

thirsty
THURSDAY
Quench your thirst for knowledge!

10 Industry Metrics You Should be Watching



Katy Devlin
Content Director, NGA
Editor-in-Chief, Glass Magazine
kdevlin@glass.org

MARK YOUR CALENDAR FOR THESE OTHER UPCOMING EVENTS

Building Envelope Contractors (BEC) Conference
Mar 3-5, 2024 | Nashville, TN

GPAD | Glass Processing Automation Days
Mar 5-6, 2024 | Nashville, TN

Glass & Glazing Advocacy Days
May 14-15, 2024 | Washington, D.C.

NGA Glass Conference: Milwaukee
Aug 6-8, 2024

Employee Engagement in the Last Six Years...

*Disruption is Coming. Are You Ready?
A Perspective on the Business of Glazing.*

Manage Delays, Maximize Profits, Avoid Exposure.

*Addiction Treatment & Recovery
in the Construction Industry*

*Specification Missteps
& Code Challenges*

A.I. Unleashed

Future-Tech Today

Project Perspectives: Estimator to Project Manager to Field Lead

A promotional poster for the BEC Conference 2024 in Nashville. The background is a night cityscape with illuminated skyscrapers. The text 'GLAZING EVOLVED.' is prominently displayed in large white letters at the top. A black button with 'REGISTER NOW' is in the top right. The BEC CONFERENCE logo is in the bottom left, and the date 'March 3-5, 2024' and website 'glass.org' are in the bottom right.

**GLAZING
EVOLVED.**

REGISTER NOW

**BEC
CONFERENCE™**

March 3-5, 2024
Nashville
glass.org

glass.org/bec-conference-2024

How A.I. Will Change Glass Fabrication

How to Ensure Your Product Launch is Successful

How to Avoid Tempering Pitfalls

The Benefits of Accurate Measurement of Glass Tempering Distortion

Triple IGUs with Thin Glass

Optimal Lami-line Design

SHIFT YOUR STRATEGY

GLASS PROCESSING AUTOMATION
GPAD

March 5-6, 2024
Nashville
glass.org

REGISTER NOW

Key Fabricator Questions About Automation

Moving Beyond Edge Lift and Rollwave

Addressing Labor Shortages with Robotics

Implementing a New Laminating System

glass.org/gpad-glass-processing-automation-days

NGA
NATIONAL GLASS ASSOCIATION with GANA



NGA Glass & Glazing Advocacy Days

May 14-15, 2024
Washington, DC



MAKE YOUR VOICE HEARD!

NGA will host NGA members, Congressional members and agency officials from DOE & EPA together in our nation's capital at **NGA Glass & Glazing Advocacy Days** on May 14-15.

Discussions will focus on legislative opportunities surrounding Energy Efficiency/Sustainability, Bird-Friendly Glazing, School Security and Workforce Development.

**Save your seat >
pre-register today!**

*(Open the camera app on your phone and point at
the QR code to open the registration web page.)*



glass.org/advocacy

thirsty
THURSDAY
Quench your thirst for knowledge!

10 Industry Metrics You Should be Watching



Katy Devlin

Content Director, NGA
Editor-in-Chief, Glass Magazine
kdevlin@glass.org

MARK YOUR CALENDAR FOR THESE OTHER UPCOMING EVENTS

Building Envelope Contractors (BEC) Conference
Mar 3-5, 2024 | Nashville, TN

GPAD | Glass Processing Automation Days
Mar 5-6, 2024 | Nashville, TN

Glass & Glazing Advocacy Days
May 14-15, 2024 | Washington, D.C.

NGA Glass Conference: Milwaukee
Aug 6-8, 2024



10 Industry Metrics You Should be Watching

- Overall economy
- Supply chain
- Employment
- Construction spending and forecasts
- Glass and fenestration



GDP

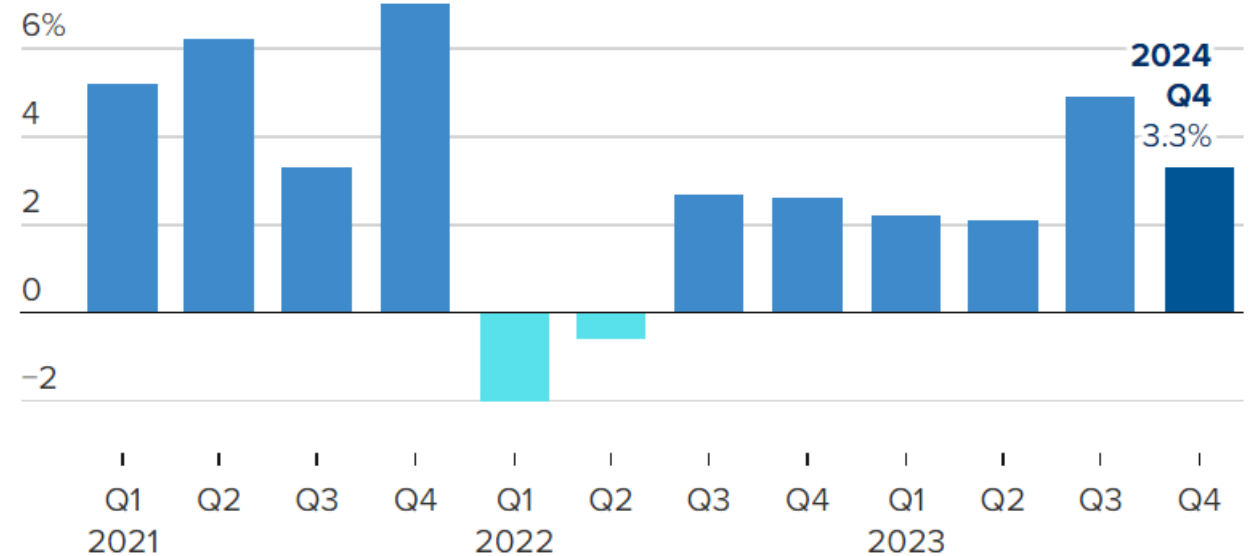
Recession or soft landing?

- Q4 GDP rose **3.3%** (coming on the heels of 4.9% uptick in Q3 GDP)
- Overall 2023 GDP grew at **3.1%** rate, up from less than 1% in 2022
- Forecasts point to continued growth (albeit slower) in Q1 2024

“Forecasters entered 2023 expecting the Federal Reserve’s aggressive campaign of interest-rate increases to push the economy into reverse. Instead, growth accelerated.”
 – NYT, Jan. 25, 2024

U.S. real gross domestic product

Percent change from previous quarter



Note: Seasonally adjusted annual rate

Source: [U.S. Bureau of Economic Analysis](#) via FRED

Data as of Jan. 25, 2024



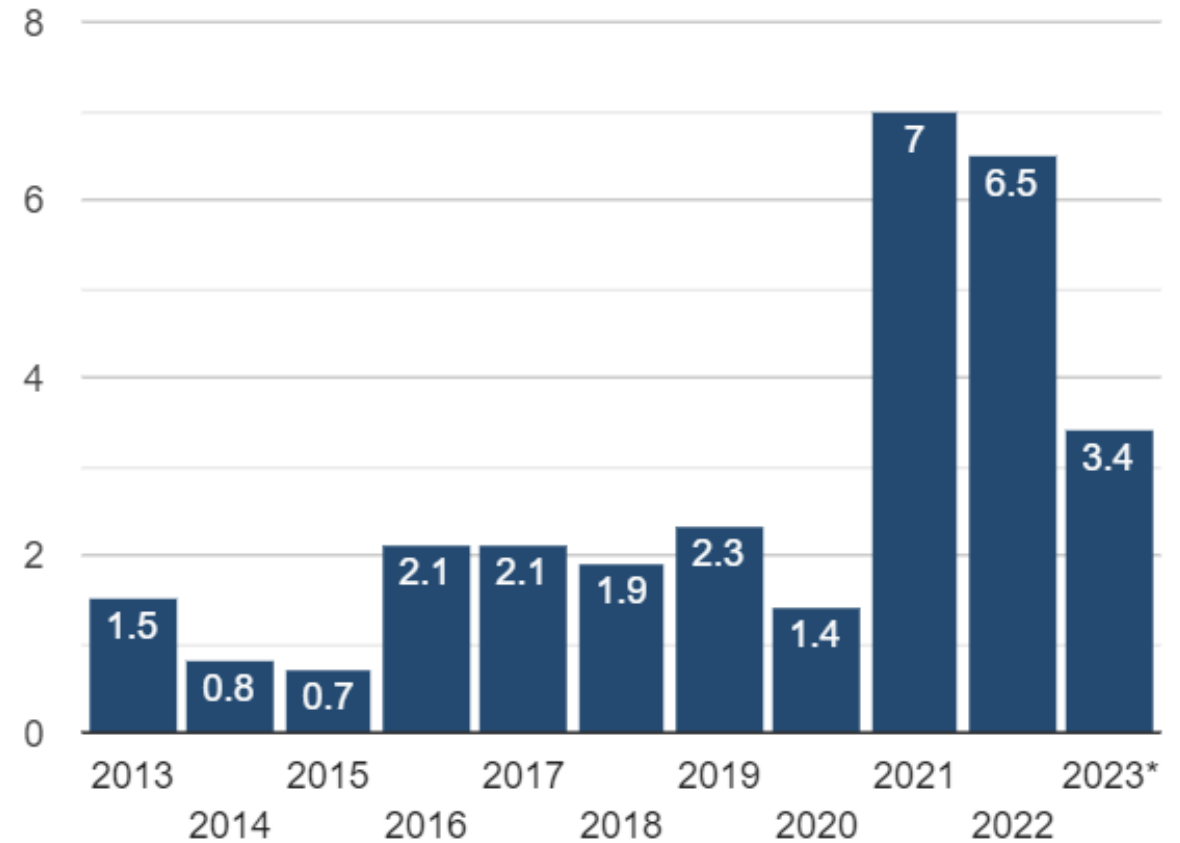
Inflation

Still up, but falling

- Overall inflation declined from 9.1% in June 2022 to **3.4%** in December 2023.
- Energy sector inflation is down **41.6%** to **-2.0%**
- Private sector forecasters expect inflation to drop below **2.5%** in 2024, according to the Federal Reserve Bank of St Louis.

“In June 2022, inflation in the US reached a 40-year high. By December 2023, however, it had significantly decreased, per the latest data from the BLS. This decline can be attributed to several factors, such as US Federal Reserve interest rate hikes, supply chain efficiencies, and a decline in gasoline prices.”—Forbes’ Inflation Outlook for 2024, Jan. 3, 2024

Chart: United States Annual Inflation Rates (2013 to 2023)

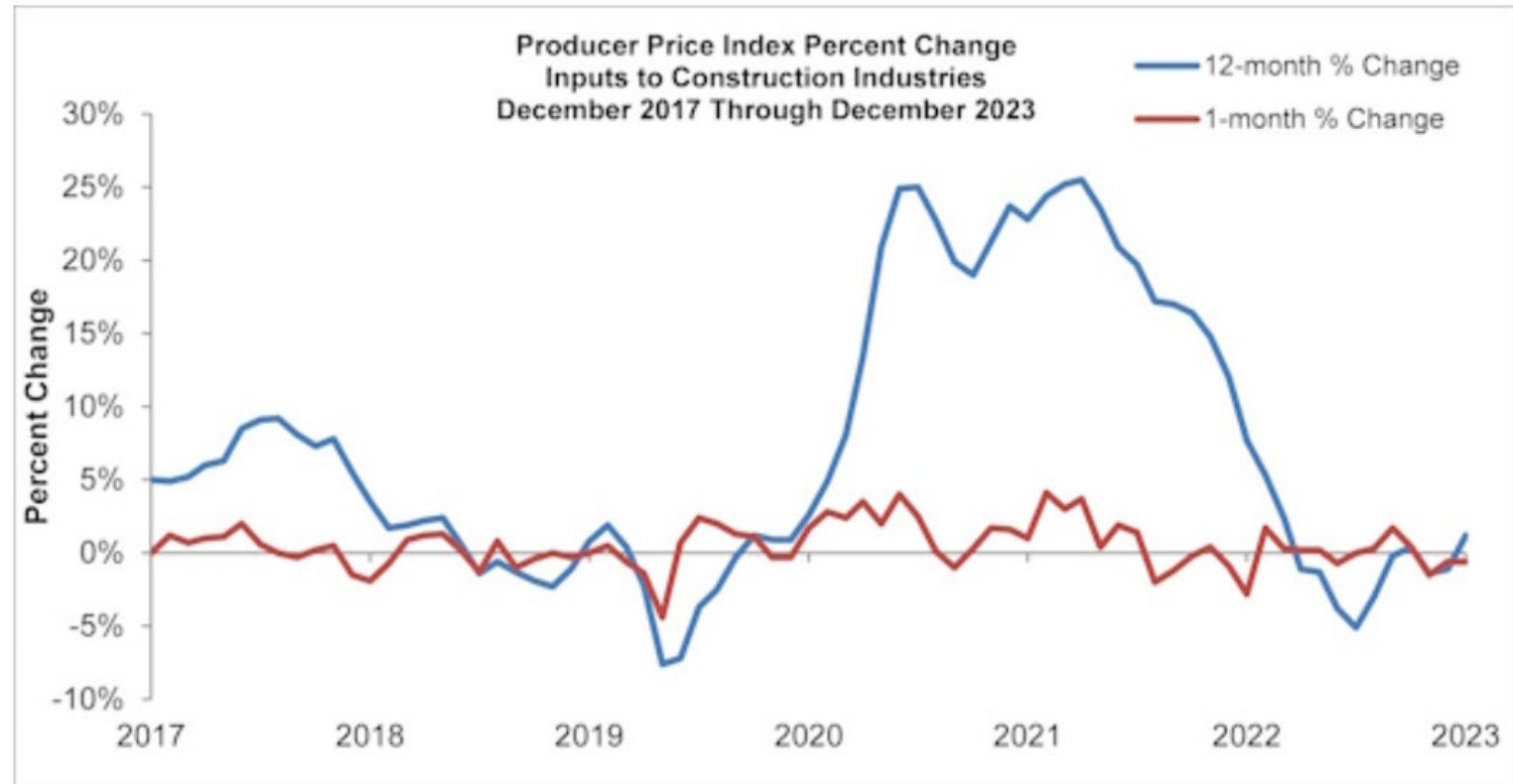


Inflation

Construction Input Prices

- Construction input prices decreased **0.6%** in December compared to the previous month.
- Overall construction input prices are **1.2%** higher than a year ago
- Up **37.5%** since February 2020

“Construction input prices fell sharply in December. While plunging oil prices are the primary factor behind the sharp decline, most input prices were tame in 2023’s final month.”—Associated Builders and Contractors Chief Economist Anirban Basu, Jan. 12, 2024

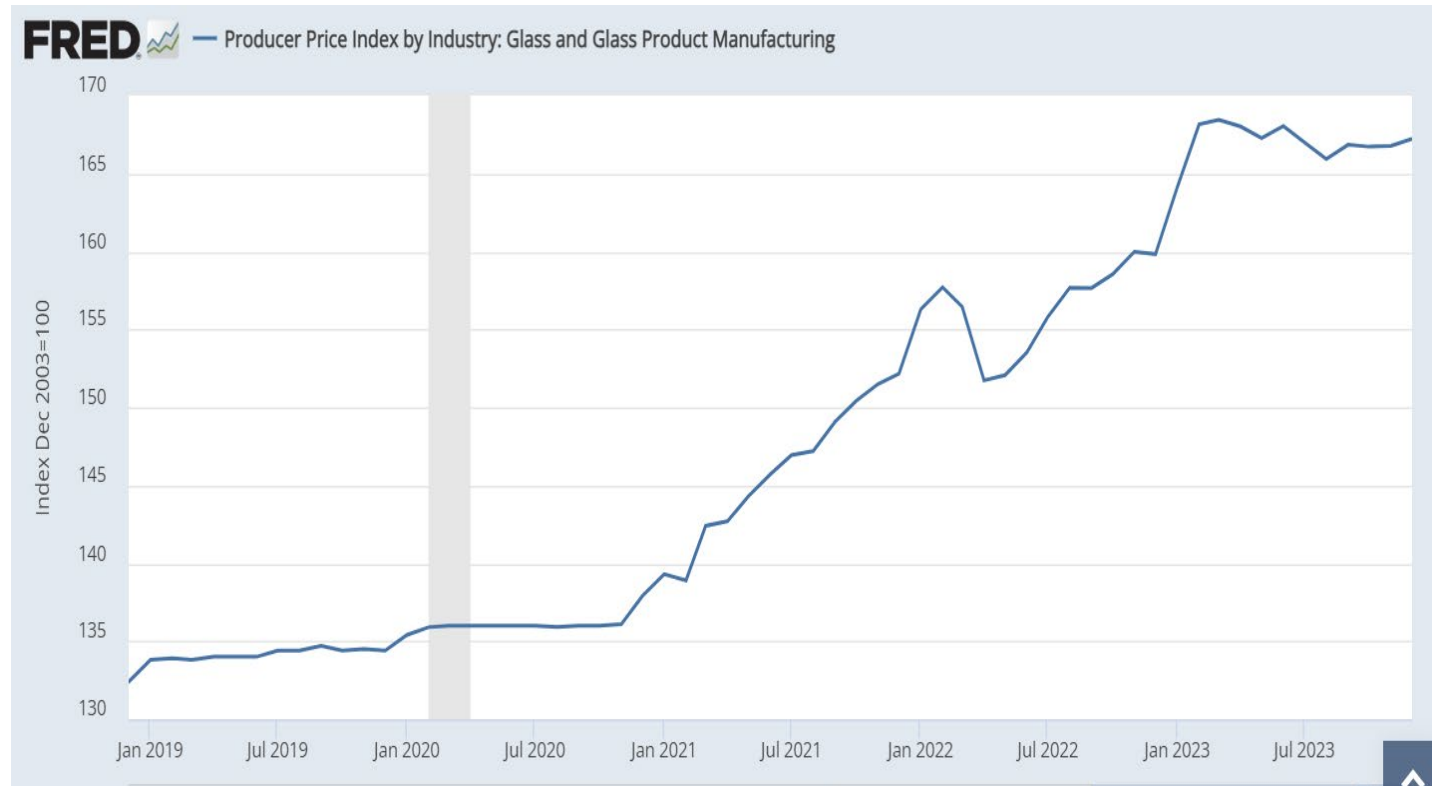


Source: U.S. Bureau of Labor Statistics

Inflation

PPI: Glass and Glass Product Manufacturing

- Up **0.28%** from November to December (though down **0.72%** from peak in March 2023)
- Up **4.63%** year-over-year
- Up **23%** from February 2020

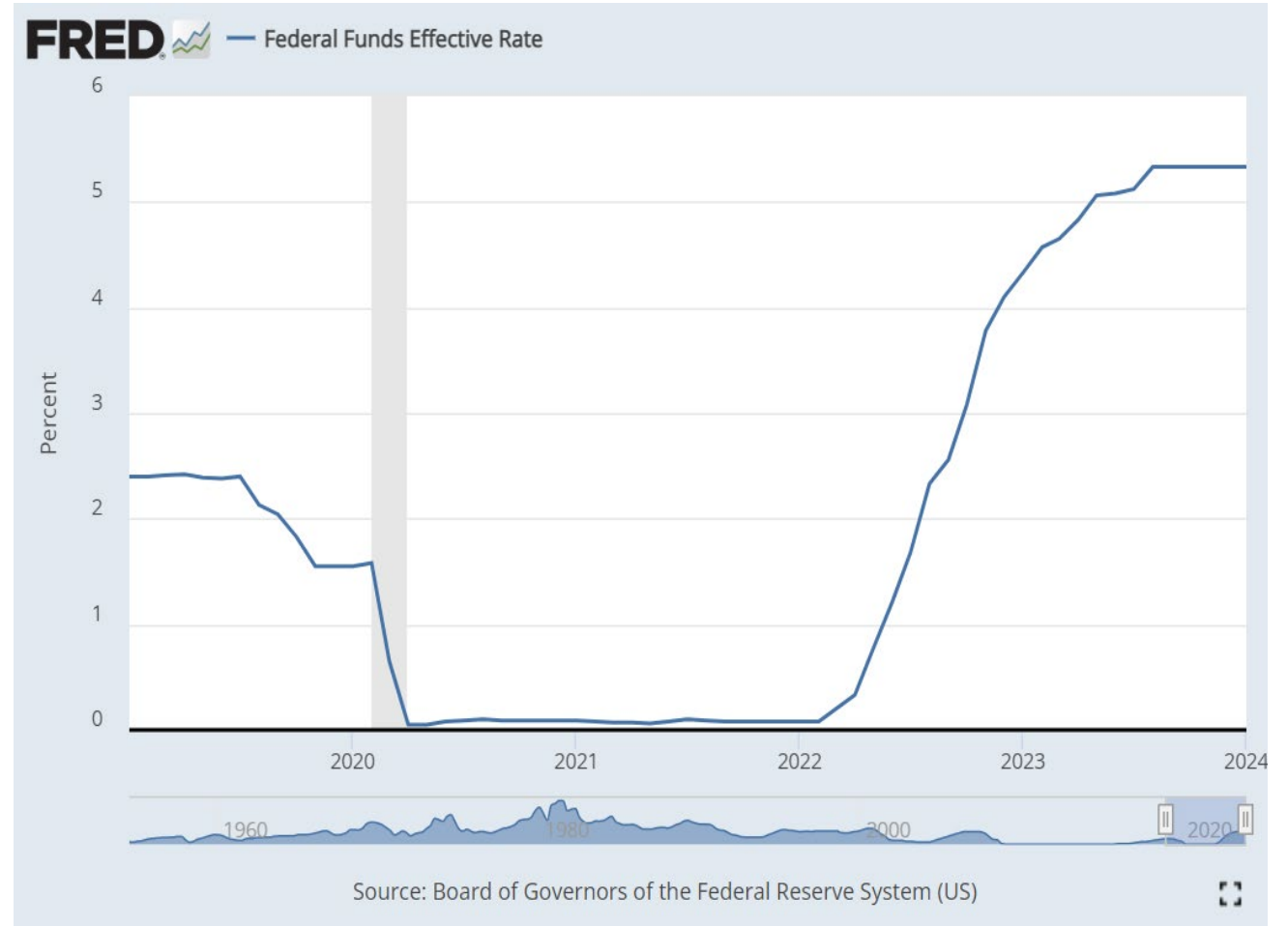


Interest Rates

Holding until inflation comes down

- Federal Reserve has kept interest rates at **5.4%**. Rates are at a **22-year high**
- Fed unlikely to cut rates in March.
- Powell reports they are seeking confidence in a sustainable **2%** inflation rate.

“Over the 6 months ending in October, core inflation ran at an annual rate of 2.5%, and while the lower inflation readings of the past few months are welcome, that progress must continue if we are to reach our 2% objective.” – Fed Chair Jerome Powell, Jan. 3, 2024

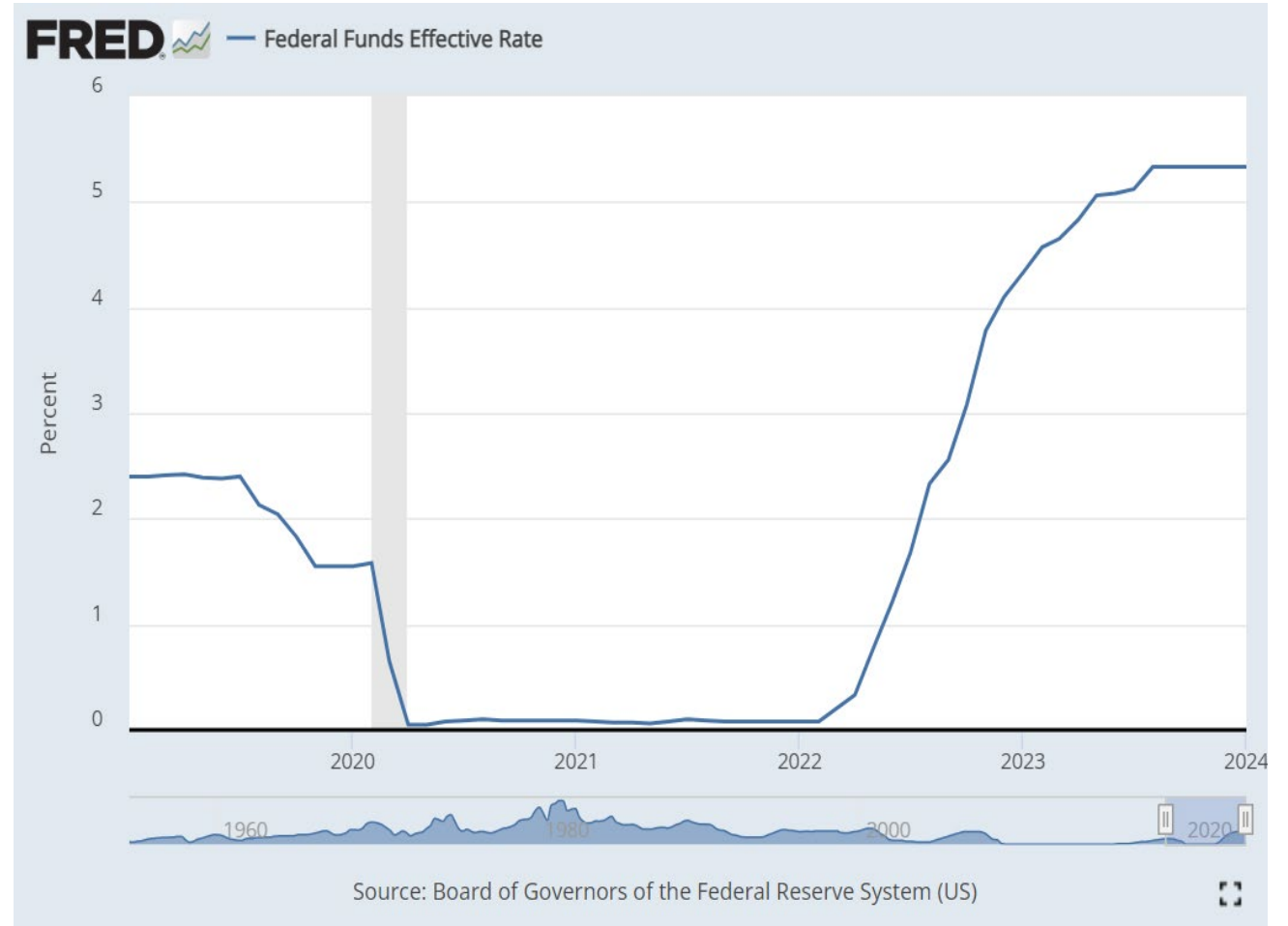


Interest Rates

Holding until inflation comes down

- In December, Fed signaled **3 quarter-point rate cuts** in 2024.
- They have said little about when cuts might begin, emphasizing caution.
- Mortgage rates are edging down. Average mortgage rate was **6.6%**, down from the recent peak of nearly **8%** at the end of last year

“Powell vowed in an interview aired Sunday that the central bank will proceed carefully with interest rate cuts this year and likely will move at a considerably slower pace than the market expects.”—CNBC, Feb. 2, 2024



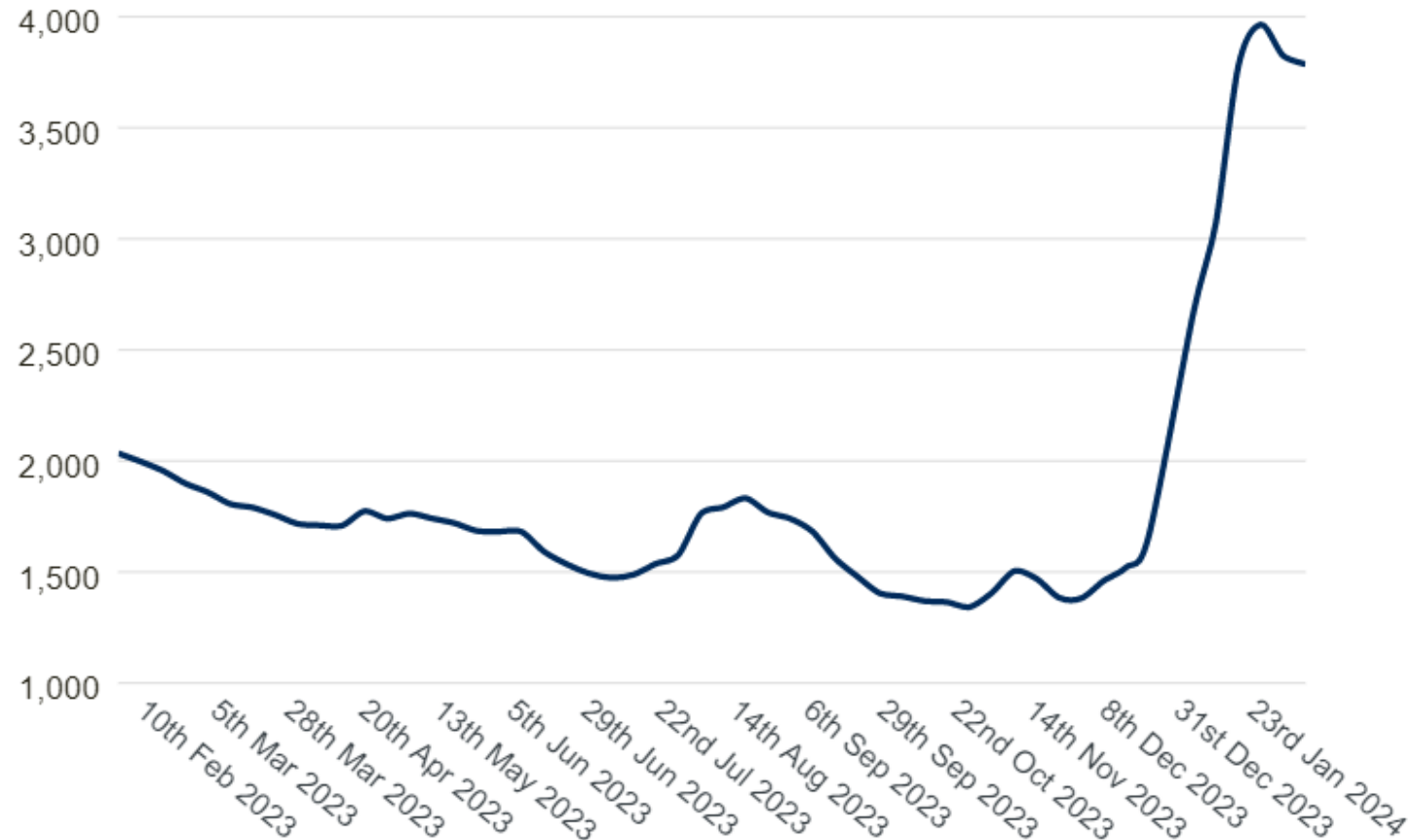
Supply Chain

Back to normal until recent Red Sea attacks

- Global Supply Chain Pressure Index was at low or normal levels in 2023
- Drewry World Container Index (WCI) Global Composite jumped in late January and was at **\$3,786** per forty-foot equivalent unit for the week ending Feb. 8.
- Peak of **\$10,377** reached in September 2021

“The Red Sea impact is most disruptive on the Far East westbound, India and Middle East trades, but have no doubt, it is a global-network-impacting event.” —Kyle Beaulieu, Flexport’s head of trans-Pacific, Feb. 1

Drewry World Container Index (WCI) - 08 Feb 24 (US\$/40ft)



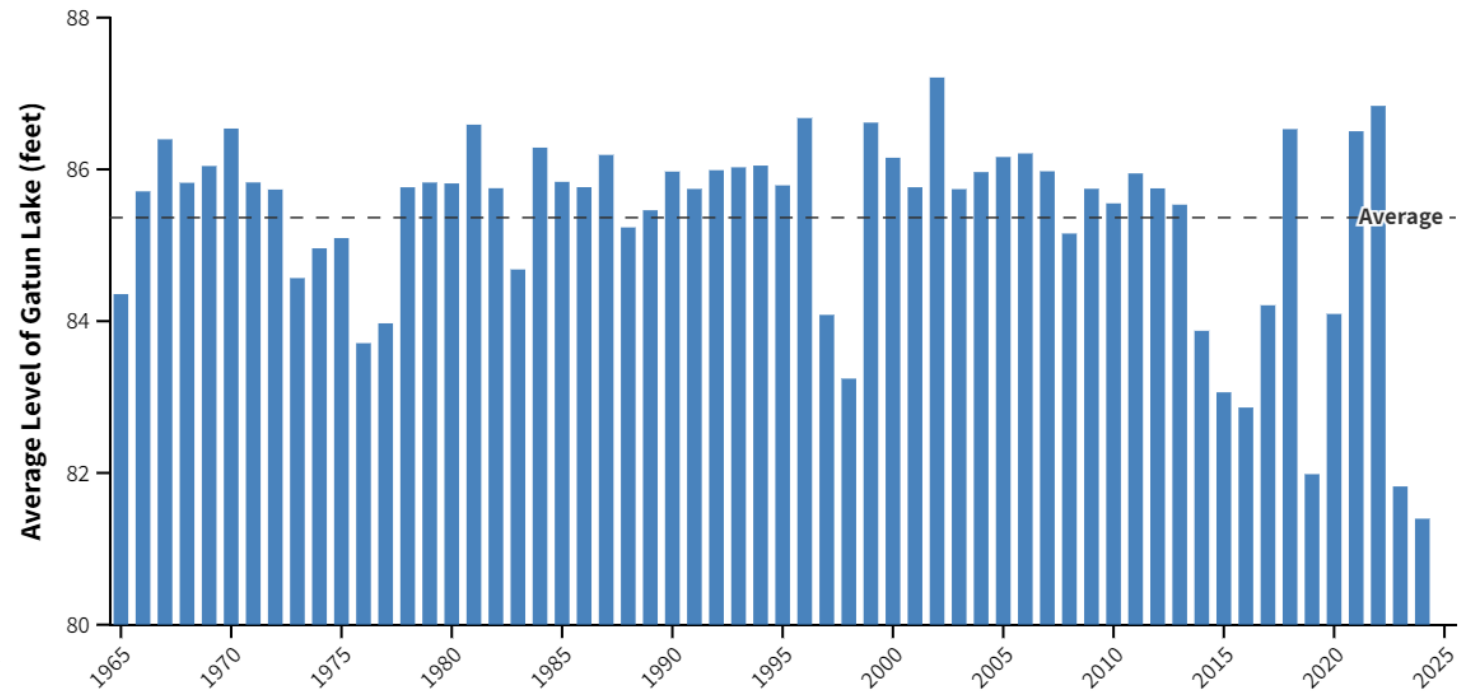
Supply Chain

Eye on drought in Panama Canal

- Water levels have started 2024 at the lowest level on record, dating back to 1965
- Three of the largest five ports in the U.S. rely on shipments that navigate through the Panama Canal: the Port of New York and New Jersey, the Port of Savannah, Georgia, and Port Houston

“The water levels are going to remain a challenge that has the potential to continue to derail vessel throughput. Gatun Lake, the manmade lake that vessels must traverse, had water levels at 81.2 feet as of Tuesday. ... Projections are for even lower levels over the next two months, falling below 80 feet in early April.”—Freight Waves, Feb. 8, 2024

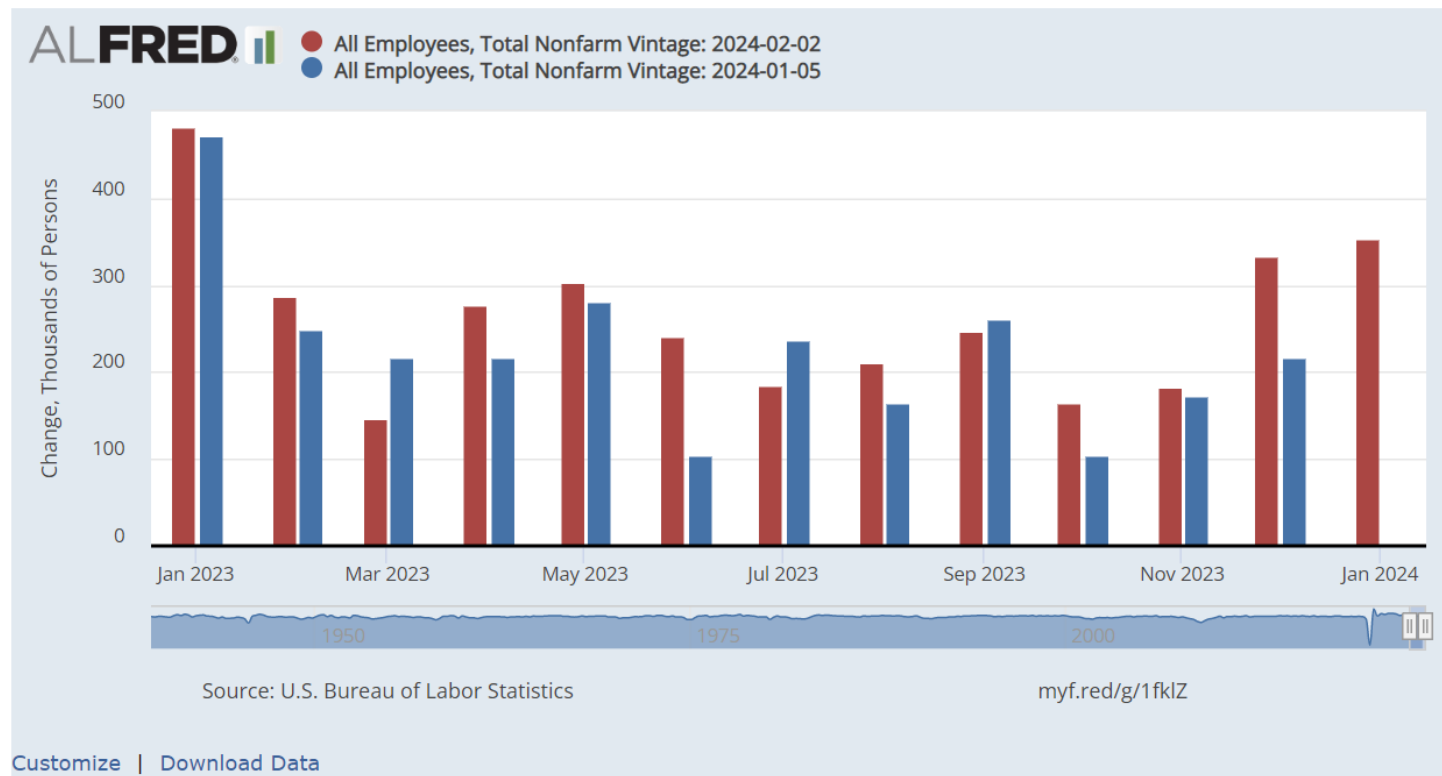
Panama Canal Water Levels



Jobs

Growth defies expectations

- U.S. economy added **353,000** jobs in January
- More than double the median forecast of **175,000** jobs
- More than **3 million** jobs added over 2023
- Forecasters project annual growth of **1.4 million** jobs in 2024. (From 2011 through 2019, the economy added on average 2.3 million jobs each year.)
- Unemployment rate at **3.7%**



Jobs

Construction sector

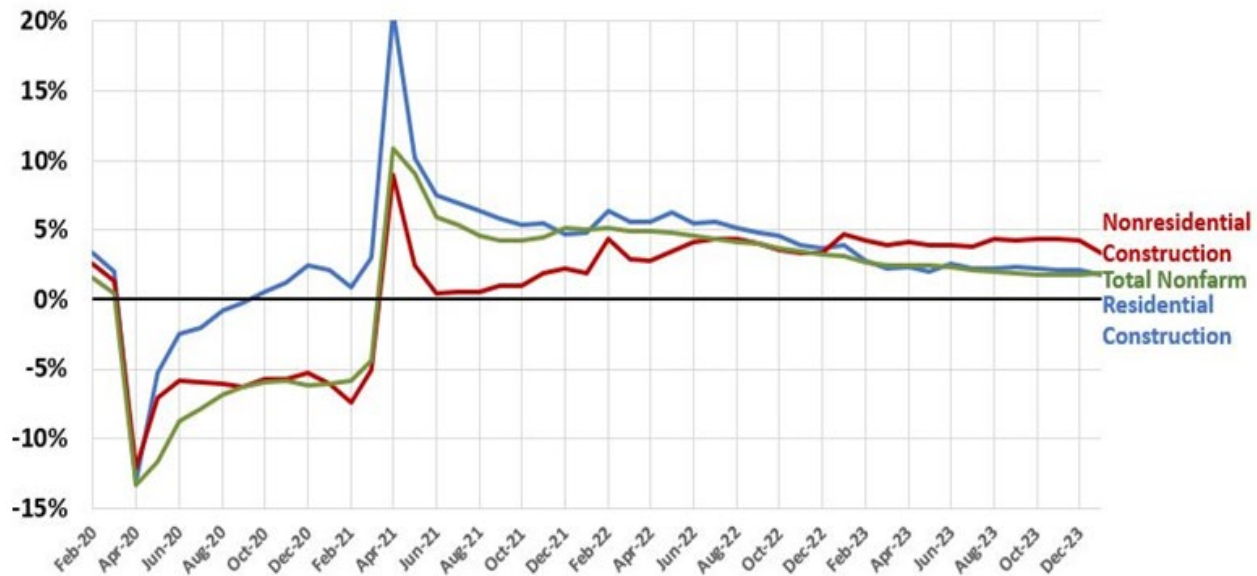
- Construction added **11,000** jobs in January. Sector employment is up 216,000 (**2.7%**) year-over-year
- **374,000** job openings in construction, not seasonally adjusted, at the end of December, down **4.1%** y/y
- Hires for the full month totaled **227,000**, down **3.4%** y/y

“The large excess of openings over hires, as well as the increase in construction spending suggests that the small y/y declines in openings and hires more likely reflect difficulty in filling positions than a weakening of demand.”—Ken Simonson, Chief Economist for AGC of America, Feb. 2, 2024

Construction employment grows in January

Total nonfarm & construction employment, Feb. 2020–Jan. 2024

Year-over-year change, seasonally adjusted



Source: BLS current employment statistics, <https://www.bls.gov/ces/>

Jobs

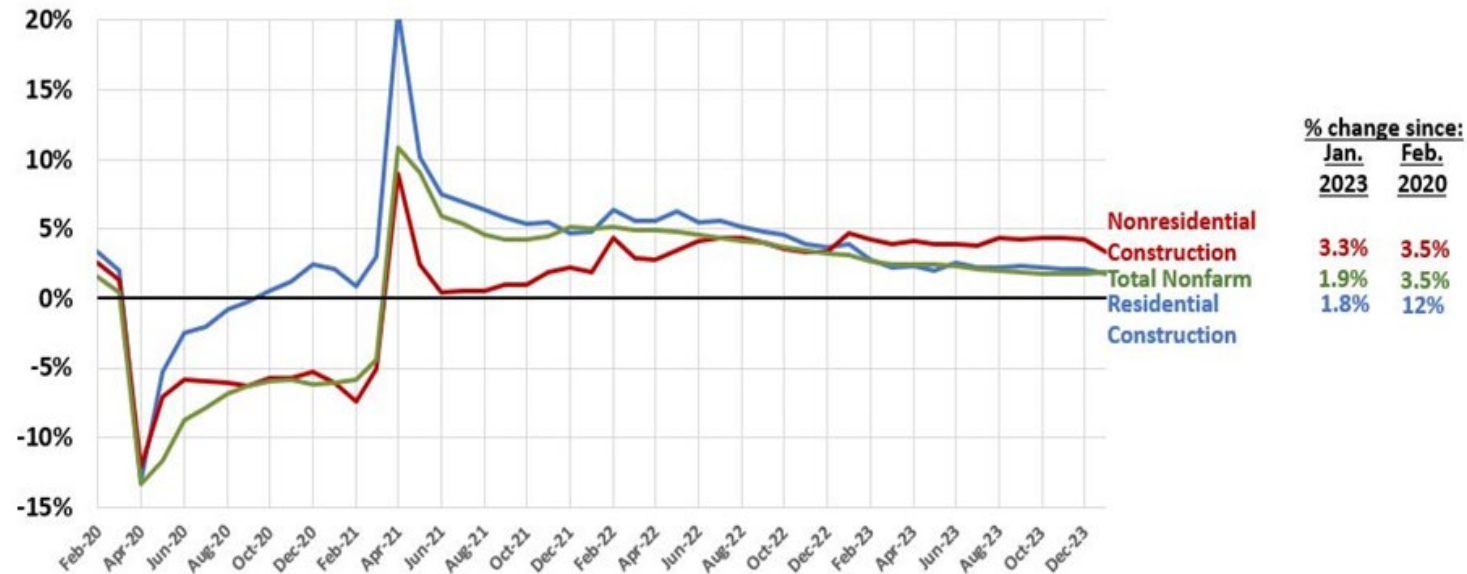
Construction sector

- Hourly earnings for production and nonsupervisory employees in construction (craft and office) rose **5.3%** y/y to **\$35.21 per hour**
- The “premium” for nonsupervisory construction workers rose to **18.7%** over the private sector average of \$29.66
- But* remains considerably below the average premium in 2000-2019 of **21.5%**.

Construction employment grows in January

Total nonfarm & construction employment, Feb. 2020–Jan. 2024

Year-over-year change, seasonally adjusted



Source: BLS current employment statistics, <https://www.bls.gov/ces/>

Jobs

Glazing sector

- **62%** say recruitment is biggest hurdle
- Most difficult positions to fill:
 - Glaziers and field labor (53%)
 - Project managers (51%)
 - Estimators (27%)

“Labor, especially skilled labor, continues to be a significant challenge to growth.”

- Glass Magazine Top 50 Glaziers 2023 Annual Report



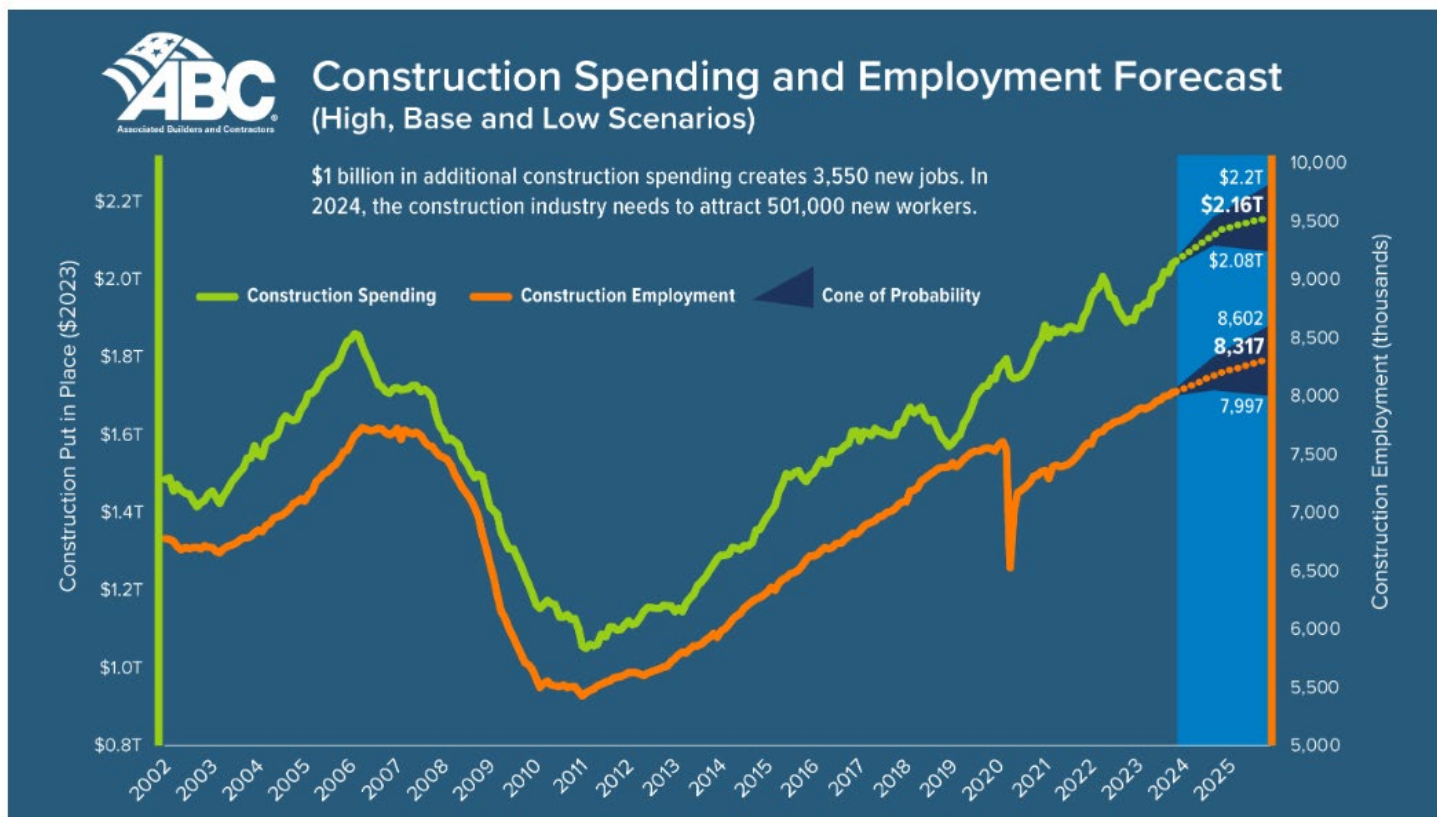
Jobs

Construction employment forecast

- In 2024 and 2025, construction will need about **500,000 additional workers** per year on top of the normal pace of hiring to meet the demand for labor
- This assumes construction spending growth slows significantly

“Not addressing the shortage through an all-of-the-above approach to workforce development will slow improvements to our shared built environment, worker productivity, living standards and the places where we heal, learn, play, work and gather.”

—Michael Bellaman, ABC president and CEO, Jan. 31, 2024



Manufacturing Jobs Sector amid a major labor shortfall

- The manufacturing skills gap in the U.S. could result in **2.1 million unfilled jobs** by 2030, per Deloitte and NAM
- More than **71% of manufacturers** citing the inability to attract and retain employees as their top primary challenge, per NAM's 2023 4th quarter survey

“Many manufacturers still struggle to fill critical jobs, and companies should continue to find ways to broaden the talent pipeline, foster inclusive cultures, and create ongoing upskilling programs for the digital future of manufacturing.”

—Deloitte/NAM study

FIGURE 3

Inability to fill key middle-skill roles looms large for manufacturing companies

Manufacturing middle-skill occupations with the highest projected job openings during 2019–2029

Miscellaneous assemblers and fabricators

113,200

First-line supervisors of production and operating workers

56,900

Inspectors, testers, sorters, samplers, and weighers

48,300

Helpers—production workers

44,100

Welders, cutters, solderers, and brazers

43,400

Packaging and filling machine operators and tenders

40,600

Industrial machinery mechanics

40,500

Machinists

38,000

Note: Only those jobs considered where at least 50% are employed by manufacturing industry.

Source: Deloitte analysis of data from O*Net.

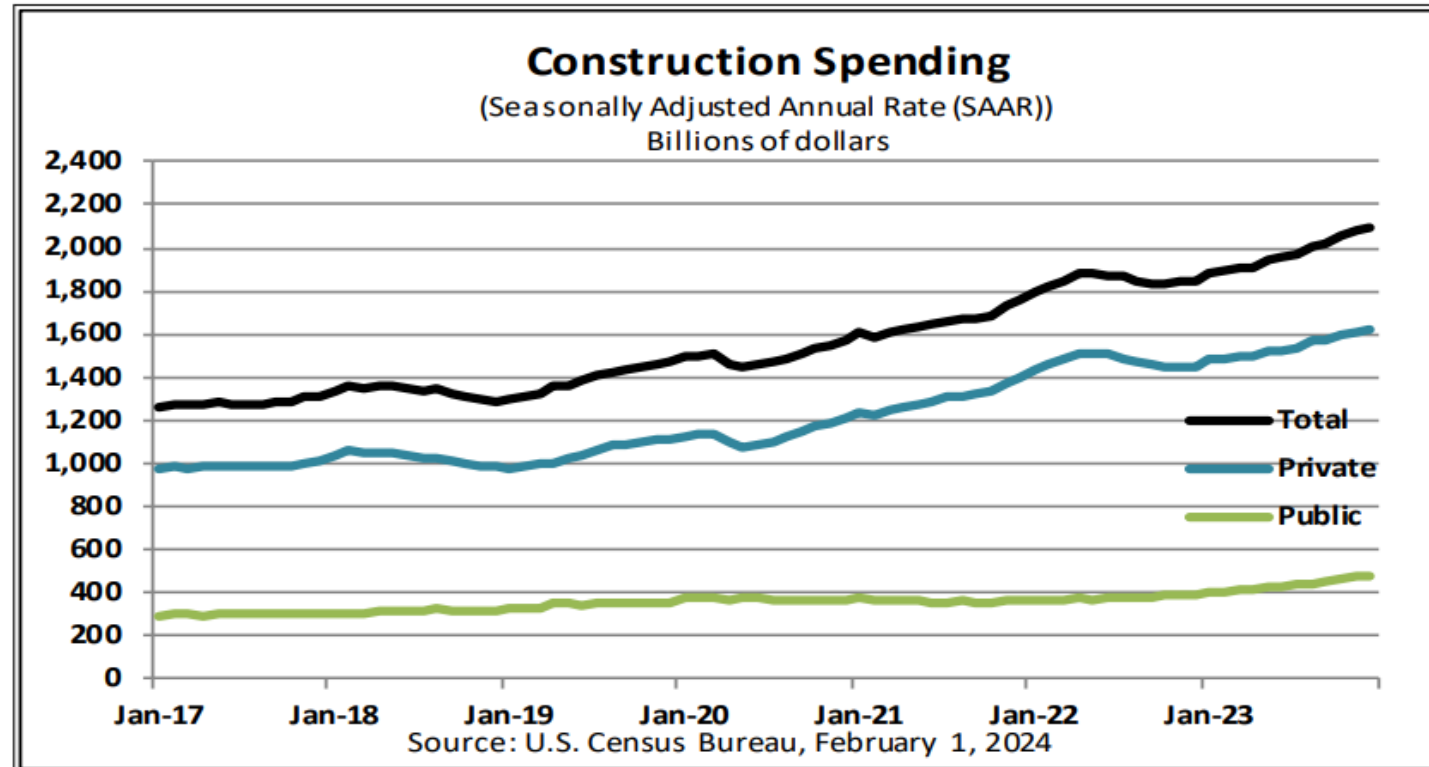
Deloitte Insights | deloitte.com/insights

Construction Spending

Up, but what about inflation?

- Construction spending totaled **\$2.10 trillion** in December at a seasonally adjusted annual rate
- Up **0.9%** from November
- Up **14% y/y**

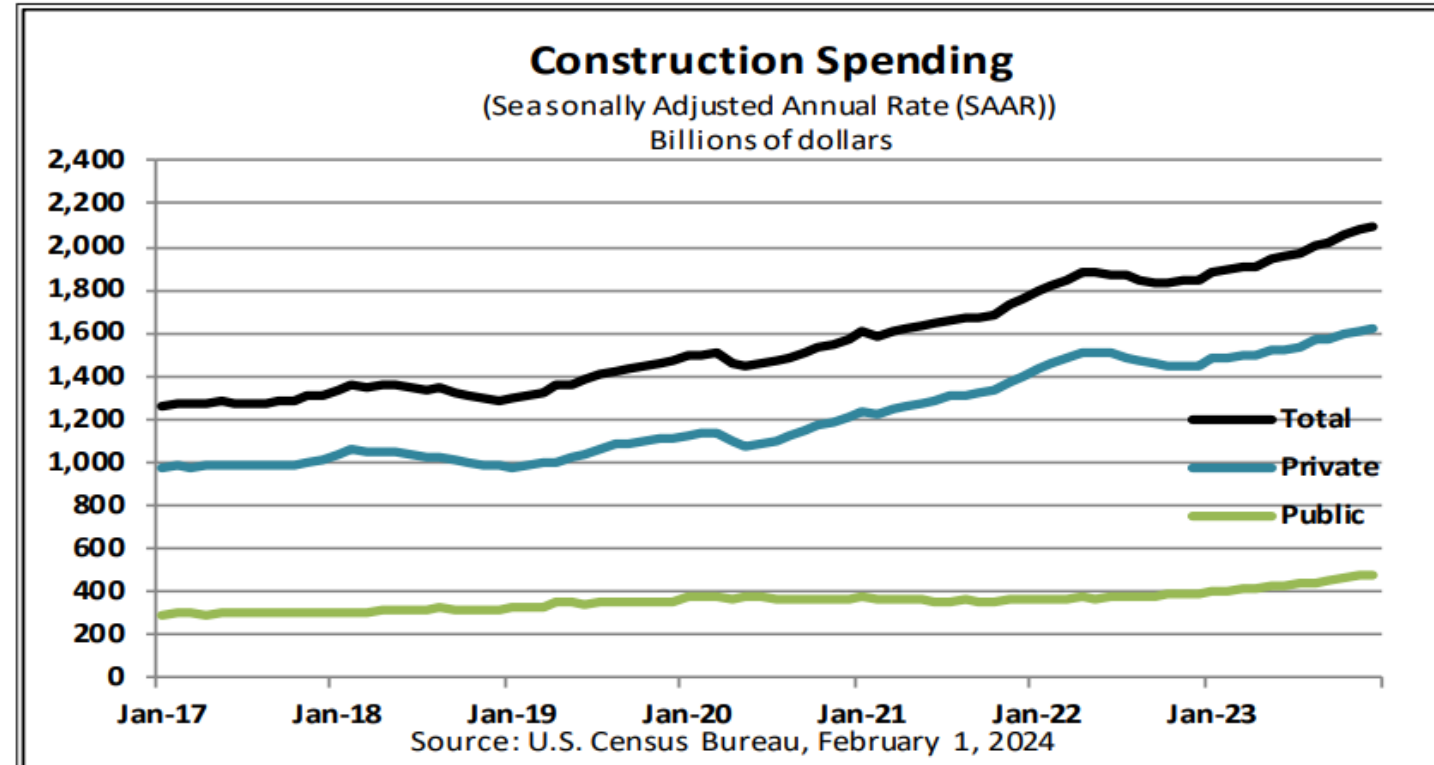
“Without a deflator it is impossible to say how much of the gain is in units vs. price.”—Ken Simonson, Chief Economist for AGC of America, Feb. 2, 2024



Construction Spending

Up, but what about inflation?

- Private residential construction: +0.6% for the month and **6.8% y/y**. (Units up 1.9% over November and **6.1% y/y**)
- Single-family homebuilding: +**1.6%** (the eighth monthly gain in a row).
- Multifamily construction spending: +**0.3%**, and owner-occupied improvements, +**1.7%**
- Private nonresidential construction: -0.2%, but +**19% y/y**
- Commercial construction: **-0.5%** (comprising warehouse, down 0.9%; retail, up 0.2%; and farm, down 0.6%)
- Public construction: +1.3% for the month, **21% y/y**



Construction Forecast

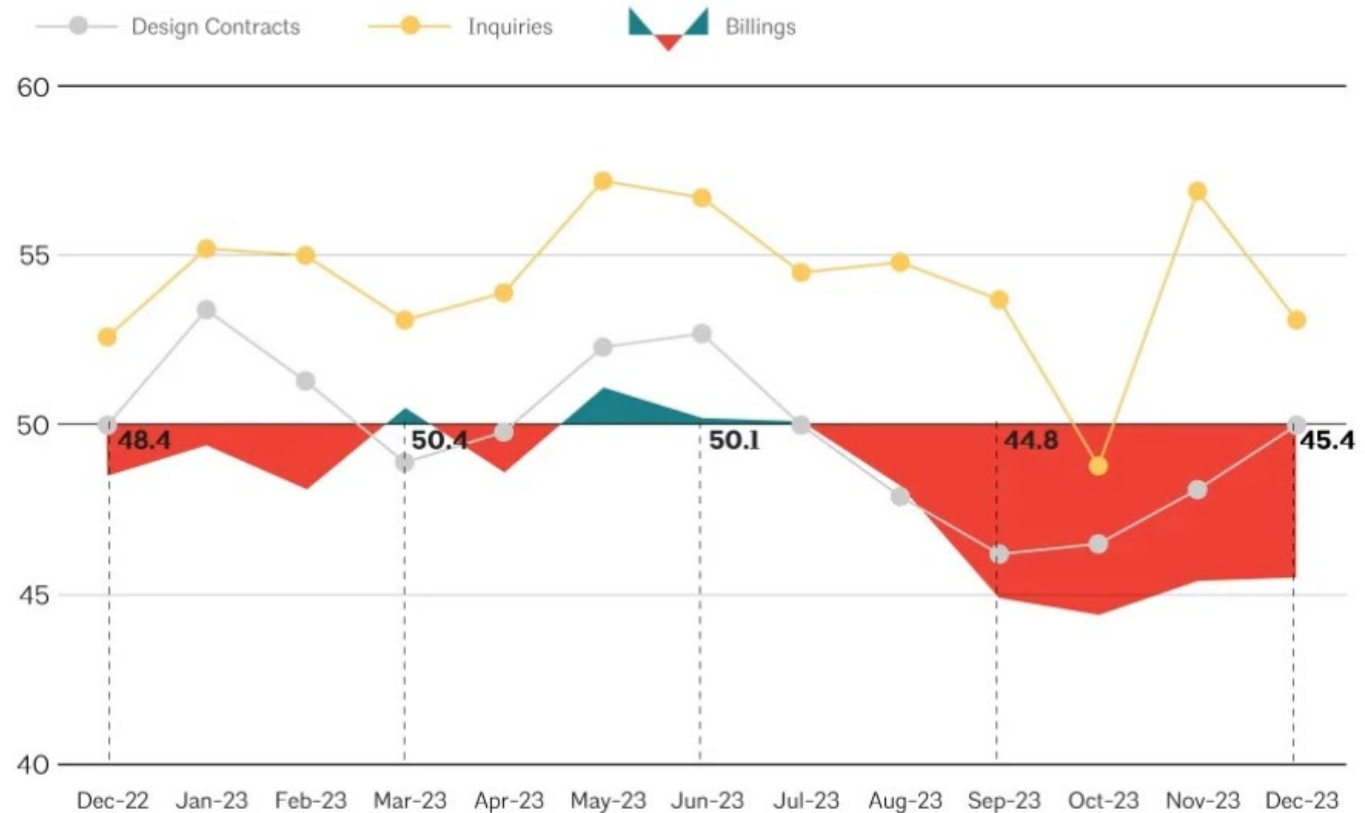
ABI down in 2023

- Any score above **50** indicates increase in billings
- Billings at firms declined for **8 months** of 2023
- Backlogs at firms remained quite strong throughout 2023, despite declining from a record-high peak in 2022.
- Backlogs at firms stood at an average of 6.7 months in December, indicating that most firms still have a significant amount of work in the pipeline

National

Architecture firm billings remain weak in December

Graphs represent data from December 2022–December 2023.

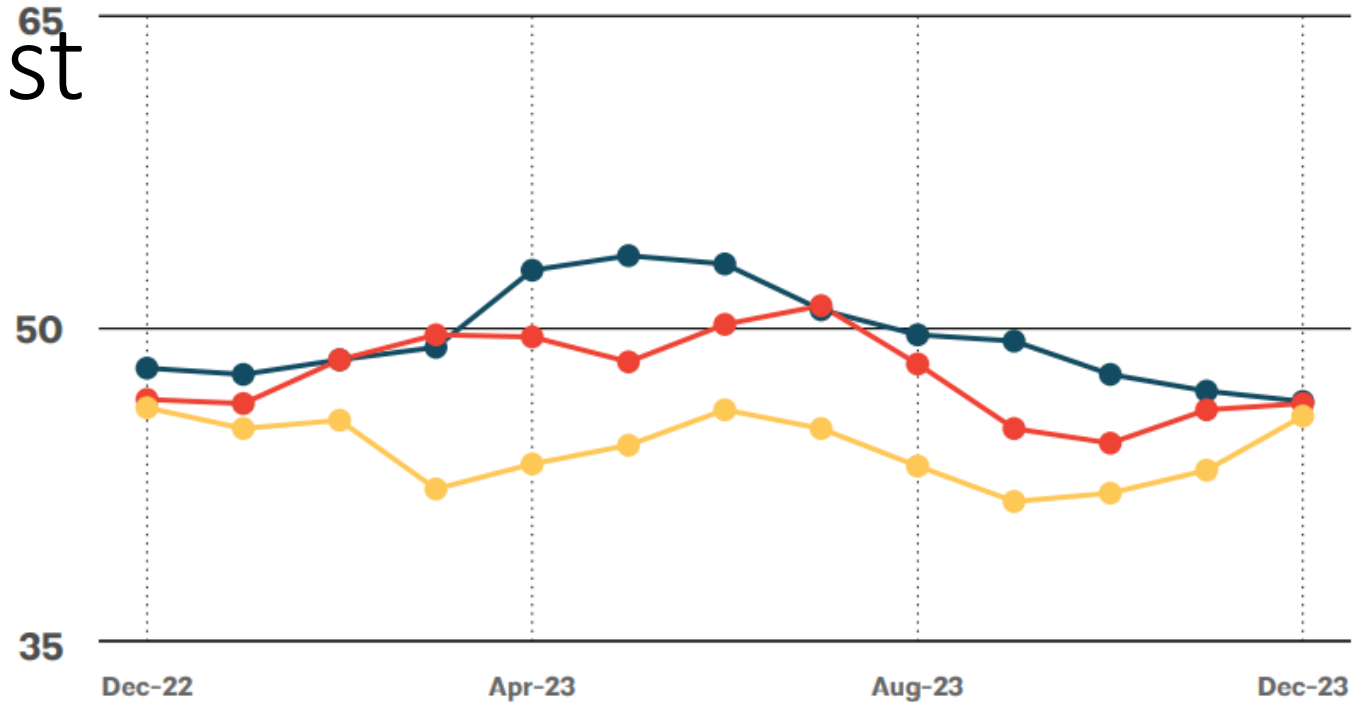


Construction Forecast

ABI down in 2023

- “Firms with a **multifamily residential** specialization experiencing a particularly challenging year.”
- “Firms with an **institutional** specialization reported growth in the second quarter, but billings softened for them as well by the end of the year.”
- “Billings were flat throughout much of the year at firms with a **commercial/industrial** specialization and remained soft to end the year.”

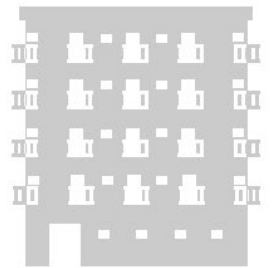
—December ABI, Jan. 24, 2024



Commercial/Industrial: 46.4

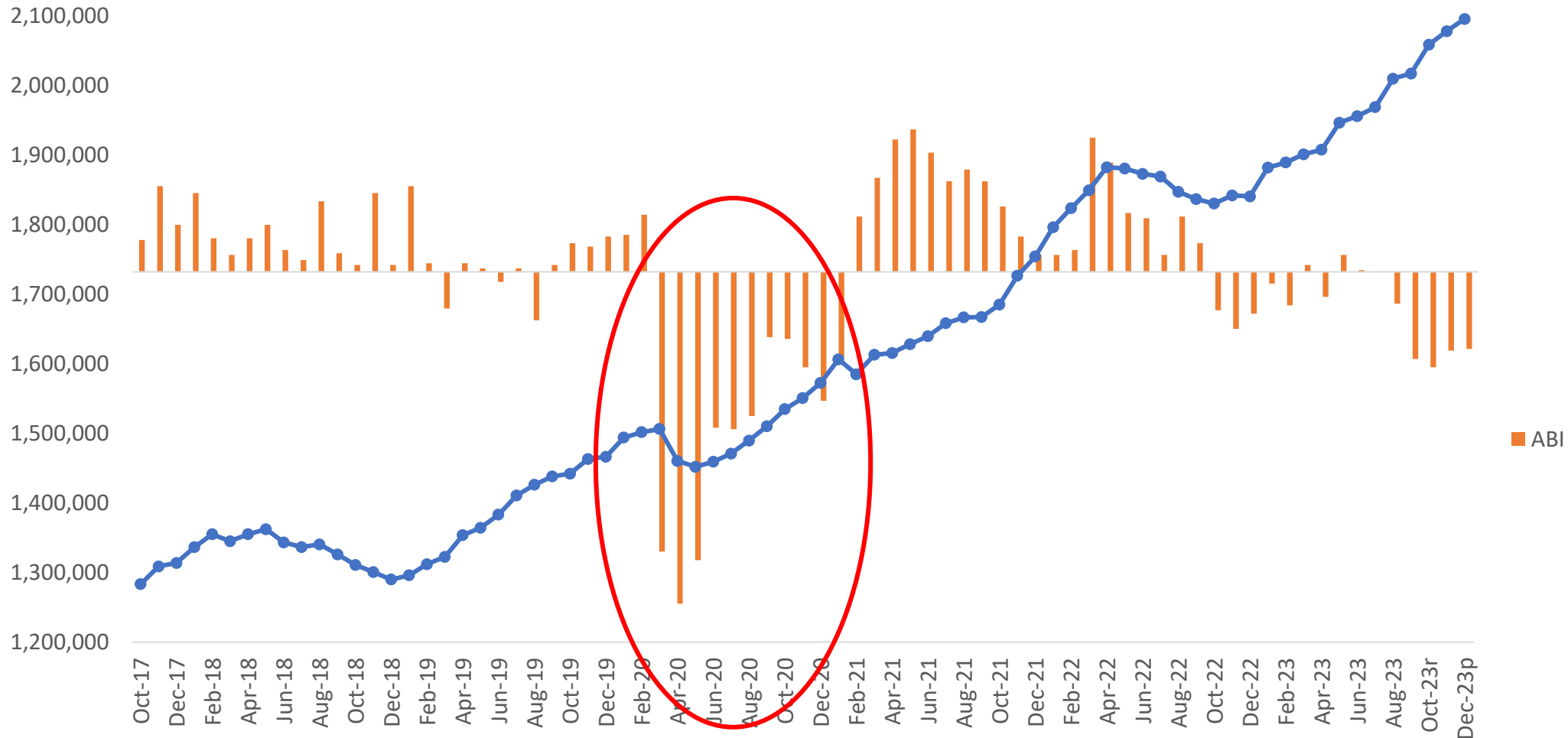


Institutional: 46.5



Residential: 45.8

Construction Spending compared to Architectural Billings Index

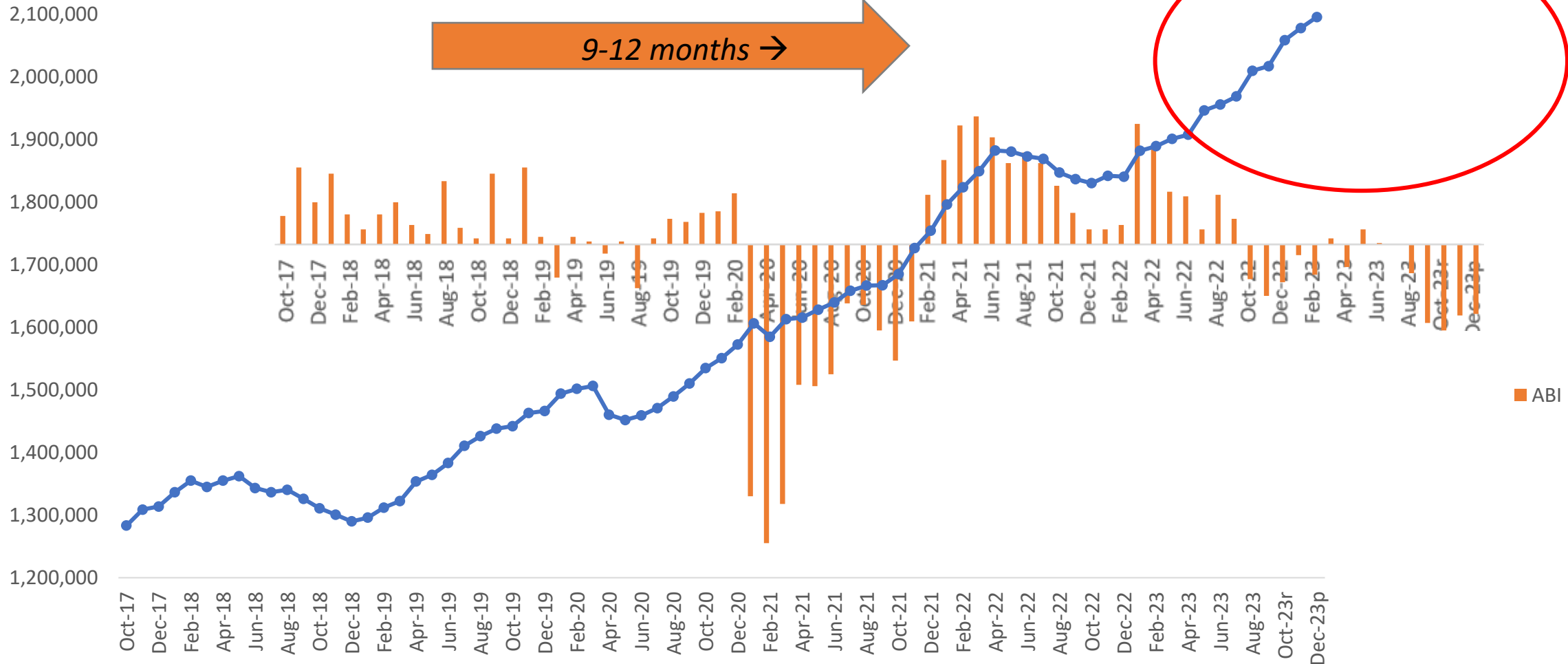


Construction Spending

ABI

Construction Spending compared to Architectural Billings Index

9-12 months →



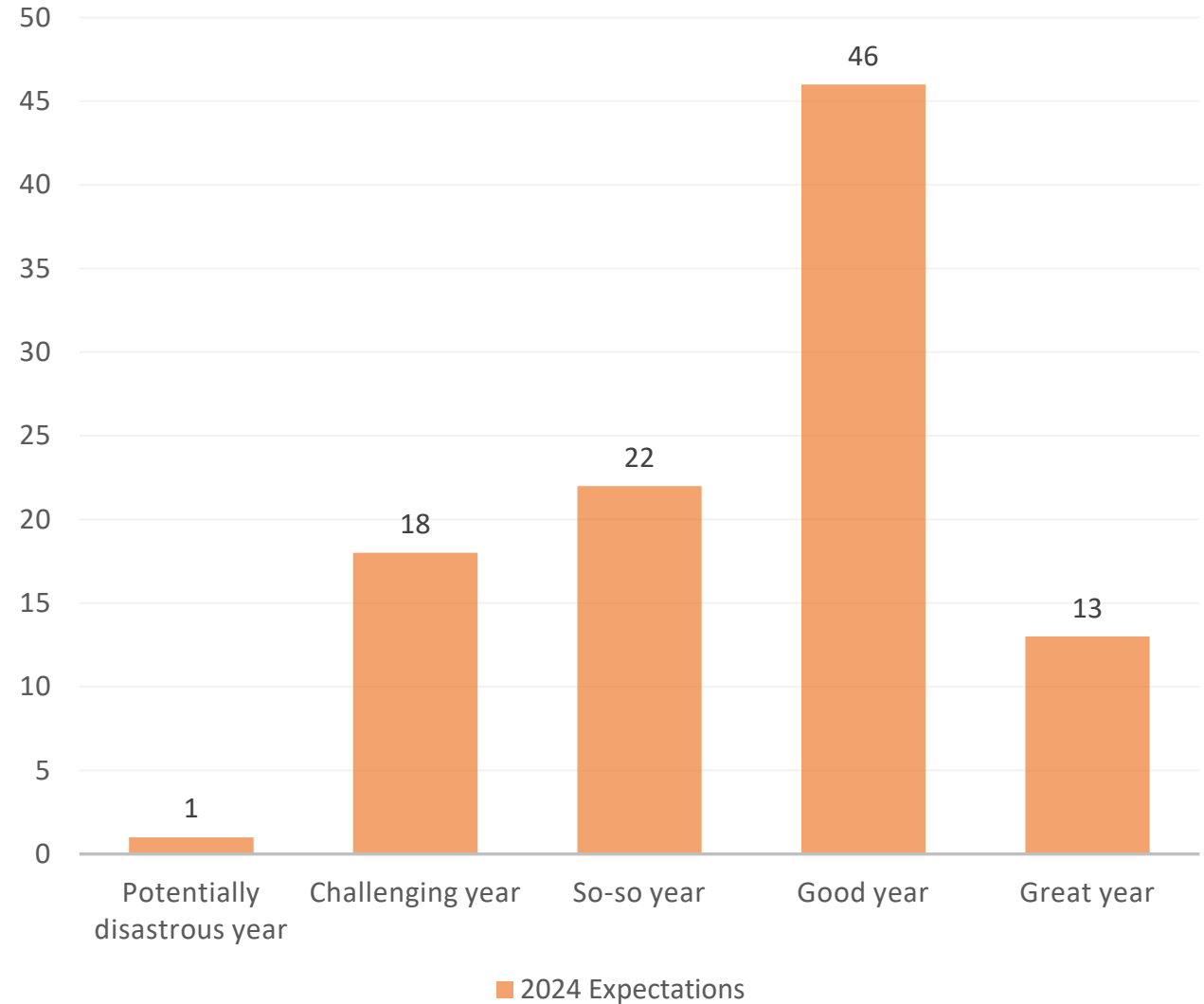
Construction Spending

Construction Forecast

ABI – firms optimistic about 2024

- *“Firm leaders are still **generally optimistic** about 2024, despite softer business conditions in the last few months. Nearly one in five expect a down year, but nearly triple that share, **59%, expect a good to great year.**”*
- *“Larger firms, and firms with an institutional specialization, tend to be slightly more optimistic about 2024 than other firms.”*
—December ABI, Jan. 24, 2024

2024 Expectations



Construction Forecast

DMI heading upwards

- Roughly a 12-month indicator of construction spending
- DMI rose **0.1%** in January to 184.1
- Over the month, **commercial planning fell 1.0%** and **institutional planning improved 2.1%**.

“Divergent trends between commercial and institutional planning continued in January, nullifying any growth on the overall Momentum Index. Nevertheless, lending standards begun to loosen in January and the Fed is expected to begin cutting rates in the back half of the year. ... Momentum should resume in commercial activity throughout 2024 as owners and developers gain confidence in market conditions for 2025”-
Sarah Martin, Dodge Construction Network

DODGE MOMENTUM INDEX

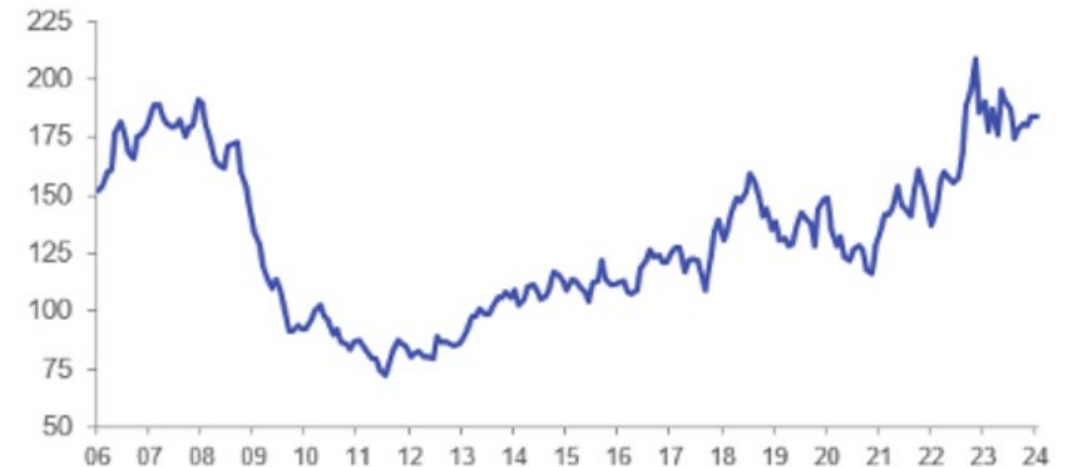
(2000=100, Seasonally Adjusted)

	Jan-24	Dec-23	% Change
Dodge Momentum Index	184.1	183.9	0.1%
Commercial Building	207.3	209.4	-1.0%
Institutional Building	155.3	152.2	2.1%

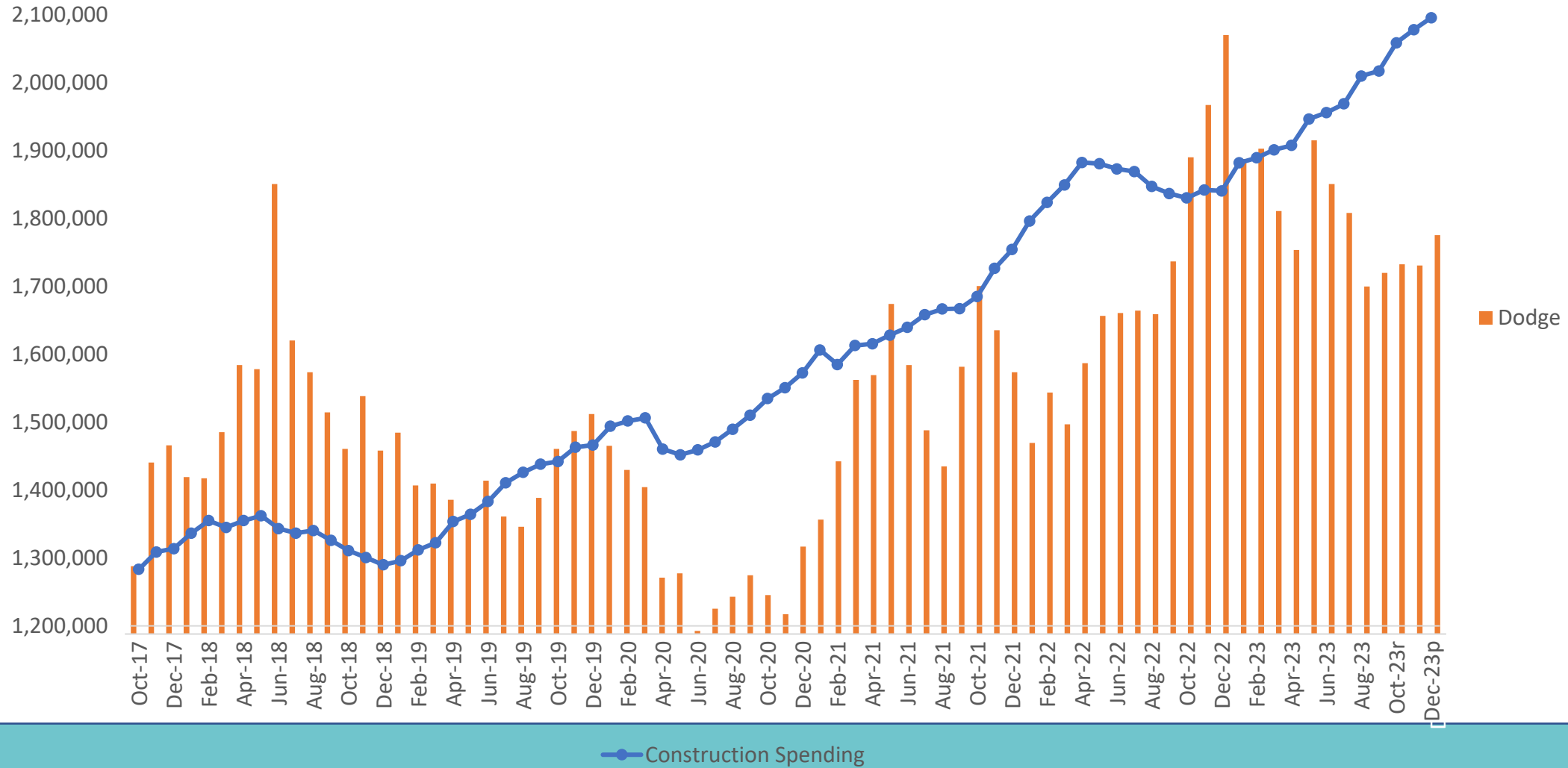
Source: Dodge Construction Network

DODGE MOMENTUM INDEX

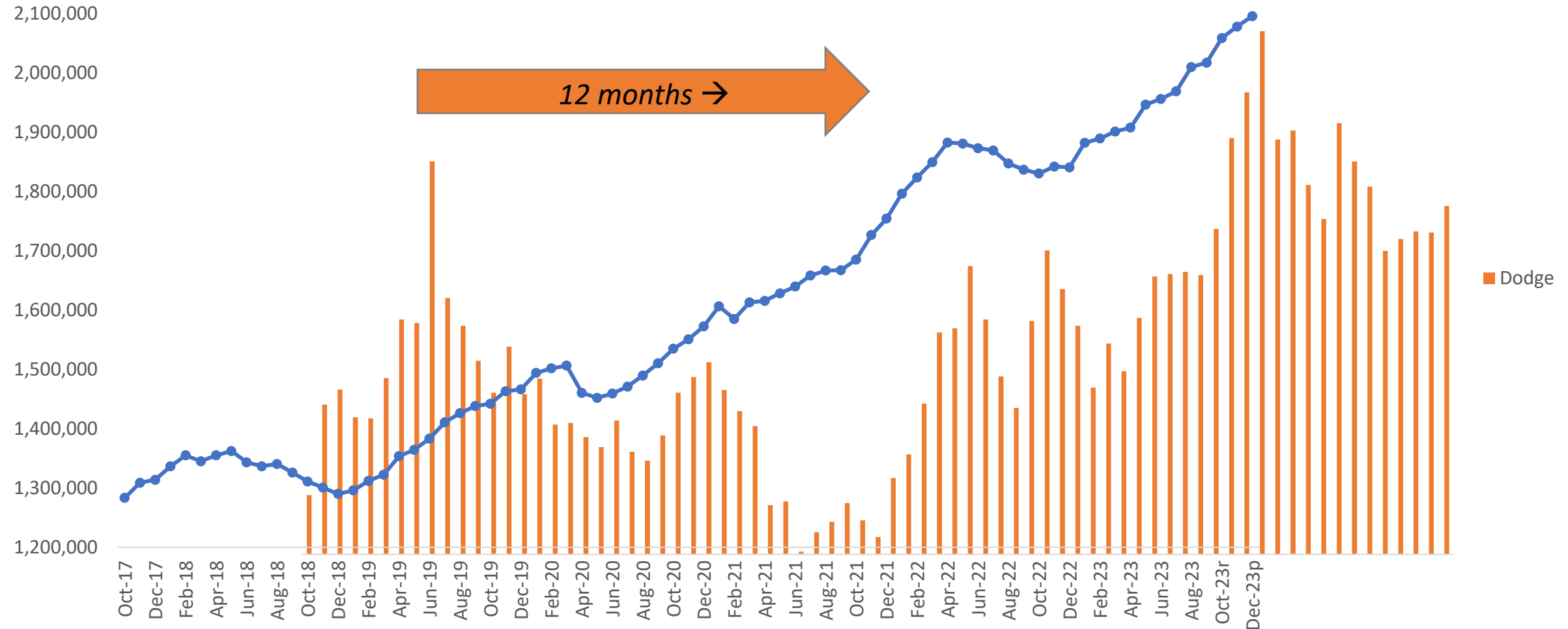
(2000=100, Seasonally Adjusted)



Construction Spending compared to Dodge Momentum Index



Construction Spending compared to Dodge Momentum Index



—●— Construction Spending

Industry Performance

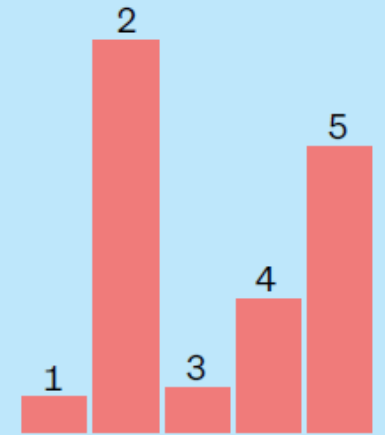
Window + Door Pulse

- Survey of fenestration manufacturers, suppliers and dealers
- Y-o-y profit margins **increased for 48%** of respondents and **decreased for 20%**
- **60% expect sales to increase** in 2024, while **19% expect sales declines**

*“Residential fenestration companies predict stable sales and plan to invest in their businesses.”—
2024 Window + Door Industry Pulse*

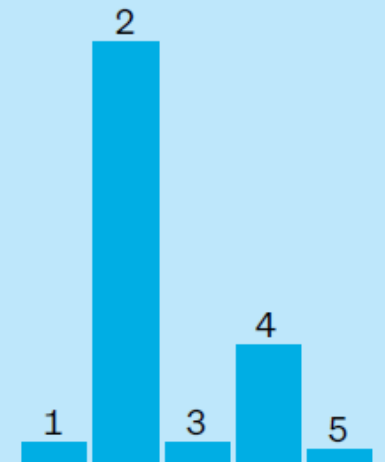
How did profit margins in 2023 compare to the previous year?

1. Increased greatly **4%**
2. Increased moderately **44%**
3. Decreased greatly **5%**
4. Decreased moderately **15%**
5. Stayed consistent **32%**



What are your sales expectations for 2024?

1. Increase greatly **3%**
2. Increase moderately **57%**
3. Decrease greatly **3%**
4. Decrease moderately **16%**
5. Stay consistent **21%**



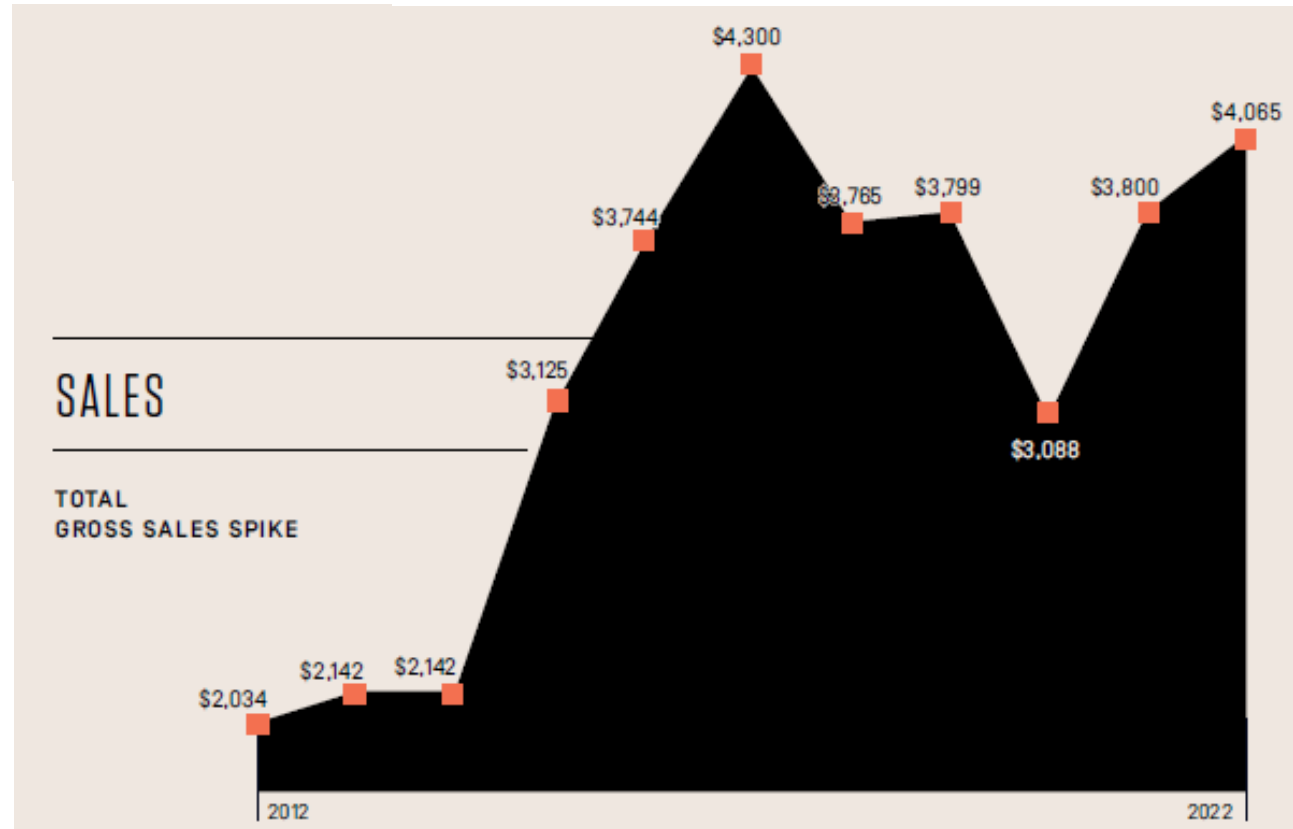
Industry Performance

Top 50 Glaziers

- Above **\$4 billion** for 2nd time in program history
- **Sales up 100%** in previous decade
- **61%** of Top 50 glaziers reported higher year-over-year sales.

“While that impressive [\$4.07b] figure seems to suggest a return of some markets, glaziers say it does not mean a return of labor, or a good sense of the future of building, largely due to how material price inflation and interest rates have tempered investment.”—Glass Magazine Top 50 Glaziers

TOP 50 GLAZIERS GROSS SALES 2012-2022



Investment

Window + Door Pulse

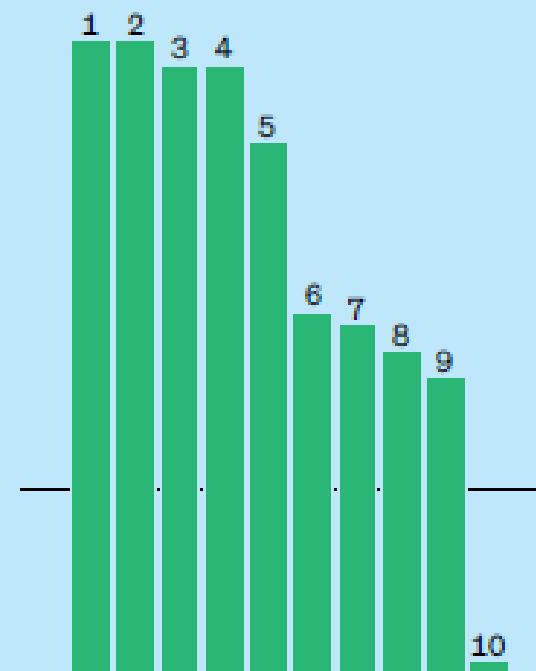
- Survey of fenestration manufacturers, suppliers and dealers
- **About half** of respondents plan to expand production capacity in 2024
- **41%** plan to purchase or upgrade machinery

“Machinery manufacturers see the continued benefits of modernizing manufacturing plants.”—2024 Window + Door Industry Pulse

Investments, initiatives, innovation

Where do you plan to focus your investments in 2024?

1. Expand production capacity 49%
2. Marketing 49%
3. Training and education 47%
4. Employee recruiting and retention 47%
5. Machinery purchases/upgrades 41%
6. Business management software 28%
7. R&D and testing 27%
8. Software integration 25%
9. Expand locations 23%
10. Lean manufacturing 1%



Investment

Top 50 Glaziers

- **69%** of Top 50 Glaziers invested in trucks, and 63% in handling equipment, in 2022
- **67%** invested in fabrication equipment
- **58%** invested in software

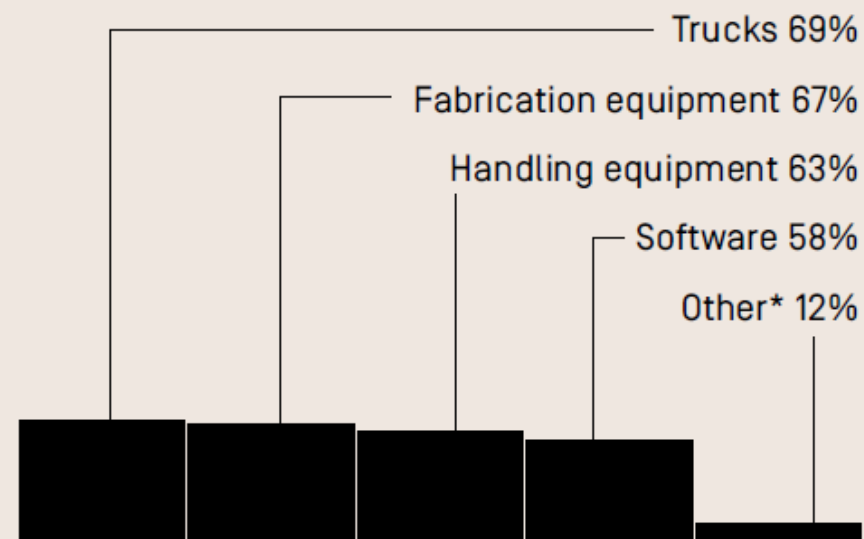
“Trucks became companies’ primary capital acquisition this last year, likely due to continued transportation issues and product transportation coming in-house.” –Glass Magazine Top 50 Glaziers, July 2023

TOP 50 GLAZIERS

WHAT CAPITAL ACQUISITIONS DID YOU MAKE IN 2022?

Investment

CAPITAL ACQUISITIONS FOCUSES ON TRANSPORTATION



*Company acquisition, facility expansion

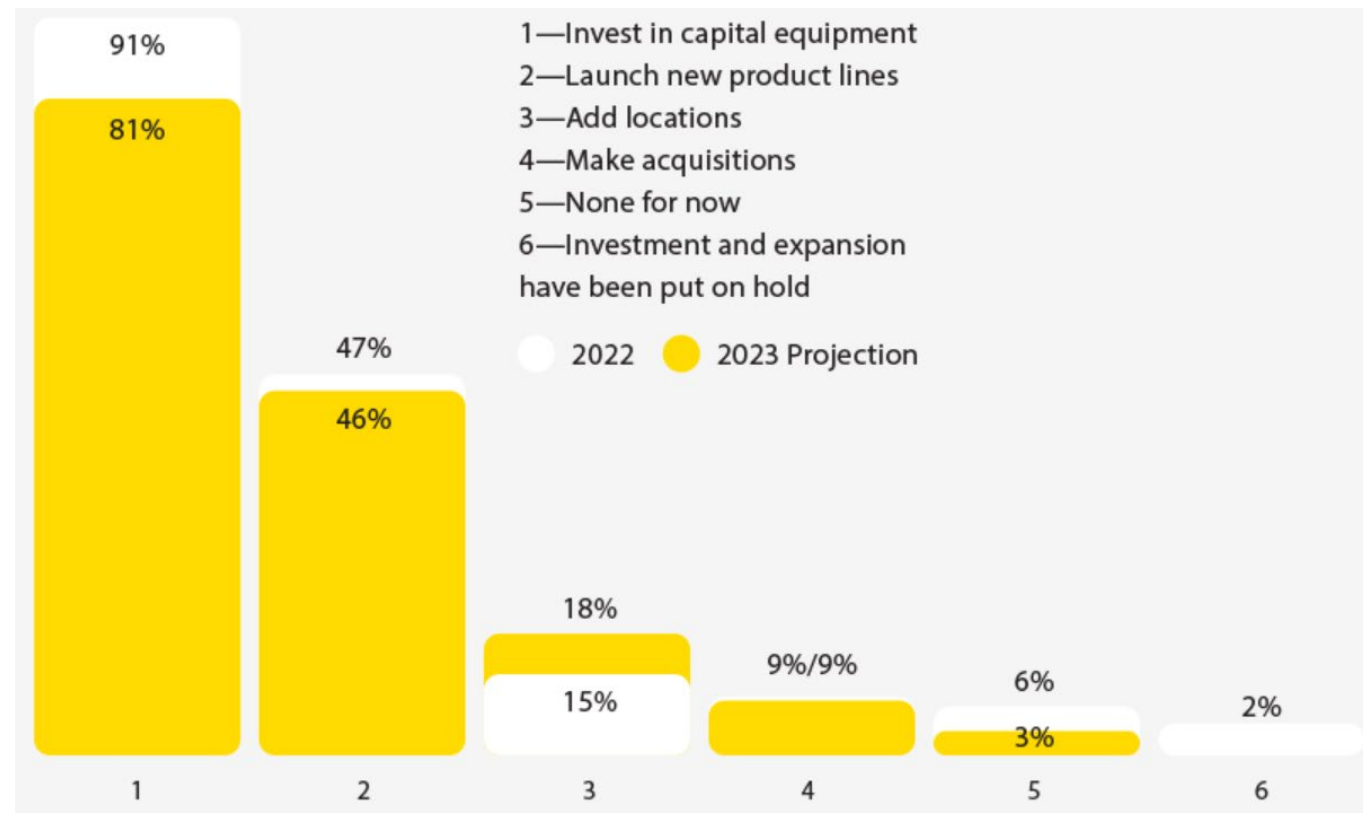
Investment: Top Glass Fabricators

- **81%** of fabricators plan to invest in capital equipment in 2023
- **46%** will launch new product lines in 2023
- **65%** automated part of their manufacturing process in 2022 and **66%** plan to automate in 2023

“Automation continued to expand ... as entrenched labor constraints inhibit capacity.”
- Glass Magazine Top Glass Fabricators, April 2023

TOP GLASS FABRICATORS

DO YOU PLAN TO ADD PRODUCTION CAPACITY IN THE NEXT YEAR?



NGA Resources

- Glass Magazine:
 - Annual Glass & Glazing Industry Forecast (January/February edition)
 - Top Glass Fabricators (New report out in April)
 - Top 50 Glaziers (New report out in July)
- Window + Door:
 - Industry Pulse (January/February edition)
 - Top Manufacturers (New report out in May/June)
 - Window and Door Market Survey (New report published quarterly, in collaboration with John Burns Research and Consulting)

Resources

On GDP:

- Chart: <https://www.cnn.com/2024/01/25/gdp-q4-2023-the-us-economy-grew-at-a-3point3percent-pace-in-the-fourth-quarter.html>
- Data: US Bureau of Economic Analysis: <https://www.nytimes.com/2024/01/25/business/economy/economy-q4-gdp.html>

On Inflation:

- Chart: <https://www.usinflationcalculator.com/inflation/current-inflation-rates/>
- Data: U.S. Bureau of Labor Statistics (BLS): <https://www.forbes.com/advisor/investing/inflation-outlook-2024/#:~:text=Private%20sector%20forecasters%20are%20also,around%202.4%25%20by%20December%202024>

On Interest Rates:

- Chart: <https://www.drewry.co.uk/supply-chain-advisors/supply-chain-expertise/world-container-index-assessed-by-drewry>
- Data: <https://www.axios.com/2024/02/05/fed-chair-jerome-powell-60-minutes>

Resources

On Supply Chain:

- Chart: <https://www.drewry.co.uk/supply-chain-advisors/supply-chain-expertise/world-container-index-assessed-by-drewry>
- Add'l: <https://www.bbc.com/news/business-67827444>

On Jobs:

- Chart: <https://fredblog.stlouisfed.org/2024/02/stronger-than-expected-employment-growth-in-2023-was-even-stronger-than-it-seemed/#:~:text=US%20nonfarm%20payroll%20employment%20delivered,of%20a%20strong%20labor%20market.>
- Add'l: http://agca.informz.net/AGCA/pages/DataDigest_222024?_zs=ufuLg1&_zmi=hfQ01

thirsty
THURSDAY
Quench your thirst for knowledge!

10 Industry Metrics You Should be Watching



Katy Devlin
Content Director, NGA
Editor-in-Chief, Glass Magazine
kdevlin@glass.org

MARK YOUR CALENDAR FOR THESE OTHER UPCOMING EVENTS

Building Envelope Contractors (BEC) Conference
Mar 3-5, 2024 | Nashville, TN

GPAD | Glass Processing Automation Days
Mar 5-6, 2024 | Nashville, TN

Glass & Glazing Advocacy Days
May 14-15, 2024 | Washington, D.C.

NGA Glass Conference: Milwaukee
Aug 6-8, 2024