Construction market trends

United States  Residential sector strong but building material shortages pose risks; private non-residential output continues to stabilise.

Residential building permits up 60% y-o-y in April; private residential output up 30% y-o-y, but single-family housing starts down -13% m-o-m due to construction material shortages. Private non-residential construction down by -0.5% m-o-m (-5% y-o-y). The Architecture Billings Index (ABI) expanded for the third month in April to 57.9 (> 50, expansion).

China  Chinese real estate generally buoyant but indications of slowdown emerge in April.

Newly started floor space up 13% in April on a y-o-y, 3 month moving average basis. Floor space sold up 48% during the same period.

Private non-residential output vs ABI
Source: McKinsey & Company

Floor space started (3 month moving average, %, y-o-y)
Source: McKinsey & Company

Eurozone construction output vs PMI
Source: Eurostat

India  Core sectors output saw strong growth in April due to weak base but demand conditions remain generally weak.

Growth in eight core sectors up by 56% y-o-y in April and mostly due to weak base of activity during April 2020.

Weighted average of eight core industries industrial production (% y-o-y)
Source: Ministry of Commerce & Industry, India
The Council on Tall Buildings and Urban Habitat (CTBUH) is the world's leading nonprofit organisation for all those interested in the future of cities. It explores how increased urban density and vertical growth can support more sustainable and healthy cities, especially in the face of mass urbanisation and the increasing effects of climate change worldwide. The relationship between policy, buildings, people, urban density, urban space, interior space, and infrastructure is key. Founded in the USA in 1969, with offices in Chicago, Shanghai and Venice, the Council runs hundreds of multidisciplinary programs across the world each year, through its regional chapters and expert committees.

ConstructSteel reached out to CTBUH to better understand how the properties of steel make it an optimal material in the construction of efficient, speedy, and sustainable tall buildings. Using tall building statistics from the CTBUH database, construction trends show that use of all-steel structural systems in tall buildings has been decreasing over the past few decades, in favour of concrete, and especially composite, construction (see Figure 1). The objective of an emerging research project from the Council, entitled "Composite Construction Systems: a Roadmap of the Research Needs to Improve Cost, Constructability, and Sustainable Performance," is to understand how the steel industry can better support market demand through an improved understanding of the possibilities offered by composite Steel/Concrete construction. The essential benefit of composite construction is that it synthesizes the best properties of both materials—for instance, steel has superior spanning and flexural capabilities, while concrete excels in compressive strength.

The behaviour of these composites can be considered at two scales: the scale of the building structure, and at the scale of each construction element. The first type—composite structures—are very popular but relatively simple; while the second type—composite elements—have infinite permutations, with many more currently being developed and tested globally. A tall building with a composite structure is a building where a combination of materials, such as steel and concrete, or concrete and timber, are used together to form the main structural elements. One example of this is a concrete core surrounded by a steel frame. The combination of two materials into a single element, where they work together at a smaller scale, is another type of composite. An example of this smaller scale is a column made with concrete-filled steel pipes or a flooring system made by fixing a concrete slab onto a steel beam.

CTBUH will conduct a survey on composite construction with stakeholders in order to identify the advantages and difficulties of construction using composite structures and elements. Simultaneously, CTBUH will review current research on composite elements and include scientific literature and interviews with leading researchers and industry representatives in the field. The scope of this nine-month research project is to ultimately create a roadmap to identify the most pressing research needs for the advancement of composite construction systems for buildings globally, and to evaluate the findings within the context of general research guidelines prescribed for leading tall building markets.

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Demand-forecasting tools are becoming increasingly important as markets get disrupted and rapidly evolve. To thrive amidst these changes, Construction Equipment (CE) OEMs must be able to estimate future demand by using data-driven, analytical models that allow them to make rapid adjustments to production and supply chains. Improved demand-forecasting models can provide benefits in multiple areas, including revenue generation, cost control, and capital optimization.

Using such models would represent a big change for many CE OEMs, since they have traditionally relied on forecasts that are based on experience and tribal knowledge. These methods have some benefits, but they lack the accuracy and insights that analytical, data-driven models can provide. While some CE OEMs have looked beyond experience and identified demand drivers, they have typically failed to determine which parameters have a meaningful impact on sales. Instead, they simply made judgment calls when planning for the future.

For best results, CE OEMs should transition to statistical models that rely on regression analysis to identify cause-and-effect relationships between sales and demand drivers. These models, which have benefited from advances in machine learning and other technologies, can deliver highly accurate estimates. They also can be applied to massive, complex data sets to identify and discern patterns, even if the information is constantly changing.

Experience shows that advanced analytics can help companies identify the drivers that truly predict CE demand, as well as the strength of the relationship between each driver and sales. But there are multiple potential drivers, and many CE OEMs lack the capabilities or capacity required to determine the most pertinent ones and perform sophisticated analytics. To assist them, McKinsey investigated various models. It first identified the various drivers of demand for CE sales, such as GDP, gross value added (GVA) in construction, construction capital expenditures (capex), and residential housing starts. McKinsey then looked at historical data from 2002 to determine which parameters were most strongly correlated with CE sales across business cycles.

McKinsey found that most individual demand drivers were correlated with CE sales, but the strength of the relationship varied. For example, the correlation was stronger for construction capex than GDP. No single driver had a correlation with CE sales that was powerful enough to be statistically significant. In consequence, McKinsey modeled various permutations based on different combinations of drivers. As a result, the combination of construction capex and residential housing starts was highly correlated with CE sales. After interviewing industry experts, McKinsey also determined that the correlation was even stronger when inventory correction was also factored in. Within the CE industry, inventory correction is typically seen at the beginning or end of the business cycle. If dealers expect sales to rise, they may get overly enthusiastic and build up inventory to a greater extent than needed. If they anticipate a downturn in sales, they may get nervous and liquidate inventory more than needed.

Housing starts
Residential construction is the second main driver of CE sales, especially for smaller equipment such as mini excavators, skid-steer loaders, and backhoe loaders. Housing starts—the number of new residential construction projects that begin during any particular month—serve as a key indicator for growth in this sector. A housing start is counted when construction begins on the footers or foundations of a residential structure. This metric offers a good estimate of construction-machinery use, which is a strong indicator of both replacement and new machine demand.

Inventory corrections
McKinsey also considered inventory corrections in the model, since dealers build inventory when an up cycle is beginning and liquidate when difficult times commence. Product-mix changes related to market fluctuations were also considered. Inventory corrections usually occur whenever a market has been growing for a few years, and the industry expects a cyclical downturn. Such corrections typically occur when the market sees three years of continuous growth.
As the global economy recovers from the economic effects of the COVID-19 pandemic, market growth will vary by country, with some beginning to improve earlier than others. Regardless of location, CE OEMs across the value chain can use demand-driver models to achieve important benefits, including the following:

- **Revenue enhancement.** CE OEMs can use models to pressure test sales plans and set the right expectations, as well as to modulate production to avoid running out of stock in up cycles and excess inventory in down cycles. Models can also further enhance their ability to manage product mix proactively when capacity is constrained.

- **Cost control.** Driver-based models can help CE OEMs determine whether forward-buying of materials is necessary to mitigate inflationary risks. They can also assist with capacity planning, resulting in fewer rush orders and lower freight costs.

- **Capital optimization.** With more accurate forecasting, CE OEMs will have the right finished-goods inventory at the right place and right time, avoiding both stock buildup and obsolescence. CE OEMs will also be able to right-size supply inventory and safety stocks.

**Application of the demand models**

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Analytical, demand-driver-based models can also be applied at the state and regional level. In addition to CE OEMs, other stakeholders across the value chain can deploy them. For instance, suppliers can apply them when formulating strategic plans and determining where to invest in capacity. Similarly, dealers could use the models when considering how to scale their inventories up or down, or when developing sales strategies and capabilities. For investors, demand-driver-based models can help as they pressure test their investment thesis on assets. Of course, any outputs from demand-driver-based models should be triangulated with market intelligence, including input from dealers, customers, field sales, and industry experts.
**Construction steel news headlines**

**construction market and regulations**

Dubai’s real estate market continues to achieve record numbers in the number and value of real estate sales transactions, thus enhancing the emirate’s global position as a preferred real estate investment destination. 4,832 sales transactions worth AED 10.98 billion were recorded in April 2021, the highest value in four years, specifically since March 2017. Link Real estate sector recovery is also expected to prompt major infrastructure schemes considered before the pandemic to move forward as PPPs, requiring international finance and delivery teams. Link Representatives from the UK’s Centre for Digital Built Britain (CDBB) will work with the US National Institute of Building Sciences (NIBS) to help the US develop its own national Building Information Modelling (BIM) programme. NIBS will work with CDBB to adapt the UK programme model and materials as a guide to developing a US national roadmap aligned with the international standard for BIM – ISO19650. Link

The construction industry in Australia is expected to grow by 2.2% in 2021, with the government’s focus on infrastructure investment playing a key role in reviving the country’s economy. In mid-June 2020, the government announced that 15 infrastructure projects worth approximately US$55 billion would be fast-tracked. Federal, state and territory governments have also reached an agreement to cut approval time for infrastructure projects by half. Link The UK construction industry is experiencing its fastest rate of growth for over six years. The IHS Markit Construction PMI Total Activity Index reached 61.6 in April, down only fractionally from March’s six-and-a-half year peak of 61.7 (any figure above 50.0 indicates an overall expansion of construction output). It is the commercial work that is driving the industry’s resurgence - the segment achieved an PMI Index score of 62.2, while civil engineering had a PMI Index of 61.5 and is currently growing at its fastest rate since 2014. Link The European Academies Science Advisory Council (EASAC) has published a report highlighting the need for an urgent review of construction methods and materials. In Decarbonisation of Buildings: for Climate, Health and Jobs, EASAC urges EU policymakers to take action to ensure the reduction of embodied carbon in both the construction and renovation of buildings. Link

Global construction equipment sales were stronger in 2020 than had previously been forecast, due to the spending stimulus implemented by China as a reaction to the pandemic and construction work being deemed ‘essential’ in large parts of the world. The overall decline was expected to be approximately 5%, however, the market grew from already buoyant levels of 2019 by a further 30%. Link Nigeria’s construction industry is due to grow by 3.9% in 2021 after a 7.7% decline in 2020. The fall was caused by Covid-19 restrictions and a drop in demand for oil and gas, which accounts for 65% of government revenues. Nigeria’s construction market is due to increase 3.2% annually between 2022 and 2025, supported by state investment in the infrastructure and energy sector. Link

Russia’s industry ministry has held preliminary discussions with metals producers about buying their products for the state stockpile. Moscow has been keeping a close eye on rising raw material costs in the construction sector as part of efforts to keep domestic commodity prices stable even as they rise at the global level. The government raised taxes for metals companies in 2020. Link

The construction materials sector plays an important role in the commercial and industrial sectors. Despite the challenges posed by the Covid-19 pandemic, the sector has continued to grow, driven by the increased demand for construction materials. The global construction materials market is estimated to reach $6.5 trillion by 2025, growing at a CAGR of 4.5% from 2020 to 2025. The market is segmented into different categories, including concrete, steel, glass, and plastic. The concrete market is the largest segment, accounting for over 50% of the total market. The global construction market is expected to grow at a CAGR of 5.4% from 2020 to 2025, driven by the growing demand for infrastructure development, residential construction, and commercial buildings. The market is further segmented into different regions, including Asia-Pacific, North America, Europe, and the Middle East & Africa. The Asia-Pacific region is expected to dominate the market, driven by the increasing population and urbanization. The construction materials market is highly competitive, with several companies operating in the market, including Cemex, HeidelbergCement, and LafargeHolcim. The market is expected to witness significant changes in the future, driven by the increasing demand for sustainable and green construction materials.