

*- The Construction & Building Material Industry -  
Historical Performance, Covid-19 Impact, and Future Trends*

## **The Global Construction Industry**

Prior to the Covid-19 pandemic which started affecting the world in late January, the global construction industry was expected to post significant growth in years to come at an estimated CAGR of 6.5% to 2023. From 2014 to 2018, the residential construction industry increased at a CAGR of 6.1%, the commercial building construction market at a CAGR of 8%, and the infrastructure construction at a CAGR of 3.9%.

However, due to the implications of the pandemic on every parts of the global economies, the forecast growth for construction in 2020 has been lowered to 0.5%. Many countries have slowed or shut down their production, leading to a sharp decrease in production of a wide range of materials from steel to cement.

Contractors that rely on cross-border materials are likely to be faced with higher costs and slower projects' completion. Bans on public transportation and travel have slowed down project delivery as sub-contractors are not able to perform the services or provide the required material. While works have stalled, equipment rental companies are starting to face problems with equipment left on inoperative sites. Contractors may also be faced with dramatic turbulences alongside their supply chains. With smaller companies facing the real risk of bankruptcy, major contractors will be forced into legal disputes over non-delivery unless some relief legislation is put in place. It should be anticipated that reduced material availability will result in aggressive purchasing patterns and the potential for a price hike as far as high-demand goods are concerned. Price increases of copper and aluminum have already been recorded in different markets across the globe.

Although some suppliers have begun to resume operations, they are doing so largely with reduced workforces and prioritizing a backlog of orders built up since January. Typical lead times for the shipment of Chinese-made goods to the U.S. for instance is now anticipated at 3 weeks or more. This should be expected to increase over the coming months as suppliers battle to catch up on orders.

Many countries have introduced financial support packages of unprecedented scope to cover for revenue losses, however on-going expenses, the absence of income, a prospect of client insolvency or possible inabilities to claim "force majeure" will put a significant financial burden on the construction sector, globally.

As production output is expected to decrease by 20%-40%, investment in public infrastructure is likely to fall. With the real risk of financing drying up in the developing world, contractors may be faced with various challenges including lack of payment for ongoing projects and lack of financing for future projects, suspension of manufacturing / worksites, and; cost overruns & delays.

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**Europe**

The construction industry is very important to the EU economy. The sector provides 18m direct jobs and contributes about 9% to the EU's GDP. It also provides solutions for social, climate and energy challenges.

According to the Europe Construction Industry Databook Series, the European construction industry was forecasted to record a CAGR of 4.4% by 2023, with a projected growth rate of 1.9% for 2019 and 2% for 2020.

Construction activity was steadily rising across all EU countries, supported by low interest rates and stable economic growth. Steady growth in the construction industry in Europe had recorded increased inflow of public and private investment. The residential construction industry increased at a CAGR of 3.8% during 2014-2018, the commercial building construction market grew at a CAGR of 3.6% over the forecast period and the infrastructure construction at a CAGR of 1.7%. The highest value-added in Europe came from the UK. Together with Germany and France, it contributed 50% of the total value added in the industry.

Over the period 2019-2023, the residential building market was projected to increase at a CAGR of 5.2%. Currently, multi-family housing segment accounts for 34% of total residential construction and it was expected to increase to 39% by 2023. The non-residential building construction market was expected to grow at 3.2% on average. The Nordic region was acting as growth engine for European construction industry. Construction growth during 2019-2023 was expected to be 3% in Eastern European countries, while the Western Europe would see an increase of 4.8% p.a.

These growths have also been reviewed by GlobalData to determine the impact of the pandemic on the sector. Construction in Western Europe is set to shrink by 1.9% this year, with the construction industry facing severe disruption and the commercial construction, in sectors like hospitality and tourism, likely to come to a complete halt due to a lack of financing. In advanced economies, GlobalData forecasts a contraction of 1.5% this year.

To alleviate the impact of the pandemic, the EU developed a plan of actions to help companies in all sectors to survive this dire time. The EU is mobilizing EUR 15.6b with a contribution of EUR 5.2b from the European Investment Bank (EIB), EUR 4b from the Member States and EUR 1b from the European Bank for Reconstruction and Development (EBRD). By assisting with liquidity shortages and insurance coverages, Export Credit Agencies are also playing a crucial role in navigating the economic consequences of Covid-19.

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US

The construction industry in the US was expected to record a CAGR of 4.9% to 2023. Enhanced commodity price environment, strong market position and favorable business environment were driving activity across a range of building and infrastructure construction segments. Growth in renewable projects was one of the key factors driving construction activity in infrastructure and industrial building sectors. The Trump administration unveiled infrastructure plans valued at \$1.5t. The residential construction industry increased at a CAGR of 9.1% during 2014-2018 and the infrastructure construction was posting a CAGR of 6.3% during the review period.

Even though experts expected that construction activity would hold up well during Covid-19 given the industry's classification as an essential industry in much of the nation and the presence of substantial backlog coming into the crisis, which stood at 8.2 months in February, the industry lost 975,000 jobs in April according to the U.S. Bureau of Labor Statistics. This was the largest recorded decrease in construction jobs since the government began tracking employment in 1939. There were job losses in all three nonresidential segments, with the largest decline registered among nonresidential specialty trade contractors, which lost 393,100 jobs. The construction unemployment rate was 16.6% in April, up 11.9% from the same time last year.

The main reason for this poor performance of the sector during the pandemic is because the US supply chain is extremely reliant on Chinese materials. By conservative estimates, nearly 30% of all building product imports come from China, but some American construction firms rely on China for up to 80% of their materials. With international suppliers and logistics companies, many of which are China-based, shutting down operations in an attempt to contain the outbreak, contractors experienced severe disruption and price pressure with their material supply chain. Furthermore, the US construction relies heavily on international shipments of materials, including steel, copper, aluminum, stone and fixtures. The Port of Los Angeles reported a 23% year-over-year reduction in shipping containers in February following the shutdown of Chinese and other countries' manufacturing facilities.

A \$2 trillion Coronavirus Aid, Relief, and Economic Security Act (CARES Act) was enacted to help businesses. The largest stimulus of its kind in U.S. history, the CARES Act is designed to put money and resources into the hands of individuals and businesses as the nation grapples with the pandemic. The CARES Act provides \$350b for small-business in loans and \$250b as unemployment aid. It also includes provisions for the construction industry such as loan programs that will help many construction businesses pay employees and overhead costs, while continuing operations, provision of advanced-refundable tax credit for employers implementing new federal paid leave mandates in the Families First Coronavirus Response Act, delaying the payment of employer payroll taxes through January 1, 2021, which will provide relief for businesses' cash flow during this crisis.

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**Middle East & North Africa**

The MENA construction industry was estimated to grow on average 7.5% year-on-year in 2019 and expected to expand at an average of 6.8% every year until 2022, according to Fitch Solutions. The construction sector in the UAE was expected to grow between 6% and 10% in 2020. Egypt had plans for major infrastructural changes, expecting to reach a 10.8% growth year-on-year from 2019.

Saudi was a top active player in the construction market in recent years. The total value of the Saudi capital projects was estimated at approximately \$1.2t in 2018. Saudi's construction sector supported by giga-projects such as The Red Sea Development, Qiddiya, Amaala, Riyadh Metro, and Diriyah, among others, had strengthened the value of awarded contracts in 2019, experiencing a massive 95% jump from 2018. The UAE had projects of \$713b in 2018, and the building construction industry was expected to record a CAGR of 8.8% by 2024. The residential construction industry increased at a CAGR of 6.7% during 2015-2019, and the commercial building construction market at a CAGR of 11.6%.

Due to Covid-19 and coupled with a slump in oil prices, the construction sector in MENA will face a downturn in 2020. PwC estimates that contractors in the region could lose approximately \$30b in revenue (20% of the GCC's total construction market for 2020) if the current situation remains prevalent for three months (meaning April-May-June) and, the construction output growth forecast for the region has been revised to -0.8%.

Firms' finances are naturally under greater pressure as a result. Financial constraints are highlighted as the biggest challenge to activity in the Middle East, and a key concern in Asia. Given the economic backdrop, this is likely to intensify. Across multiple global markets, construction costs are likely to rise faster than tender prices. In Asia Pacific, tender prices for building and civil engineering projects are forecast to rise 1.2% and 2.6% respectively.

The obvious downside to the economy is the reliance on specific markets such as China. To a degree, this is true of every country. However, Gulf countries are especially reliant on energy to drive their economies, with 85% to 90% of federal budget revenues coming from energy exports with 67% of that energy exported to East Asia.

For instance, in Oman in 2017, China accounted for approximately 44% of exports. In the summer of 2017, a group of Chinese financial institutions issued a \$3.5b loan that allowed the Omani government to cover its fiscal deficit. Oman's state-owned Electricity Holding Company sold a 49% stake to Grid Corporation of China, raising \$1b. Even so, the government still projected a 2019 budget deficit of over \$7b, or approximately 9% of its GDP. China's economy being hit by recent events is therefore a significant problem for Oman.

Other Gulf countries are less vulnerable but still quite sensitive to a Chinese economic downturn. Saudi has enjoyed a windfall with US sanctions against Iran, leading to a dramatic

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increase in oil exports to China, up nearly 100% between August 2018 and July 2019. Before the Covid-19 outbreak, Saudi's exports to China averaged between 1.8 – 2 million barrels per day; that has dropped by 500,000 barrels per day at present times. While far less leveraged than Oman, Saudi is highly sensitive to a sudden slowdown in demand for oil from the world's largest consumer (i.e., China) and, although a historic agreement on production cuts was reached on April 12th between OPEC members agreeing on cutting production by 9.7 million barrel per day, oil prices are set to remain at low levels given the severe decline in global demand.

While Saudi is still maintaining its renewable energy program and Aramco is issuing tenders for offshore construction works, other parts of the GCC, including Qatar, Oman and Kuwait, are revising their spending and their construction pipelines. Dubai's Department of Finance has also ordered a 50% cut in capital spending and has called for a freeze on new public construction schemes. UAE contractors will have to go through price negotiation as project promoters insist on re-pricing contracts because of the changed circumstances. Even projects that were awarded as recently as weeks ago are being put through re-pricing.

Saudi is also experiencing a significant amount of disruption to the construction sector. The significant level of infrastructure projects requires a large number of laborers often coming from different countries. The restrictions on movements have significantly impacted staffing capabilities on projects. Secondly, Saudi imports a majority of its machinery and equipment from China. The standstill of imports due to supply chain disruption is seriously impacting orders for new equipment for projects that are set to begin and for projects that are currently under implementation.

To alleviate the impact on emerging economies, the G-20 have agreed to support developing countries and emerging economies with stimulus packages totaling \$5t. Locally, Saudi announced a 5% reduction in its budget to offset these challenges, it is also injecting \$32b in financial support. Approximately \$19b includes direct support to the private sector, especially small and medium-sized enterprises and high-risk sectors such as hospitality and tourism, in addition to provisions allowing the postponement of value-added tax (VAT), excise tax, and income tax payments for a period of three months.

In the UAE, 75% of the AED 50b liquidity facility have been drawn down by UAE banks to support individuals, small and medium enterprises and private corporates. The Central Bank of the UAE has made available AED256b in support to the economy through the banking sector. To make additional liquidity available to banks, the Central Bank had reduced the reserves requirement for demand deposits for all banks, from 14% to 7%. This measure is estimated to inject liquidity of about AED61b, which can be used to support banks' lending to the UAE economy and their liquidity management.

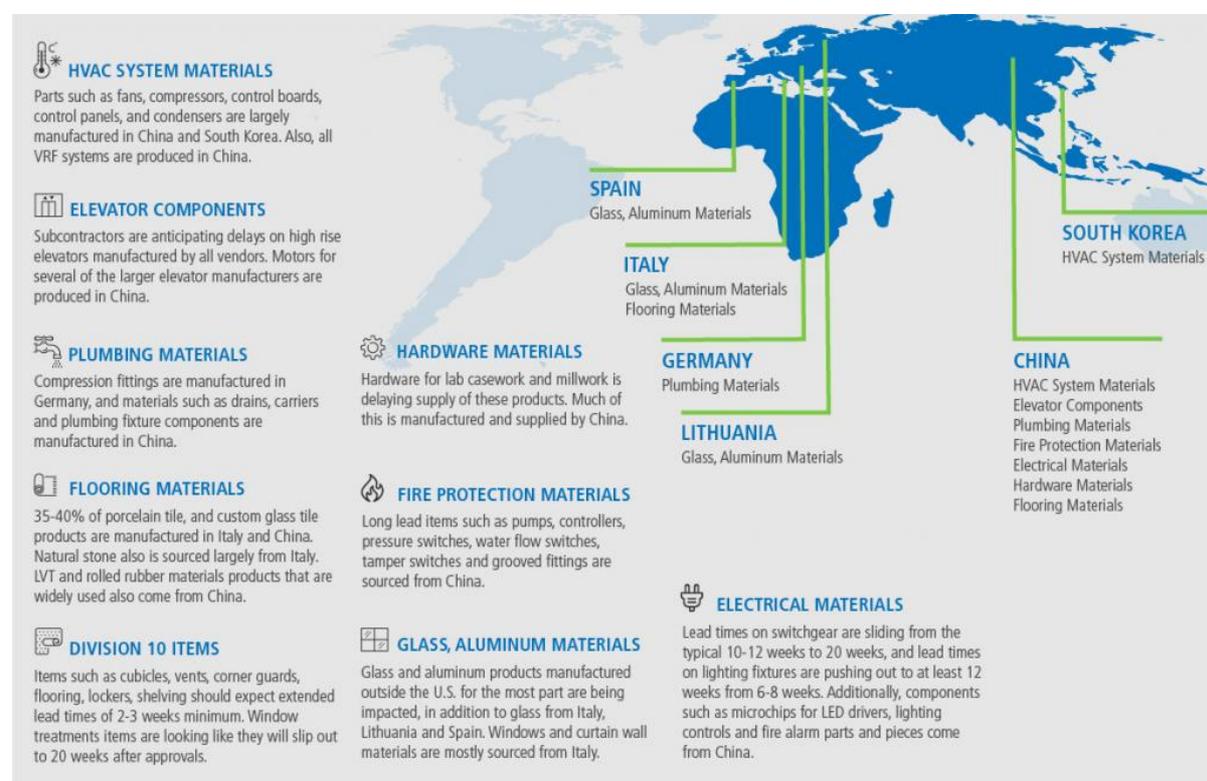
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### Construction/Building Material

#### Global/US

As of 2019 the building material market worldwide was projected to grow at a CAGR of 6.5% to 2025. The global building material market had total revenues of \$771.1b in 2016 growing at a CAGR of 5.3% between 2012 and 2016.

During the period 2019-2025, the US was expected to maintain a 5.6% growth in the building material market. However, its reliance on imports, as highlighted by the visual below, has put the US construction and building material industry at great risk.



#### Europe

The European building material industry was expected to surpass \$125b by 2024. In 2019, most building material players had benefited from fuel- and power-price tailwinds, which had limited cost inflation and helped companies increase EBITDA margins by around 17.4% on average.

For the period 2019-2025, Germany was expected to add over \$18.7b to the region's size whilst \$16.b worth of projected demand would come from the rest of Europe. The thriving tourism industry in Europe was a factor which contributed remarkably to the growth of the European building material market. Renovations and remodeling besides the construction of new buildings was expanding rapidly across Europe and regulations were enhancing remodeling

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with energy efficiency whether through the use of more sustainable building material or through the use of updated technologies.

The UK generated over \$8b in revenue with the UK Office of National Statistics having reported that the construction index in the country had been the highest in the past 15 years in 2017. Also, with major upcoming infrastructure projects such as Brent Cross Shopping Center, Aykon London One, Angel Meadows and other, it was projected that the European building material market would accrue significant profits solely on account of UK's contribution toward the regional business.

As with other regions, the demand for construction will decline. The lockdown of factories within main exporters of materials is also highly affecting current and future projects due to the reliance of imported products. China was the single largest source of imports for the UK construction sector in 2018, accounting for £2.831b of product or 16% of the total, according to the Department for Business, Energy and Industrial Strategy. It was followed by Germany (£2.577b) and Italy (£1.052b). In Germany, it is anticipated that the real GDP decline in 2020 will be -6.3%. On a worst-case scenario basis, it is anticipated that revenues from construction will decline -8% in 2021 and margins to decline -45% according to a study performed by Roland Berger. Building activity in Southern Europe is anticipated to contract by 60-70%.

**Middle-East & North Africa**

In MENA, the building material market was expected to expand at a CAGR of 5.2% through 2017 to 2030. Goldstein Market Intelligence analysts forecasted that the building material market was likely to thrive with the emergence of new technologies and new construction projects.

The GCC building material market was being driven by the economic and demographic needs, initiatives associated with the Saudi Vision 2030, Abu Dhabi Economic Vision 2030, Dubai Expo 2020, and Qatar National Vision 2030, as well as international tourism associated projects and the assurance from governments towards infrastructure investment as discussed in part 1 of this document. All these initiatives and positive trends were expected to fuel the growth of the GCC building material market. Major growth was observed in sectors such as transportation construction industry, energy and power, which have large scale investments. Further, there were noteworthy affordable housing necessities across the region, and more explicitly in Saudi, Kuwait, and Bahrain, where housing schemes were being planned to build a large number of new units. Additionally, the regional projects pipeline appeared solid with over \$2t of projects in the planning stage.

As with other regions, MENA will be affected by its reliance on other countries for labor and materials. The industry will likely face shortages – or indeed stoppages – in materials being sourced from outside. This may lead to companies having to source materials from new locations, leading to potentially higher material costs and a slower progression of works. In MENA, as a whole, building tender prices are predicted to rise 1.7%, with construction costs rising by 2.4%.

## Reshaping the Industry: New Technologies

The most significant differentiator for construction players in years to come will be technology, specifically through innovations that can enhance efficiency. The future lies in digitalization with the highest potential seen in emerging regions which have traditionally lagged behind others in the adoption of new technologies.

Digital technology has now allowed architects to become far more imaginative and creative in designing buildings. This increasing level of complexity means technology must be leveraged to connect designers with engineers and builders, often on different continents to bring these projects to fruition. For example, the Abu Dhabi Louvre's steel and glass dome was done through the collaboration of more than 1,000 employees across Europe, the Middle East and South Asia. In the next 10 to 20 years, advanced technologies like robotics will revolutionize the industry. Today, there are many examples of Contour Crafting from around the world. Contour Crafting is when the robotic arm and the entire robot are mounted to a rail system installed on site to direct their motions. The arm moves back and forth to move the building material layer by layer, and then trowels help flatten and smooth out the layers.

2019 saw the continued proliferation of digital transformation projects within smart cities around the globe. This aligns with the global megatrend toward urbanization, with 68% of the world population projected to live in urban areas by 2050.

Several trends center on environmental sustainability and digital enablement to improve urban quality of life. As city leaders consider how to create more sustainable, equitable, and resilient communities, many are turning to smart technologies that support urban sustainability. For example, the rise of intelligent buildings that can self-optimize their operations and all-encompassing building management systems to better serve their inhabitants over time is a rising trend powered by AI.

Stephan Degenhart, Associate Partner at Drees & Sommer and Managing Director of the Middle East office, said in that regard: *“Adaptive Modular Design and Digitization at planning stage and Revitalization at operation phase are the frontrunners to enable increased ROI. The Middle East’s construction industry is currently far less digitally developed than those in other parts of the world, presenting a key opportunity for growth”*.

Key digital trends such as 3D printing, 3D laser scanning, digital pre-fabrication and continuous advances in Building Information Modeling (BIM) will begin to make more of an appearance within the construction sector as it continues to develop and shift in focus towards a more digital future.

For design and building material, among the trends for 2020 and beyond, firms are moving toward modularization and prefabrication of components. The rise of module assembly yards

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borrowing some of the cost-efficient practices of manufacturing for the construction industry. Modularization and prefabrication not only can save on labor costs but might also ensure better quality and shorten the project schedule with less labor required on-site. Construction Dive predicts that modular construction and prefab materials will continue to grow by 6.9% per year until 2023.

Many smaller builders have developed innovative, green building designs with this method, increasing their market visibility and being at the forefront of government regulations regarding greener buildings and energy efficiency. Other major international builders say they plan to pare down their on-site construction activity to just 25% by 2025 in favor of prefab construction.

The green building material market is expected to hit \$1t this year. The building sector is responsible for 40% of the primary global energy consumption. Green buildings are expected to reduce this percentage by 50% no later than by 2050. This will be concurrent with the reduction of greenhouse gasses by 84 CO<sub>2</sub> gigatons by the same year. All across the world, regulations are being put in place to accelerate the use of green materials. For instance, the state of California plans to ensure all its new residential buildings are Zero Net Energy by 2020, while their commercial counterparts meet the same goal by 2030. The largest tech companies in the world are investing in megaprojects to build smart, sustainable cities. This includes IBM, Microsoft, and Cisco, all of whom are deep into smart city development. Investment in these cities is expected to reach \$135t in by 2022.

Blockchain is also making its appearance through smart contracts which offer all organizations in a project a shared system to do business, allowing them to buy, track, and pay for services. Rather than getting contracts and tracking deliverables from all separate parties, firms can use smart contracts as an all-in-one tracking system where rules and deadlines are set and the blockchain enforces them. Mobile technology is also gaining grounds. According to e-Sub, 80% of construction professionals say mobile technology is a top priority for their firms. It provides many applications from real-time inspections to on-site accountability and being able to measure spaces with just a mobile phone camera.

The Covid-19 pandemic has highly affected the construction industry, that was globally too reliant on imports of building materials and on skilled labor. Now more than ever, the efficiency of technology has been proven to reduce these risks exposure and investing in R&D will become a major differentiator for all players within the supply chain for years to come.

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**REFERENCES & SOURCES**

*All data and information provided in this paper have been taken from reliable and trusted sources:*

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