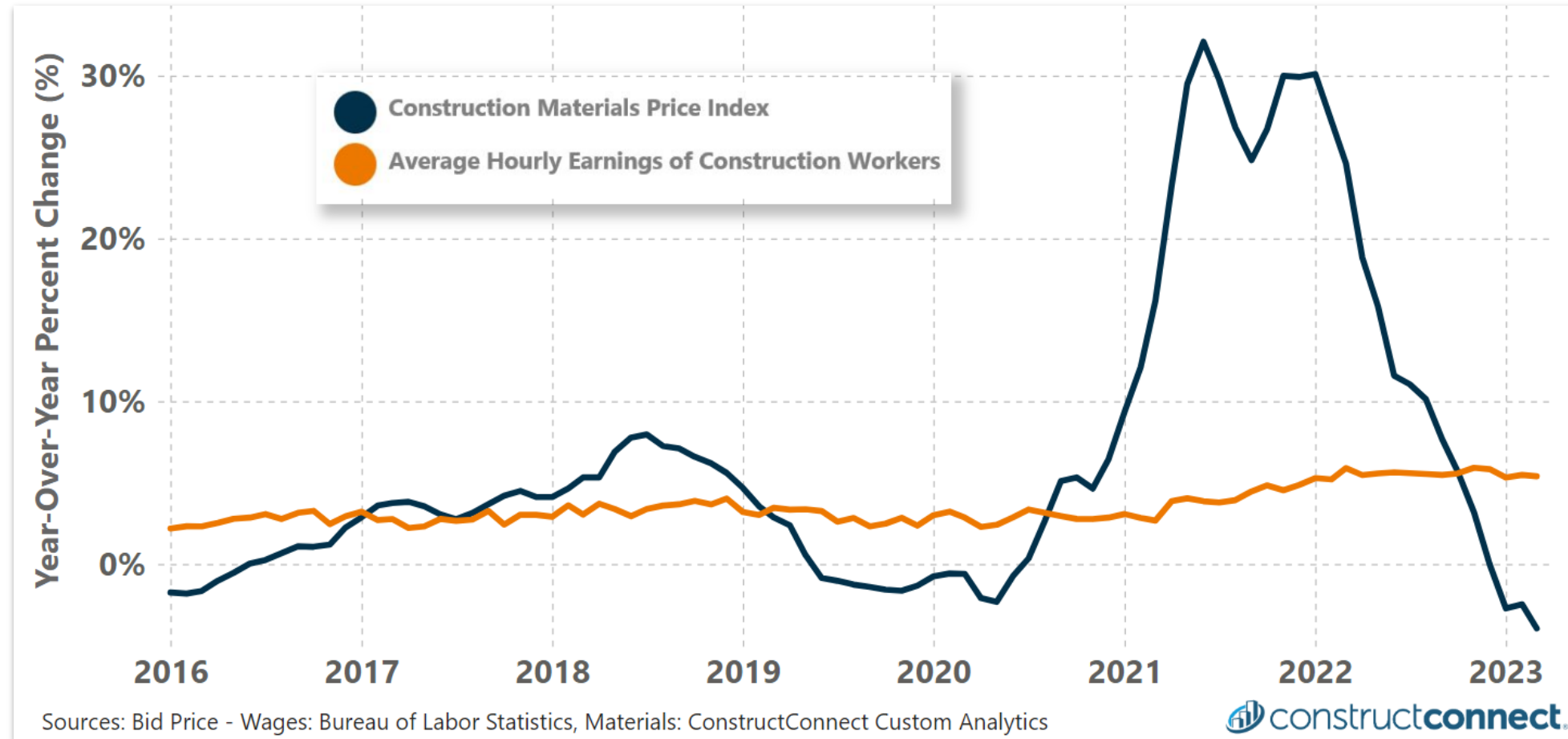
Inflation adjusted 2012 chained dollars, seasonally adjusted annual rate



Cost Input #2: Labor

Wage growth regains leading role as fastest rising construction cost

Latest annual wage growth of 5.4% outpaces pricing increases in construction materials



Inventory Is Moving From Asset to Risk

Inventory/sales ratios signal need for industry discipline

Industry must resist the temptation to sustain the lessons learned during COVID's hoarding episode



Supply Chains Have Overwhelmingly Recovered

Falling foreign product costs and ample global shipping capacity will benefit firms returning to JIT inventory practices

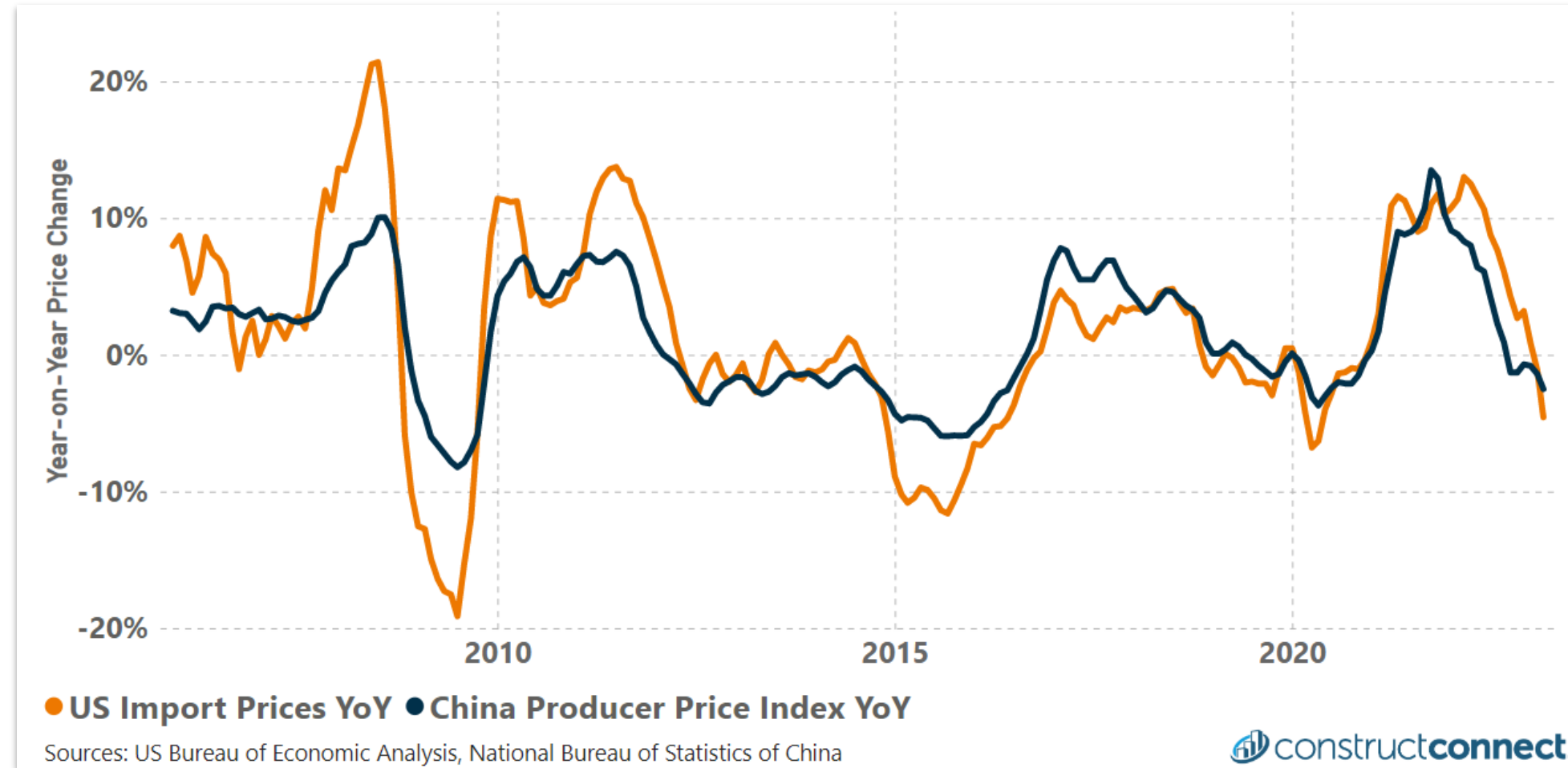


Sources: Global Supply Chain, Federal Reserve of New York; Price Index, Bureau of Labor Statistics

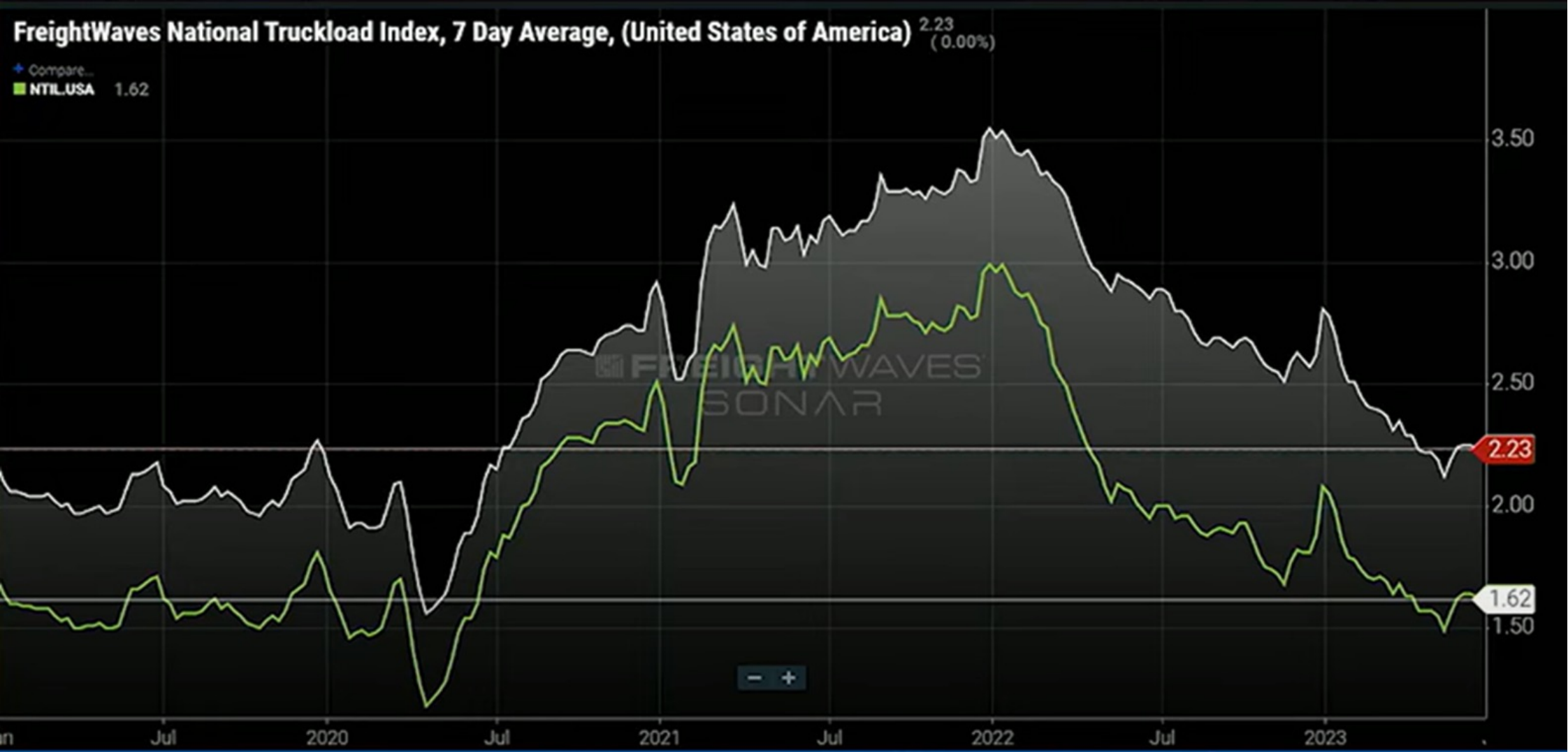
Foreign Markets Need A Buyer For Their Wares

Falling import prices and rising volumes will help curb greater U.S. inflation

Lower-cost imports will be good for contractors and owners while pressuring profits for domestic manufacturers



Real Transportation Costs Are at Multi-Year Lows



Actionable Insights From The Data

- Labor is the **greater** risk to your operational cost structure.
 - How do we control risk exposures to a structural problem like labor?
 - Architects using labor saving design
 - Using products/materials that are labor friendly
 - Take ownership of employee training success
 - Employers finding long-run incentives

Actionable Insights From The Data

- Don't be fooled by inflation, monitor the industry in real dollar & non-dollar terms.
- Geography and Verticals have a big impact on your prospects.
- Be open-minded about alternative avenues for capital.
- **Labor is the greater risk to operational cost structure.**
- **Adapt your supply chain and inventory strategy to post-COVID trends.**

Actionable Insights From The Data

- Your pre- and post-COVID supply chains need to be reconciled in 2023 and beyond.
 - Don't allow a few hard-to-get products to sway your entire supply chain & inventory strategy. Your pre- and post-COVID supply chains need to be reconciled in 2023 and beyond.
 - The best approach may be a hybrid utilizing multiple suppliers both domestically and internationally.
 - Expect falling international shipping costs to further heighten the competitiveness of imports.
- Expect a unique combination of international factors to affect your supply chain and costs.

**How do you or your organization handle
fluctuations in material prices during a
construction project?**

Cost Trends & Insights

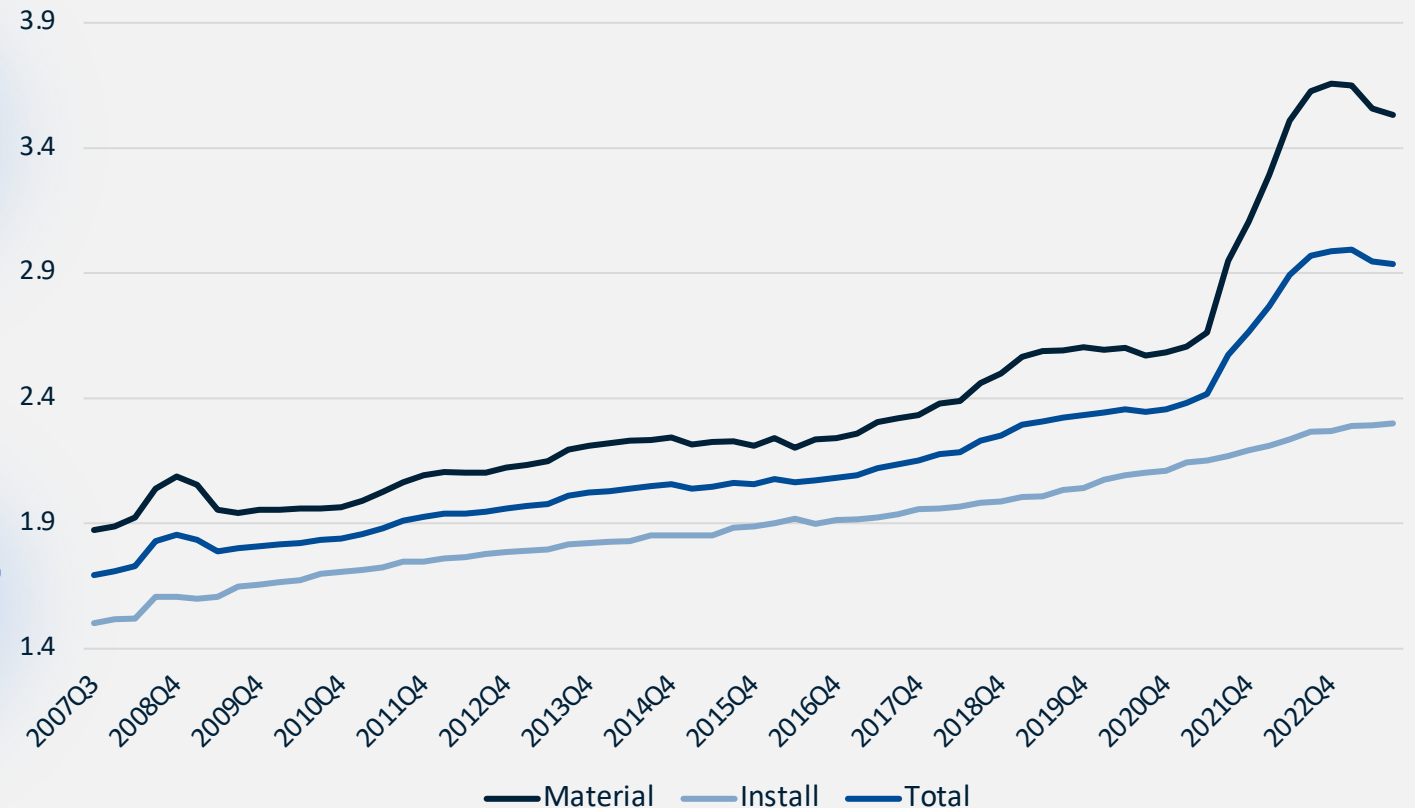


Historical Pricing Trends

- Material cost increases drove dramatic escalation starting in 2021
- Install costs increasing through 2023Q3 sustaining high construction cost trends



RSMeans National Historical Cost Index



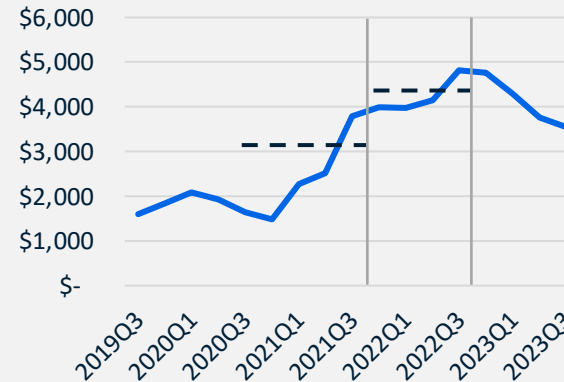
National costs shown for reference purposes only.

Lumber Cost Trends

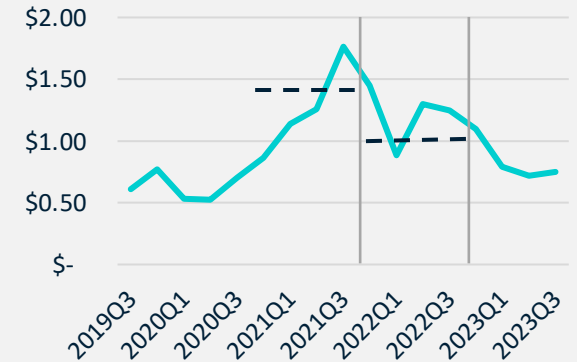
- Most lumber prices in 2023Q3 returned to “pre-pandemic” levels
- Supply-side shocks expected to impact prices by 2024Q1



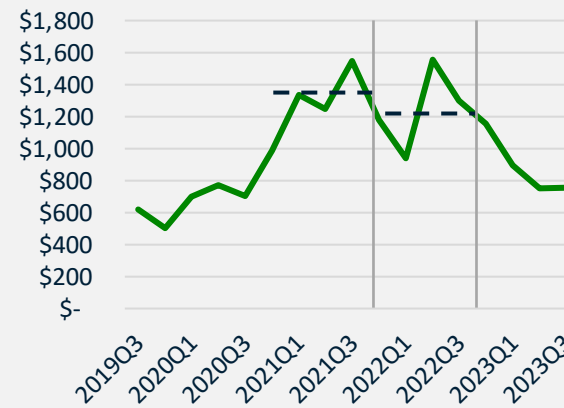
Pine Boards



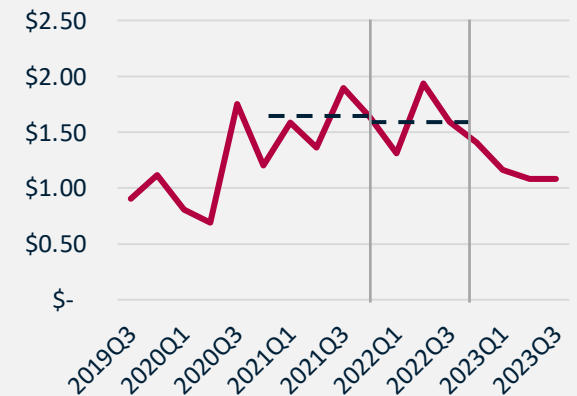
1/2" Plywood



Framing Lumber



Plyform



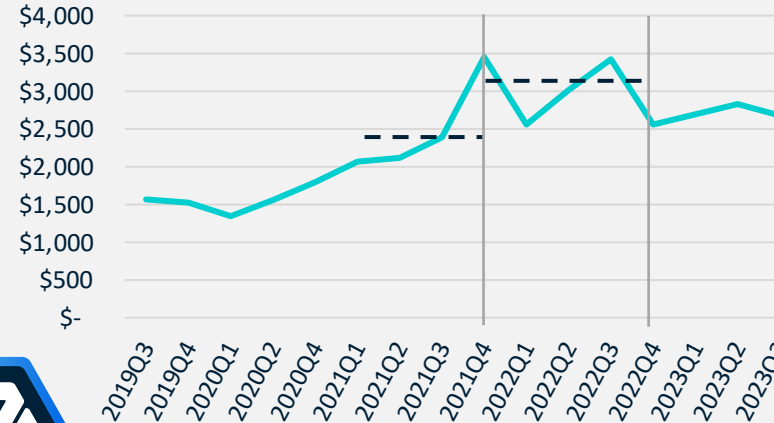
National costs shown for reference purposes only.

Steel Cost Trends

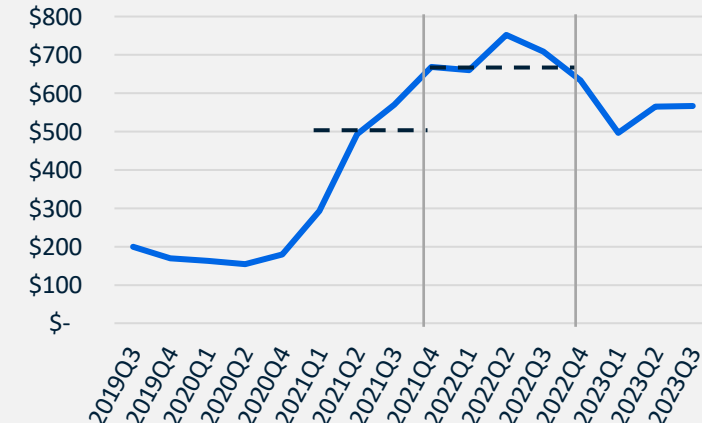
- Sharp volatility of 2021, 2022 giving way to stabilization in 2023Q3 for most categories
- Forecasts for steel prices are mixed going into the end of the year



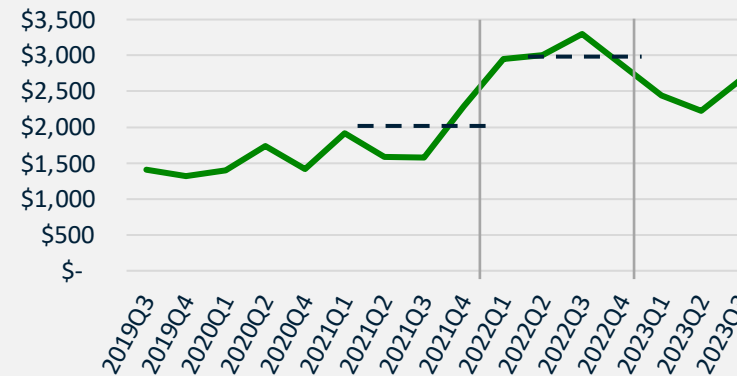
Open Web Joists, K Series



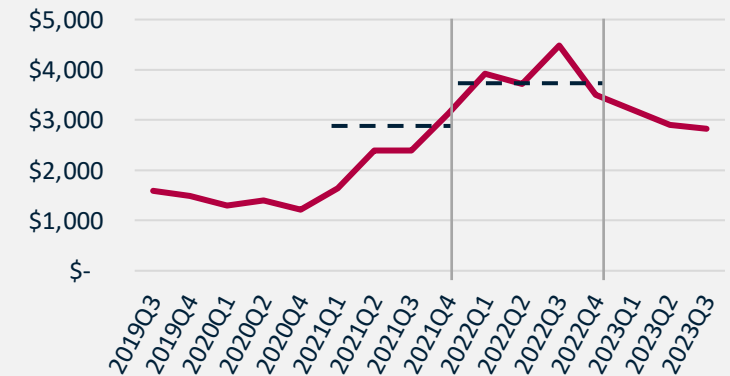
Metal Decking



Steel Sheet Piling



Structural Steel



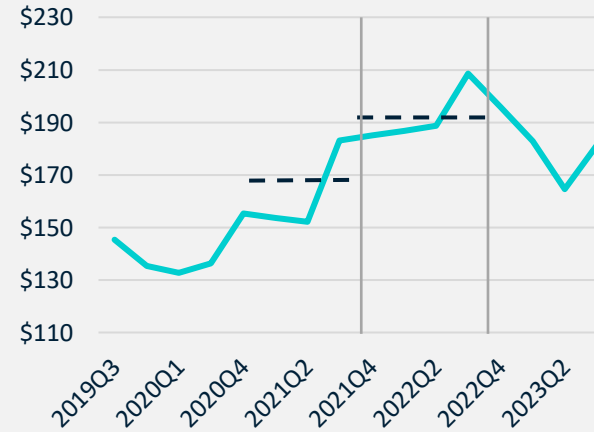
National costs shown for reference purposes only.

Concrete & Masonry Cost Trends

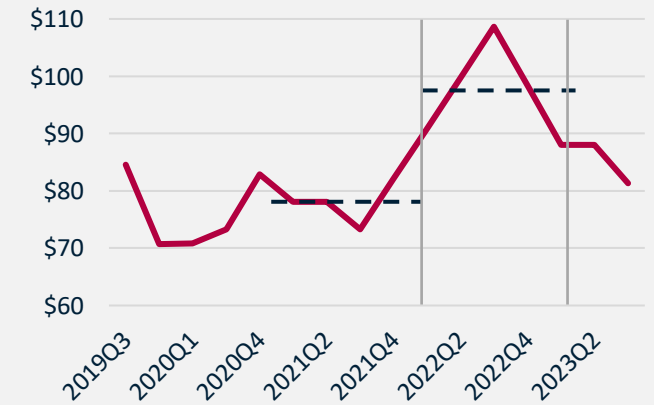
- Peaks in 2022H1 gave way to decreases through 2023Q2
- 2023 Q3 showing pricing regressions, even in Concrete Block



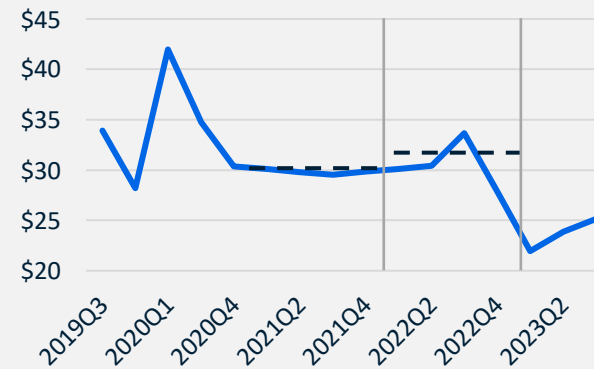
Ready Mix Concrete



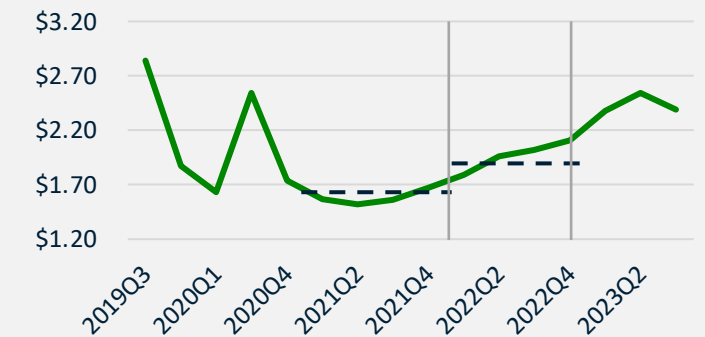
Hot Mix Asphaltic Concrete



3/4" Stone Aggregate



Concrete Block



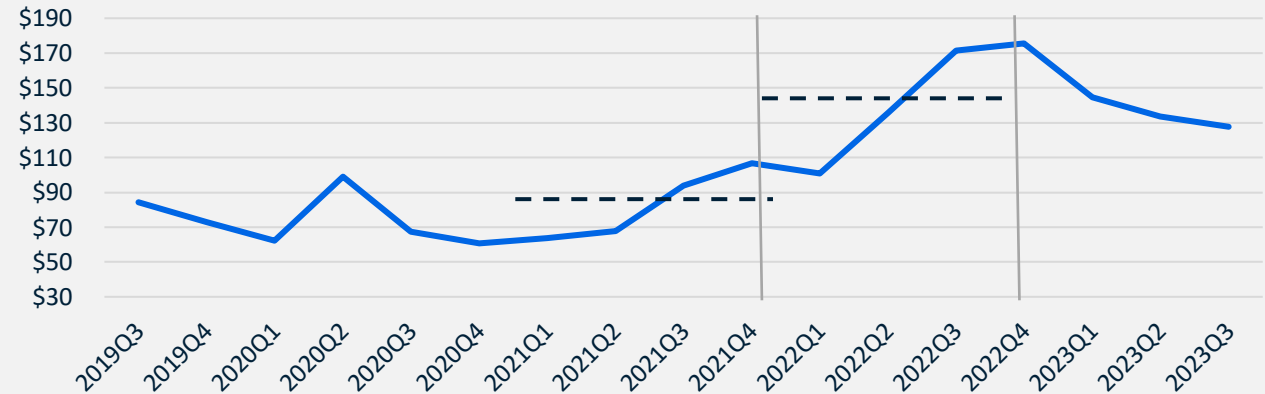
National costs shown for reference purposes only.

Conduit/Electrical Trends

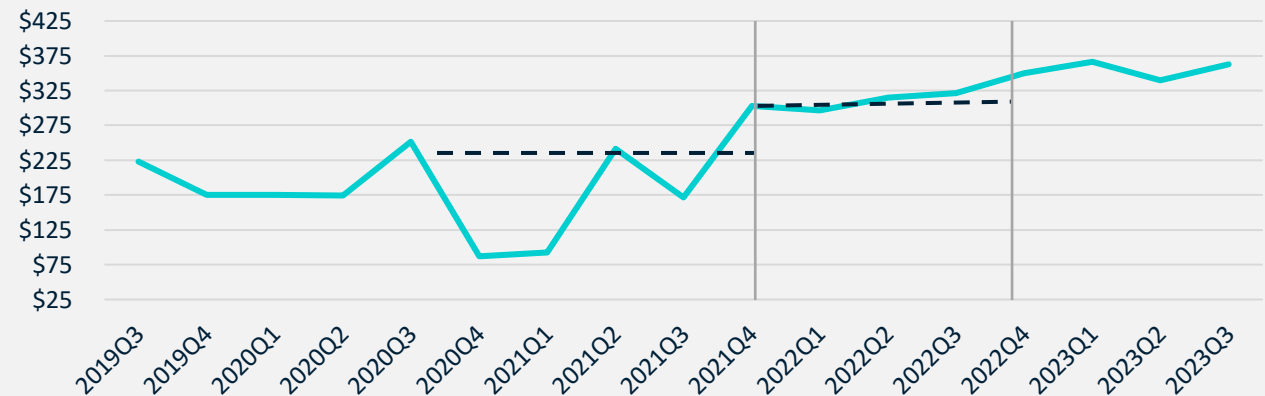
- EMT prices continue to drop through 2023Q3
- Copper prices stabilizing in 2023Q3



Electric Metallic Tubing (EMT)



Copper Wire



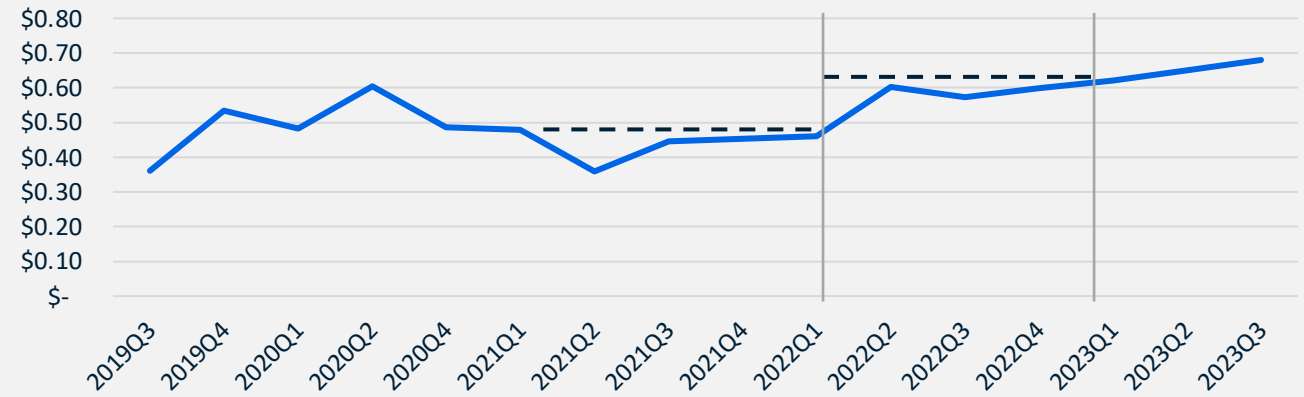
National costs shown for reference purposes only.

Insulation Materials Cost Trends

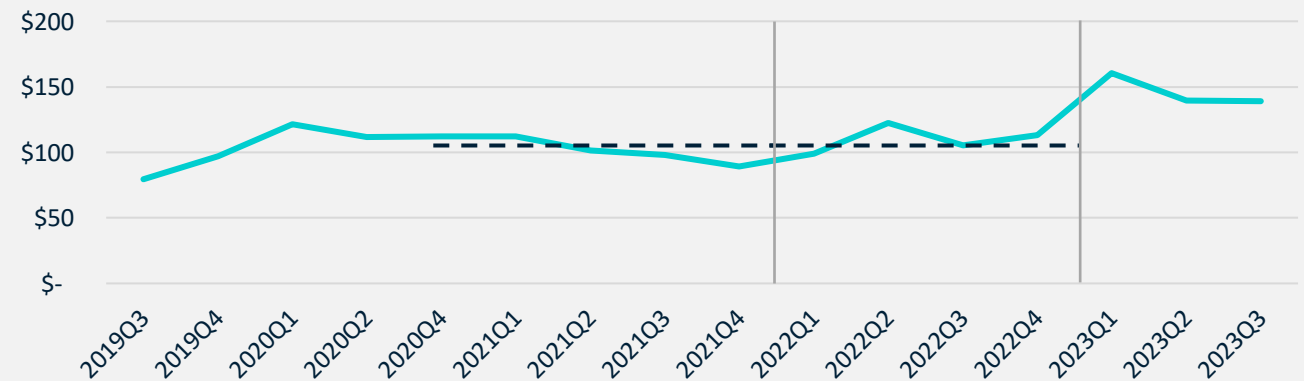
- Insulation costs primed for continued increase into 2024
- Input prices for insulation materials (mineral wool) continued steady growth from 22Q2 to 23Q2



Fiberglass Insulation



Polyisocyanurate Roof Insulation Board



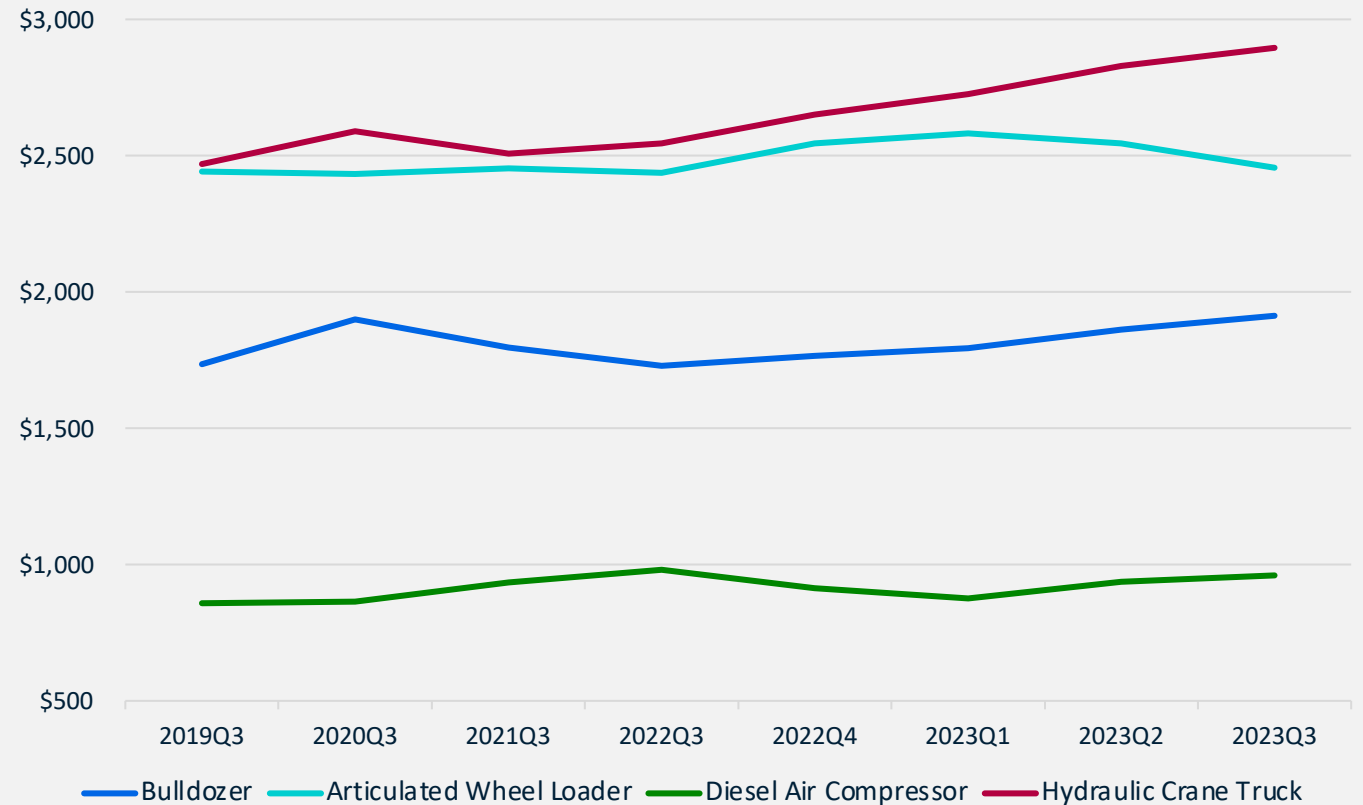
National costs shown for reference purposes only.

Equipment Cost Trends

- After several years of relative stability, equipment rental rate fluctuations emerge
- Wheel loaders decreased an average 5% from peaks in 2022Q4 to 2023Q3.



Average Equipment Weekly Rental Rates



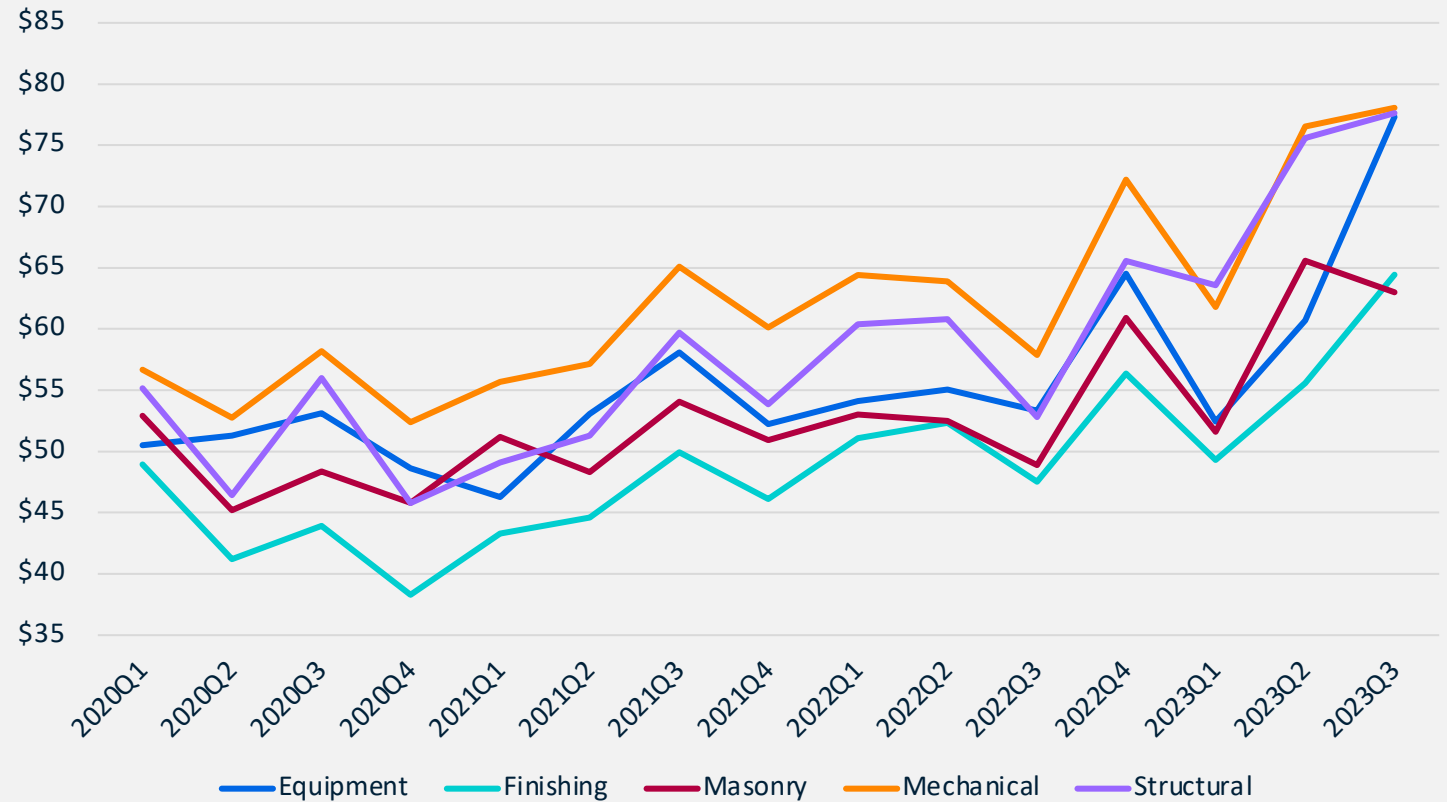
National costs shown for reference purposes only.

Labor Cost Trends

- 2022H2, 2023H1 wage increases correspond with labor shortages highlighted in all trades
- Increases forecasted to continue until skilled labor availability increases



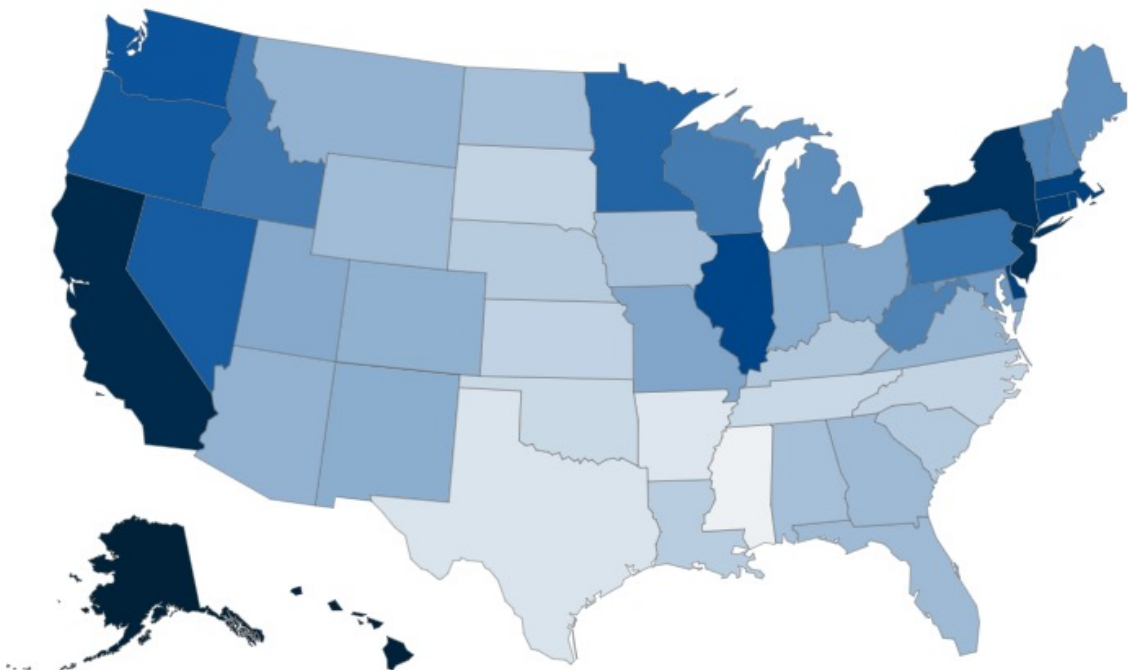
Average Total Labor Cost by Category



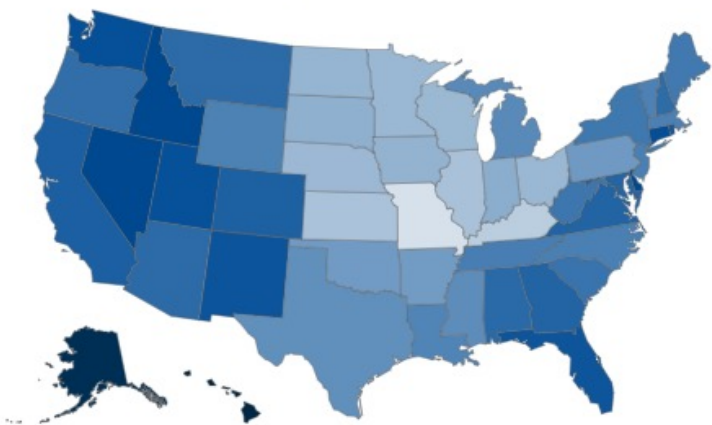
National costs shown for reference purposes only.

Regional Cost Variations, 2023Q2

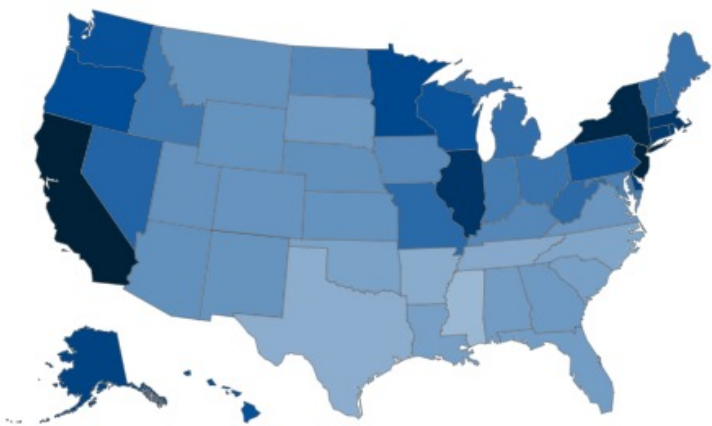
Average Total Construction Cost



Average Material Cost



Average Install Cost



Actionable Insights From The Data



Reliable, dynamic data
allows faster decision making
and enables more people to
make them

Enhanced Estimating Experience

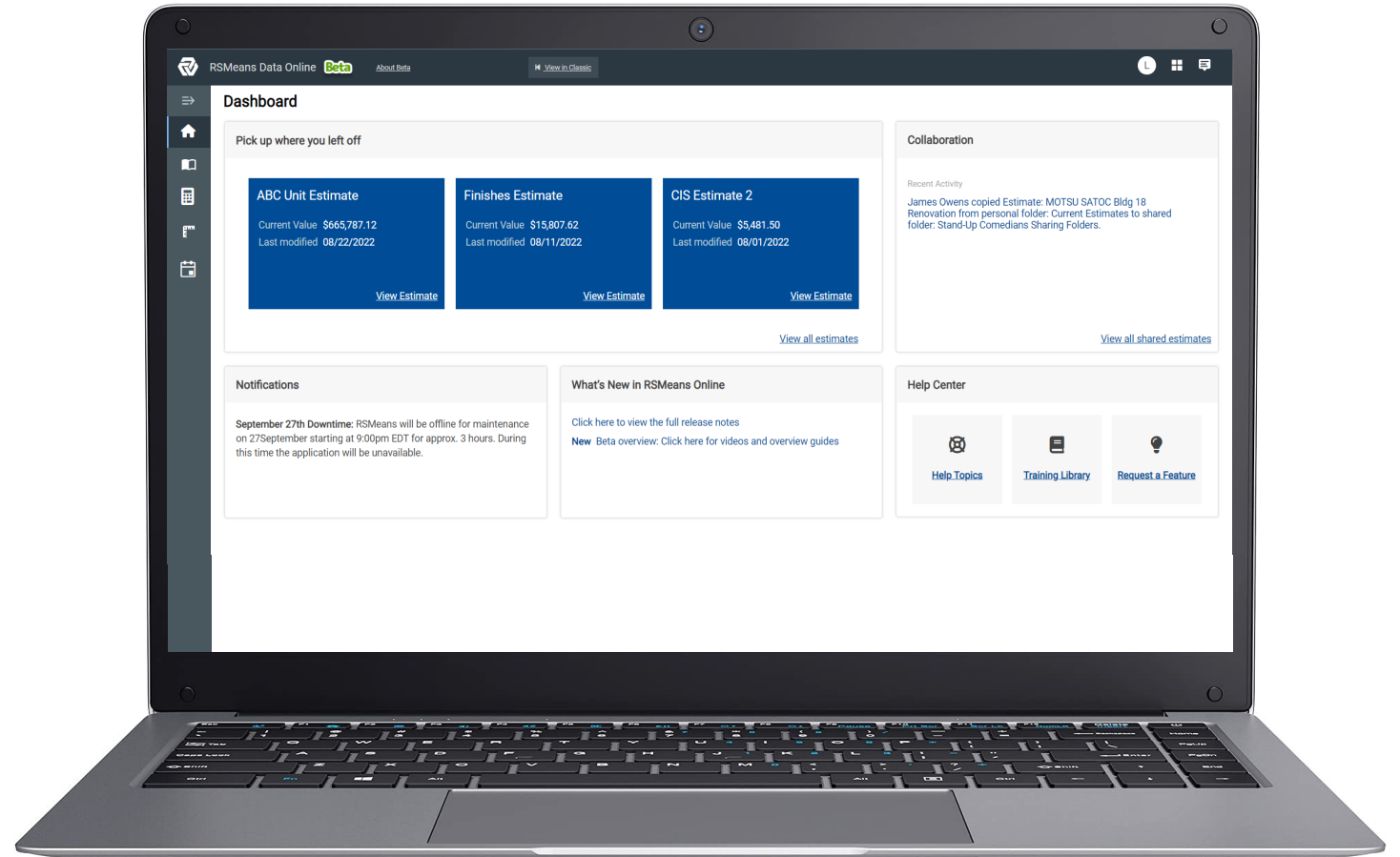
Updated RSMMeans Data Online

Refreshed look and feel

Quick access to what's important

More screen “real estate” for
viewing catalogs and estimates

Available now in Beta
for *Core* tier and select *Complete*
tier subscribers



Search or Browse Cost Catalogs

- Maximized catalog viewing
- Easily browse the hierarchy
- Matching search terms highlighted
- View search results in context of nearby items
- Adjustable columns

RSMeans Data Online **Beta** [About Beta](#) [View in Classic](#)

Commercial New Construction [Change](#) **Catalog** [Favorites](#)

Release: 2023 Quarter 2 City Cost Index: Nashville (370-372) TN US

Search [chiller 200 ton](#) [Contextual Results](#) [Off](#)

23 Heating, Ventilating, and Air Conditioning (HVAC) 7

2364 Packaged Water Chillers 7

236413 Absorption Water Chillers 2 236416 Centrifugal Water Chillers 3 236426 Rotary-Screw Water Chillers 2

23641610 Centrifugal Type Water Chillers ▼

		Unit	Crew	Daily Output	Labor Hours	Bare Material	Bare Labor	Bare Equipment	Bare Total	Total O&P	Hrly Op. Cost	Rent / Day	Rent /
236416100100	Water chiller , centrifugal liquid chiller , water cooled, open drive, 2000 ton , (twin 1000 ton units), includes standard controls, excludes water tower	Ea.	Q7	0.07	478	\$916,500.00	\$15,695.00		\$932,195.00	\$1,033,623.00			
236416100278	Water chiller , centrifugal liquid chiller , packaged unit, water cooled, 200 ton , includes standard controls, excludes water tower	Ea.	Q7	0.19	172	\$145,000.00	\$5,657.50		\$150,657.50	\$168,198.00			
236416100430	Water chiller , centrifugal liquid chiller , packaged unit, water cooled, 2,000 ton , includes standard controls, excludes water tower	Ea.	Q7	0.07	492	\$835,500.00	\$16,206.00		\$851,706.00	\$945,426.00			

3 items

Now updated with Q3 2023 cost factors.

Working with an Estimate

- Estimate name and cost totals are always visible
- Total Estimate costs refresh as you edit
- Easily identify modifiers and see factors applied
- Organize items in Work Breakdown Structure folders and order them

RSMeans Data Online **Beta** [About Beta](#) [View in Classic](#)

Estimates
Washroom renovation with WBS

Summary **Worksheet** Reports

[+ Add line item](#) Extended Total **\$4,280.25** Extended Total O&P **\$5,007.24** Last modified: 06/21/2023 3:46 PM Laura Cook [Cancel](#) [Save](#)

[List](#) **WBS**

Line Number	Description	Modifiers	Unit	Quantity	Extended Total	Extended Total O&P	Sub-Contra...	Notes	Labor Type	
Washroom renovation with WBS (10)					\$4,280.25	\$5,007.24				
Demolition (5)					\$242.44	\$373.61				
220505102250	Water heater, 40 gallon, selective demolition	1	Ea.	1.00	\$70.08	\$108.04		p 586	Repair & Remodeling	
220505102250	Bulk asbestos removal, includes disposable tools & 2 suits & 1 respirator filter/day/worker, for type B (supplied air) respirator equipment, add	Modifier	%	1.00	\$7.01	\$10.80		[Adjusted by 028213439000]	Repair & Remodeling	
220505101220	Fixture, counter top lavatory, disconnect and remove		Ea.	1.00	\$52.56	\$81.03		p 585	Repair & Remodeling	
220505101520	Fixture, urinal, wall mounted, selective demolition, includes 10' piping		Ea.	1.00	\$60.23	\$92.71		p 585	Repair & Remodeling	
220505101400	Fixture, water closet, floor mounted, selective demolition, includes 10' piping		Ea.	1.00	\$52.56	\$81.03		Add Note	Repair & Remodeling	
Installation (5)					\$4,037.81	\$4,633.63				
223313208970	Water heater, electric, point of use, glass lined, energy saver, single element, 2.5 gallon		Ea.	1.00	\$387.76	\$490.01		p 726	Repair & Remodeling	
224116132040	Lavatory, vanity top, stainless steel, self-rimming, ledge, round, single bowl, 18-3/4", includes trim		Ea.	1.00	\$1,567.77	\$1,756.75		p 731	Repair & Remodeling	

Find and Add Line Items

- Search or browse for items without obscuring Estimate
- Search for items across an entire catalog or in a specific section
- Easily view and add Favorited items to your Estimate

RSMMeans Data Online **Beta** [About Beta](#) [View in Classic](#)

Estimates
Washroom renovation with WBS

Summary **Worksheet** Reports

[+ Add line item](#) Extended Total \$4,280.25 Extended Total O&P \$5,007.24 Last modified: 07/06/2023 4:44 PM Laura Cook

Line Number	Description	Modifiers	Unit	Quantity	Extended Total
Washroom renovation with WBS (10)					\$4,280.25
Demolition (5)					\$242.44
220505102250	Water heater, 40 gallon, selective demolition	1	Ea.	1.00	\$70.08
220505102250	Bulk asbestos removal, includes disposable tools & 2 suits & 1 respirator filter/day/worker, for type B (supplied air) respirator equipment, add	Modifier	%	1.00	\$7.01
220505101220	Fixture, counter top lavatory, disconnect and remove		Ea.	1.00	\$52.56
220505101520	Fixture, urinal, wall mounted, selective demolition, includes 10' piping		Ea.	1.00	\$60.23
220505101400	Fixture, water closet, floor mounted, selective demolition, includes 10' piping		Ea.	1.00	\$52.56
Installation (5)					\$4,037.81
223313208970	Water heater, electric, point of use, glass lined, energy saver, single element, 2.5 gallon		Ea.	1.00	\$387.76
224116132040	Lavatory, vanity top, stainless steel, self-rimming, ledge, round, single bowl, 18-3/4", includes trim		Ea.	1.00	\$1,567.77

Add Line Item

Facilities and Commercial Renovation > Facilities Construction [Change](#)

Release: 2023 City Cost Index: Nashville (370-372) TN US

Catalog Favorites

Search by CSI#, Description... [Search Catalog](#) [Search Section](#)

1 / 01 31 13 50

01311350 0010 GENERAL CONTRACTOR'S MARK-UP on Change Orders

01311350 0200 [Modifier](#) Extra work, by subcontractors, add [☆](#) [+](#)

01311350 0250 [Modifier](#) By General Contractor, add [☆](#) [+](#)

01311350 0400 [Modifier](#) Omitted work, by subcontractors, deduct all but [☆](#) [+](#)

01311350 0450 [Modifier](#) By General Contractor, deduct all but [☆](#) [+](#)

01311350 0600 [Modifier](#) Overtime work, by subcontractors, add [☆](#) [+](#)

01311350 0650 [Modifier](#) By General Contractor, add [☆](#) [+](#)

Understand Line Item Details

Details for each item include:

- Cost breakdown by category
- Full Crew definition and Crew links

RSMeans Data Online Beta About Beta

View in Classic

L

Estimates

Washroom renovation

Summary Worksheet Reports

+ Add line item

Extended Total \$4,556.10

Extended Total O&P \$5,431.80

Last modified: 04/03/2023 5:03 PM Laura Cook

Line Number

Description

Modifiers

Unit

Quantity

Extended Total

Washroom renovation (10)

\$4,556.10

Demo (5)

\$332.10

220505102250

Water heater, 40 gallon, selective demolition

1

Ea.

1.00

\$96.00

220505102250

Bulk asbestos removal, includes disposable tools & 2 suits & 1 respirator filter/day/worker, for type B (supplied air) respirator equipment, add

Modifier

%

1.00

\$9.60

220505101220

Fixture, counter top lavatory, disconnect and remove

Ea.

1.00

\$72.00

220505101520

Fixture, urinal, wall mounted, selective demolition, includes 10' piping

Ea.

1.00

\$82.50

220505101400

Fixture, water closet, floor mounted, selective demolition, includes 10' piping

Ea.

1.00

\$72.00

Install (5)

\$4,224.00

223313208970

Water heater, electric, point of use, glass lined, energy saver, single element, 2.5 gallon

Ea.

1.00

\$444.00

224116132040

Lavatory, vanity top, stainless steel, self-rimming, ledge, round, single bowl, 18-3/4", includes trim

Ea.

1.00

\$1,612.00

22 05 05 10 2250

Water heater, 40 gallon, selective demolition

Item Details

Modifiers

Costs

Bare

With O&P

Remove from estimate

Material

0

0

Labor

96

148

Equipment

0

0

TOTAL

96

148

Crew PLUM

1 Plumbers

Details:

Crews

024119 10 Demolition Defined

220105 10 Demolition (Selective vs. Removal for Replacement)

Understand Line Item Details

Details for each item include:

- Cost breakdown by category
- Full Crew definition and Crew links
- Modifier details and related links

RSMeans Data Online **Beta** [About Beta](#) [View in Classic](#)

Estimates
Washroom renovation

Summary **Worksheet** Reports

[+ Add line item](#) Extended Total \$4,556.10 Extended Total O&P \$5,431.80 Last modified: 04/03/2023 5:03 PM Laura Cook

Line Number	Description	Modifiers	Unit	Quantity	Extended Total
Washroom renovation (10) \$4,556.10					
Demo (5) \$332.10					
220505102250	Water heater, 40 gallon, selective demolition	1	Ea.	1.00	\$96.00
220505102250	Bulk asbestos removal, includes disposable tools & 2 suits & 1 respirator filter/day/worker, for type B (supplied air) respirator equipment, add	Modifier	%	1.00	\$9.60
220505101220	Fixture, counter top lavatory, disconnect and remove		Ea.	1.00	\$72.00
220505101520	Fixture, urinal, wall mounted, selective demolition, includes 10' piping		Ea.	1.00	\$82.50
220505101400	Fixture, water closet, floor mounted, selective demolition, includes 10' piping		Ea.	1.00	\$72.00
Install (5) \$4,224.00					
223313208970	Water heater, electric, point of use, glass lined, energy saver, single element, 2.5 gallon		Ea.	1.00	\$444.00
224116132040	Lavatory, vanity top, stainless steel, self-rimming, ledge, round, single bowl, 18-3/4", includes trim		Ea.	1.00	\$1,612.00

22 05 05 10 2250
Water heater, 40 gallon, selective demolition

Item Details **Modifiers**

✓ Bulk asbestos removal, includes disposable tools & 2 suits & 1 respirator filter/day/worker, for type B (supplied air) respirator equipment, add [Remove](#)

Cost Adjustment:
Material: +10% Labor: +10% Equipment: +10%

Details:
[024119 10 Demolition Defined](#)
[220105 10 Demolition \(Selective vs. Removal for Replacement\)](#)

Understand Line Item Details

Details for each item include:

- Cost breakdown by category
- Full Crew definition and Crew links
- Modifier details and related links
- Unit lines within an assembly

RSMeans Data Online **Beta** [About Beta](#) [View in Classic](#)

Estimates
Garage

Summary **Worksheet** Reports

+ Add line item

Extended Total \$37,679.00

Extended Total O&P \$48,839.60

Last modified:
05/05/2023 11:16 AM Laura Cook

Line Number	Description	Modifiers	Unit	Quantity	Extended Total
▼ Garage (7)					\$37,679.00
▼ Roofing (3)					\$7,809.00
B10201081800	Roof, steel joists, beams, 1.5" 22 ga metal deck, on columns and bearing wall, 20'x20' bay, 16" deep, 20 PSF superimposed load, 40 PSF total load		S.F.	800.00	\$5,152.00
B30101202000	Roofing, single ply membrane, EPDM, 45mils, fully adhered		S.F.	800.00	\$1,848.00
B30106100050	Gutters, box, aluminum, .027" thick, 5", enameled finish		L.F.	100.00	\$809.00
▼ Wall and Foundation (4)					\$29,870.00
B20101091300	Concrete block (CMU) wall, regular weight, hollow, 6 x 8 x 16, 2000 PSI, perlite core fill		S.F.	1,200.00	\$10,716.00
A10301202260	Slab on grade, 4" thick, light industrial, non reinforced		S.F.	800.00	\$5,240.00
A10101051520	Foundation wall, CIP, 4' wall height, direct chute, .099 CY/LF, 4.8 PLF, 8" thick		L.F.	120.00	\$8,474.40
A10101102500	Strip footing, concrete, reinforced, load 5.1 KLF, soil bearing capacity 3 KSF, 12" deep x 24" wide		L.F.	120.00	\$5,439.60

B 10 20 108 1800

Roof, steel joists, beams, 1.5" 22 ga metal deck, on columns and bearing wall, 20'x20' bay, 16" deep, 20 PSF superimposed load, 40 PSF total load

Assembly Details **Components**

051223771310
Structural steel project, industrial buildings, steel bearing, 100-ton project, 1 stor, A992 steel, shop fabricated, incl shop primer, simple connections

Quantity	Material O&P	Installation O&P	Total O&P
0.908 Lb.	1.64	0.39	2.03

052119100060
Open web bar joist, K Series, 40-ton job lots, spans up to 30', shop fabricated, incl shop primer, horizontal bridging

Quantity	Material O&P	Installation O&P	Total O&P
1.044 Lb.	1.06	0.49	1.56

053123502400
Metal roof decking, steel, open type B wide rib, galvanized, over 500 Sq, 1-1/2" D, 22 gauge

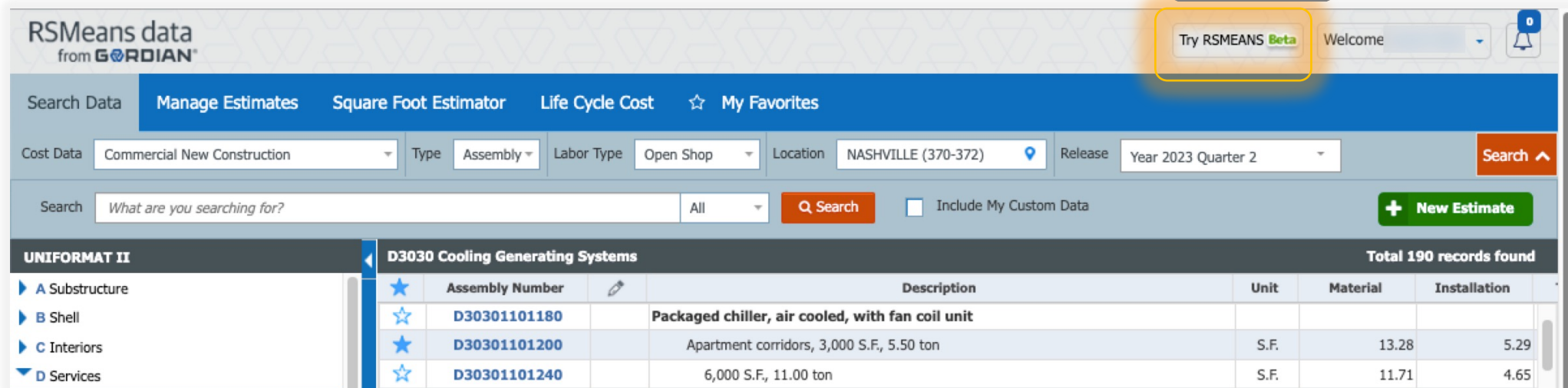
Quantity	Material O&P	Installation O&P	Total O&P
1.05 S.F.	3.2	0.69	3.9

Total Components : 3

Accessing Beta

Select the “**Try RSMeans Beta**” button in the header of any page.

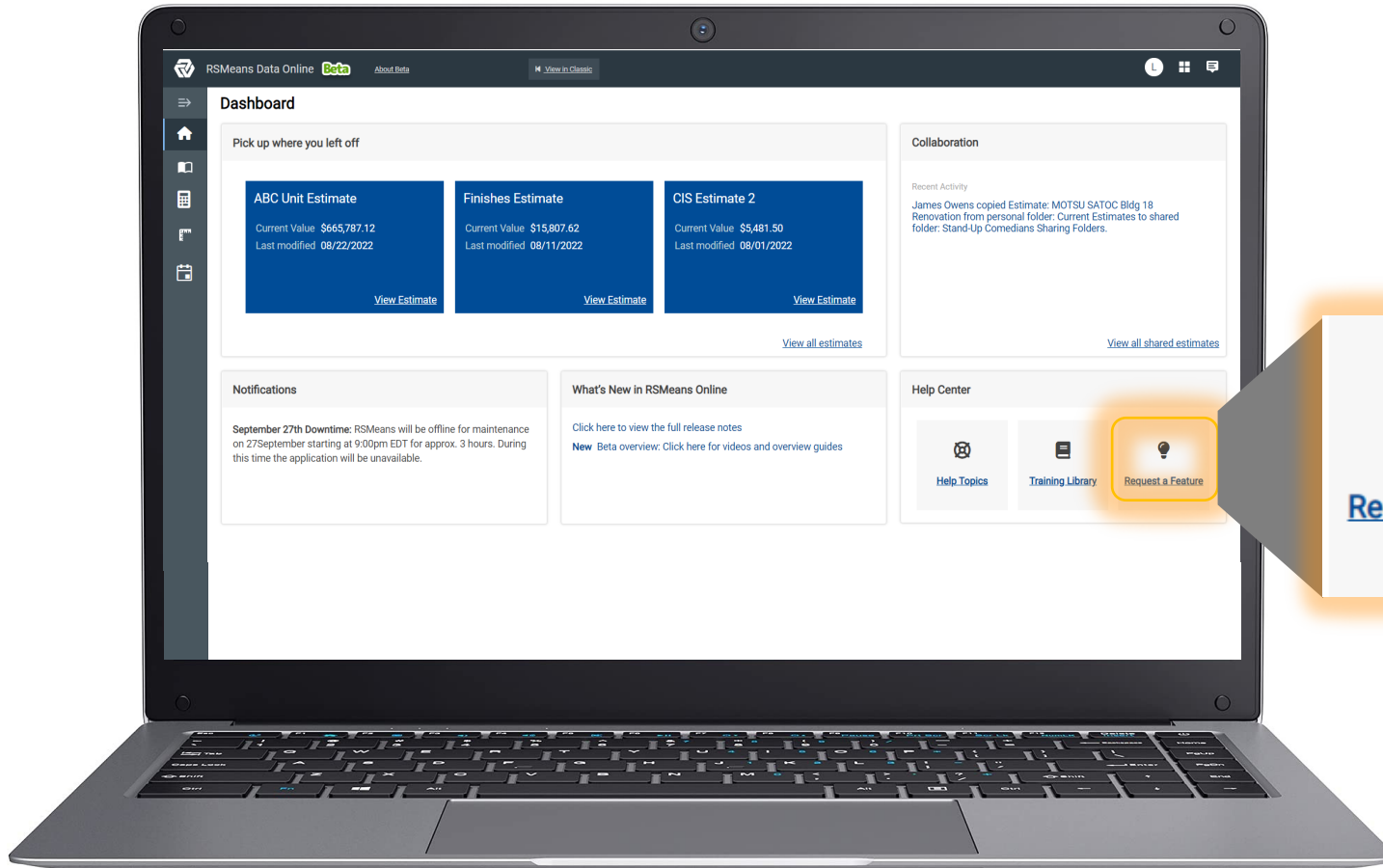
Try RSMEANS **Beta**



The screenshot shows the RSMeans data interface from GORDIAN. The header includes the logo and a navigation bar with links: Search Data, Manage Estimates, Square Foot Estimator, Life Cycle Cost, and My Favorites. A search bar is present with filters for Cost Data (Commercial New Construction), Type (Assembly), Labor Type (Open Shop), Location (NASHVILLE (370-372)), and Release (Year 2023 Quarter 2). A search button and a checkbox for 'Include My Custom Data' are also visible. A green '+ New Estimate' button is located on the right. The main content area displays a table of data for 'D3030 Cooling Generating Systems', showing a total of 190 records found. The table has columns for Assembly Number, Description, Unit, Material, and Installation. The first three rows are visible, showing assembly numbers D30301101180, D30301101200, and D30301101240, along with their descriptions and associated costs.

Assembly Number	Description	Unit	Material	Installation
D30301101180	Packaged chiller, air cooled, with fan coil unit			
D30301101200	Apartment corridors, 3,000 S.F., 5.50 ton	S.F.	13.28	5.29
D30301101240	6,000 S.F., 11.00 ton	S.F.	11.71	4.65

We Value Your Feedback

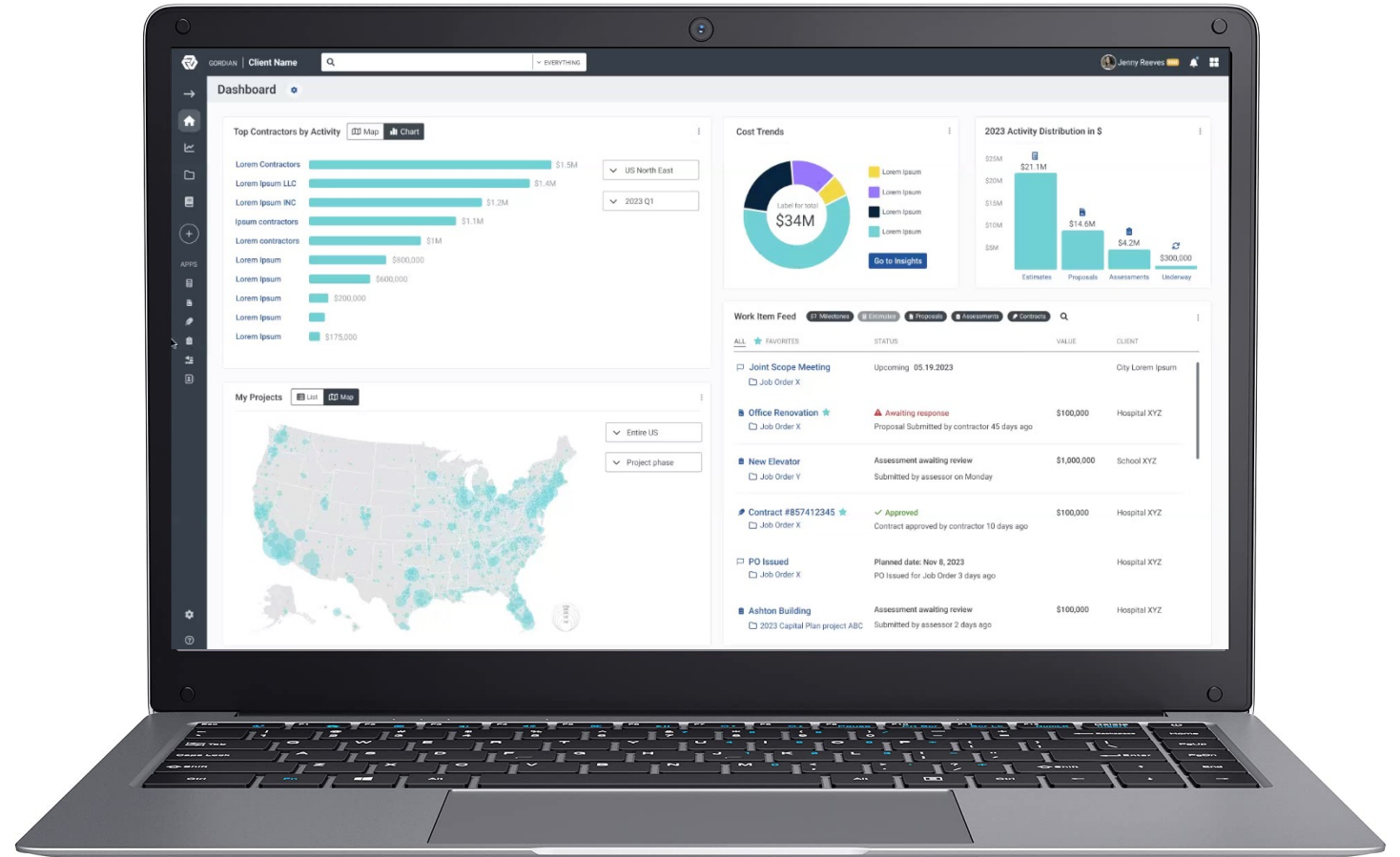


Quickly send
your comments
or suggestions.

Coming to the Gordian Cloud Platform

Easy access to a wide range of cost data and tools for estimating, as well as facility assessment, capital planning and procurement

Coming in 2024



Q&A



Appendix



A Note About Canada

Canada has the resources the world needs now more than ever.

- Russia's top-10 exports, worth \$300B, are all within Canada's top-12 .
 - 15% potential boost to GDP

Top 7 Products Exported from Canada	Export Value in 2022 (USD \$)
Mineral Fuels, oils, and products...	\$180B
Vehicles other than railway, tramway, rolling stock...	\$50B
Nuclear Reactors, boilers, machinery, appliances...	\$38B
Precious Metals and Stones	\$24B
Commodities, other	\$22B
Wood and articles of wood...	\$20B
Plastics and articles thereof	\$17B