



United States | H2 2020

Research

Construction Outlook

Challenges ahead as the pandemic ends
eight years of growth

Executive summary

Uneven recovery

- The first half of 2020 brought a torrent of unexpected challenges for the construction industry. The most disruptive included construction shutdown orders, new procedures to enable physical distancing on jobsites and delays of materials, fixtures and equipment.
- Nonresidential construction is expected to decline 10 to 15 percent in 2020. The decline will be the combined result of the disruption from shutdowns (construction in locations with shutdowns temporarily dropped an average of 70 percent), along with decreased demand for new projects in some sectors heavily impacted by the pandemic, including retail, entertainment and office.
- National average construction costs have already declined slightly from the start of the year, due to decreased prices of some construction inputs and more aggressive bidding from contractors. Construction prices are expected to be 2 to 5 percent lower on average in 2020 compared to last year.
- Recovery in the construction industry will be uneven across sectors until the health concerns of the pandemic are resolved. Due to the lower baseline that will be set in 2020, we expect 2021 to bring growth in both construction volume and construction costs, although neither is likely to recapture 2019 highs.

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H1 2020 construction recap

The first half of the year has been a difficult one across the construction industry, with particular challenges in private nonresidential construction. On a national level, nonresidential building starts fell 19 percent through the first five months of the year, according to Dodge Data and Analytics. In some markets where construction shutdowns were ordered, work levels fell as much as 80 percent during the shutdown period. The federal government's Paycheck Protection Program (PPP) loans were a necessary source of relief, with Small Business Administration data showing that over \$63 billion was provided to construction firms through June 12. Although critical for the survival of many small and midsized construction businesses, the PPP loans also illustrate how hard the industry was hit by the pandemic, as construction ranked third out of all industries in terms of highest total loan value provided.

Employment in construction faced a major shock, with the largest one-month increase in unemployment ever recorded occurring in April. The construction unemployment rate jumped above 16 percent that month, spread across all sectors and job types in the industry. A quick bounce-back in employment was a positive development in May and June, with almost half of the jobs lost in the two prior months already recovered. While the labor situation was steadier by early July than during the initial impacts of the pandemic, it remained in much worse condition than at any point in the last seven years.

2020 midyear construction stats

Overall national construction

National construction spending (% change May 2019 to May 2020)

- **-1.4% decrease** in total construction spending (public + private)
- **-4.3% decrease** in private construction spending
- **+2.7% increase** in public construction spending

Construction labor indicators

Total employment level

- **-10.8% in total** construction employment from Q1 2020 to Q2 2020

Unemployment rate

- **Up to 13.1%** in Q2 2020 from 4.0% in Q2 2019

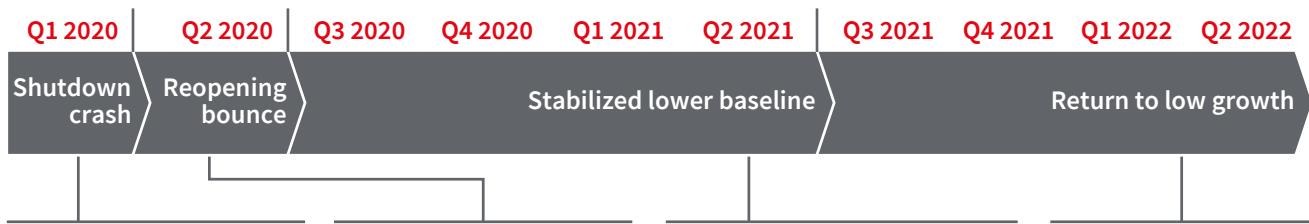
Average construction wages

- **-1.1% decline** in average hourly construction wages from Q1 to Q2 2020

H2 2020 construction forecast:

Overview and timeline

Prior to the onset of the pandemic, the construction industry was on a path of slow, steady growth across most sectors in 2020. Early cracks in that growth began to show in 2019, as private construction spending slowed for the first time since the last recession, but overall forecasts remained stable. The pandemic scrambled all expectations and forced a complete reset in forecasts. Looking ahead, our new forecast combines a range of possible scenarios, broken into individual periods of the crisis and recovery.



The initial period from March to May when projects in various states were shut down, and most states had stay-at-home orders. Construction work was down 25–35 percent on average, 10 percent of all construction jobs lost. Input prices for materials and labor fell but were offset by higher operating costs as firms work under pandemic conditions for the first time.

Bounce back from May to July as jobsites resumed work in all states under new safety protocols, and most states partially reopened. Work levels picked back up but are still down 15 percent year-to-date. Employment regained half of jobs lost but still down year-to-date. Higher operating costs remain for ongoing projects, but new bid prices fell in most markets as bidding turns aggressive to protect backlog.

In 2020, full-year nonresidential construction volume is expected to be down 10 to 15 percent from 2019. Construction employment levels are expected to be down 5 to 10 percent. Average construction costs in 2020 are expected to decline for the first time since 2010. Construction stats are expected to stabilize and remain relatively flat (within plus or minus 5 percent growth) from Q3 2020 to Q3 2021. The decline in costs will partially be a factor of flat labor costs and temporarily lower materials prices. However, the primary driver for lower costs will be more aggressive bidding as fewer new projects come to market, which will cause cost declines to vary widely by market.

The overall industry will shift back to 2 to 4 percent growth, with spending, employment, backlog and costs all rising. Although construction growth is expected to resume later in 2021, it will be benchmarked from the new, lower, baseline set in 2020. As a result, growth will end up well below any long-term forecasts that predicted steady 3 percent growth from 2019 to 2024, as the industry will effectively be skipping or delaying 1 to 3 years of growth.

Forecast note:

The coronavirus pandemic reshaped construction this year and will leave a mark on the industry for years to come. Due to the unique circumstances, this report includes a special section focused entirely on the impact that the pandemic has had on construction to date. While the rest of this report does not focus exclusively on the pandemic, all of the forecasts and predictions throughout the report are based on high-level assumptions about the broader economy's recovery timeline from the pandemic and recession. This timing framework encompasses JLL's latest economic outlook, which forecasts the economy will remain down over the next 12 months, gradually return to slow growth around the middle of 2021 and eventually recapture 2019 levels in 2022.

H2 2020 construction forecast: Six forecasts to shape the industry

The pandemic and other events this year will shape construction for years to come, and the overall recession and recovery will not be even across all parts of the industry. Listed below (and explored in detail on the following three pages) are six specific forecasts which are expected to shape construction through the rest of 2020 and into 2021:



Negative forecasts

- COVID-19 will continue to challenge construction operations for the rest of 2020, and the risk of renewed shutdowns remains possible.
- Cutbacks in state and local budgets will create a major risk for construction because public spending was the primary growth driver over the past two years.

Mixed forecasts

- Construction confidence will remain negative through the end of the year, and the difference in sentiment between sectors will be even wider than it was pre-pandemic.
- Upcoming 2020 election creates political risk and uncertainty, with the potential for both positive and negative outcomes for construction regardless of which party wins.

Positive forecasts

- Long-term construction sentiment is positive for the first time since 2014, and optimism for growth in 2022–2025 will remain much higher than it was before the coronavirus recession.
- Technology acceleration due to the pandemic will lead to a permanent and industry-wide increase in the adoption of construction tech.



H2 2020 construction forecast: Negative forecasts

COVID-19 will continue to challenge construction operations for the rest of 2020, and the risk of renewed shutdowns remains possible, though not expected

Over the past two months, the increase in COVID-19 cases across many states has reiterated the ongoing risk from the pandemic. It is beyond the scope of this report, and the construction industry at large, to forecast the future spread of COVID-19 or the fatality rate of the disease. We can, however, forecast with strong confidence that jobsites will need to continue to operate with additional safety protocols in place through 2020 and into 2021. Those additional protocols, already in place across the country, create added layers of complexity and risk for all projects and lead to higher operating costs and longer schedules for many projects.

In July, numerous states paused or reversed reopening plans due to growing numbers of COVID-19 cases. These changes have the potential to slow the rebound of broad economic growth. As of the writing of this report, no states or cities have announced plans to reinstate shutdowns of construction work, and we do not see renewed shutdowns as likely. Only a handful of states implemented shutdowns the first time, and better operating procedures combined with improved access to testing help reduce the risk of continued construction operations. Political concerns about the strength of the economic recovery will also work in favor of keeping construction sites open, as long as conditions remain safe to do so. While renewed construction shutdowns are not expected, the risk of a shutdown remains present and rises as the number of positive cases grows in any particular jurisdiction.

Cutbacks in state and local budgets will create a major risk for construction because public spending was the primary source of construction growth over the past two years

State and local budgets are facing large shortfalls caused by decreased tax revenue, mostly resulting from lower business and consumer spending during the pandemic. Due to budget shortfalls, 65 percent of cities have already been forced to cancel or delay capital expenditures for infrastructure investments, according to a recent survey by the National League of Cities. This change creates a significant risk for the construction industry, as for the past few years growth in public spending had fueled all industry growth while private spending flatlined. Much of the discussion around public spending has been focused on the potential for Congress to pass a major infrastructure bill. Any infrastructure bill would provide a welcome boost for construction spending over the next few years and would cushion the inevitable decline in public dollars coming directly out of city and state budgets over the next 12 to 18 months.





H2 2020 construction forecast: Mixed forecasts

Short-term sentiment will remain negative through the end of the year, and the difference in sentiment between sectors will be even wider than it was pre-pandemic

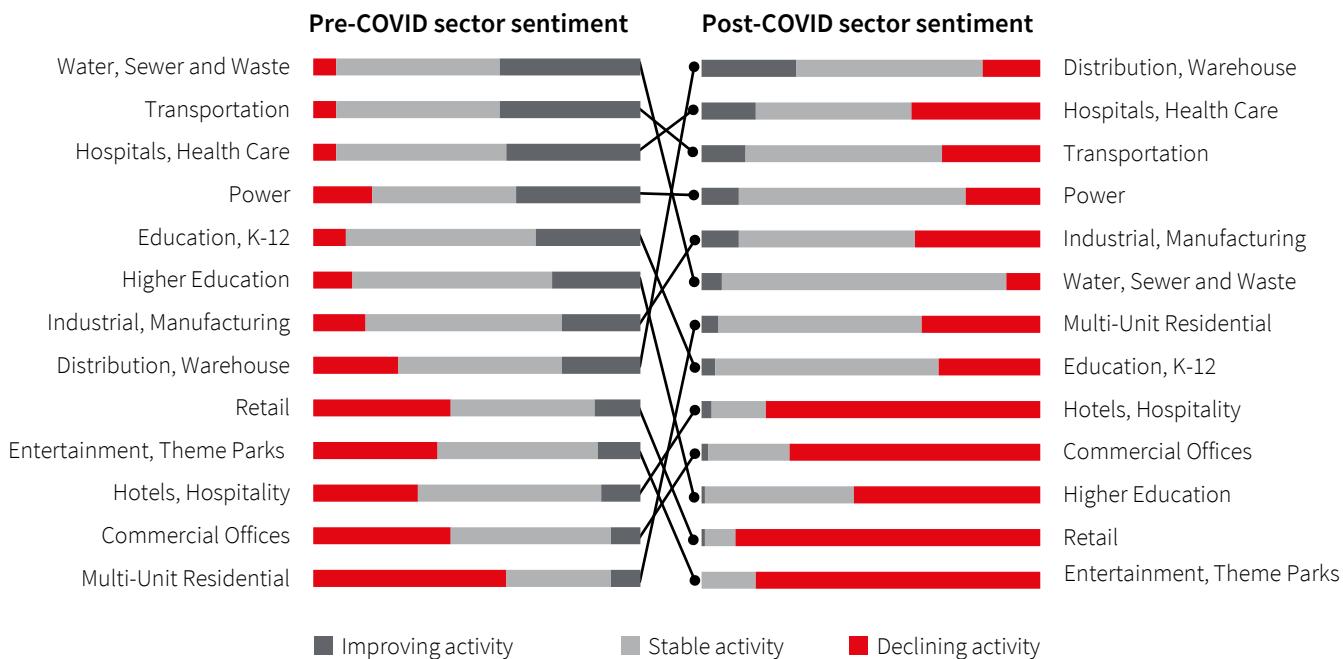
Comparing the change in net sentiment across individual sectors highlights how the pandemic has impacted each sector so far this year. The only sectors with an increase in net sentiment were multi-unit residential and distribution/warehouse. The pandemic has caused unique challenges for businesses that rely on travel or shared public spaces, which has led to an overall pullback in sentiment in some of those sectors, including hospitality, entertainment, retail and higher education. One change to note is the large drop in sentiment for the hospitals and healthcare sector, which reflects the longer-term challenges in that industry due to the pandemic.

Change in net sentiment by construction sector, pre- and post-pandemic
(positive value indicates sentiment is more positive today than pre-pandemic)

Multi-Unit Residential	20%
Distribution, Warehouse	13%
Power	-31%
Industrial, Manufacturing	-34%
Commercial Offices	-39%
Water, Sewer and Waste	-40%
Education, K-12	-48%
Transportation	-52%
Hospitals, Healthcare	-56%
Hotels, Hospitality	-58%
Entertainment, Theme Parks, Cultural	-59%
Retail	-61%
Higher Education	-69%

Sources: JLL Research, Associated General Contractors

Construction sectors ranked by sentiment, pre- and post-pandemic



Sources: JLL Research, Associated General Contractors

Upcoming 2020 election creates political risk and uncertainty, with the potential for both positive and negative outcomes for construction regardless of which party wins

The upcoming U.S. presidential and congressional elections in 2020 are adding another layer of uncertainty to an already volatile time. A wide range of potential policies related to construction could be affected by the party in control of Congress and the White House. One major issue is a large-scale infrastructure investment bill named the Moving Forward Act, on the scale of \$500M to \$1.5B, that could funnel spending toward roads, schools, hospitals and other public sectors. Another important issue for construction will be changes to immigration policies, as construction has one of the highest shares of immigrant workers of any major industry. A number of other critical issues, including environmental regulations and labor regulations, are also dependent on the outcome of the upcoming elections.





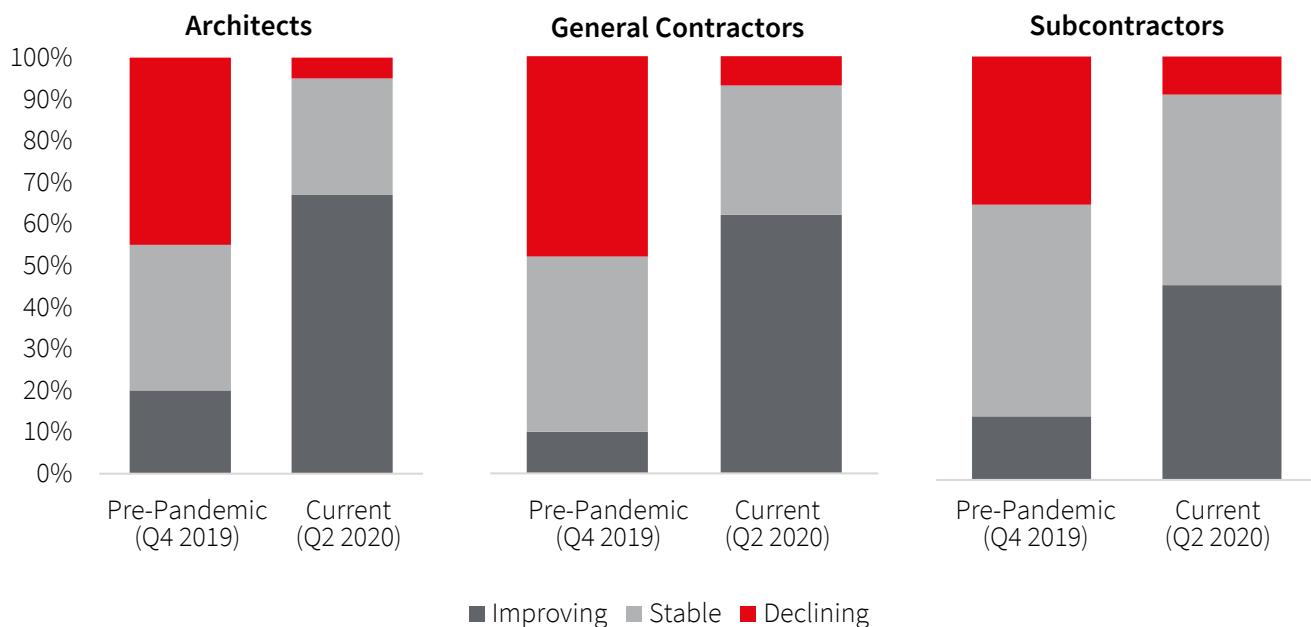
H2 2020 construction forecast: Positive forecasts

Long-term construction sentiment is positive for the first time since 2014, and optimism for growth in 2022–2025 will remain much higher than it was before the coronavirus recession

For the past few years, long-term sentiment in construction has remained stubbornly low, with popular opinion holding that the economy was due for a recession soon, although no one knew exactly when. With a recession always seeming to be looming over the horizon, there were concerns about being overextended when it finally hit. Now a recession has finally arrived, and with it came a complete reversal in long-term sentiment. There is a strong consensus across construction firms that this will be behind us in the next two to three years and

that the industry will return to growth. As highlighted in the charts below, the share of architecture firms that expect industry prospects to improve in three years jumped to 67 percent in a recent survey, up from 20 percent in the fourth quarter of 2019, before the pandemic. For general contractors, sentiment that the industry will improve now stands at 62 percent, up from 10 percent at the end of last year. This shift is partially a representation of the scale of current challenges facing the industry, and the perspective that it has to get better from here. However, a strong and unified belief in future growth bodes well for the prospect of a return to investment in staff, technology and expansion in the next 12–24 months, as firms gear up for a return to growth and look to protect market share in the interim.

3-year construction sentiment by firm type, pre- and post-pandemic



Sources: JLL Research, Engineering News-Record

Technology acceleration due to the pandemic will lead to a permanent and industry-wide increase in the adoption of construction tech

Much like the rest of the economy, construction and the broader office-based portion of the AEC industry was forced into a remote work experiment this year, which tested existing technology systems. On jobsites, staffing limits and distancing requirements expanded demand for cloud-based technology to ease sharing of plans and schedules. New health and safety requirements created a whole new class of problems for technology to solve, from health monitoring to contact tracing. An already burgeoning construction tech industry saw a jump in immediate demand. This immediate impact has been termed technology forcing, or the move by firms to adopt technology because it is a necessity during this pandemic, rather than an optional investment in future efficiencies. The technology forcing in construction will translate to a permanent increase in adoption as construction firms, forced to quickly push through the challenges of integration, will also benefit from the efficiencies of the new tools over the long term. Some of the sectors of construction tech expected to benefit the most will be digital collaboration tools, construction wearables and offsite construction methods, which all provide both immediate benefits in the coronavirus environment and consistent payoffs once the pandemic is resolved.



H2 2020 construction forecast: Leading indicators

Leading indicators for the construction industry

- Architectural Billings Index (ABI)¹**
Billings and contracts dropped precipitously in March and remain low despite regaining some ground in June
- Construction Backlog Indicator (CBI)²**
Backlog dropped below eight months, a low last seen in 2012, but stabilized in May and June and has not dropped further
- Construction Spending (public and private, nonresidential)³**
Nonresidential construction spending is down 1.4 percent year-over-year, mostly due to a 4.3 percent decline in private spending
- Construction Starts (nonresidential)⁴**
Commercial building construction starts are running 19 percent lower so far in 2020 compared to the level in 2019

Construction confidence indexes

- Commercial Construction Index⁵**
Significantly lower in Q2, although without monthly data there is not visibility into a possible bounce-back in the past few months
- Construction Confidence Index⁶**
The CCI dropped steeply but rebounded faster than other indicators, and confidence in staffing levels has returned, although profit and sales confidence remain low
- Quarterly Confidence Index⁷**
Shifted from a slow but steady decline over the past few years to a sharp drop in the latest quarterly data
- CONFINDEX (CFMA Commercial Construction Confidence Index)⁸**
Construction CFO confidence declined sharply in the latest Q2 figures, after remaining relatively stable overall for the past five years
- OECD Business Confidence Index⁹**
While not construction specific, the broad U.S. business confidence index dropped sharply in March and has been slow to rebound

1. Source: The American Institute of Architects

2. Source: Associated Builders and Contractors

3. Source: U.S. Census Bureau

4. Source: Dodge Data & Analytics

5. Source: USG and U.S. Chamber of Commerce

6. Source: Associated Builders and Contractors

7. Source: Engineering News-Record

8. Source: Construction Financial Management Association

9. Source: OECD

 H1 2020

 H2 2020

 Positive outlook

 Negative outlook

Grading our previous forecast

How have our previous forecasts from the last Construction Outlook held up? The last report was written in January 2020, before the severity of the impact of the pandemic became clear. As a result, some of our pre-pandemic forecasts for 2020 overestimated growth this year. The status of our five primary forecasts from the last H1 2020 Outlook are assessed in detail below. For reference, the original forecasts can be found on pages 6–8 of the [JLL H1 2020 Construction Outlook](#).

Uneven growth across sectors

“In an environment where nearly all growth is coming from public dollars, the sectors expected to do well will be those with the most public investment, including transportation, education, healthcare and public safety. The reverse will also be true, with sectors that rely heavily on private investment, like hospitality and retail, expected to see the weakest growth.”

Grade: On target

This forecast played out even more dramatically than expected. The pandemic exacerbated the existing split between growth in public and private spending and caused a sharp downturn in the sectors identified in our forecast, primarily hospitality and retail.

COVID-19 a major unknown for construction costs

“Roughly between one-quarter and one-third of all construction products in the U.S. are sourced from China, so any sustained slowdown in Chinese production may cause material shortages in the U.S. and could lead to increased costs for construction materials. Alternatively, if reduced construction activity due to virus containment efforts causes a major reduction in demand for materials, the reduction in demand may offset or outweigh the upward price pressure. Without the ability to accurately forecast the impact of the virus, we have widened our materials price forecast to account for the uncertainty.”

Grade: On target

Both sides of the forecast played out, with some material shortages early on in the pandemic giving way to more severe disruptions as reduced construction activity occurred due to shutdowns. In the end, the downward price pressure outweighed the upward pressure for most materials, and our wider cost forecast was necessary.

Trade policy will play a smaller role

“Close to home, the USMCA has been ratified by the U.S. and is on track to be fully implemented in 2020. Across the Pacific, the U.S. and China signed a Phase One agreement to roll back a small portion of the tariffs that were imposed between the two countries over the past few years.”

Grade: On target

The USMCA was ratified by all three countries in March, implementation in the U.S. is scheduled, and the Phase One agreement with China is in place. Geopolitical tensions have increased for other reasons, but tariffs and trade policies that impact construction, which dominated headlines during much of 2019, have played a diminished role so far in 2020.

Construction costs to rise modestly

“In 2020, construction costs will continue to increase, but cost growth will maintain the slower pace recorded in 2019. Expect total construction cost inflation in the range of 1 to 3 percent.”

Grade: Off target

Although this forecast was on track through early March, it came off the rails as the spread of the coronavirus shut down much of the country starting in March. Our updated forecasts for construction costs are included in this report and are lower than our original forecast.

Broader economy to provide modest support

“While consumer spending has continued to increase in importance as the major force behind GDP growth, business investment, particularly investment in structures, is expected to stall in 2020. The overall U.S. economy is expected to remain strong enough in 2020 to keep the construction industry on track overall but will not provide the private investment fuel that would be necessary for strong growth.”

Grade: Off target

The overall U.S. economy has significantly underperformed due to the pandemic, with unemployment up and GDP down historically in Q2 2020. Unlike our forecast from the start of the year, economic growth will not be enough to keep the construction industry on track.

Construction cost profiles:

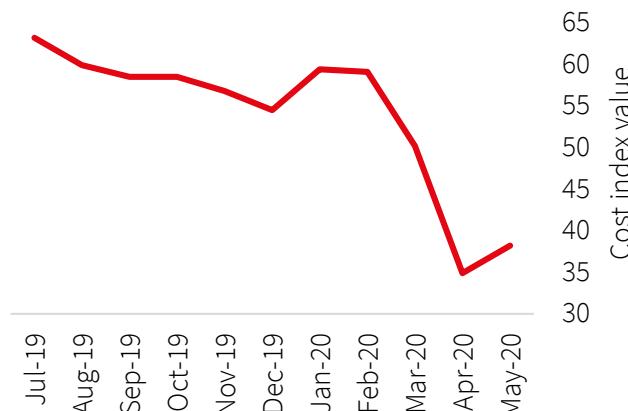
Total construction costs

Over the past few years, national construction cost growth had been cooling off slowly, with costs rising on average 3.4 percent in 2018 and 1.4 percent in 2019. Our original forecast for 2020 was for a continuation of that trend, with overall costs expected to rise 1 to 3 percent. In the first quarter of 2020, during which most impacts from COVID-19 were minimal until they began to pick up in March, construction costs moved in line with this forecast, increasing only 0.4 percent from December to March, an annualized rate of 1.6 percent.

The latest construction cost index data available through the end of May shows a decrease in cost growth that aligns with the spread of the pandemic. Detailed cost data on the following pages, broken down between materials and labor, highlight areas where input costs have already declined. While inputs costs are experienced in a mostly uniform way across the country, final selling prices for construction also include overhead, profit and fees from contractors and subcontractors, which vary

sharply by market. Additionally, the pandemic has led to higher operating costs that are offsetting some of the lower costs from cheaper inputs and more aggressive bidding.

Total construction cost index



Sources: JLL Research, Bureau of Labor Statistics, IHS Markit

H2 2020 Construction cost pressures:

Input prices (material, labor and equipment) are down 1 to 5 percent at the start of Q3 due to decreased demand in Q1 and Q2, and will remain roughly flat for the remainder of the year

Aggressive bidding will put strong downward pressure on construction costs in Q3 and Q4, with new project starts remaining deflated for the rest of the year

Distancing and safety protocols extend schedules and increase operating costs for most projects, creating modest upward price pressure

Summary forecast:

Construction costs are lower now than they were at the start of the year and will remain lower through the remainder of 2020, ending the year down 2 to 5 percent on average. However, lower costs are not expected to last, and cost inflation may resume as soon as Q4 2020, or as late as mid-2021.

Construction cost profiles: Material costs

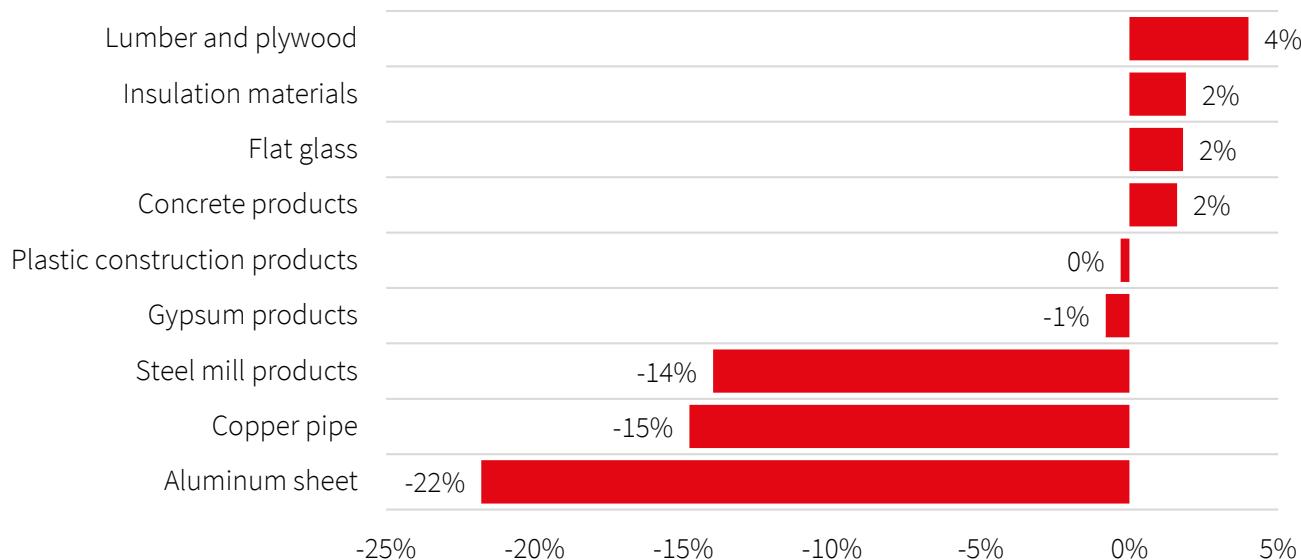
Average prices for construction materials have fallen 3.6 percent since the start of the year, in large part due to decreased demand for materials both in construction and in other production and manufacturing industries. The first impacts were from the supply side, as manufacturing of some materials was disrupted, primarily in China, because of the early spread of the coronavirus. As the pandemic spread globally and major economies implemented shutdowns to varying degrees, the impact to materials shifted to the demand side as well as consumption dropped around the world. The result was a moderate decline in average construction material prices in the first half of the year.

Lumber prices have stood out against the overall trend and moved upward over the past two months after initially declining in April. Demand for lumber has increased from consumers who are working on do-it-yourself projects while confined at home, and from retailers and restaurants setting up temporary

seating, counters, pickup windows and other makeshift ways to keep businesses open during the pandemic. Additionally, shutdowns of some lumber mills in Canada during the second quarter reduced supply available on the market. As a result, lumber prices were already up 4 percent year-over-year in June, leading all other construction materials. Lumber prices are expected to be a major concern for the remainder of 2020, with double-digit cost increases likely, and even limited product shortages possible if the situation worsens.

The pandemic and the current recession have lowered forecasts for commodity prices through the rest of 2020. Average construction material prices are expected to begin to rebound in the second half of the year, and materials prices at the end of 2020 are expected to be higher than they are today. However, overall construction material prices will remain lower in 2020 than they were in 2019, before the pandemic led to the initial crash.

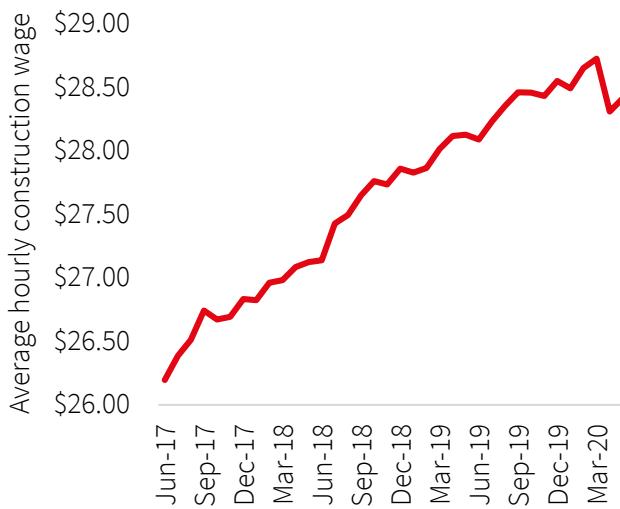
12-month percentage change in construction material prices (June 2019 to June 2020)



Construction cost profiles: Labor costs

Construction labor did not avoid the shocks that spread across all U.S. labor markets in March and April because of the pandemic. In fact, construction was one of the worst-hit industries, due to both work shutdowns across multiple states and the obvious obstacles with shifting to a remote work model. Although the negative impacts have not fully dissipated, construction labor has already partially rebounded this summer from the immediate lows of the spring.

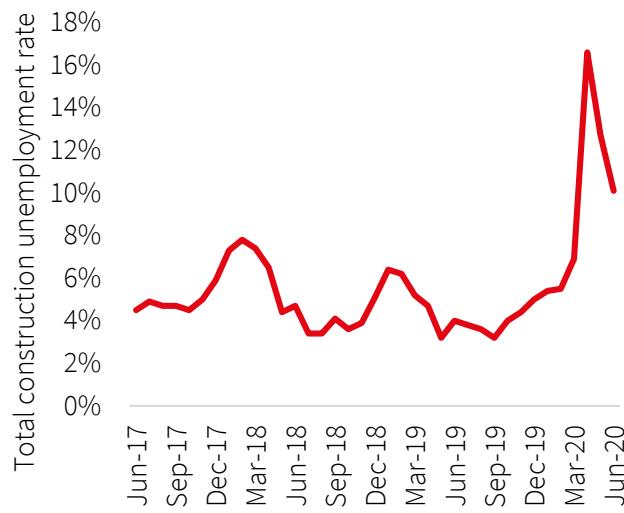
Construction industry average wage and unemployment rate



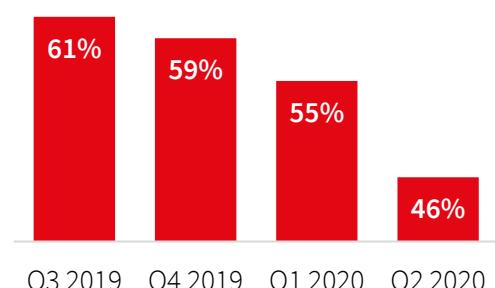
Source: Bureau of Labor Statistics

Unemployment briefly spiked to 16.6 percent in April, reaching close to highs last recorded during the great recession. Worst-case scenarios were averted as unemployment receded quickly, declining toward a still elevated but more sustainable level of 10.1 percent in June. One silver lining to the weaker labor market has been an easing of the labor shortage that gripped construction over the last five years. The share of contractors reporting difficulty finding skilled workers has fallen to 46 percent in the Q2, compared to 61 percent a year ago. Along the same lines, fewer contractors are reporting the need to put in higher bids for projects because of a skilled labor shortage, and fewer contractors are reporting that the skilled labor shortage is causing challenges with meeting schedule requirements.

Average construction wages have declined 1.1 percent since the start of the year. Labor cost impacts vary by market, depending on both the severity of impacts from the pandemic and the prevalence of union labor in the market. In cities with high levels of unionization in the construction workforce, existing contracts may cause wages to rise on an annual basis, with those increases continuing to take place regardless of the pandemic.



Share of construction firms reporting difficulty finding skilled workers



Sources: JLL Research, U.S. Chamber of Commerce

Pandemic impacts on construction: Overview

The spread of COVID-19 resulted in widespread disruption across construction. It was an outside force far beyond the control of the industry, but one which each individual firm, jobsite and worker was forced to adjust to. In the broadest sense, the pandemic impeded what had been a singular national growth forecast for construction and instead created volatility that led to a wide range of impacts across markets and property types.

We will not have a complete perspective on the impact to construction until an effective vaccine or treatment puts the pandemic fully behind us. We can, however, look back on the first few months of the pandemic and the initial waves of disruption it caused. Once this pandemic is in the past, important discussions will be necessary to consider how the construction industry can prepare, and mitigate risk to both projects and workers, for the next pandemic. The goal of the spotlight section of this report is more immediate: to fully understand how the first four months of the pandemic impacted construction and how those impacts may shape the remainder of this year and the start of the next. To answer that, the analysis is broken down into three questions, posed here and answered on the following pages.

1.

What was the scope and impact of the construction shutdowns?

2.

Which major markets experienced the worst impacts in the first half of the year?

3.

How were projects impacted when they continued to operate during the pandemic?



Pandemic impacts on construction: Shutdown impacts and timelines

93%

of ongoing construction work was in a jurisdiction with a stay-at-home order

The pandemic has created a wide variety of unexpected challenges for construction, but the most disruptive events this year were construction shutdown orders issued by cities and states. Even in locations where construction was not shut down, stay-at-home orders created challenging environments for operating a construction site. From March to June, shutdowns and stay-at-home orders covered most of the population of the U.S. and impacted the vast majority of project jobsites.

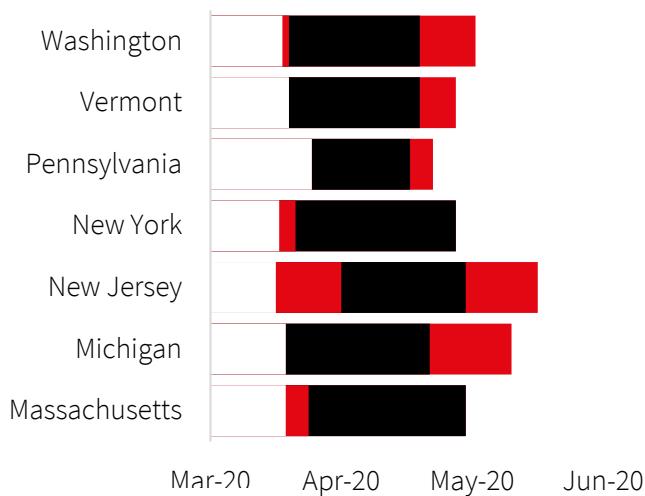
26%

of ongoing construction work was in a jurisdiction with a construction shutdown order

It is important to note that exact restrictions varied by location. In most cases, exemptions from construction shutdowns included emergency work and healthcare work, and in some cases public projects were exempt as well. Similarly, the specific rules for stay-at-home orders varied across jurisdictions. For the purposes of this report, the restrictions are simplified and grouped into the two broad categories of construction shutdowns and stay-at-home orders.

There was relative consistency around the timelines for construction shutdowns. Across the seven states that issued a shutdown order, the average length of the shutdown was 41 days. Most of those states also had stay-at-home orders in place longer, both before the construction shutdown started and after it ended, during which time construction work was considered essential and allowed to move forward. For cities that shut down construction, the city shutdowns were always longer than the statewide construction shutdown or those cities were located in states that did not shut down construction at all.

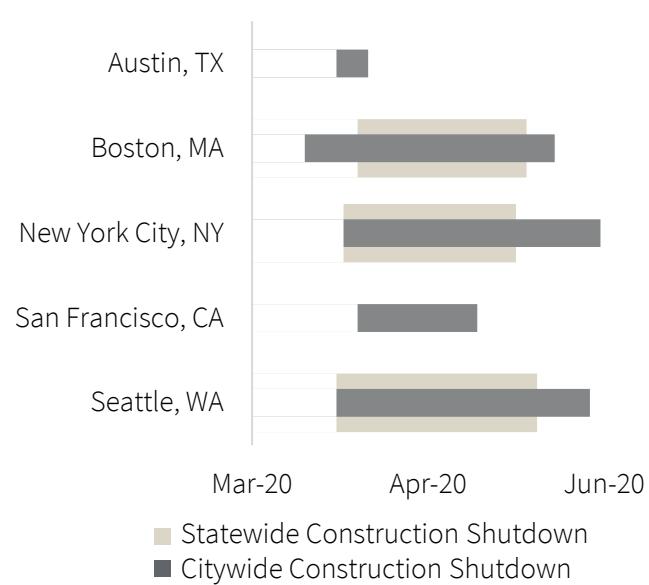
Timelines for statewide COVID-19 construction shutdowns



- Stay-at-Home Order Only
- Construction Shutdown AND Stay-at-Home Order

Source: JLL Research

Timelines for local market COVID-19 construction shutdowns



Source: JLL Research

Pandemic impacts on construction:

Market-level impacts

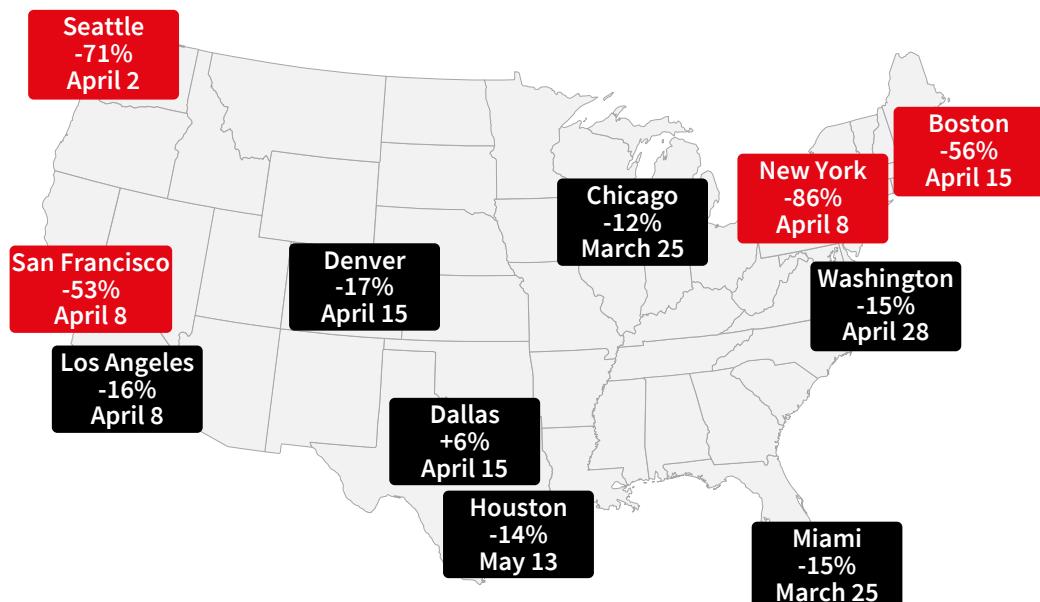
Government-ordered construction shutdowns, designed to slow the spread of the pandemic, had an unsurprisingly drastic impact on construction in the localities where they were implemented. In a typical year, construction industry forecasts depend mostly on property type, like industrial versus retail, or on location type, like urban versus suburban. While there is often some variance in forecasts between markets, it generally results from one industry doing well or poorly. For example, construction in Houston tends to swing in tandem with the strength of the energy industry.

Worst week by market:

Date identifies the week when construction work volume declined the most in each market; percentage shows change in construction work volume in that week compared to the week of March 1

- Construction shutdown ordered
- No construction shutdown ordered

This all changed in 2020, with outside forces, including infection rates and divergent government responses, becoming the primary cause of slowing construction in most markets. Above all else, the one factor with the greatest influence on construction spending in the first half of the year was whether a market was forced to shut down temporarily. Although long-term impacts in markets with shutdowns are not expected to be severe, work levels remained lower in those markets, even after shutdowns were lifted, compared to markets that never shut down work.



Average change in construction work levels, compared to week of March 1



Pandemic impacts on construction:

Project-level impacts

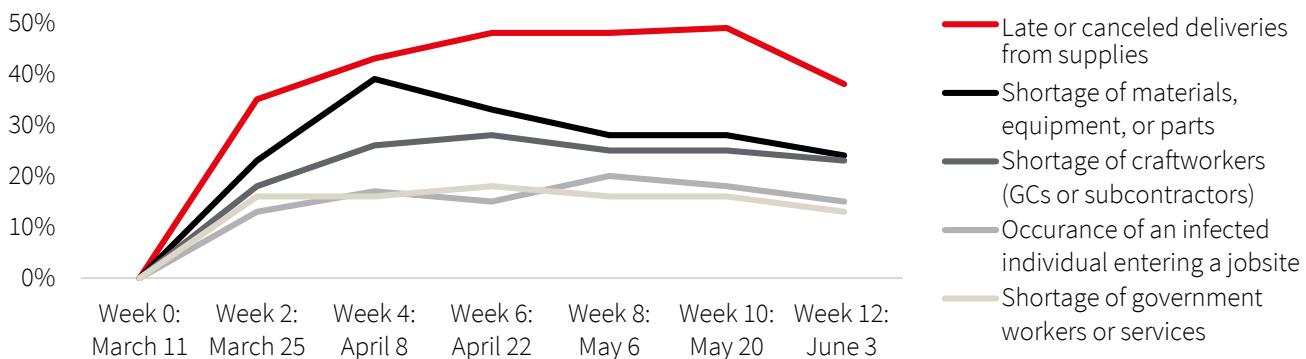
Beyond the impact of construction shutdowns, projects that moved forward still faced challenges while working during the pandemic. The immediate issues came from keeping sites and workers safe as the coronavirus spread, which involved implementing social distancing guidelines, adding handwashing stations, cleaning jobsites more frequently and requiring workers to wear additional protective equipment. Another early challenge that

spread quickly across the country was delays in permits and inspections as local jurisdictions implemented new procedures to keep government workers safe.

From the supplier side, the coronavirus led to challenges in the production, manufacturing and distribution of materials and products used in construction. One major example was furniture, as the cluster of commercial furniture manufacturing facilities in Michigan experienced

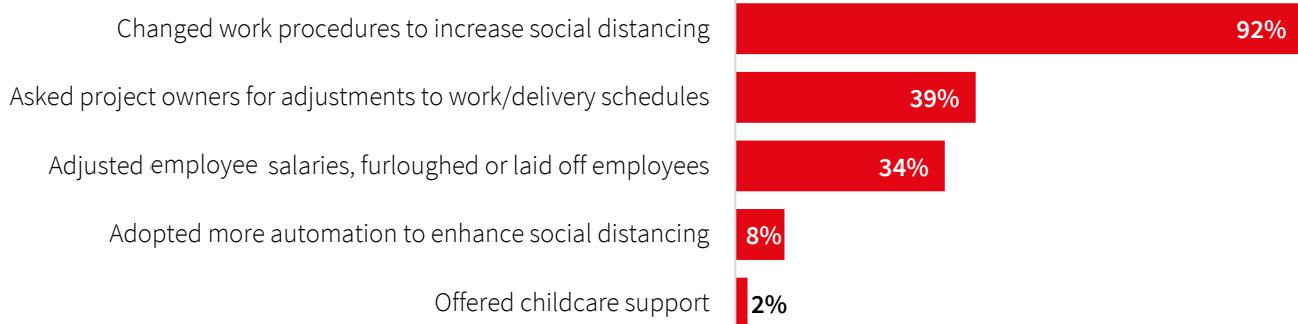
disruptions from Michigan's stay-at-home orders. Since late April, the majority of supply concerns have receded, and most suppliers are back up and running and on schedule. The most expensive impact for most projects has been the schedule changes required to comply with physical distancing rules, which are expected to remain a concern through the rest of 2020. While careful scheduling and additional shifts can alleviate some of the bottlenecks, extended schedules are still commonplace.

Share of projects experiencing disruptions due to COVID-19



Sources: JLL Research, Associated General Contractors

Share of projects implementing changes in response to COVID-19



Sources: JLL Research, Associated General Contractors



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