AGC
THE CONSTRUCTION ASSOCIATION

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CONSTRUCTION INFLATION ALERT

For more than two years the U.S. construction industry has been buffeted by unprecedented increases in materials costs, supply-chain bottlenecks, and a tight labor market. To help project owners, government officials, and the public understand how these conditions are affecting contractors and their workers, the Associated General Contractors of America (AGC) has posted frequent updates of the Construction Inflation Alert.

Several recent developments have raised the specter of a sharp slowdown or even a recession in the U.S. economy. Inflation is at a 40-year high, sapping consumers' purchasing power despite elevated wage increases. Major stock indexes have declined sharply—a frequent but not foolproof harbinger of recession. A growing number of companies have announced layoffs, although the job market remains vibrant, as indicated by large monthly employment increases, near-record job openings, and a persistently low unemployment rate

However, a recession is far from certain. Demand for infrastructure, manufacturing, and power construction appears to be strong and likely to strengthen further, perhaps for several years to come. In any case, the cost of construction materials and labor does not generally move in sync with the overall economy. In short, owners should not assume that delaying projects will enable them to avoid volatility and disruptions in construction costs, delivery times, and labor supply, even if the economy slows significantly.

Meanwhile, Russia's ongoing attack on Ukraine and Western sanctions against Russia have disrupted production and transport of dozens of commodities. China's prolonged lockdown of Shanghai and other areas in an attempt to control the spread of covid has also affected production and shipping. New variants of covid, as well as a growing number of people with lingering or recurrent symptoms ("long-haul covid"), add to uncertainty about labor supply.

This version of the Alert is the seventh update since the first edition was posted in March 2021—an indication that the situation remains far from "normal." This document will continue to be revised to keep it timely as conditions affecting demand for construction, labor supply, and materials costs and availability change. Each new version is posted here: https://www.agc.org/learn/construction-data/agc-construction-inflation-alert

Please send comments and feedback, along with "Dear Valued Customer" letters or other information about materials costs and supply-chain issues, to AGC of America's chief economist, Ken Simonson, ken.simonson@agc.org.

Recent changes in input costs

Previous editions of this guide have highlighted the extreme runup in materials costs that began in early 2020. More recently, prices have moved in divergent directions for different materials. But, on balance, they continue to climb at a much higher rate than the consumer price index.

The extent of these increases is documented by the Bureau of Labor Statistics (BLS). BLS posts producer price indexes (PPIs) around the middle of each month for thousands of products and services (at www.bls.gov/ppi). Most PPIs are based on the prices that sellers say they charged for a specific item on the 11th day of the preceding month. Producers include manufacturers and fabricators, intermediaries such as steel service centers and distributors, and providers of services ranging from design to trucking.

Figure 1 shows the magnitude of the increases for seven widely used categories of construction inputs. From April 2020, the low point for prices of many goods during the early stage of the pandemic, to June 2022, the PPI for steel mill products more than doubled (up 124% in 26 months). There were increases of more than 60% in the indexes for copper and brass mill shapes (up 68%) and lumber and plywood (up 61%). PPIs rose by more than half for plastic construction products (up 55%) and aluminum mill shapes (up 53%). The index for gypsum products increased 44% and the PPI for truck transportation climbed 40%. Numerous other indexes rose by more than the 23% increase in the "bid price" index.

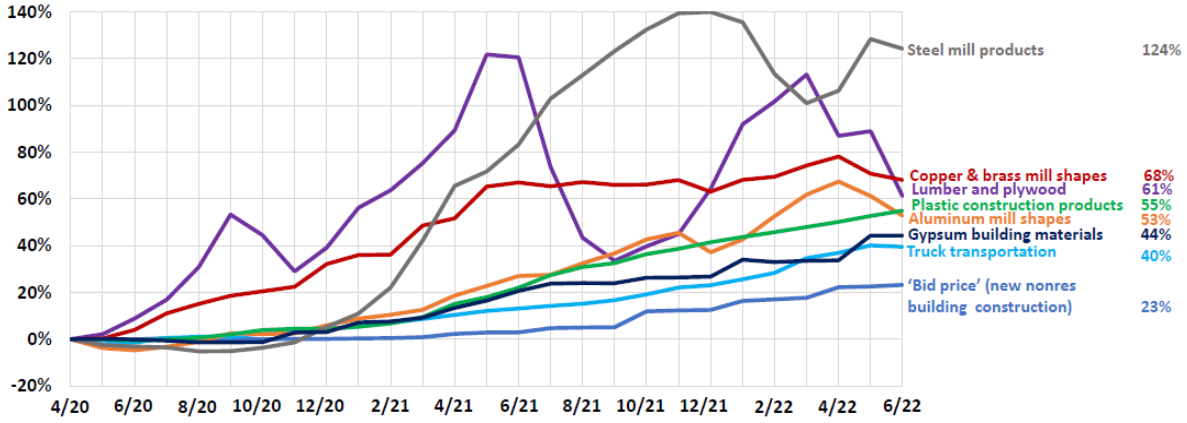
124%

The PPI for steel mill products rose 124% in 26 months

Figure 1

PPIs for construction bid prices and selected inputs

cumulative change in PPIs, April 2020-June 2022 (not seasonally adjusted)



Source: Bureau of Labor Statistics, producer price indexes, www.bls.gov/ppi

Supply-chain issues

From the first days of the pandemic, availability and delivery times for materials have been never-ending headaches for construction firms. Problems began as early as February 2020, when factories in China and northern Italy were shut down, causing shortages of items as diverse as elevator parts, floor tiles, and kitchen appliances. Two years later, another round of covid-related restrictions in China disrupted production and shipping from that country.

Russia's attack on Ukraine, Western countermeasures against Russia, and diversions or blockages of cargo ships are impeding or cutting off supplies of items as diverse as pig iron used in steelmaking, neon for lasers used in semiconductor manufacturing and other applications, and Ukrainian clay used in producing ceramic tile exported to the U.S. from Italy and Spain. Some of these impacts are far down the supply chain from the actual construction item. For instance, a producer of electrical switchgear reported in May that the time for delivering products from its plant had doubled from 20 weeks to 40, in part because of difficulty acquiring a fire-retardant chemical produced in Europe that goes into a plastic resin used to make the housing for its switchgear.

Adding to these pandemic- and conflict-induced problems, a series of unusual mishaps interfered with output or delivery of numerous goods. The biggest impact for construction came from the severe freeze in Texas in February 2021 that damaged all of the petrochemical plants producing resins for a host of construction plastics. Damage to the electrical grid in Louisiana from Hurricane Ida last September further interfered with the production of some plastics inputs. Some cement plants have incurred unusually long outages, in part because of delays in sourcing replacement parts.

466,000

The number of job openings at the end of May, a record for the month

Contractors have also been affected by the much-publicized shortage of computer chips. Not only is the construction industry a major buyer of pickup trucks that are in short supply, but deliveries of construction equipment also have been held up by a lack of semiconductors.

Contractors have reported being quoted exceptionally long lead times and/or allocations (less-than-full shipments, generally tied to previously ordered quantities) for inputs as varied as electrical transformers, traffic signal equipment, highway striping paint, wallboard, insulation, windows, and roofing fasteners. Strong demand, plant outages, and truck driver shortages have meant long delays in completing ready-mix concrete pours in several states in the Southeast and West.

So far, there is little sign that the supply chain will consistently improve before 2023—or even 2024, in the case of some computer chips. While the lead time for some items has shortened, deliveries for many materials remain delayed or unpredictable. In fact, the expiration of labor contracts for West Coast longshore workers and rail workers nationwide could result in new disruptions of shipments later this year.

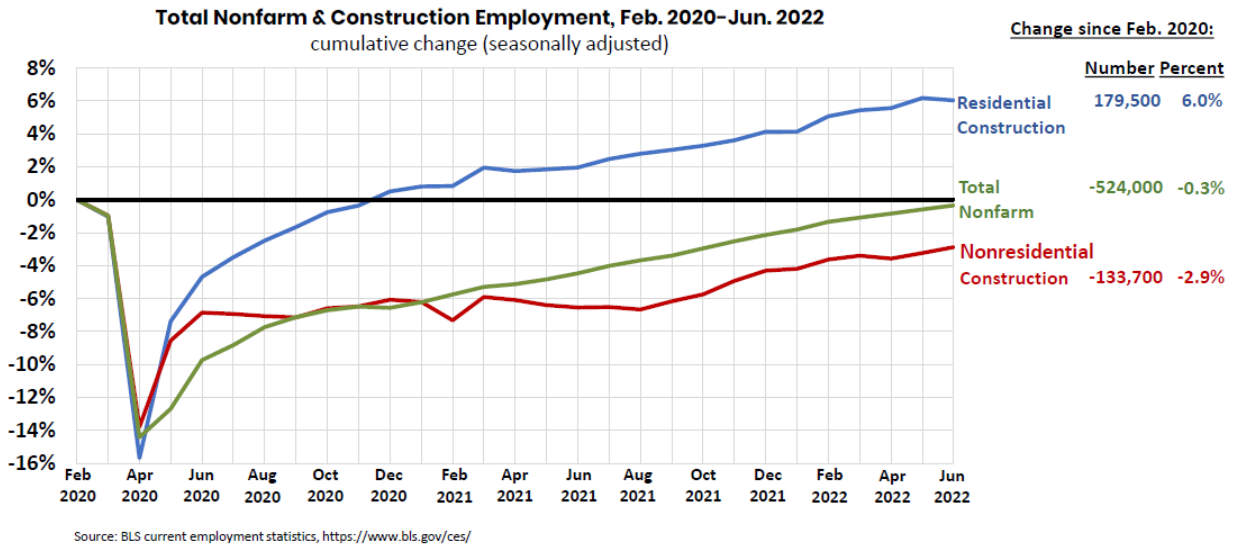
Labor supply and cost

Construction employment has bounced back well from the early months of the pandemic. However, construction firms are far short of the number of workers they have been seeking. They have partially closed the gap by getting more overtime from the workers they have, but this cannot continue indefinitely.

The construction industry lost 1.1 million employees from February to April 2020—a 15% decline in just two months. While both residential and nonresidential construction employment rebounded somewhat in May 2020, employment stalled for more than a year after that among nonresidential firms—nonresidential building and specialty trade contractors plus civil and heavy engineering construction firms. During that period, thousands of experienced workers moved into residential construction (homebuilding and remodeling), found jobs in other sectors, or left the workforce completely.

By June 2022, seasonally adjusted construction employment totaled 7,670,000—modestly higher than the 7,624,000 employed in February 2020. But there was a large shift between residential and nonresidential subsectors. Compared to February 2020 levels, residential construction firms had added nearly 180,000 workers, while employment in nonresidential construction was still down 134,000 employees or 2.9%, as shown in Figure 2.

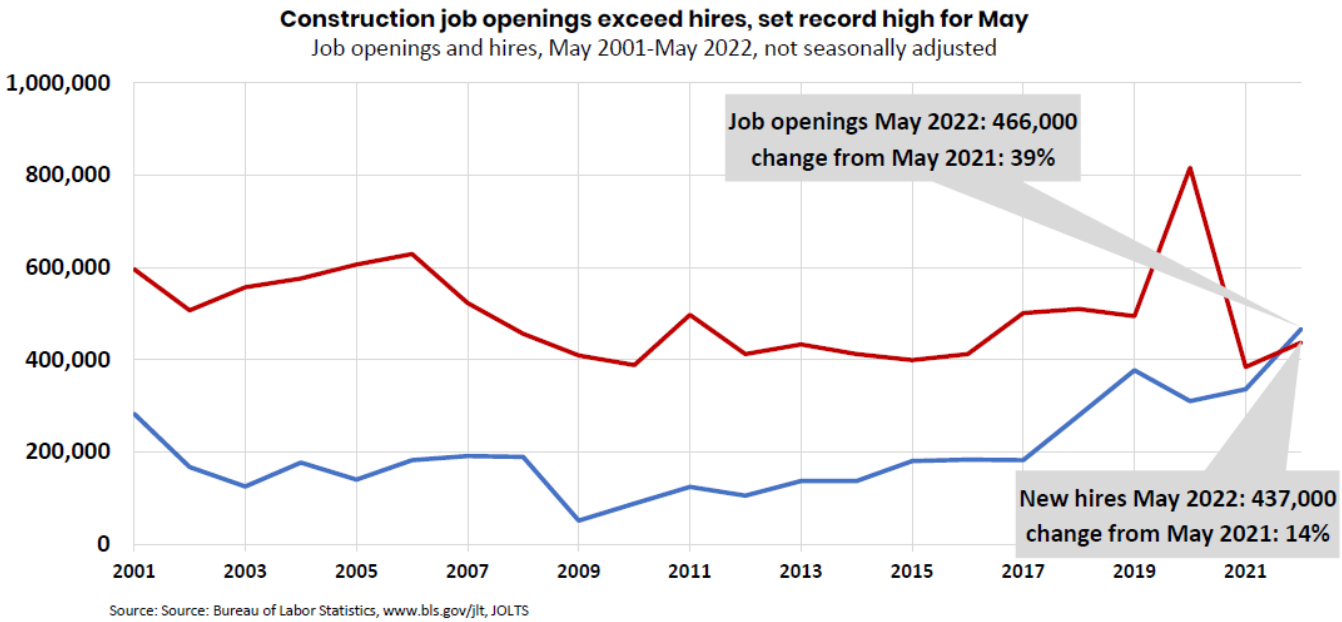
Figure 2



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

There is strong evidence that the construction industry would have added many more workers if they had been available. Job openings in construction at the end of May totaled 466,000 (not seasonally adjusted), a jump of 130,000 or 39% from a year earlier and by far the largest May total in the 22-year history of the data, as shown in Figure 3. In fact, job openings exceeded the 437,000 workers hired in May, implying that construction firms would have hired twice as many workers that month as they were able to, if there had been enough qualified applicants.

Figure 3



Source: Source: Bureau of Labor Statistics, www.bls.gov/jlt, JOLTS

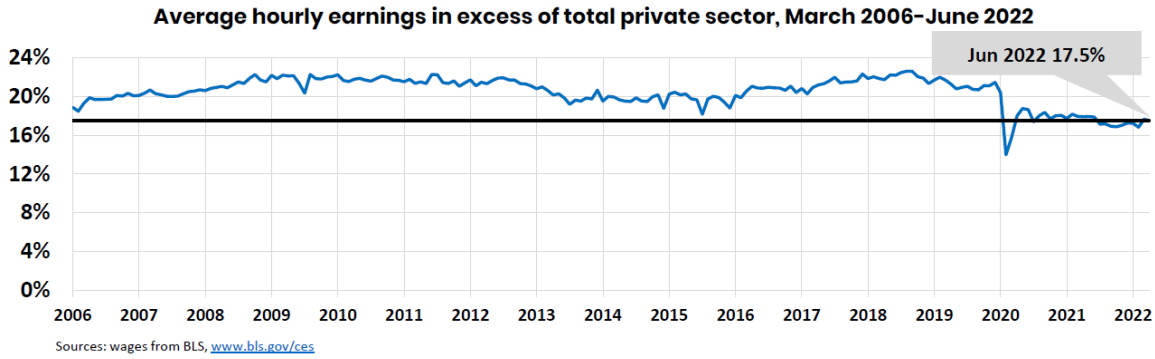
In order to attract, retain, and bring back workers, construction firms are raising pay. Average hourly earnings in construction for "production and nonsupervisory employees"—mainly hourly craft workers—rose 6.0% from June 2021 to June 2022. That compared with increases of 4.0% in the previous 12 months and 2.8% in the 12 months ending in June 2000.

Despite the acceleration in wages, construction pay has not risen as fast as in other industries. Historically, as shown in Figure 4, contractors paid a "premium" to attract workers willing to work in the conditions, locations, and hours required for construction. Specifically, average hourly earnings for production workers in construction typically averaged 20% to 23% more than for all private sector employees, up until the onset of the pandemic. This premium shrank to less that 18% since the start of the pandemic as restaurants, warehouses, delivery services, and other industries drastically increased pay. Other sectors were also able to offer greater flexibility regarding hours and worksites, including work from home, that are not possible for construction.

Figure 4

Wage premium for construction has shrunk

- "Premium" for construction wages relative to total private sector has shrunk from 20-23% pre-pandemic to 17.5% for production & nonsupervisory employees as other sectors boost pay, benefits and offer flexible hours and locations
- Implications: Contractors will have raise pay still more, pay more overtime, invest more in labor-saving software and equipment



Sources: wages from BLS, www.bls.gov/ces

These differences imply that construction wages will have to rise even more steeply to restore (and perhaps expand) the pay "premium." In addition, it is likely that contractors will pay more overtime to make up for the workers they don't have. They may also turn more to offsite production and onsite drones, robotics, 3-D printers, and other ways of reducing the number or skill level of the workers they employ.

Changes in bid prices

The extreme runup in so many input costs caused financial hardship for many contractors and subcontractors, especially for those whose purchases are concentrated in materials with extra-steep increases.

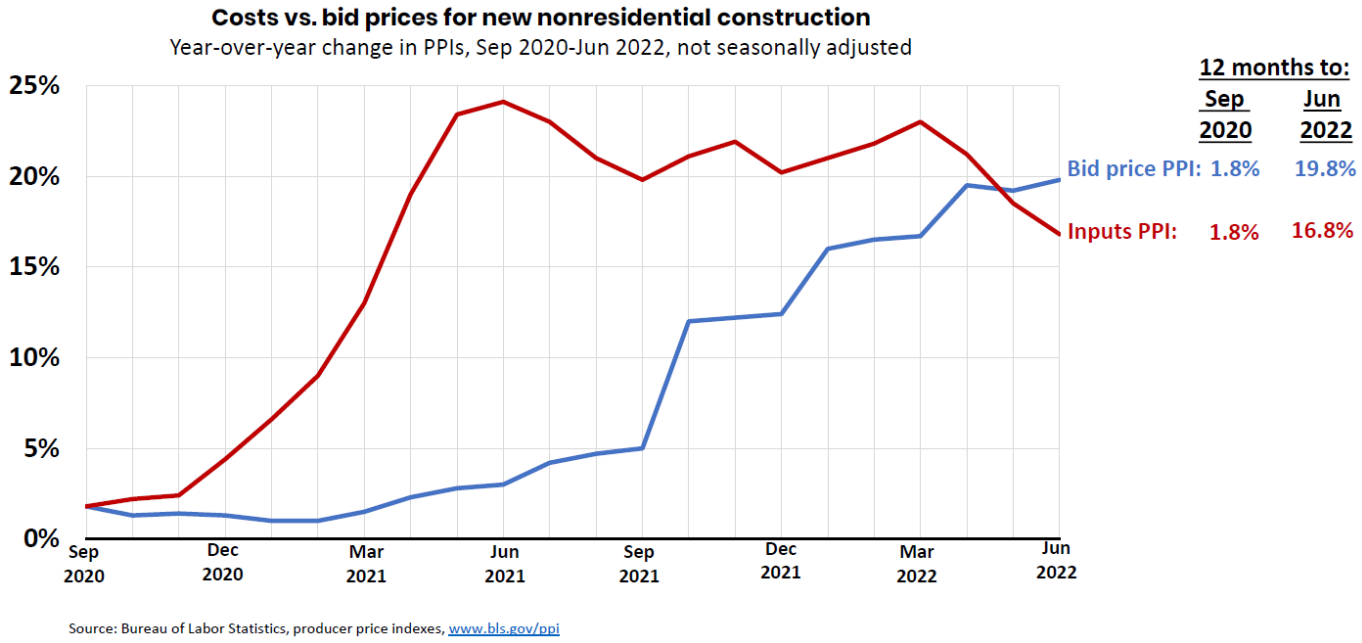
BLS posts several PPIs for new nonresidential construction. Since every construction project is unique, it is not possible to collect prices for identical construction "products" in the same way as for most goods and services. Instead, the agency creates "bid price" PPIs (BLS refers to them as output price indexes) through a two-step process. Each quarter it receives data from construction cost-estimating firms regarding the cost of a package of installed components or "assemblies" of a particular nonresidential building. Every month BLS asks a fixed group of contractors the amount of overhead and profit they would charge to erect that building—the same building that contractor was asked about previously. BLS combines the answers from a set of contractors to create PPIs for new warehouse, school, office, industrial, and healthcare building construction, along with a weighted average of these building types for an overall index for new nonresidential building construction.

BLS also creates PPIs for inputs to construction--weighted averages of the cost of materials and services purchased for every type of project.

As shown in Figure 5, the PPI for bid prices rose at the same rate as the PPI for inputs from September 2019 to September 2020, 1.8% year-over-year. The bid-price PPI continued rising at a modest rate through mid-2021, while the year-over-year change in input prices accelerated to more than 24% by June 2021.

Since mid-2001, the bid-price PPI also has accelerated considerably, as contractors attempt to pass on their rising materials and labor costs. By June 2022, the bid-price index was climbing at a 19.8% year-over-year rate, compared to 16.8% for the PPI for inputs to new nonresidential construction.

Figure 5



Source: Bureau of Labor Statistics, producer price indexes, www.bls.gov/ppi

The bid-price index only indicates the price contractors propose for new starts. On projects for which they had already submitted a bid or begun work, contractors were stuck with paying elevated materials prices that they could not pass on.

What's next for bid prices?

There is no fixed relationship between input costs and bid prices. For every firm and time period, the relationship depends on specific market conditions and expectations.

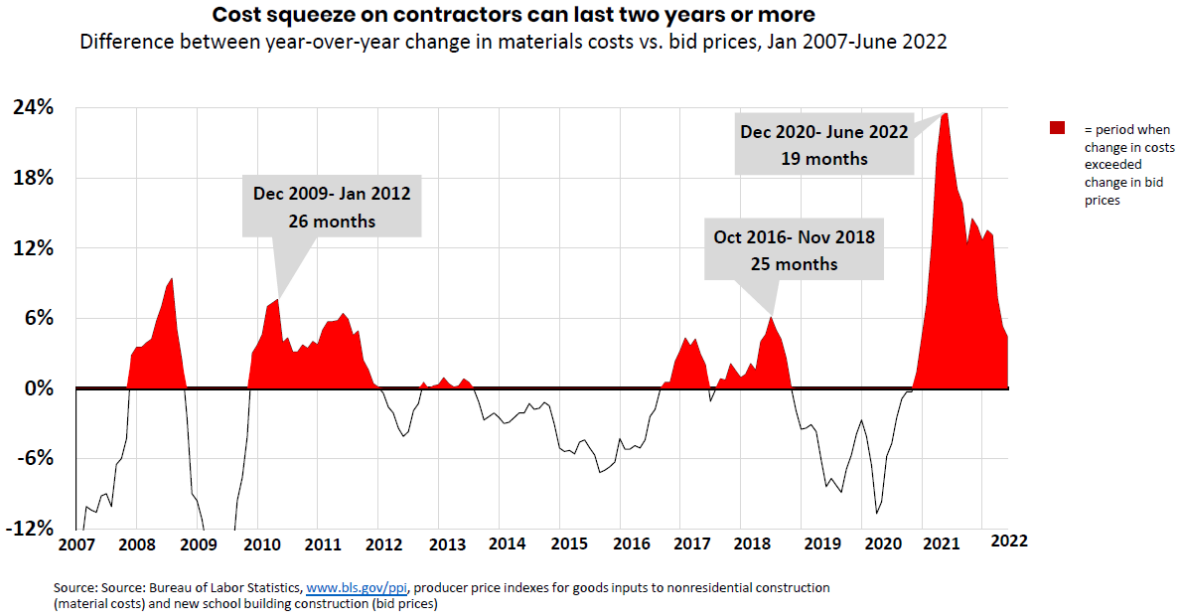
However, it is possible to look at past relationships. Figure 6 shows the difference between the year-over-year change in the PPI for materials costs for goods inputs to construction and the bid-price index for new school construction. The areas in red indicate periods in which the year-over-year change in the PPI for exceeded the bid-price PPI for schools. (Similar patterns exist for the bid-price indexes for new warehouse, office, industrial and healthcare buildings.)

Materials costs outran bid prices for as long as 26 months from late 2009 to early 2012 and for 25 months from late 2016 to late 2018. The current gap hasn't lasted as long but the peak was more than twice as high as in previous episodes, indicating the pain for contractors has been that much more intense.

26 months

The year-over-year change in materials costs may exceed the change in bid prices for 2 years or more

Figure 6



Source: Source: Bureau of Labor Statistics, www.bls.gov/ppi, producer price indexes for goods inputs to nonresidential construction (material costs) and new school building construction (bid prices)

What can contractors and owners do?

Contractors can provide project owners with timely and credible third-party information about changes in relevant material costs and supply-chain snarls that may impact the cost and completion time for a project that is underway or for which a bid has already been submitted.

Owners can authorize appropriate adjustments to design, completion date, and payments to accommodate or work around these impediments. Nobody welcomes a higher bill, but the alternative of having a contractor go out of business because of impossible costs or timing is likely to be worse for many owners.

For projects that have not been awarded or started, owners should start with realistic expectations about current costs and the likelihood of increases. They should provide potential bidders with accurate and complete design information to enable bidders to prepare bids that minimize the likelihood of unpleasant surprises for either party.

Owners and bidders may want to consider price-adjustment clauses that would protect both parties from unanticipated swings in materials prices. Such contract terms can enable the contractor to include a smaller contingency in its bid, while providing the owner an opportunity to share in any savings from downward price movements (as has occurred recently with lumber, diesel fuel, and some metals prices). The ConsensusDocs set of contract documents (www.consensusdocs.org) is one source of industry-standard model language for such terms. The ConsensusDocs website includes a price escalation resource center (https://www.consensusdocs.org/price-escalation-clause/).

The parties may also want to discuss the best timing for ordering materials and components. Buying items earlier than usual can provide protection against cost increases. But purchase before use entails paying sooner for the items; potentially paying for storage, security against theft and damage, and insurance; and the possibility of design changes that make early purchase unwise.

Conclusion

The construction industry is in the midst of a period of exceptionally steep and fast-rising costs for a variety of materials, compounded by major supply-chain disruptions and difficulty finding enough workers—a combination that threatens the financial health of many contractors. No single solution will resolve the situation, but there are steps that government officials, owners, and contractors can take to lessen the pain.

Federal trade policy officials can act immediately to end tariffs and quotas on imported products and materials. With many U.S. mills and factories already at capacity, bringing in more imports at competitive prices will cool the overheated price spiral and enable many users of products that are in short supply to avoid layoffs and shutdowns.

The federal government can improve the labor supply by allowing employers to sponsor more foreign-born workers to fill positions for which there are not enough qualified applicants. In addition, the federal government should fund and approve more apprenticeship and training programs to enable students and career-switchers to acquire the skills needed for construction trades.

Officials at all levels of government should review all regulations, policies, and enforcement actions that may be unnecessarily driving up costs and slowing importation, domestic production, transport, and delivery of raw materials, components, and finished goods.

Owners need to recognize that fast-changing materials costs and availability require a quick decision regarding bids and requests for changes. For new and planned projects, owners should expect quite different pricing from previous estimates. They may want to consider building in more flexibility regarding design, timing, or cost-sharing.

Contractors need, more than ever, to closely monitor costs and delivery schedules for materials and to communicate information with owners, both before submitting bids and throughout the construction process.

Materials prices do eventually reverse course. Owners and contractors alike will benefit when that happens. Until then, cooperation and communication can help reduce the damage.

AGC resources

This document will be updated if market conditions warrant. Check for the latest edition at:
https://www.agc.org/learn/construction-data/agc-construction-inflation-alert for the latest edition

The AGC website, www.agc.org, has a variety of resources available to contractors, owners, and others wanting to know more about the construction industry.

AGC posts tables showing changes in PPIs and national, state, and metro construction employment each month at:
https://www.agc.org/learn/construction-data

AGC's Data DIGest is a weekly one-page summary of economic news relevant to construction. Subscribe at:
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