

Spring 2021

U.S. CONSTRUCTION COSTS UPDATE

A COMPONENT OF THE ONGOING SERIES
U.S. DEVELOPMENT OPPORTUNITIES

CBRE



MATERIALS

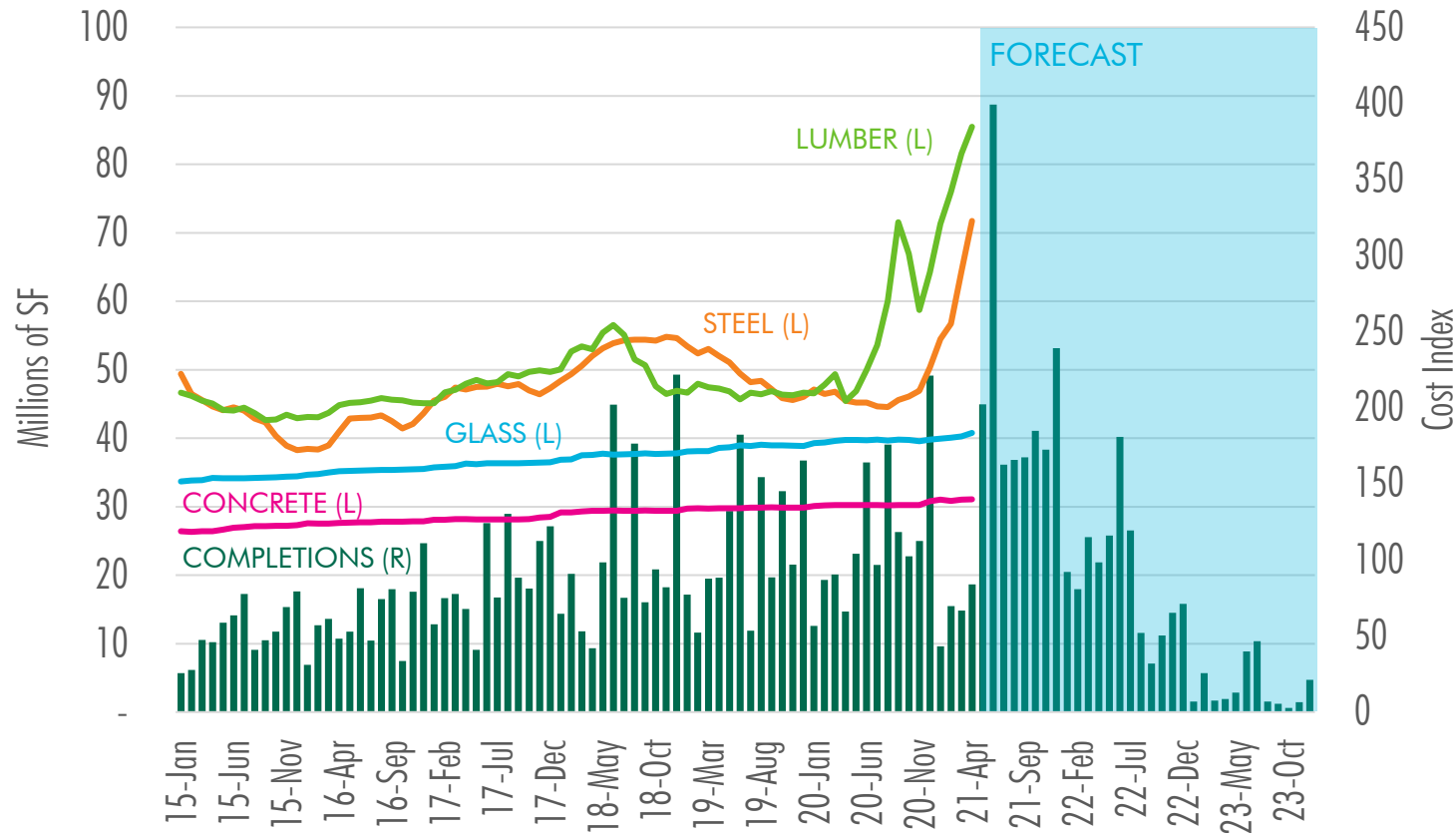
U.S. CONSTRUCTION COSTS UPDATE

CRE Completions and Construction Materials Cost Index

Historical and Forecast, Monthly, CRE Projects \$50 Million and Higher

Steel and Lumber Index: 1982 = 100. Cement and Glass Index: 2003 = 100

Source: St. Louis FRED, CBRE Research



OBSERVATIONS

1. According to data by Dodge Reports, 2021 will see a boom in completed commercial real estate projects, with a projected increase of over 40% in total sq. ft. over completions in 2020.
2. Projects scheduled for completion in 2022 are already projected to total almost 240 million sq. ft.
3. This development comes at a time when prices for certain materials are skyrocketing. Although concrete and glass have remained relatively stable, prices for steel and lumber are growing at an exponential rate.

Construction Materials Cost Index

Lumber

Steel and Lumber Index: 1982 = 100. Cement and Glass Index: 2003 = 100

Source: St. Louis FRED, CBRE Research



OBSERVATIONS

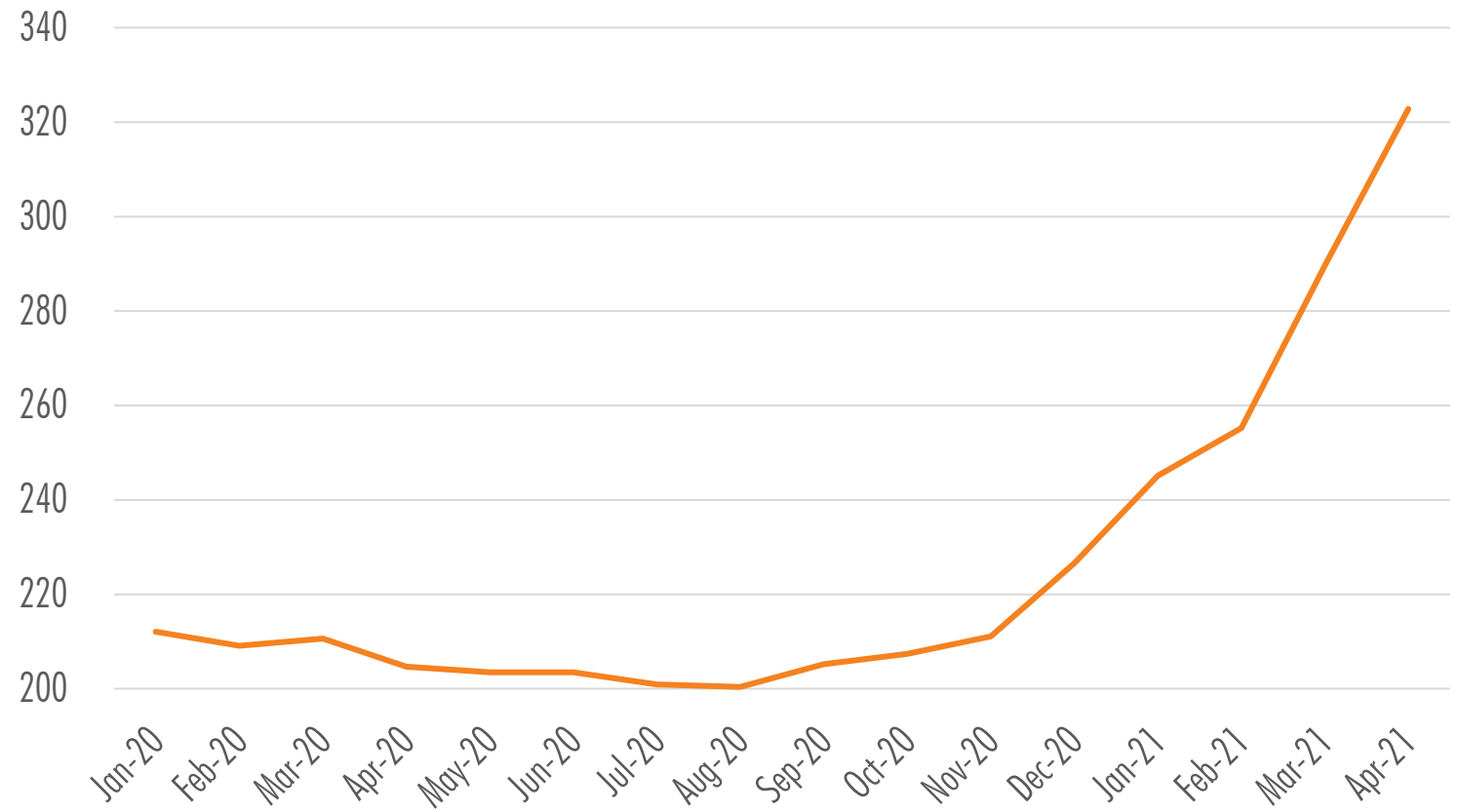
1. Lumber has almost doubled on an indexed level, within an 18-month span.
2. Despite a brief dip in late 2020, costs had fully rebounded by January, and rose by almost 1/3 across February and March.

Construction Materials Cost Index

Iron and Steel

Steel and Lumber Index: 1982 = 100. Cement and Glass Index: 2003 = 100

Source: St. Louis FRED, CBRE Research



OBSERVATIONS

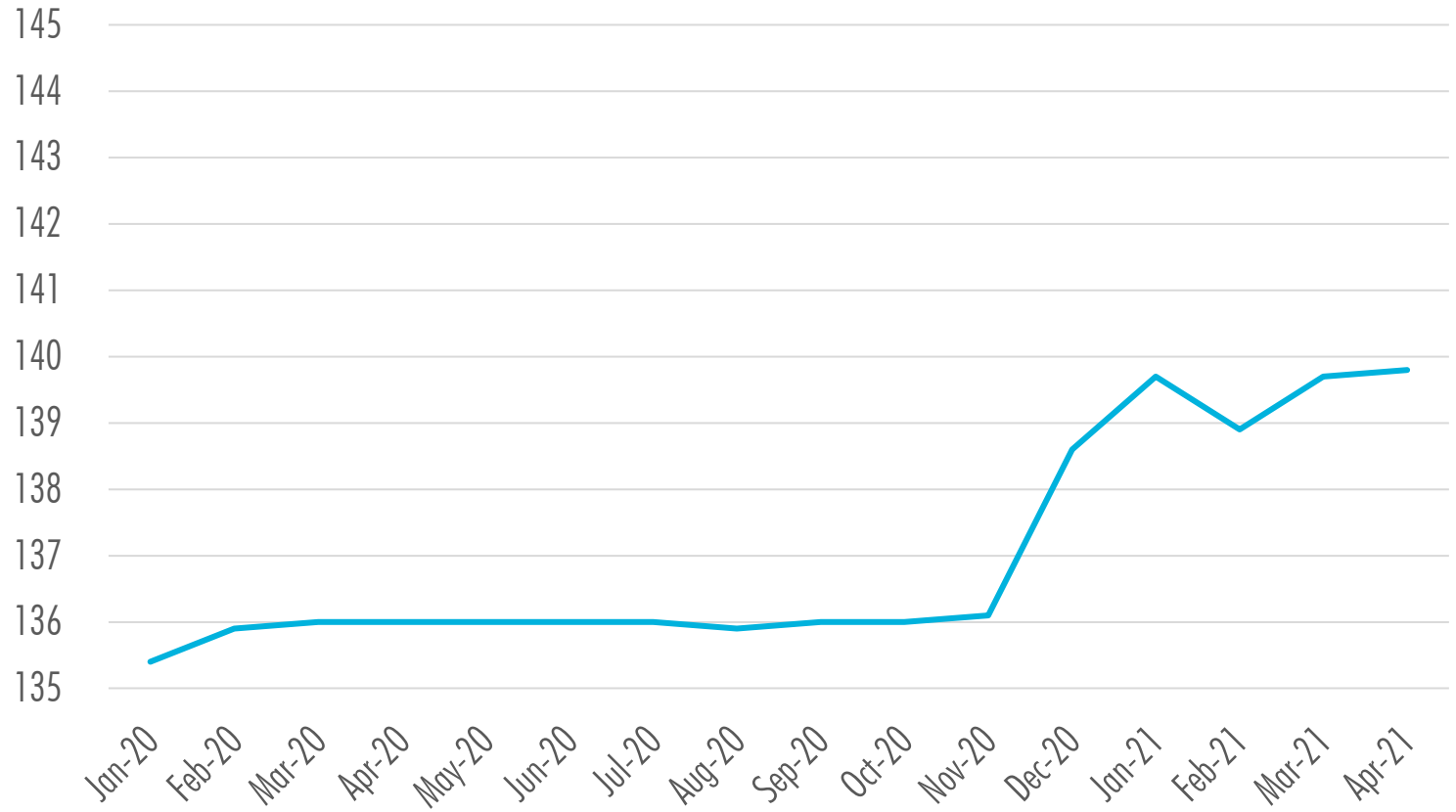
1. Much of 2020 was made up of a narrowly lowered cost basis.
2. Starting in November of 2020, costs skyrocketed, with near-record prices coming by the day.

Construction Materials Cost Index

Glass

Steel and Lumber Index: 1982 = 100. Cement and Glass Index: 2003 = 100

Source: St. Louis FRED, CBRE Research



OBSERVATIONS

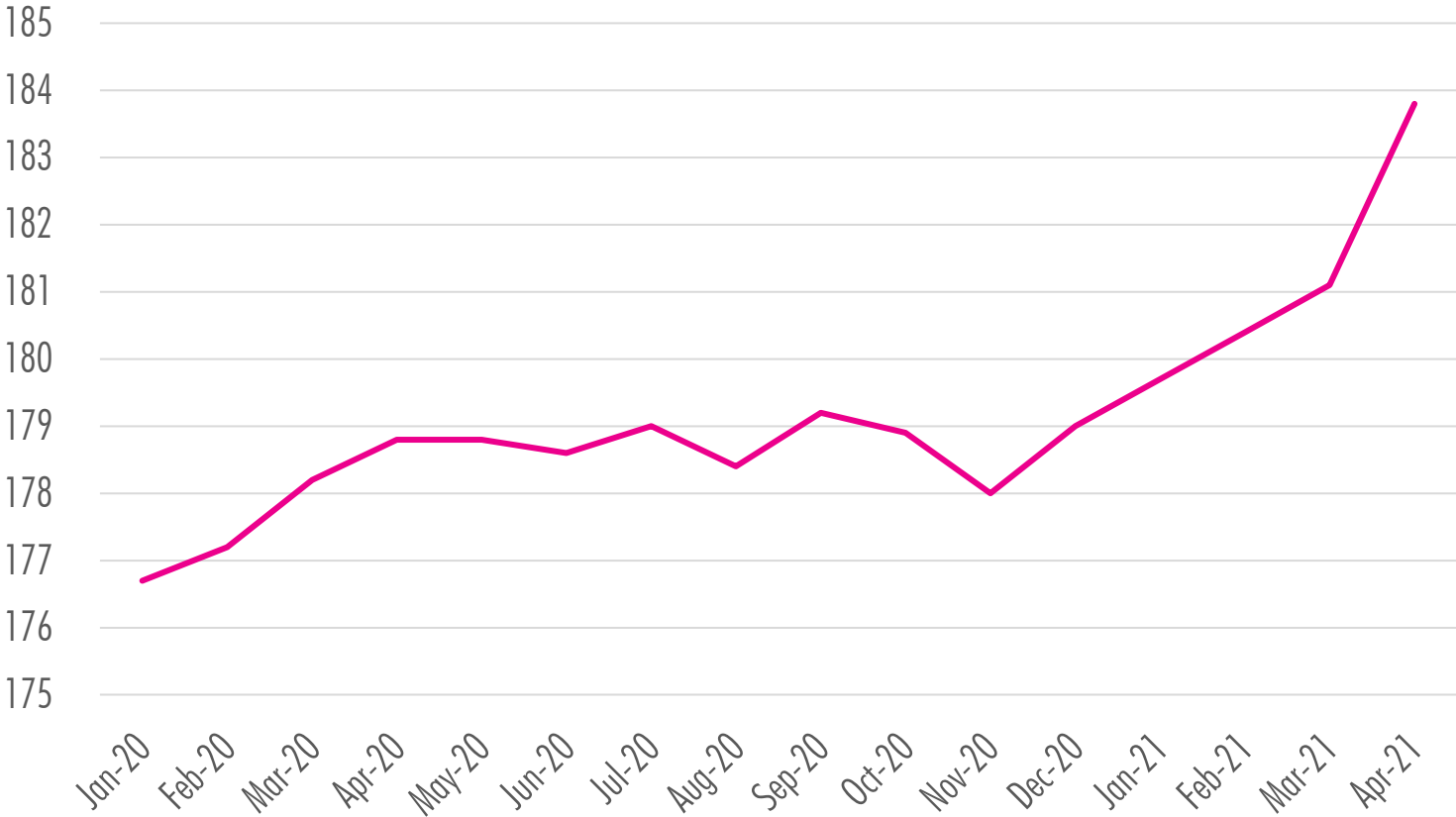
1. Although the rise in cost is not as dramatic as in lumber and steel, glass products are also on a price discovery, having risen sharply starting in November 2020.

Construction Materials Cost Index

Concrete

Steel and Lumber Index: 1982 = 100. Cement and Glass Index: 2003 = 100

Source: St. Louis FRED, CBRE Research



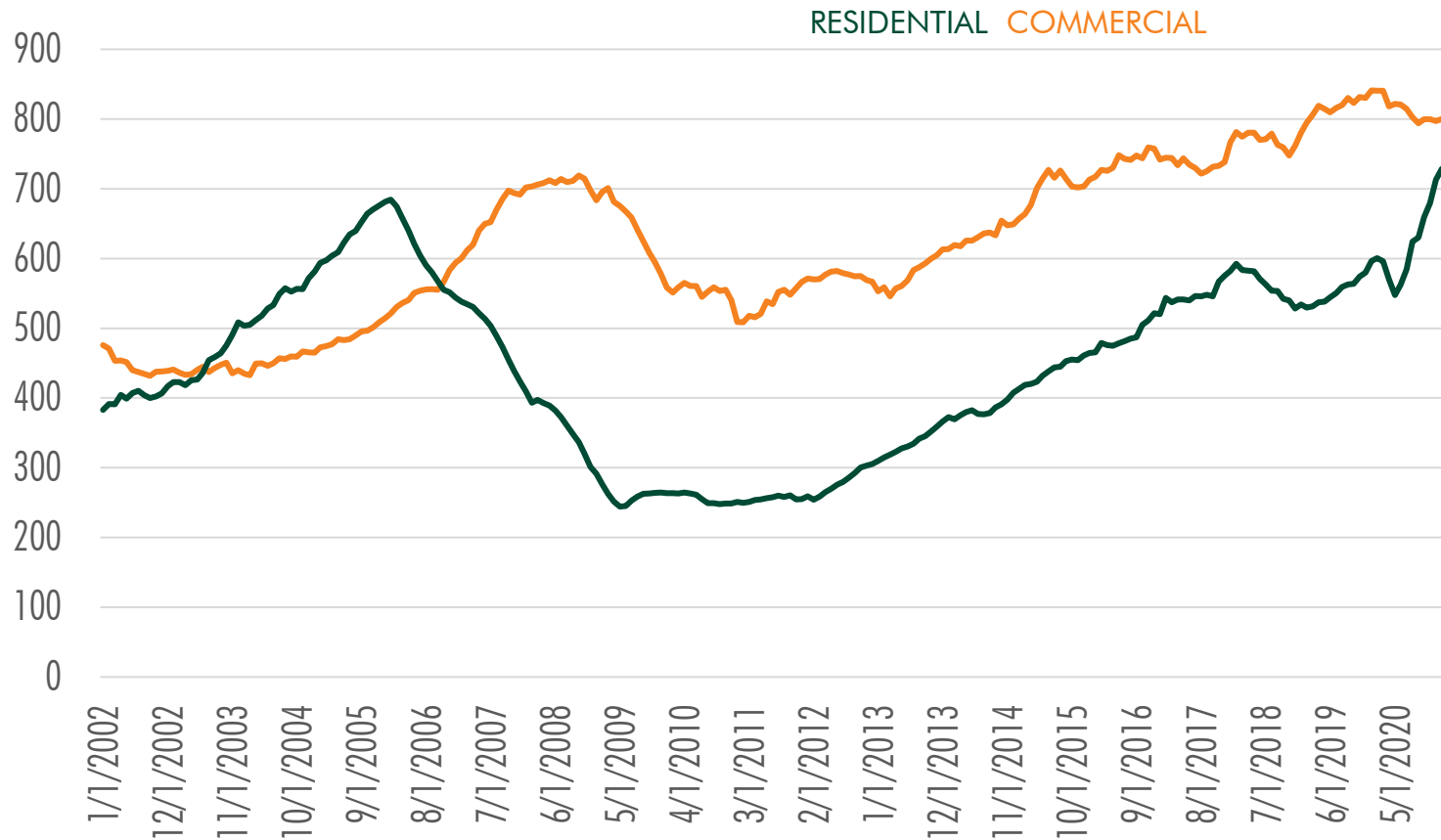
OBSERVATIONS

- 1. Like glass, concrete is not rising as sharply as lumber or steel, yet the increases have been remarkably steady across the last 18 months.

Total Construction Spending, Residential vs. Nonresidential

In Billions of \$

Source: St. Louis FRED, CBRE Research



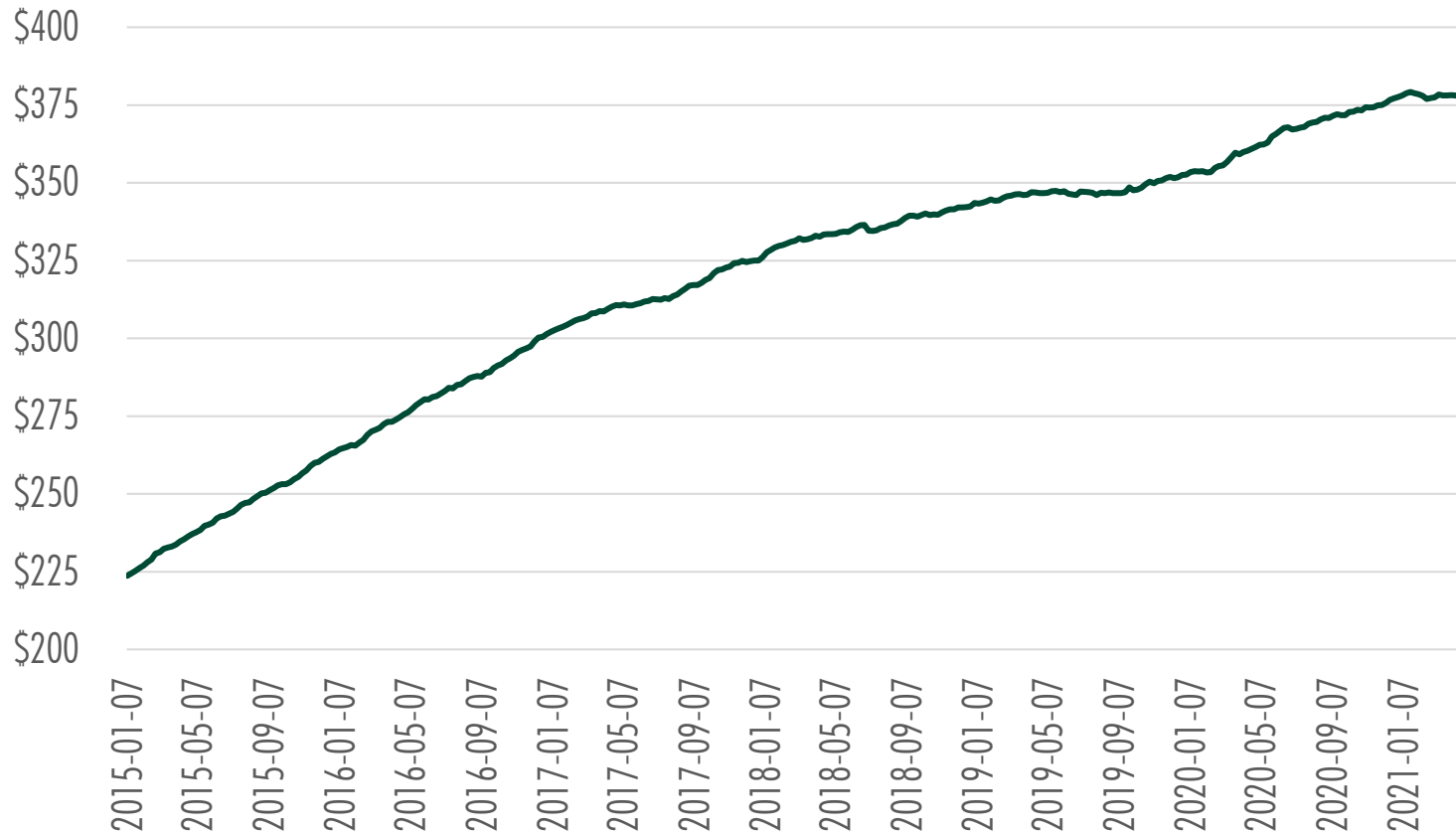
OBSERVATIONS

1. Commercial construction spending has outpaced residential spending each year since a brief reversal from late 2003 through late 2006.
2. In recent months, the gap has closed considerably, with residential construction now making up 49% of total construction spending.

Construction and Land Development Loans

All Commercial Banks, in Billions of \$

Source: Oxford Economics, CBRE Research



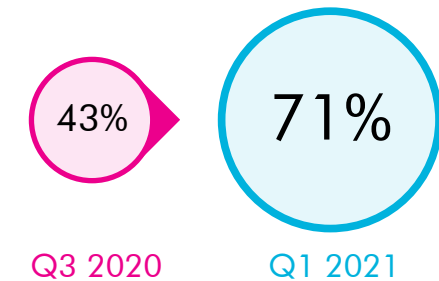
OBSERVATIONS

1. Issuance of construction and development loans has risen steadily since 2015, with slight leveling off in 2019 and again early in 2021.
2. Despite the leveling off, construction and development lending remains at all-time highs.
3. Despite challenges within the DSF sector, capital has remained available to developers.

STEEL

1. The economic slowdown paused construction projects, steel production, and steel consumption alike. As a result, many producers cut world steel supply to reflect these conditions. Government stimulus has fueled the economy and steel demand.
2. US mills remain on allocation, which restricts material quantities that can be purchased. Availability of spot purchases with US mills is non-existent, as contract buyers are taking up most of the capacity. Late deliveries are causing spot outages in the markets.
3. Some mills are engaging in capital upgrades and large maintenance projects and are in no rush to complete them as they continue to experience record profits.
4. Mill lead times have risen to over eight weeks for hot-rolled products and almost 11 weeks for cold-rolled/coated products.
5. Global steel supply is also experiencing availability issues, lead times for foreign mills are about 4-6 weeks longer than domestic mills.
6. Steel prices have posted double-digit percentage gains on a month-over-month basis. Increases should continue throughout the beginning of 2021 as supply remains tight and demand rebounds from pandemic levels
7. Although buyer surveys suggest prices will ease in June, increases remain steady. Latest data from a May 10th report from SteelBenchmarker suggests prices at \$1,476/ton, an increase of 235% over the 2020 low of \$440/ton.
8. The latest price for hot-rolled steel in China was at \$805/metric ton. Although other materials from China have slid in value recently, such as coking coal falling 11.9% to \$348 per metric ton, and steel billet falling by 1.3% to \$538 per metric ton.
9. Recent spikes in COVID-19 cases around the Hebei province, which accounts for over 20% of China's steel production, may cause further issues when it comes to steel prices.

Have fluctuations in the cost of construction materials impacted your construction projects in the past six months?



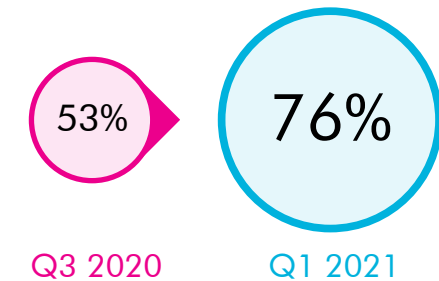
Strongly Agree/Agree

Source: Civil Quarterly, Dodge Data & Analytics

LUMBER

1. With COVID-19 acting as the epicenter, simultaneous shocks have been felt, of positive demand shocks weighted down by negative supply shocks.
2. Mills cut production, dropping supply by up to 30% for an expected falloff. But demand rebounded quickly.
 - a) DIY home improvement boom took hold.
 - b) Crews started building more houses and using still more scarce lumber.
 - c) 2nd wave of COVID cases cut into production at U.S. lumber mills, hitting the labor force, which remains an issue.
3. The building season is kicking into high gear across most of the U.S., although shortages are tacking on months to the time it takes to build a house, which is driving up costs.
4. *"Though builders continue to see strong buyer traffic, recent increases for material costs and delivery times, particularly for softwood lumber, have depressed builder sentiment this month,"* NAHB Chairman Chuck Fowke
5. Housing prices increased 12% in February alone, according to S&P CoreLogic Case-Shiller U.S. National Home Price NSA Index, the largest single-month gain in 15 years after an 11% increase in January.
6. The NAHB found that the price of an average family home has increased by \$24,386 since April, largely because of an interruption to raw materials when lumber mills shut down at the start of the pandemic due to safety reasons.
7. Lumber prices reached a record price of \$1,400 per thousand board feet this week, rising 57% since January and more than 325% since last year, according to Market Insider.
8. After reopening of mills, lumber prices have spiked by nearly 200%.
9. Lumber prices should decline as COVID-19 vaccines continue to be rolled out, which would allow for more lumber mills to safely reopen.

Is your company is concerned about cost increases for construction materials in the next six months?



Strongly Agree/Agree

Source: Civil Quarterly, Dodge Data & Analytics



LABOR

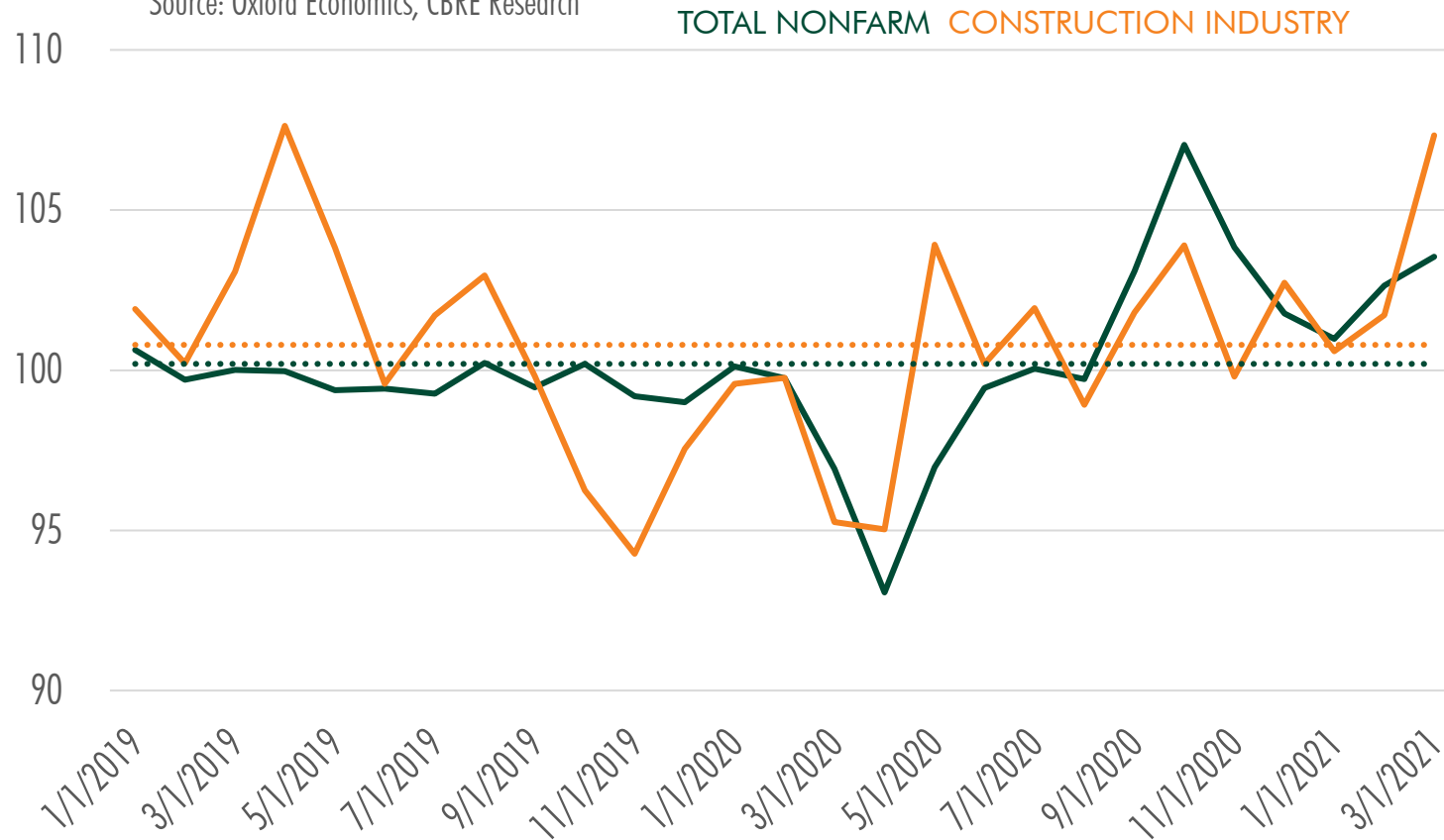
U.S. CONSTRUCTION COSTS UPDATE

Job Openings Index

Construction Industry vs. Total Nonfarm

Dec 1, 2000 = 100, Using a 6-Month Average to Smooth Lines

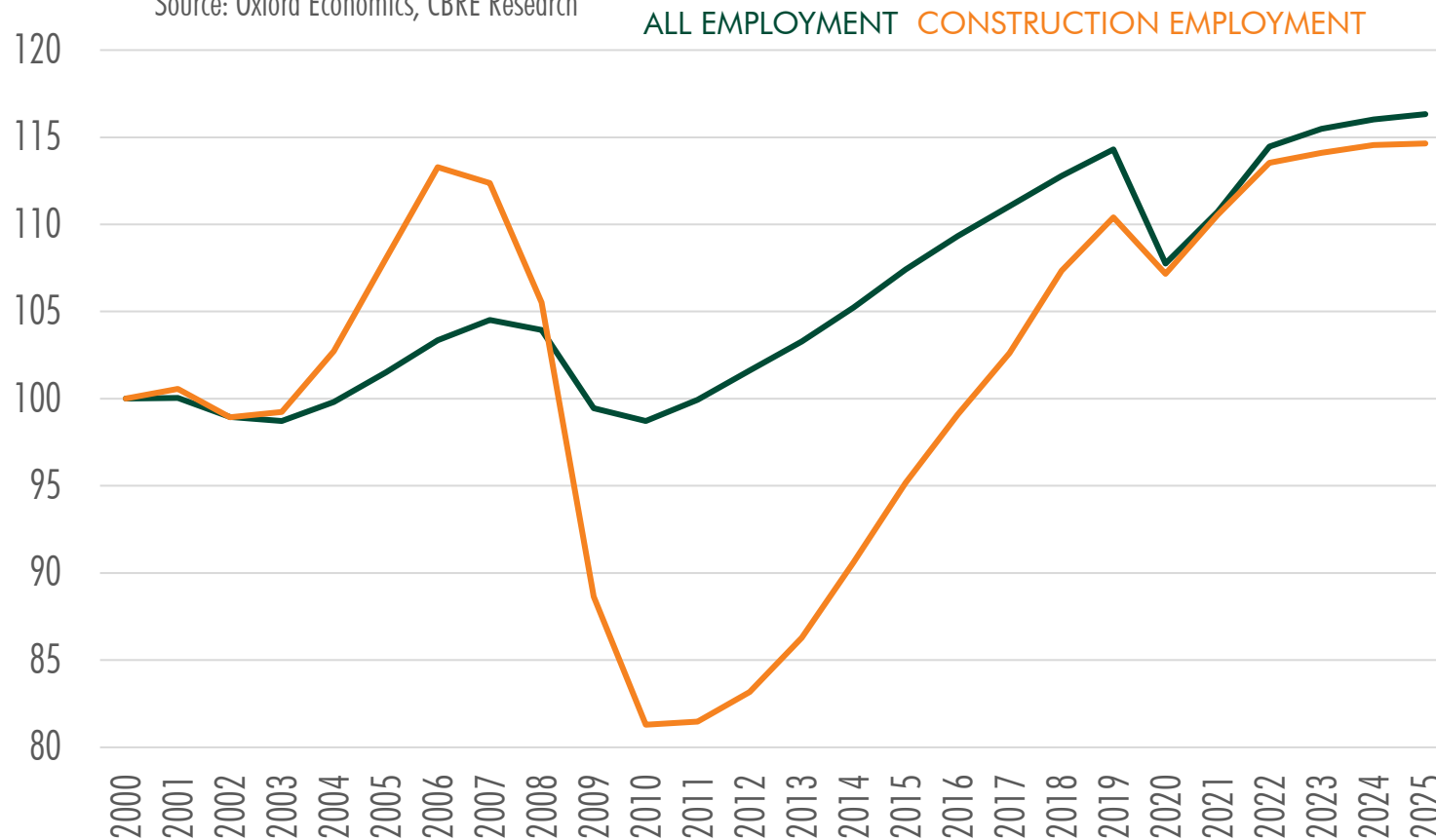
Source: Oxford Economics, CBRE Research



OBSERVATIONS

1. This chart indexes total job openings within the construction industry against all nonfarm job openings within the U.S.
2. Construction jobs tend to have steeper spikes due to being a smaller population, however they remained relatively steady throughout the pandemic. Demand is surging again for construction workers, as projects continue to roll forward.

Employment Growth Index
 Construction Workers vs. All Workers
 2000 = 100
 Source: Oxford Economics, CBRE Research



OBSERVATIONS

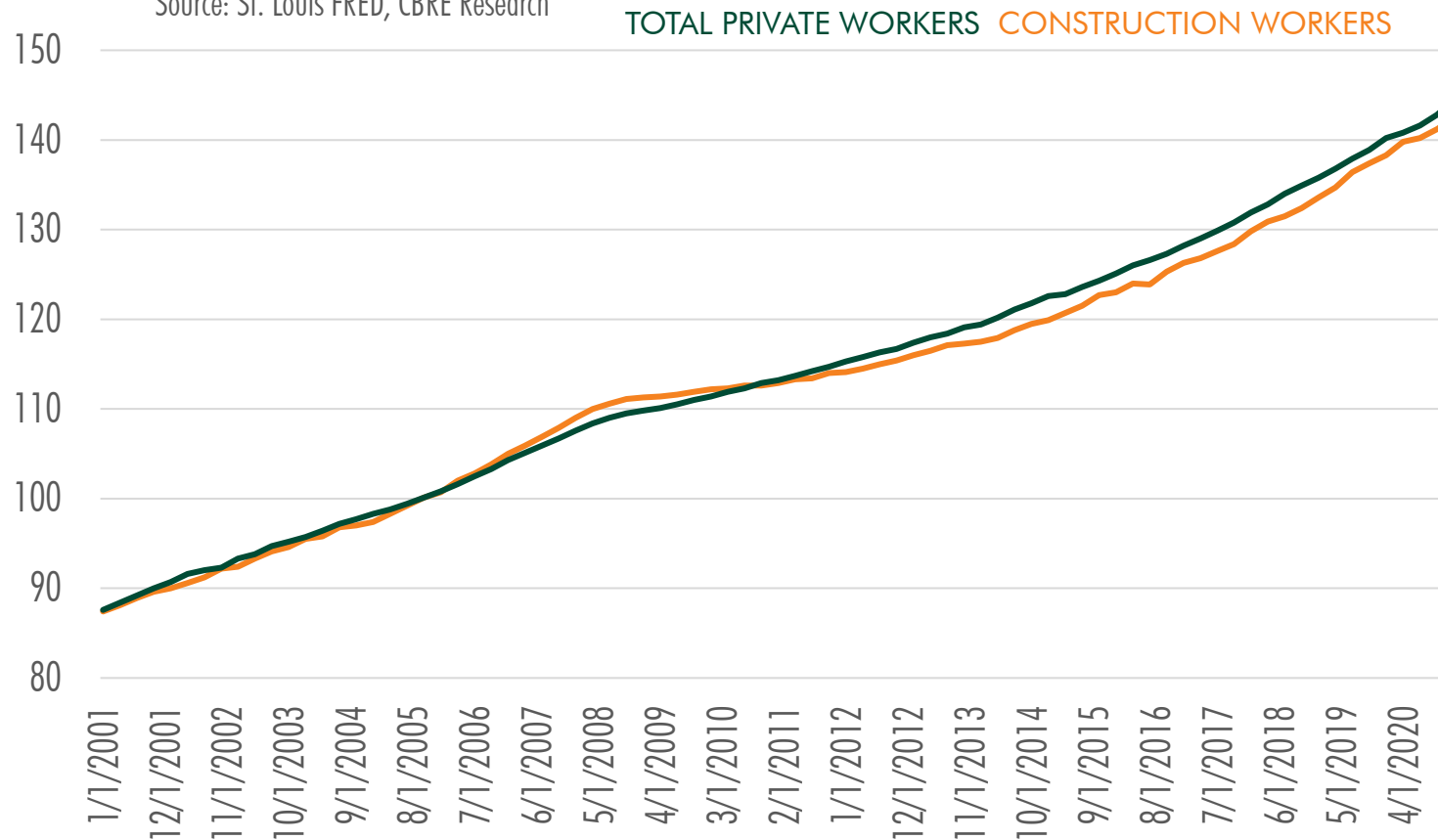
1. The Great Financial Crisis wiped out construction employment with a deeper impact than overall total employment.
2. Conversely, construction employment, though hit hard by the COVID-19 Recession, was affected less severely than overall employment.
3. Construction employment is forecasted to fully recover by the end of 2021, while total employment will need an additional year, recovering in 2022.

Employment Cost Index: Wages and Salaries

Construction Workers vs. Total Private Workers

Wages and Salaries Index: Dec 2005 = 100

Source: St. Louis FRED, CBRE Research



OBSERVATIONS

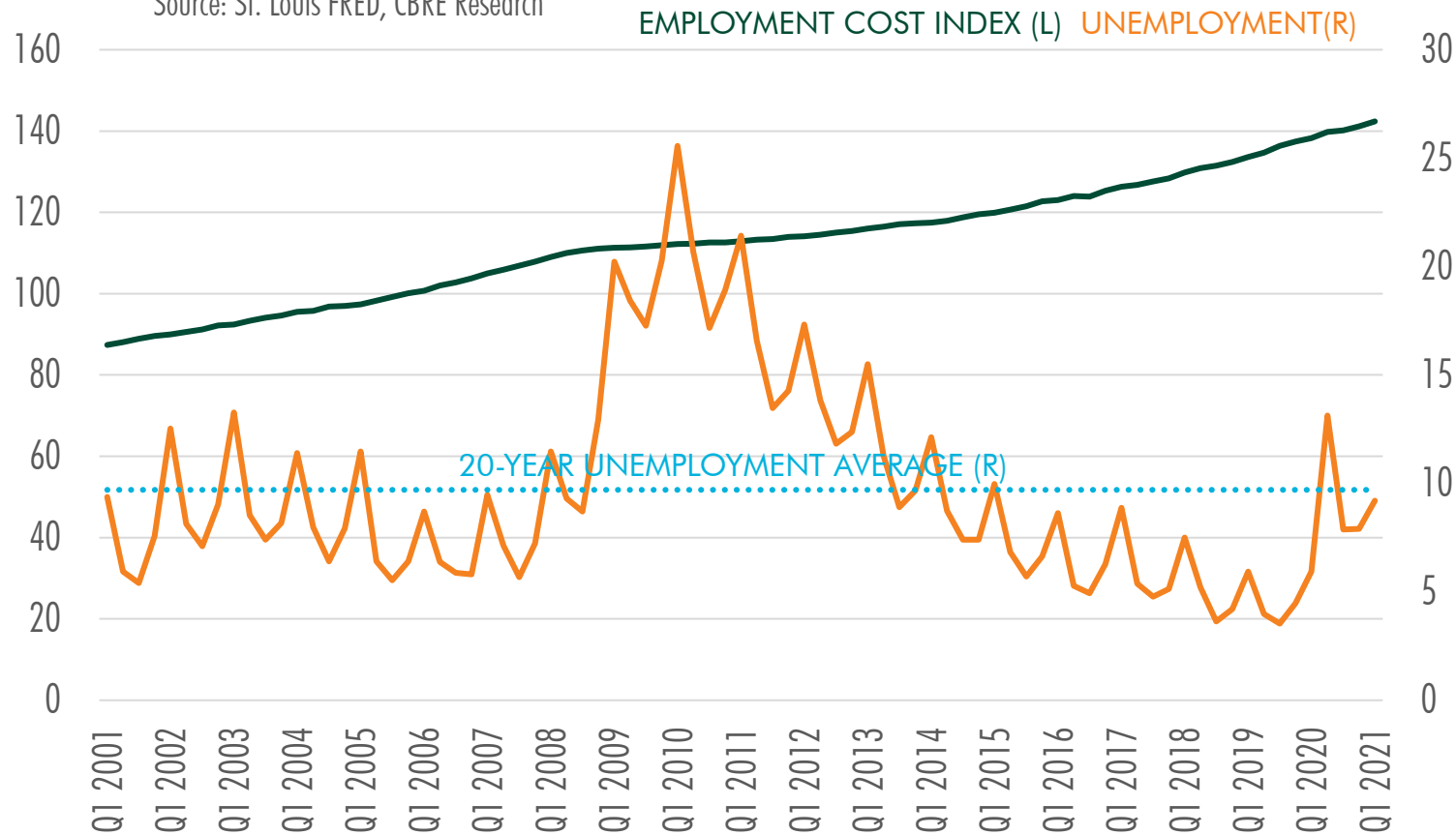
1. Although the construction sector has seen compensation growth escalate more sharply since 2012, the growth maintains a velocity below the growth of all private employment.
2. This would suggest that the narrative of rapidly growing wages within the construction industry is somewhat off-base. They are indeed rising, but since 2010, they are rising at an indexed rate below total employment.
3. Notably, although the compensation growth rate was stalled somewhat by the Great Financial Crisis, this was not a factor shared by the COVID-19 Recession.

Employment Cost Index vs. Unemployment Rate

Construction Workers

Wages and Salaries Index: 2005 = 100

Source: St. Louis FRED, CBRE Research



OBSERVATIONS

1. The employment cost index for construction workers has risen each year since 2001, picking up velocity since 2015.
2. Generally spiking in Q1 of each year, construction unemployment has been performing better than the 20-year average since 2014-2015.
3. Despite rising labor cost within this sector, it does not appear to influence overall employment, instead being more vulnerable to black swan events which lead developers to a moment of pause.

LABOR

1. Construction jobs openings have traditionally been fewer than the sum of total nonfarm jobs, on an indexed basis.
2. Open construction positions spiked in April, likely due to workers leaving sites to limit risk to COVID-19 exposure.
3. Total construction employment, while devastated by the great financial crisis, saw a lighter impact within the COVID-19 recession.
4. As of March 2021, total construction employment is 2.4% below the February 2020 level, and just 3.4% below the all-time high set in April 2006.
5. Total construction employment is expected to recover completely by the end of 2021, which is faster than the expected rate of recovery for total nonfarm employment.
6. A perception of rapidly rising wages within the construction industry was found to be somewhat false – although wages are indeed rising, they are doing so at a lower rate than total wages across all industries.
7. Traditionally, rising wages have not seemed to influence employment within the construction industry.
8. With national infrastructure projects top of mind for the federal government, private developers could find themselves in greater competition for labor within the next several years.
9. A [recent study by Carnegie Mellon](#) on hesitancy for COVID-19 vaccination by industry revealed that the construction industry was one of the leier industries on the prospect of getting vaccinated. This could be a headwind for companies in their search for labor.

“When you say 300,000 available jobs, they’re not all skilled labor—but many of them are. For 20 years, we haven’t trained and spent money on educating, and at the same time a lot of the industry is retiring. So the skills gap is going to get worse before it gets better.”

Ed Brady, President and CEO of the Home Builders Institute

Source: Why Finding Workers Is Getting Harder for U.S. Homebuilders, Bloomberg Business



SUPPLY CHAIN

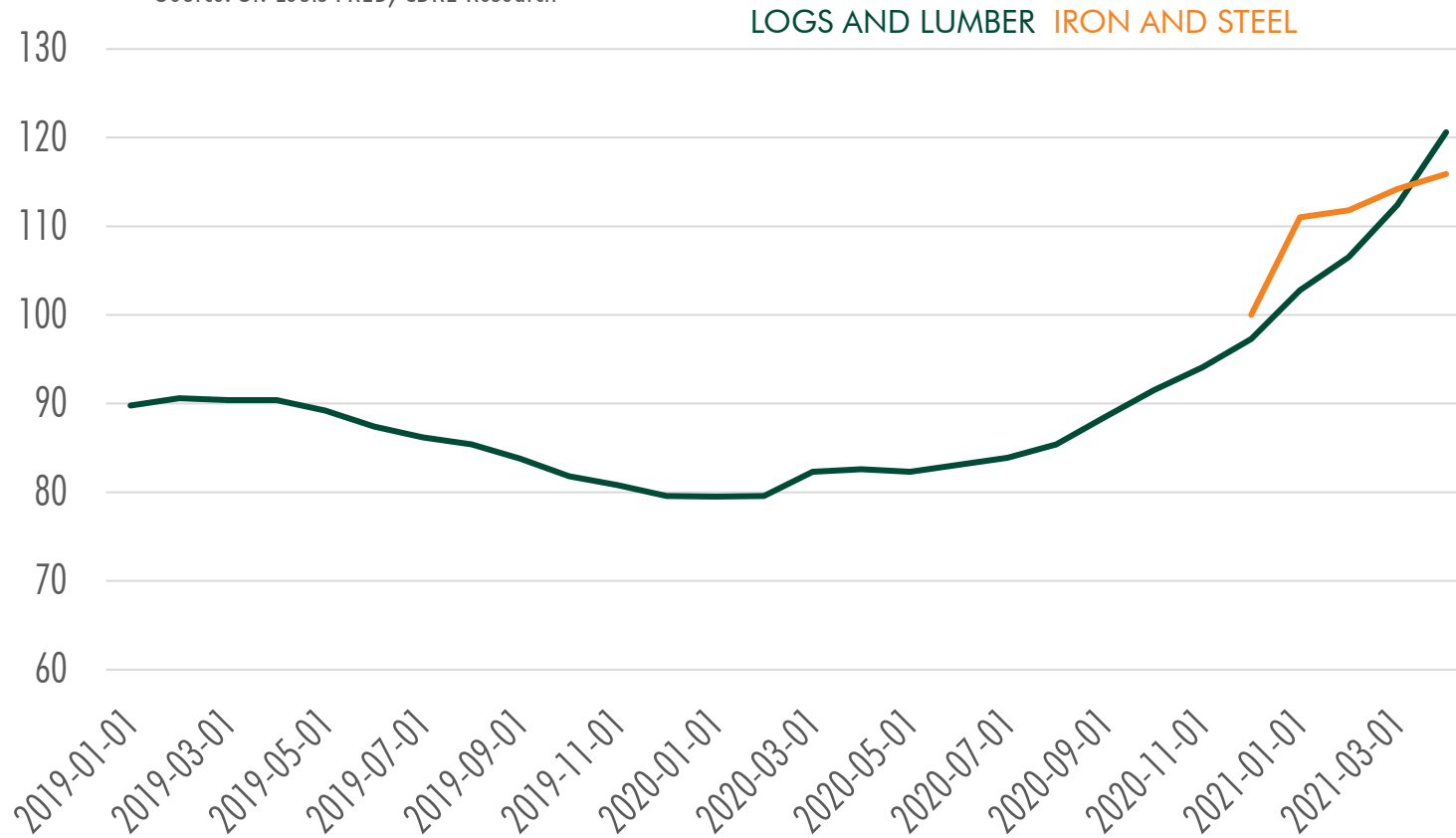
U.S. CONSTRUCTION COSTS UPDATE

Export Price Index

Logs and Lumber, Iron and Steel

Lumber Index: 2000 = 100, Iron/Steel Index: Dec 2020 = 100

Source: St. Louis FRED, CBRE Research



OBSERVATIONS

1. Lumber prices on the U.S. export market have been rising since March 2020 but have really picked up steam since August 2020.
2. The series of steel export prices began in December 2020 and have risen steeply since.
3. Firms that are exporting materials are receiving elevated prices, which creates competition for U.S. end-users who are also in the market.

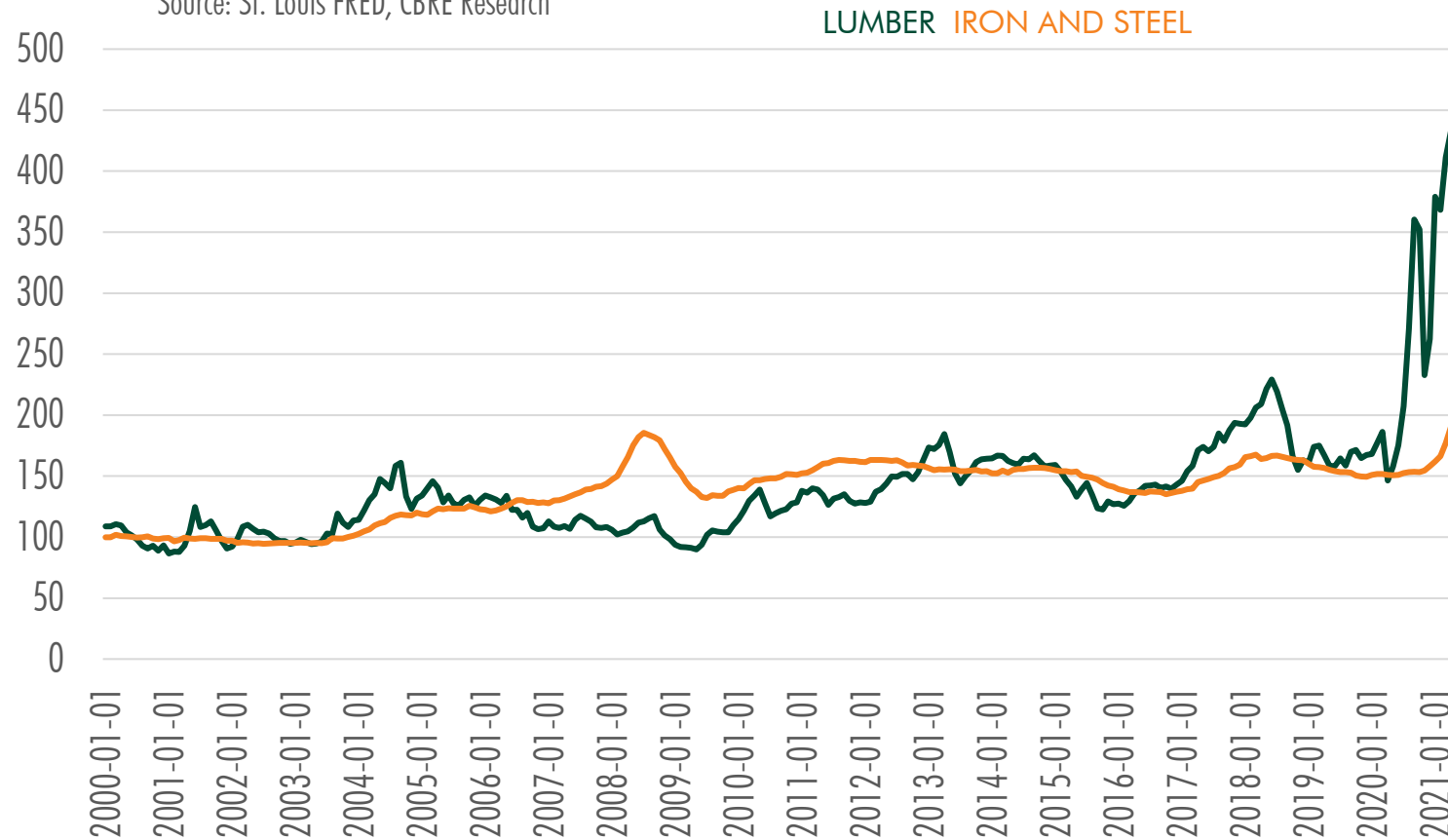
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Import Price Index

Lumber, Iron and Steel

2000 = 100

Source: St. Louis FRED, CBRE Research



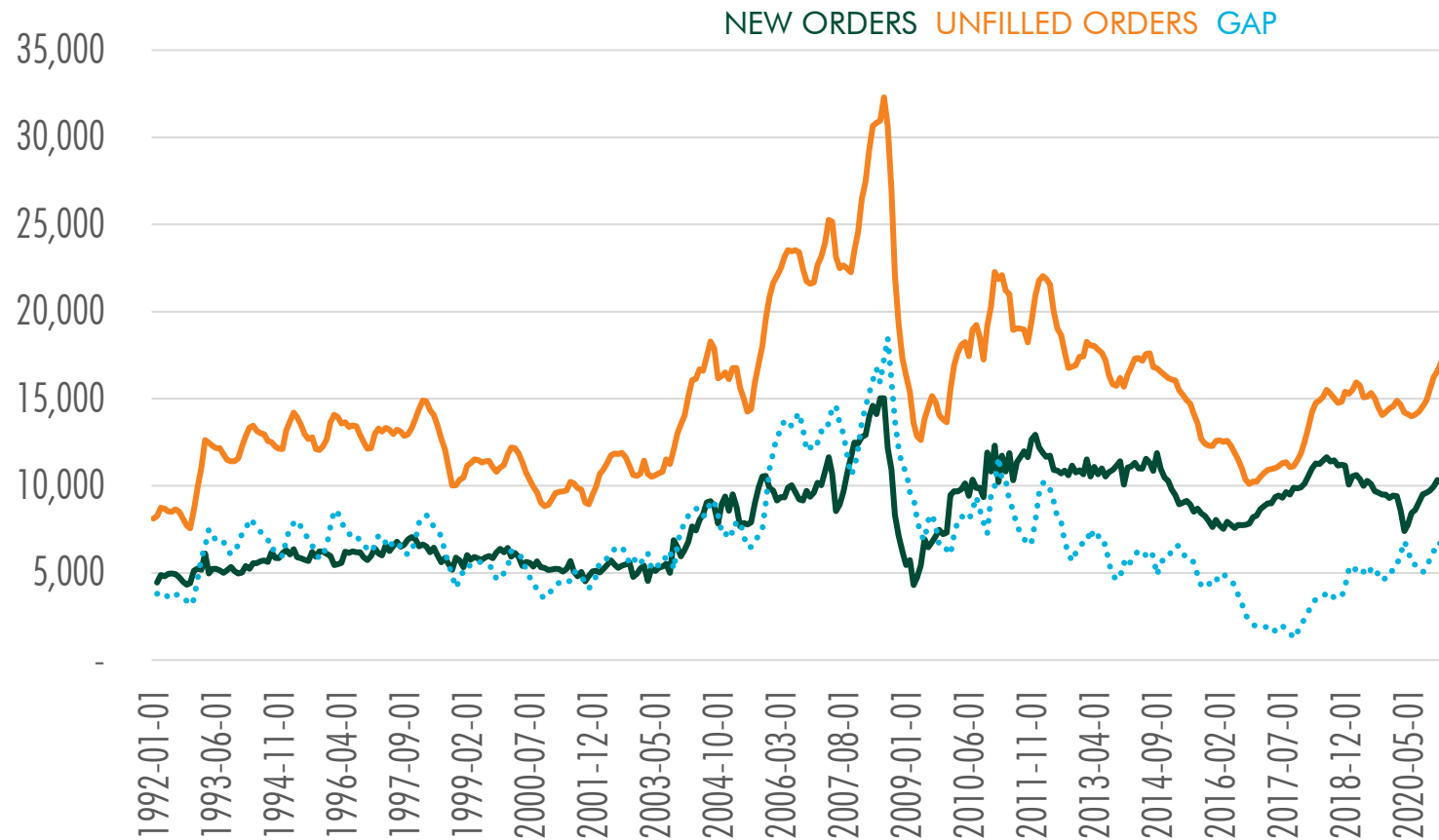
OBSERVATIONS

1. Prices for steel imports have recently elevated but remain below index levels achieved in 2008.
2. Meanwhile lumber import prices have broken through the roof and are now at levels exponentially higher than they were just a year ago.

Manufacturers' Orders: Iron and Steel Manufacturing

New Orders and Unfilled Orders, Millions of \$

Source: St. Louis FRED, CBRE Research



OBSERVATIONS

1. This chart compares new orders and unfilled orders for U.S. iron and steel manufacturers.
2. Since 2007 the gap between the two had diminished, suggesting better efficiency – however that gap began to widen in 2018, and has only been accentuated in 2020.
3. Meanwhile, unfilled iron and steel orders are at their highest level since April 2013.

SUPPLY CHAIN

1. Manufacturing inventories have been volatile over the last few months.
2. The White House's massive \$1.9 trillion pandemic relief package and the expansion of the COVID-19 vaccination program to all adult Americans have led to a boom in demand
3. Inventory levels contracted in February, grew in March and went back to contracting in April, according to the Institute for Supply Management's manufacturing report.
4. Triggered by coronavirus pandemic effects and aggravated by February's US Gulf coast storm, many key raw materials are constrained.
5. A recent survey from the Institute for Supply Management (ISM) showed record-long lead times, wide-scale shortages of critical basic materials, rising commodities prices and difficulties in transporting products across industries.
5. The survey noted that companies and suppliers struggle to meet increasing demand due to coronavirus impacts limiting availability of parts and materials.
6. Demand for goods like motor vehicles and electronics has surged during the pandemic as Americans worked from home. Additionally, a global semiconductor chip shortage has forced cuts in production.
7. Adding to port-based issues, the deadly ice storm that swept through Texas in February shuttered petroleum and petroleum-product processing plants, denting the U.S. supply of plastics used in construction, as well as joint compound.
8. Respondents to a survey reported that they are prefabricating 20% more than before the pandemic, with 71% reporting a noticeable increase in requests for design-assist proposals. This confirms the narrative that speed to market is a priority.
9. A recent spike in fuel prices, if extended, could add more challenges to the supply chain.

MATERIAL OBSERVATIONS

Material	Lead Time	Availability
Steel, Jumbo Shapes	10 -12 Weeks	Demand remains strong
Heavy-Very Heavy Plate	12-16 Weeks	Demand strong, price remains elevated
Curtainwall	10-20 Weeks	Booked through 2022
Rebar	6 Weeks	High Demand, Lean Inventory

Source: Turner Construction, CBRE Research, Q2 2021.

A construction site at sunset. A large crane is silhouetted against a golden sky, lifting a heavy load. In the foreground, several workers are silhouetted against the bright light, working on a steel structure. The sky is a mix of orange and blue, with some clouds.

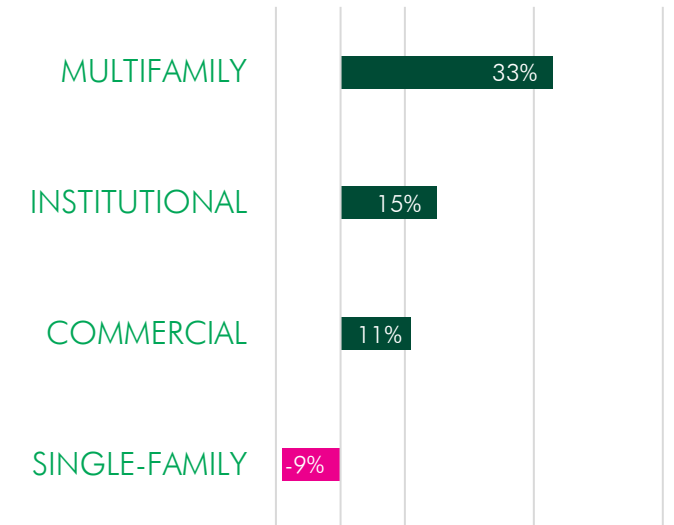
FINAL THOUGHTS

U.S. CONSTRUCTION COSTS UPDATE

FINAL THOUGHTS

1. Rising costs are causing sticker shock to developers, especially those who paused projects for the pandemic and are now re-entering the market.
2. Expectations are being adjusted, with some projects that no longer make sense being abandoned. Budgets that were set 18-24 months ago are now being updated at 20% higher cost according to in-market narrative.
3. Government infrastructure improvement plans have been moved from the back burner on the electric stove to the primary coil of the induction oven. Airports, highways, energy grids, water/sewer systems and more are projected for upgrades. This will create competition for labor down the road.
4. The AIA Architecture Billings Index (ABI), which serves as an economic indicator of upcoming nonresidential construction projects with a lead time of 9-12 months, has experienced growth for two months, after eleven months of contraction.
5. According to the ABI, the South and Midwest regions have the strongest forecast. Those regions may find labor shortages more of a challenge than the West and Northeast. Industrial projects lead the way in all markets.
6. Surveys of civil contractors are reporting rising confidence regarding new business over the next 12-24 months. This suggests that despite labor and materials pricing issues that projects are continuing to enter the pipeline.
7. Although construction starts remain down year-over-year, month-over-month gains continue across most CRE sectors, with single-family building starts hitting the pause button.
8. Despite this period of elevated pricing, developers are finding ways to make sense of their proformas and to proceed with breaking ground.

Month-over-month growth in construction starts by building type



Source: Dodge Data & Analytics

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