



US Construction Sector

NAICS: 23
SIC: 15, 16, 17

prepared February 18th, 2022

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Coronavirus Update

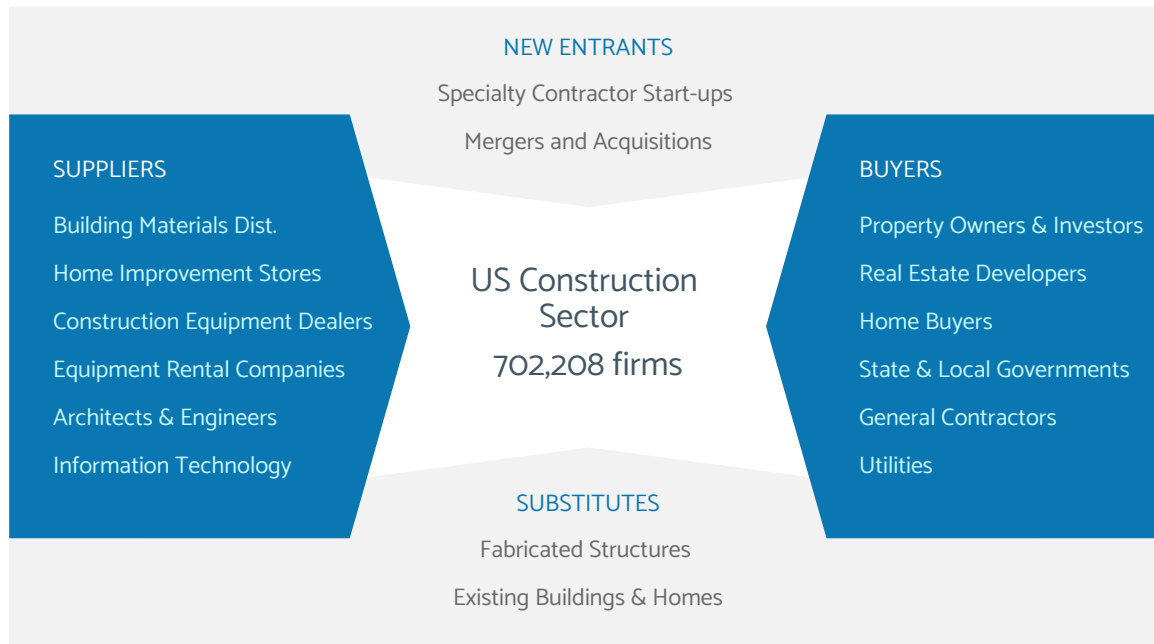
Jan 18, 2022 -- Omicron Could Worsen Materials Shortages

- The construction sector has been less affected in the short term as existing projects progress, potentially at a slower pace, due to difficulties in securing materials. The sector is expected to see a slowdown in new projects as businesses assess the coronavirus's impact on their revenue and ability to invest in capital projects.
- The shutdown caused a significant drop in construction job losses – more than 800,000 construction jobs were shed in April 2020. The construction sector added 22,000 jobs in December 2021. December marked the third month of a turnaround for the somewhat beleaguered nonresidential building market, which has laggard compared to the single-family housing segment during most of the pandemic. In December, more than 65% of total construction sector job gains were in the nonresidential building and nonresidential specialty trade subsectors.
- In mid-January, efforts by the Chinese government to contain the spread of the Omicron variant sparked concerns that exports from China could be disrupted, causing more shortages and inflation. The pandemic has driven up prices for many construction materials, including lumber and steel. After reaching record highs, lumber prices began to moderate in May amid improving supply. Lumber prices started rising again in October. In December 2021, US producer prices for softwood lumber were 8.6% higher than a year earlier but down 38% from the highs seen in May. In December, iron and steel mill producer prices were up 125% compared to year-earlier levels. Prices have risen because factories that slowed production earlier in the pandemic were slow to ramp-up to full capacity, partly due to labor shortages. There are still lingering kinks in global supply chains that have slowed the movement of goods and driven up prices for many types of construction materials. As of December, ready-mix concrete prices were up 7% year-over-year. Prices for gypsum products were up 20% in December compared to the same month a year earlier; paint and coating prices rose 15.7% during the same period.
- Demand for some types of construction, such as retail, office, hospitality, and entertainment venues, fell as hard-hit industries take time to recover from lost revenue. Retailers and other businesses that fail or reduce their number of locations could leave a glut of commercial space unoccupied. This could negatively affect demand for new commercial space but will raise demand for commercial renovations as new or expanding businesses enter those spaces. However, some experts believe the teleworking trend that began early in the pandemic will remain and have long-term, negative effects on demand for office and commercial real estate in central-city locations.
- The construction industry doesn't have the luxury of allowing most employees to work from home. However, the increased availability of vaccines will help make construction sites safer. On April 19, all Americans over age 16 became eligible to be vaccinated. As of January 13, more than 208 million Americans were fully vaccinated, or about 62.7% of the US population. On September 9, the Biden Administration announced that businesses with more than 100 employees would have to require their workers to be vaccinated or be subject to at least weekly COVID-19 testing. The administration also issued orders requiring all federal workers and on-site government contractors to be vaccinated. The requirements were to be implemented through a temporary standard issued by the Labor Department's Occupational Safety and Health Administration (OSHA). On November 6, the 5th US Circuit Court of Appeals temporarily blocked the OSHA rule due to potential "grave statutory and constitutional issues." More than two dozen states, business groups, individual businesses, labor unions, and religious organizations sued to block the OSHA rule. Due to lawsuits in several circuit courts, federal law required them to be consolidated and heard in a single court chosen by lottery. In mid-November, the lottery was held, and the case was set to be heard in the Sixth US Circuit Court of Appeals. On December 17, the Sixth US Circuit Court of Appeals overturned the lower court's ruling, and some businesses immediately appealed the ruling to the Supreme Court. On January 13, the Supreme Court blocked the vaccine requirement for companies with 100 or more employees. Some in the construction industry worried that a vaccine mandate could make it hard to attract workers at a time when finding enough workers is already challenging. Of nearly 720,000 construction firms in the US, more than 8,000 have more than 100 workers, according to the US Census Bureau.
- Construction firms were eligible to apply for low-interest Economic Injury Disaster Loans (EIDL), but the deadline to apply was December 31, 2021. In late 2020, former President Trump signed a \$900 billion stimulus bill that included \$284 billion in fresh funding for the Paycheck Protection Program (PPP) to provide Small Business Administration (SBA) loans. In March, President Biden signed the \$1.9 trillion American Rescue Plan Act, which included an additional \$7.25 billion funding for PPP. The PPP was set to wind down on May 31, but the program ran out of money on May 11, 2021, and stopped accepting most new applications. The

American Rescue Plan also allocated \$15 billion for Targeted EIDL Advance payments for businesses in low-income communities that have no more than 300 employees and have suffered financial losses of more than 30%. The deadline for applying for the Targeted EIDL Advance was December 31, 2021. The American Rescue Plan Act also includes \$360 billion for state and local governments, with \$10 billion specifically for infrastructure projects.

- Builder confidence hit a historic low in April 2020 as the epidemic took hold in the US but gradually built steam amid solid demand for new single-family homes and low mortgage interest rates. The National Association of Home Builders / Wells Fargo Housing Market Index (HMI) was 30 in April 2020, an all-time low. It then rose every month, hitting new all-time highs in September 2020 (83), October 2020 (85), and November 2020 (90). Any reading above 50 is an indicator of a positive market. The HMI in May 2021 was 83, unchanged from April's reading, as strong buyer demand offset concerns of rising construction costs, questions about housing affordability, and a lack of lots and inventory. In June 2021, the HMI fell two points to 81, then dropped 1 point to 80 in July. August's HMI declined 5 points to 75, marking the lowest reading in 13 months. The HMI then edged up 4 points to 80 in October, then another 3 points in November to 83, then rose 1 point to 84 in December. The HMI fell to 83 in January as high building materials prices and shortages continued to add weeks to residential construction times. Buyer interest remains strong, but low housing inventories, rising home prices, and higher interest rates are hurting affordability.
- Construction spending in November 2021 increased 9.3% compared to the same month a year earlier. Residential spending increased 16.1%, and nonresidential rose 3.4%. Of 16 nonresidential construction subsectors, 10 saw spending growth in November: manufacturing (+22.6%), commercial (+13.7%), power (+10.3%), water supply (+10%), sewage and waste disposal (+7.1%), healthcare (+7%), office (+3.3%), communication (+1.3%), transportation (+0.6%), and highway and street (+0.4%). The weakest nonresidential segments were lodging (-32.1%) and public safety (-32.4%).
- The construction sector's comeback since the onset of the pandemic has been fueled mainly by a robust residential market. In contrast, the nonresidential building and infrastructure segments have been slowed by materials shortages, according to the Associated General Contractors of America (AGC). However, the AGC mainly was upbeat about the construction sector's outlook for 2022, according to an AGC survey released in mid-January 2022. The industry expects a boost from the bipartisan infrastructure law. Contractors anticipate strong demand for several types of nonresidential projects, including highway and bridge, transit, rail, airports, and water and sewer. However, while contractors are optimistic about demand, the AGC noted that labor shortages and disrupted supply chains still pose ongoing challenges. More than 85% of contractors surveyed said materials costs were their top concern in 2022.
- Nonresidential spending will be getting a boost from the \$1 billion bipartisan infrastructure law that President Biden signed in mid-November. The law includes \$550 billion in new spending for key areas, including transportation, utilities, and broadband. The legislation includes \$110 billion for roads, bridges, and other major projects and \$66 billion for freight and passenger rail improvements. Broadband expansion will get \$65 billion while water systems will get \$55 billion in new investment. The funding is set to be spread out over five years. Passing an infrastructure bill has been a Biden administration priority for helping the US recover economically from the pandemic.

Sector Structure



The construction sector is comprised of 702,200 firms that employ 7.3 million workers and generate \$2 trillion in annual revenue.

- The specialty trade contracting segment is highly fragmented: the 50 largest specialty trade firms represent 7% of segment revenue. The 50 largest building construction firms represent 20% of segment revenue; the 50 largest heavy and civil works firms represent 26% of segment revenue.
- The construction sector has a high volume of independent contractors with no employees. The number of nonemployer firms is about 767,900 in building construction, 39,200 in heavy and civil works, and 1.8 million in specialty contracting. The owner of nonemployer firms typically performs the work or subcontracts labor for large or complex jobs.
- In recent years, the industry has shed an average of 62,000 establishments annually, which equals about 10-11% of existing establishments. However, the industry has added an average of 75,900 new establishments annually, which is equivalent to 12-13% of existing establishments. As a result, the construction sector has an average growth rate of 2.3%.
- The construction sector is forecast to grow its employment base by 4% overall in 2019-2029, which is comparable to the national average of 3.7% for all jobs. Growth is evenly distributed across the construction segments.

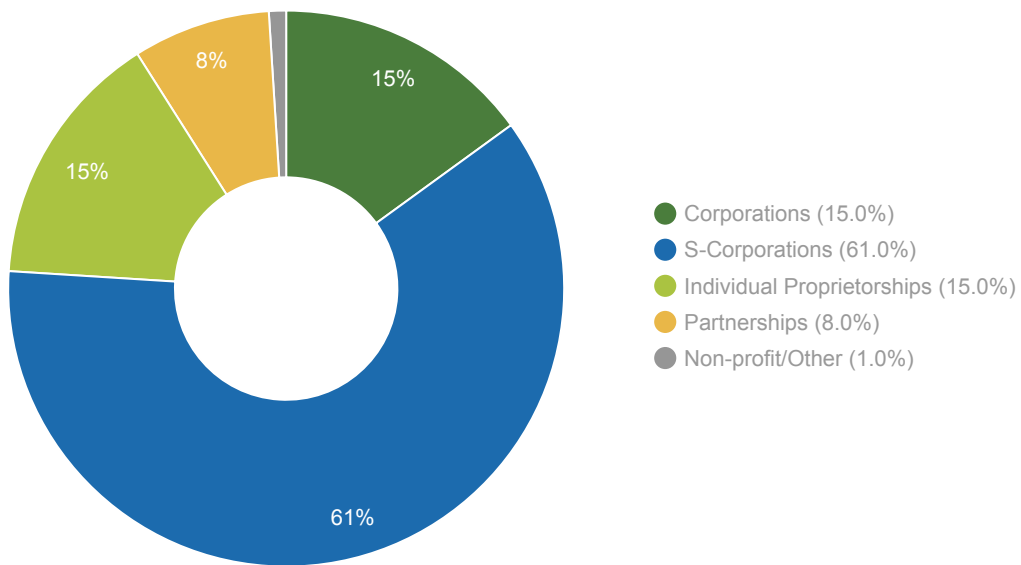
US Construction Sector Subsectors

SUBSECTOR	NO. FIRMS	AVG. REVENUE PER FIRM (\$K)	AVG. NO. OF EMPLOYEES / FIRM	AVG. REVENUE / EMPLOYEE (\$K)
Residential Building Construction (NAICS: 2361)	170,434	\$2,007	4	\$493
Nonresidential Building Construction (NAICS: 2362)	40,825	\$11,230	16	\$703
Utility System Construction (NAICS: 2371)	17,526	\$9,053	34	\$267
Land Subdivision (NAICS: 2372)	4,790	\$1,958	5	\$396
Highway, Street & Bridge Construction (NAICS: 2373)	8,876	\$14,260	36	\$393
Total	702,208	\$2,840	9	\$300

SUBSECTOR	NO. FIRMS	AVG. REVENUE PER FIRM (\$K)	AVG. NO. OF EMPLOYEES / FIRM	AVG. REVENUE / EMPLOYEE (\$K)
Other Heavy Construction (NAICS: 2379)	4,140	\$5,669	16	\$350
Foundation, Structure & Exterior Contractors (NAICS: 2381)	91,765	\$1,947	9	\$206
Building Equipment Contractors (NAICS: 2382)	179,912	\$2,285	11	\$206
Building Finishing Contractors (NAICS: 2383)	114,802	\$1,186	7	\$170
Other Specialty Trade Contractors (NAICS: 2389)	69,138	\$2,165	9	\$239
Total	702,208	\$2,840	9	\$300

Source: Census Bureau

Industry Demographics



Source: US Census Bureau



Female Owned

9.0%



Minority Owned

11.0%



Veteran Owned

7.0%

Source: Census Bureau

Geographic Breakdown

STATE	NO. ESTABLISHMENTS	% OF TOTAL US ESTABLISHMENTS	NET CHANGE 2018	% CHANGE
Alabama	6940	1.1%	100	1.4%
Alaska	1941	0.3%	1	0.1%
Arizona	11023	1.8%	265	2.4%
Arkansas	4831	0.8%	79	1.6%
California	66150	10.6%	2677	4.0%
Colorado	15817	2.5%	607	3.8%
Connecticut	6623	1.1%	-38	-0.6%
Delaware	1981	0.3%	0	0.0%
Florida	47366	7.6%	2200	4.6%
Georgia	16153	2.6%	560	3.5%
Hawaii	2533	0.4%	12	0.5%
Idaho	6039	1.0%	457	7.6%
Illinois	24172	3.9%	-6	0.0%
Indiana	11904	1.9%	128	1.1%
Iowa	7325	1.2%	-17	-0.2%
Kansas	6256	1.0%	61	1.0%
Kentucky	6540	1.0%	59	0.9%
Louisiana	7213	1.2%	-62	-0.9%
Maine	4316	0.7%	109	2.5%
Maryland	12416	2.0%	-10	-0.1%
Massachusetts	16515	2.6%	342	2.1%
Michigan	16135	2.6%	322	2.0%
Minnesota	13237	2.1%	12	0.1%
Mississippi	3474	0.6%	30	0.9%
Missouri	11981	1.9%	110	0.9%
Montana	4382	0.7%	115	2.6%
Nebraska	5597	0.9%	13	0.2%
Nevada	4534	0.7%	121	2.7%

STATE	NO. ESTABLISHMENTS	% OF TOTAL US ESTABLISHMENTS	NET CHANGE 2018	% CHANGE
New Hampshire	3642	0.6%	114	3.1%
New Jersey	18360	2.9%	89	0.5%
New Mexico	3798	0.6%	3	0.1%
New York	41280	6.6%	644	1.6%
North Carolina	20763	3.3%	602	2.9%
North Dakota	2480	0.4%	-49	-2.0%
Ohio	17138	2.7%	-23	-0.1%
Oklahoma	7351	1.2%	-11	-0.1%
Oregon	11469	1.8%	662	5.8%
Pennsylvania	23183	3.7%	167	0.7%
Rhode Island	2714	0.4%	69	2.5%
South Carolina	8963	1.4%	333	3.7%
South Dakota	2867	0.5%	0	0.0%
Tennessee	9160	1.5%	195	2.1%
Texas	41231	6.6%	1335	3.2%
Utah	8513	1.4%	458	5.4%
Vermont	2262	0.4%	18	0.8%
Virginia	17515	2.8%	43	0.2%
Washington	20340	3.3%	957	4.7%
West Virginia	2576	0.4%	-75	-2.9%
Wisconsin	11982	1.9%	175	1.5%
Wyoming	2305	0.4%	18	0.8%

Source: Census Bureau

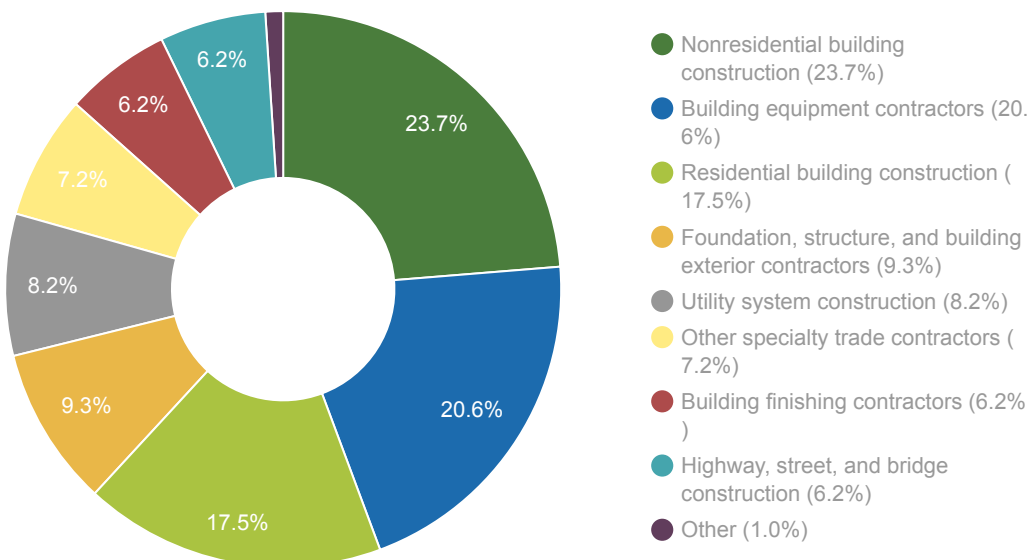
How the Sector Operates

Products and Operations

Firms in the construction sector build new buildings and utility infrastructure, renovate existing buildings and structures, clear and grade land, and collaborate on the design of construction projects with architects, engineers, property developers and project managers.

- Clients include property developers, investors and owners; federal, state, and local governments; home buyers; interior designers; and general contractors.
- Effective bidding is important for project acquisition.
- Contractors must balance the speed of project completion with adherence to construction codes, safety and quality of workmanship.
- Because of the risky nature of construction jobs, contractors carry liability and worker's compensation insurance and may also need to provide surety bonds, which secure performance, for certain jobs.

US Construction Sector Revenue



Source: US Census Bureau

Securing contracts generally involves a formal bidding process or request for proposal (RFP) from the client. Creating bids involves scheduling and estimating the cost and availability of materials, equipment, labor, and subcontractors. Estimating costs and timing is a critical process and must be closely managed – errors can cause a project to miss deadlines or incur extra expenses. Bids for government organizations are often awarded to the lowest bidder. Contractors try to maintain a healthy backlog of contracts.

Companies typically learn about potential projects through government advertisements or agencies, business development activity, or other construction companies. Bidding sometimes requires prequalification, which limits opportunities to companies with the operational and financial capabilities necessary to complete a job. Companies may partner with other contractors to bid on large projects.

For builders and contractors of heavy construction and civil works, the role a firm plays can vary. Firms may be involved in just the construction phase as a construction manager (CM) or general manager. Firms may take part in the design phase as well (design-build). A firm may operate as an advisor or CM at risk. Advisors act as technical consultants with no legal responsibility to perform construction work. CMs at risk are the prime contractors for a project and either perform work or subcontract work. The use of subcontractors is common, particularly for specialized activities, such as electrical or mechanical work.

For specialty trades, bids may be required by the general contractor for nonresidential jobs, large residential developments or government-funded projects. Bids are often based on the contractor's rate times the square footage of the installation. Specialty trade contractors form working relationships with builders to obtain more jobs and receive priority in bidding. Residential clients may request quotes on the cost of projects such as repairs, renovations and additions. Specialty contractors can face fierce competition in their geographic market and must balance cost, profit and job volume.

Most projects, particularly large ones, are completed in phases. Contractors manage the building process by obtaining necessary permits, procuring and coordinating the delivery of materials, scheduling and overseeing labor and equipment, and ensuring work adheres to codes and regulations. If a client requests additional work, contractors typically implement a change order, which outlines costs and timing. Whether extra work is included in the scope of a project can be controversial.

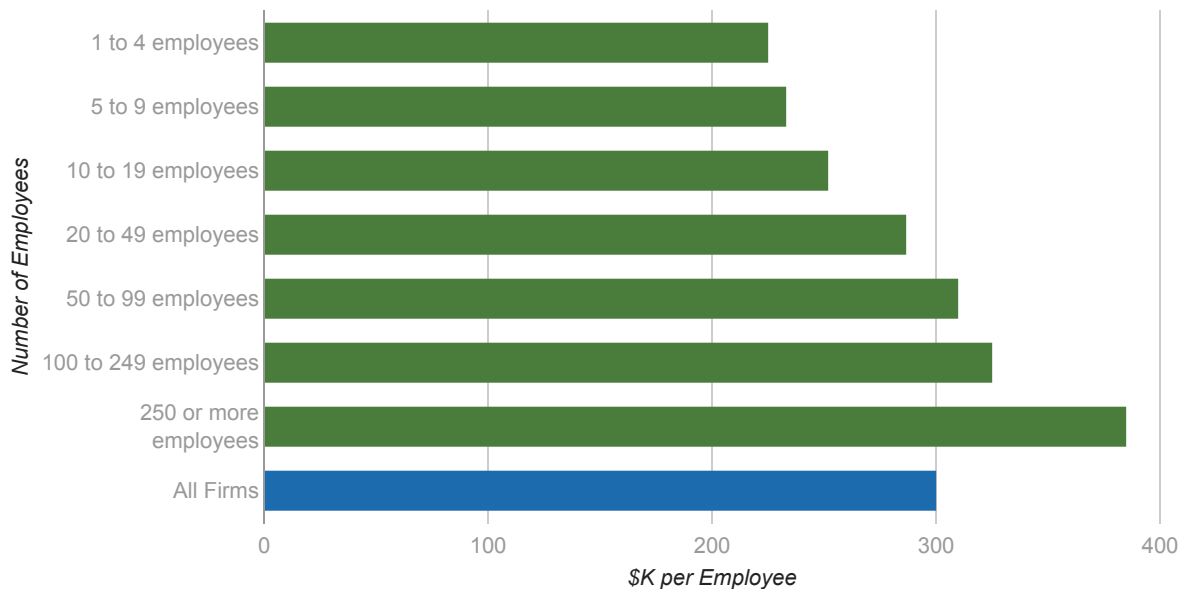
The construction of buildings, as well as heavy and civil works projects, often includes site preparation such as ground clearing and leveling; excavation for basements and installation of runoff drains and underground utilities; and the construction of embankments and retention ponds and walls. In flood plains, such as coastal areas, construction may involve driving piles or posts into the ground as foundations for raised structures and docks.

Projects involving demolition can generate substantial amounts of waste, and most waste is hauled to dumpsites. Jobs involving removal of hazardous materials (such as asbestos or lead paint) or contaminated soil require specialized knowledge, skill, and removal procedures.

Work typically involves numerous government permits and inspections throughout the construction process. Contractors may work directly with government officials for public projects. Regulations may cover certain types of demolition procedures, construction waste disposal, hazardous waste, erosion control, and soil inspection.

Key staff can include field supervisors, engineers, equipment operators, safety personnel, estimators, general construction workers and administrative staff. Specialty trade contractors and construction employees may be unionized. Some states require a license to operate certain types of heavy machinery, such as cranes. Employment is seasonal, particularly in cold weather states, where construction activity decreases or stops during the winter. As a result, firms may rely on part-time workers.

Revenue per Employee by Firm Size



Source: US Census Bureau

Technology Investment

Narrow margins and an increasingly competitive environment have led more contractors to implement technology that improves their communications, productivity, and cost estimating. Technology used in the construction sector includes Building Information Modeling (BIM), mobile technology and applications, drones, 3D printing, artificial intelligence (AI) and virtual reality (VR).

Building Information Modeling (BIM)

BIM is software that digitizes the design process, while integrating and centralizing project costing and scheduling. BIM systems are dynamic and allow designers, contractors, developers and manufacturers to access building information, make changes, and calculate the associated costs. Some programs link to estimating systems and generate work schedules for subcontractors as well as purchase orders for materials. The software allows users to create 3D images of structures and components, virtually install mechanicals (electrical, HVAC, water, security), and identify issues before and throughout the construction process. The materials and cost estimating components helps to reduce errors in ordering materials. The collaborative aspect of BIM software allows changes to be made and shared electronically, eliminating the need to print blueprints and physically deliver copies to stakeholders. BIM is also used to calculate a structure's energy consumption and operational cost before construction, which gives designers and developers the ability to address the sustainability of the structure.

Mobile Technology and Applications

Use of smartphones and tablets on the construction site has improved communication, collaboration, productivity, and progress tracking. Construction managers on the jobsite can take pictures and complete checklists on mobile devices and share with managers in the office, eliminating trips to and from the jobsite. Changes to building plans can be immediately accessed via BIM software on mobile devices at the jobsite, eliminating the need to print new copies of blueprints. Smartphones help supervisors locate contractors and employees on large construction sites and video chat apps allow for face-to-face discussions without the need to physically track down workers or other stakeholders.

Drones

Drones are becoming more widely used in the construction sector because of their relatively low cost, ease of use, data collection abilities, and safety benefits. Drones are used to conduct site surveys, inspect structures where physical inspection may be dangerous, and monitor how employees and contractors are working. Drones are cheaper than aerial imaging from airplanes or helicopters and are more readily available. Drones equipped with high resolution cameras collect data that can be used to create 3D or topographical models, which is especially useful in site development, grading, and the management of runoff near natural resource or protected areas.

3D Printing

Some construction materials can be 3D printed at the site or in preparation for construction. The ability to 3D print a replacement part or tool on the jobsite can reduce work stoppages by eliminating the need to leave to buy a part or material at a store or order from a manufacturer and wait for shipping. However, large scale 3D printers are expensive and may be cost prohibitive for smaller construction firms. 3D printers require some computer programming ability, which construction contractors may lack.

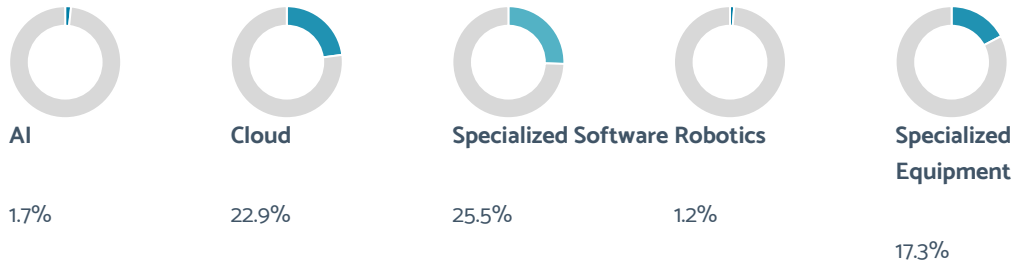
Artificial Intelligence (AI)

The construction sector uses artificial intelligence in the form of semi-autonomous construction equipment and robotics, like bricklaying machines. AI reduces the need for human workers in some tasks and is used to assist humans in some ways. AI uses machine learning algorithms to assess and advise, but construction professionals may be reluctant to trust AI advisors, and questions are arising about the allocation of risk as AI influences project decisions. AI can be used to run simulations for project execution and scheduling to identify efficiencies and minimize lag times. Some construction professionals use AI programs to double-check their planning and validate their approach. AI algorithms require extensive collection of site and project data.

Virtual Reality (VR)

VR technology is coupled with BIM software to create a virtual 3D building that can be viewed and walked through using a VR headset. The combined technology gives designers and developers a more complete sense of the space, such as ceiling heights, room sizes, placement of windows and doors, traffic flow, and use of materials and colors palettes.

Percent of US Construction Sector firms investing in technology



Source: Census Bureau

Global Perspective

Global Market Size

The global construction sector was valued at nearly \$11.5 trillion in 2020 and is forecast to grow by 9% in 2021, reaching a value of more than \$12.5 trillion, according to The Business Research Company. The COVID-19 pandemic posed operational challenges for construction firms, including social distancing strategies for job sites, remote work for off-site personnel, and weaker demand for new projects. After an anticipated strong rebound in 2021, the global construction market is expected to moderate to average annual growth of 7% through 2025. The Asia Pacific region accounts for more than 40% of the global market; North America is the second-largest market and generates about 25% of worldwide construction revenue.

Large Companies

COMPANY	HOME COUNTRY
Actividades de Construcción y Servicios (ACS)	Spain
Bechtel Corporation	US
Bouygues S.A.	France
China Communications Construction Company Ltd.	China
Kiewit Corporation	US
Power Construction Corporation of China	China
Skanska AB	Sweden
Strabag SE	Austria
TechnipFMC plc	UK
VINCI	France

Key Global Trends

COVID-19 Impacts Vary by Region – How quickly regional and national construction markets recover from the effects of COVID-19 tend to mirror their virus containment and vaccination successes. China controlled the virus early and was among the first countries to begin reopening. China's construction market actually grew in 2020, and helped offset the severity of the global downturn in the sector. GlobalData estimates worldwide construction activity fell 2.5% in 2020, but excluding China it declined 5.1%. Amid successful vaccine distribution, construction activity in North America and Europe is poised for a return to robust growth. However, a lack of early access to vaccines and/or repeated outbreaks are expected to hinder construction spending in many emerging markets, including much of Latin America, Sub-Saharan Africa, and India.

Higher Materials Costs – The pandemic disrupted global supply chains, which drove up the costs of many types of construction materials, including softwood lumber, steel, and cement. In the effort to limit the spread of COVID-19, most countries sealed their borders, which slowed the flow of goods. As global construction activity has begun to rebound, firms in some regions also have had difficulty attracting enough workers, which has driven up labor costs. Construction firms operate on extremely tight margins and if higher materials and labor costs can't be passed on, profits drop. High costs may also prompt developers to postpone projects.

Infrastructure Investments – Many countries, including the US, are proposing significant increases in infrastructure spending to help stimulate their economies and create job opportunities in the wake of the pandemic. China has long used ambitious infrastructure projects to boost its economy and major projects in the pipeline include investments in high-speed rail and public medical facilities.

Saudi Arabia, the United Arab Emirates, Qatar, and Egypt are expected to increase their investments in infrastructure projects to both support pandemic recovery and increase their competitiveness, according to GlobalData. Projects include expanding digital connectivity and transit enhancements. In the US, both sides of the political aisle are in favor of federal legislation to fund infrastructure projects, but often differ on the cost and scope of investment. The European Union also plans to boost its collective spending on infrastructure - both inside the EU and in developing countries - in part to counter China's growing global influence.

Sector Trends

Trends are affected by the COVID-19 pandemic.

Changes in revenue, employment, business practices, trade and forecasts are occurring rapidly and data reporting by the government lags the changes. We are tracking changes in the “Coronavirus Update” chapter for those industries most affected and on our [Covid-19 Updates Webpage](#).

Green Buildings Efforts Broaden

Demand for environmentally-friendly buildings continues to grow. Increased government regulation, market differentiation, growing awareness for LEED standards, and attractive financials are driving developers to implement more eco-friendly features. Green buildings typically have lower operating costs, higher values, and better ROIs than traditional buildings. Contractors that specialize in green construction can realize a distinct advantage.

Skilled Worker Shortages Persist

The construction sector is struggling to hire skilled workers. The strengthened economy and construction markets are spurring greater investment in building projects, just as a large number of older skilled construction workers are retiring. To attract and retain workers, construction firms are raising their wages, offering incentives and better benefits, relying more heavily on subcontractors, using employment agencies to find workers, and investing in labor-saving equipment, according to the Association of General Contractors.

Recycling Construction Waste

Growing interest in the environment and excessive waste in landfills has resulted in increased attention to debris from construction and demolition projects (C&D) and forced contractors to find ways to recycle. Some communities ban certain types of waste (such as polystyrene) from landfills. Automation, shredders, and screens have helped make sorting and recycling more efficient. C&D debris accounts for an estimated 25-40% of all discarded solid waste. In some areas, the recycling supply chain is not fully developed, posing a challenge for contractors looking to divert waste from landfills.

Public Funding Impacts Construction

Construction firms and specialty contractors may rely in part on government funding for public projects including roads and bridges, ports, dams, water and sewer infrastructure, public housing and government buildings (new construction and renovation). Funding levels change with local economies, shifts in political party or mix of elected or appointed officials, condition of infrastructure, and financial support from state and federal governments. Funding for infrastructure programs through the Federal Highway Trust Fund (HTF) supports growth in the highway, road, and bridge construction industry. The HTF receives funds from federal fuel taxes, taxes on truck users, and interest from invested balances. Current funding and disbursement authority under the FAST Act expires at the start of FY 2023. Despite federal support, states and cities may struggle with budget issues for public construction.

Sector Challenges

Dependence on the Economy and Market

Demand for construction is highly dependent on economic health and can vary considerably across markets. Most firms serve a limited area and are vulnerable to downturns in local markets. Oversupply of existing inventory for commercial and residential properties, falling property values, and tight credit can reduce levels of new construction. Businesses cut back when the economy stagnates, resulting in decreased demand for commercial building. The public sector typically deals with smaller budgets during difficult economic times, forcing state and local governments to reduce new building and expansion projects. Weak economic conditions can affect employment levels and demand for new housing.

Reliance On Credit Markets

The availability of credit affects potential buyers' ability to secure a mortgage and contractors' access to capital. Most contractors rely on lines of credit for general operating expenses. Stricter credit requirements reduce the number of qualified homebuyers. Higher interest rates decrease how much buyers can spend and increase contractor borrowing costs. Operative builders typically require financing to purchase land; smaller operations are unable to fund such large purchases out of operating cash flow. Builders also incur risk that a buyer will default on an existing sales contract due to financial difficulties. When this occurs, the builder is forced to carry the unit as a spec property until another buyer can be found. Lenders may not be willing to renew or carry a loan on a spec property that does not sell, even if the builder is able to make interest payments and cover operating costs.

Volatility in Land and Materials Costs

Most contractors operate with tight margins. As a result, variability in land and materials costs can greatly affect profitability. The cost and availability of materials and land can vary significantly from year to year, depending on demand, capacity, and market conditions. For operative builders, site selection can be a gamble and purchasing desirable property at reasonable prices is a challenge. Contractors must also deal with unpredictable costs for building materials including structural steel, concrete, lumber, brick, tile, drywall, asphalt, paint and diesel fuel.

Seasonal and Weather-Related Factors

Seasonality and weather conditions affect project timelines and contractors' ability to perform work. Construction projects may cease during the winter, particularly in areas that experience very cold temperatures. Snow removal and procedures associated with frozen soil represent additional costs. Extreme weather, such as blizzards and excessive rain, further complicates seasonal factors. Weather delays affect schedules and can increase project costs.

Compliance with Safety and Environmental Regulations

Construction operations are regulated by the Occupational Safety and Health Administration (OSHA) and numerous federal, state, and local agencies. Regulations affect many aspects of construction operations, including worker safety, environmental protection, and vehicle and equipment operations. Violating regulations governing the disposal of regular and hazardous construction waste can result in stiff financial penalties. Safety is especially important with demolition work and the abatement of lead and asbestos because of the inherent dangers involved. Construction workers tend to experience work-related injuries at rates higher than the national average.

Competitive Pricing Drives Cost Overruns

Most construction jobs are competitive bidding situations, and price is a major deciding factor in which a contractor or subcontractor obtains the job. Firms struggle to balance submitting a reasonable bid while maintaining an acceptable profit margin. Temptation to underbid has resulted in industry-wide problems where cost overruns have become common. Cost overruns can result in client conflict, and contractors may have to resort to litigation or arbitration to recover funds. When business is slow, competition for available jobs intensifies, forcing many contractors to bid lower than they would like.

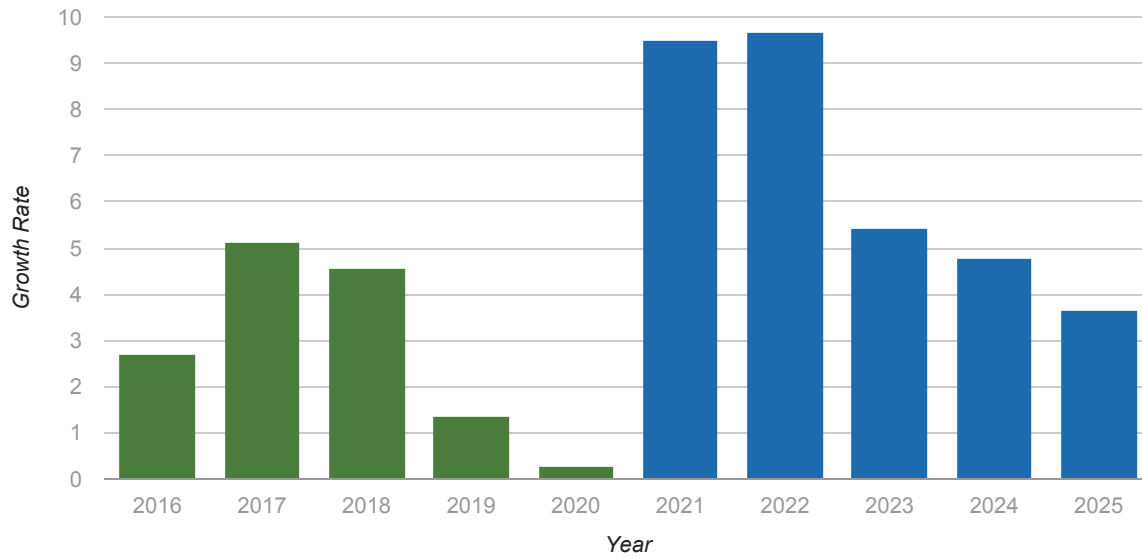
Sector Forecast

Sales for the US construction industry are forecast to grow at a 6.55% compounded annual rate from 2020 to 2025, greater than the growth of the overall economy.

Vertical IQ forecasts are based on the Inforum inter-industry economic model of the US economy. Inforum forecasts were prepared by the Interindustry Economic Research Fund, Inc.

Last Update: August 2021

US Construction Sector Industry Growth



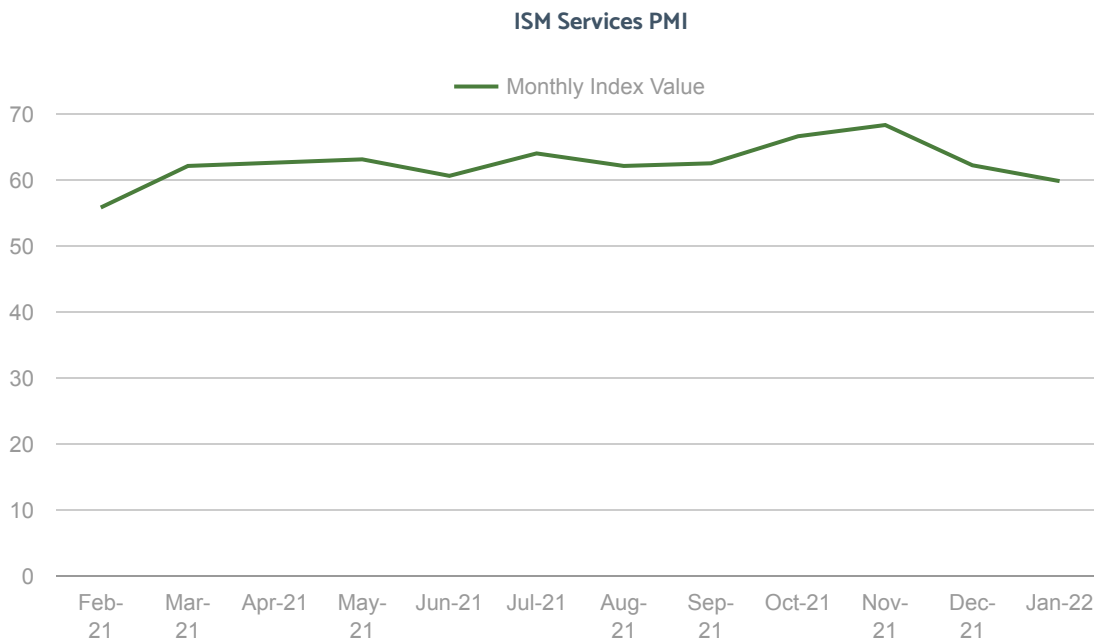
Source: Interindustry Economic Research Fund, Inc.

Sector Indicators and Drivers

ISM Services PMI

In January, the Services PMI® registered 59.9 percent, 2.4 percentage points below December's seasonally adjusted reading of 62.3 percent.

The 15 services industries reporting growth in January – listed in order – are: Construction; Retail Trade; Health Care & Social Assistance; Public Administration; Real Estate, Rental & Leasing; Utilities; Professional, Scientific & Technical Services; Other Services; Educational Services; Finance & Insurance; Mining; Management of Companies & Support Services; Transportation & Warehousing; Wholesale Trade; and Accommodation & Food Services. The three industries reporting a decrease in January are: Agriculture, Forestry, Fishing & Hunting; Arts, Entertainment & Recreation; and Information.



Source: ISM

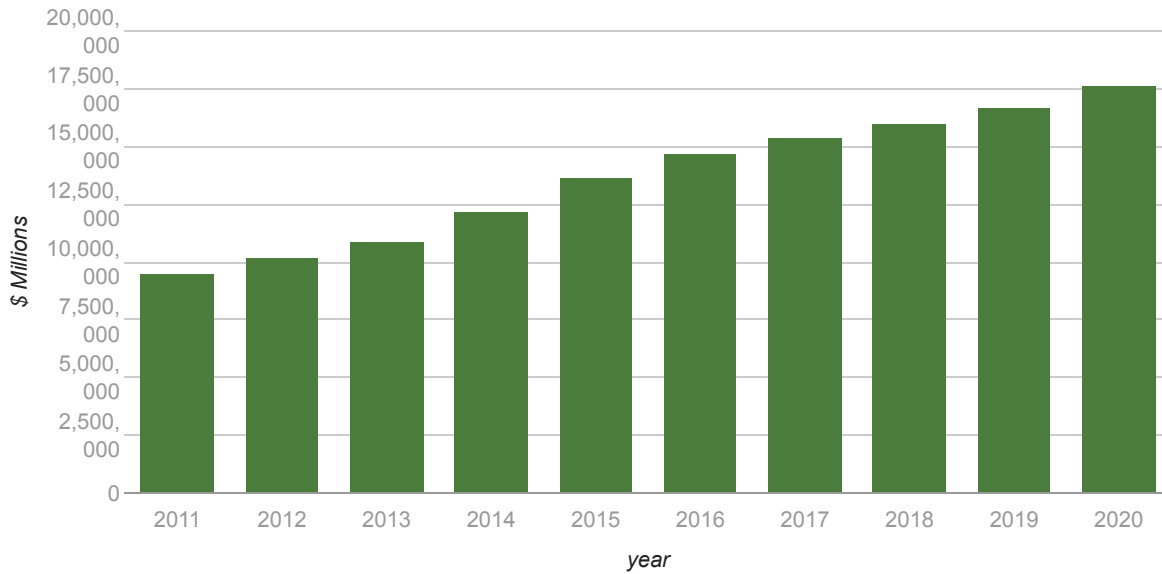
The ISM Services PMI is based on data compiled monthly from purchasing and supply executives nationwide by the Institute for Supply Management. Diffusion indexes have the properties of leading indicators and are convenient summary measures showing the prevailing direction of change and the scope of change. A Services PMI® reading above 50 percent indicates that the services economy is generally expanding; below 50 percent indicates that it is generally declining.

Construction Spending Trends

Total construction spending rose from a year ago

Total construction spending was at a seasonally adjusted annual rate of \$1,625.9 billion in November 2021, a 9.33% change compared to a year ago and a 0.44% change from the previous month, according to the latest data from the Census Bureau.

Total Construction Spending

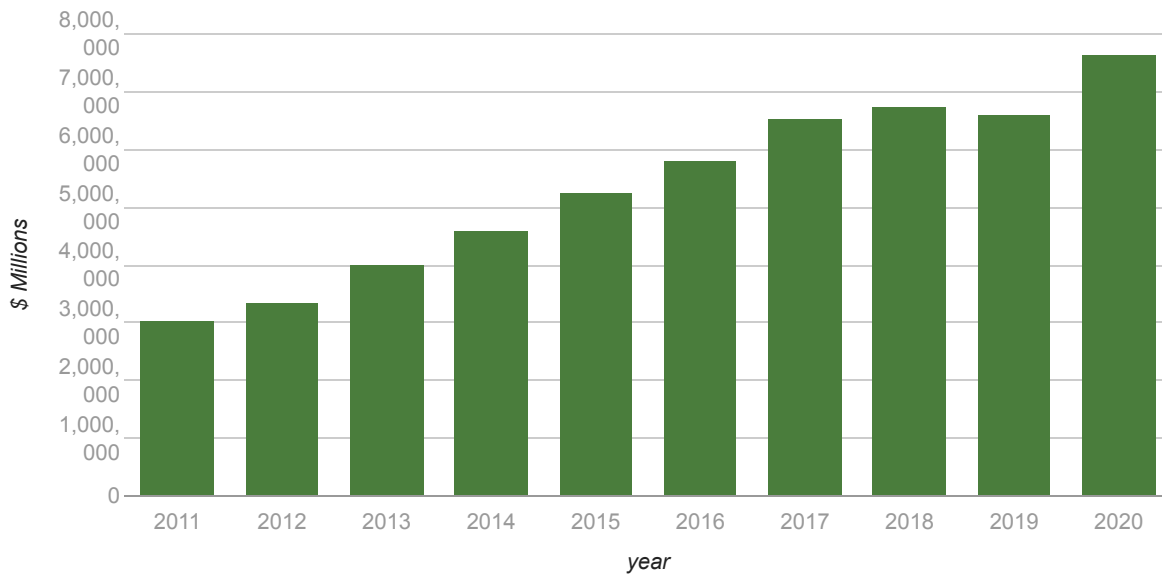


Source: Census Bureau

Residential construction spending rose from a year ago

Residential construction spending was at a seasonally adjusted annual rate of \$805.3 billion in November 2021, a 16.08% change compared to a year ago and a 0.86% change from the previous month, according to the latest data from the Census Bureau.

Residential Construction Spending

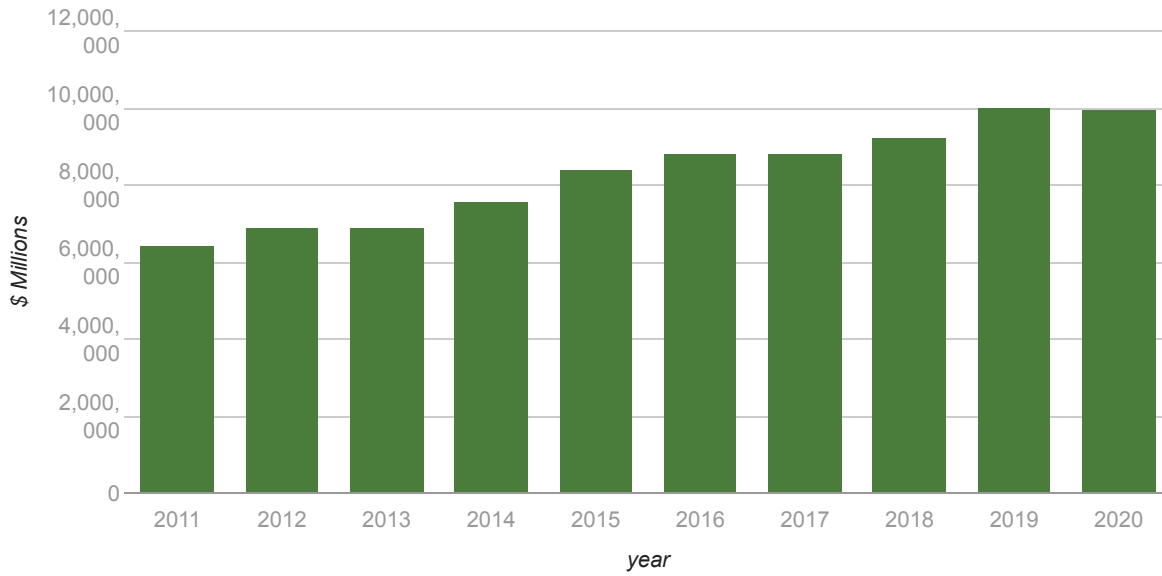


Source: Census Bureau

Nonresidential construction spending rose from a year ago

Nonresidential construction spending was at a seasonally adjusted annual rate of \$820.6 billion in November 2021, a 3.43% change compared to a year ago and a 0.03% change from the previous month, according to the latest data from the Census Bureau.

Non-Residential Construction Spending



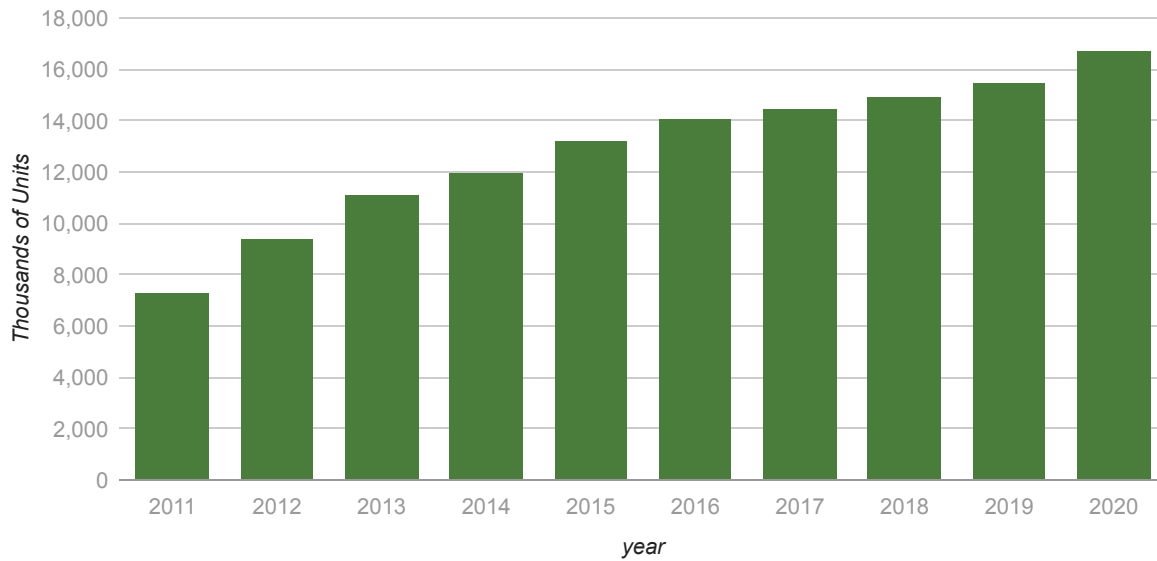
Source: Census Bureau

Housing Trends

Privately-owned housing starts rose from a year ago

Privately-owned housing starts were at a seasonally adjusted annual rate of 1,679,000 in November 2021, a 8.25% change compared to a year ago and a 11.78% change from the previous month, according to the latest data from the Census Bureau.

New Housing Construction Starts

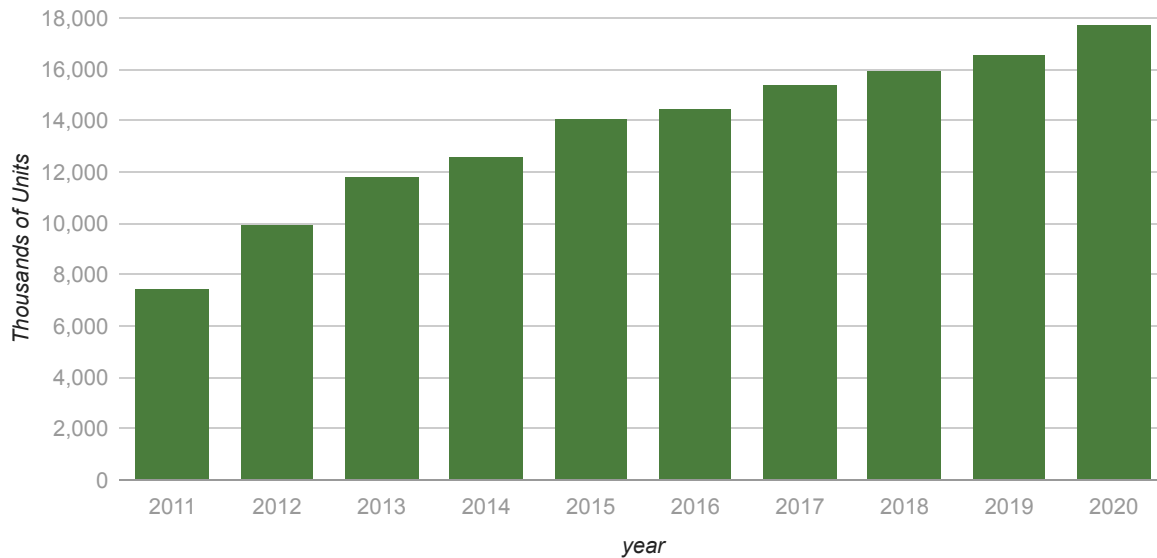


Source: Census Bureau

Building permits for privately-owned housing units rose from a year ago

Building permits for privately-owned housing units were at a seasonally adjusted annual rate of 1,717,000 in November 2021, a 1.24% change compared to a year ago and a 3.87% change from the previous month, according to the latest data from the Census Bureau.

New Housing Construction Permits

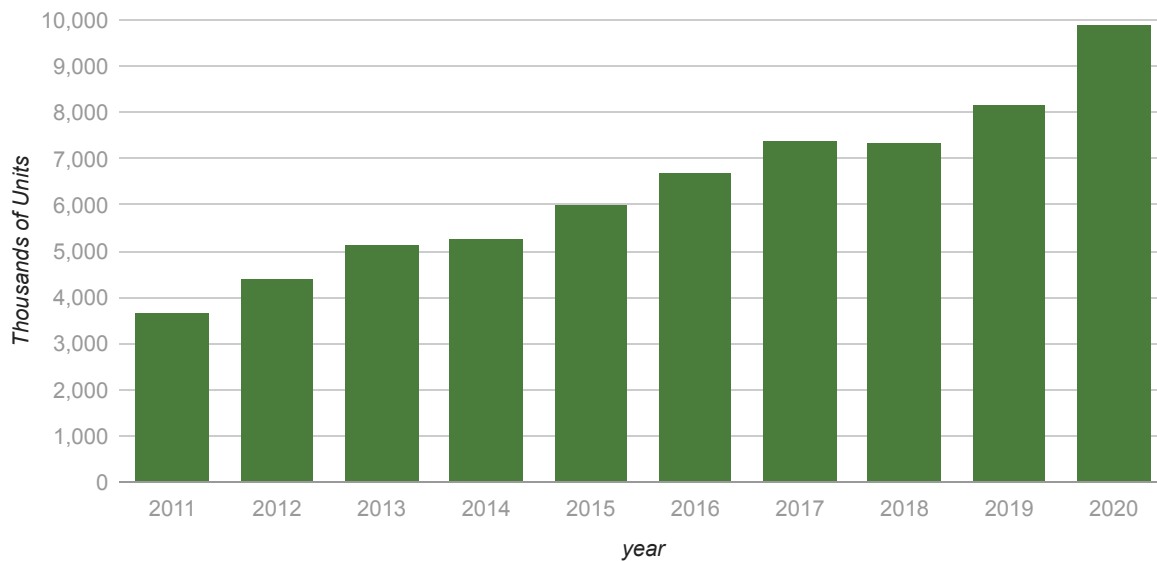


Source: Census Bureau

New sales of single-family houses fell from a year ago

New sales of single-family houses were at a seasonally adjusted annual rate of 744,000 in November 2021, a -13.99% change compared to a year ago and a 12.39% change from the previous month, according to the latest data from the Census Bureau.

New Single Family Home Construction Sales

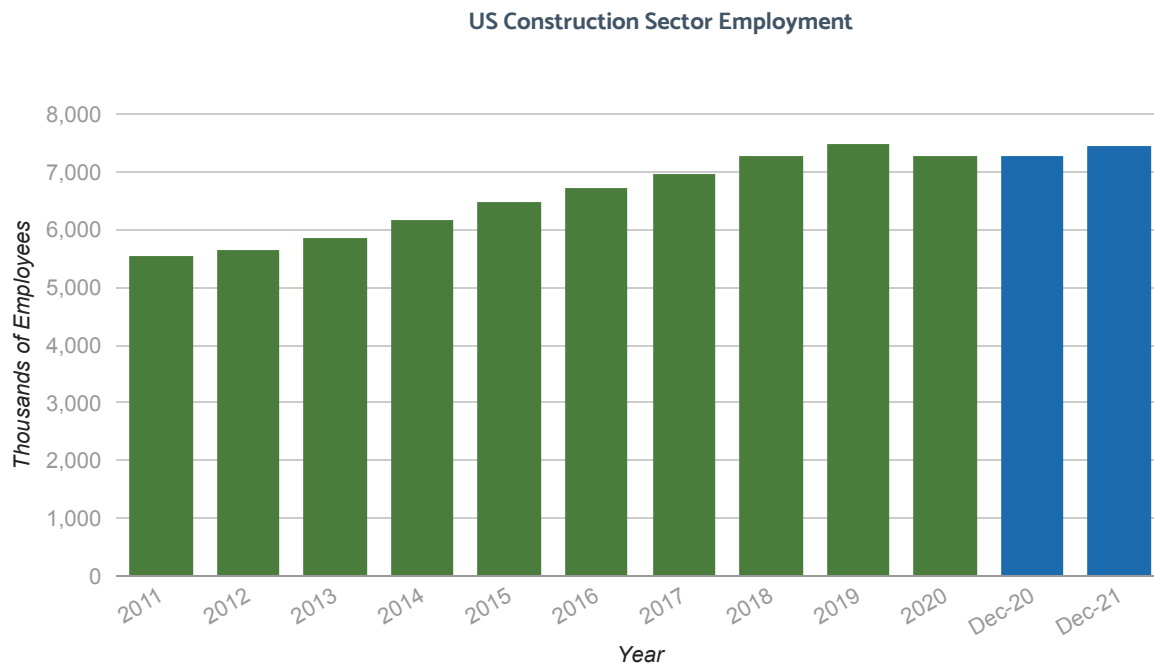


Source: Census Bureau

Employment and Wage Trends

Employment by construction firms increases

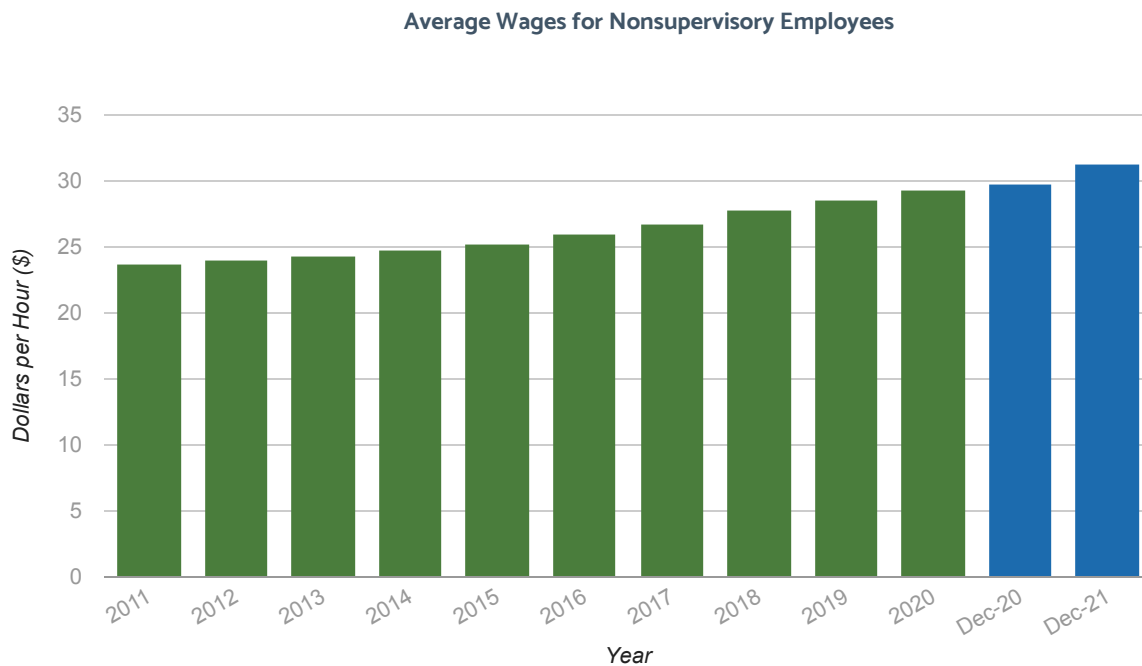
Overall employment by construction firms changed 2.2% in December compared to a year ago, according to the latest data from the Bureau of Labor Statistics.



Source: Bureau of Labor Statistics

Wages at construction firms rise

Average wages for nonsupervisory employees at construction firms were \$31.22 per hour in December, a 5.1% change compared to a year ago.



Source: Bureau of Labor Statistics

Cash Flow Management

Builders encounter a variety of contract types. Cost Plus Contracts reimburse contractors for costs and includes an added fee. Guaranteed Maximum Price contracts are cost plus fee arrangements up to a maximum price. Fixed Price Contracts commit a contractor to a set amount and are generally used for government projects. A contract may require retainage, which is a percentage of the total cost of the job that the client withholds from the contractor until the job is complete. Each type of contract has inherent risk/reward potential. Contracts may include a “pay when paid” clause. In this case, specialty trades may not be paid until the general contractor is paid, even though their work is complete. Contracts vary by the type of job and terms can range from a few days for a roofing job to years for major highway projects. Long-term contracts may include escalators to account for increases in material and labor costs.

Cash flow is generally irregular. Payments are either made in increments, typically when predetermined progress landmarks are met, or upon job completion. Contracts may include penalties for late completion or incentives for achieving specific performance goals. Contractors must work efficiently to complete work on-time and avoid payment delays. Project delays due to permits, design changes, material supply shortages and weather can delay progress on a project and payments, creating cash flow issues in meeting payroll and other expenses. Cash flow can be both seasonal and cyclical. Firms that offer maintenance agreements typically have smoother cash flow since work is spread over a long period of time.

Contractors rely on a steady stream of business to keep afloat, and tend to view strategic partnerships with builders as more important than direct marketing.

Specialty trade contractors typically keep a small inventory of supplies and equipment on hand to use on jobs. However, fluctuations in the prices of materials can greatly affect cash on hand and project estimates. Estimation errors can result in financial losses. Contractors may buy common or widely used materials in bulk to save money. Other expenses include labor, fuel, equipment maintenance and repair, insurance, and rent. Some projects require the purchase of surety bonds to guarantee performance. Because of the risky nature of construction jobs, commercial building contractors carry liability and worker’s compensation insurance. Contractors may also need to provide surety bonds, which secure performance, for certain jobs.

Key metrics include project backlog, square footage of jobs, revenue per square footage, employee utilization rate and accounts receivable aging. Companies may measure bid/award ratios to assess competitive pressure and assist in growth planning. Project backlogs are a predictor of future cash flow.

Capital and Foreign Investment

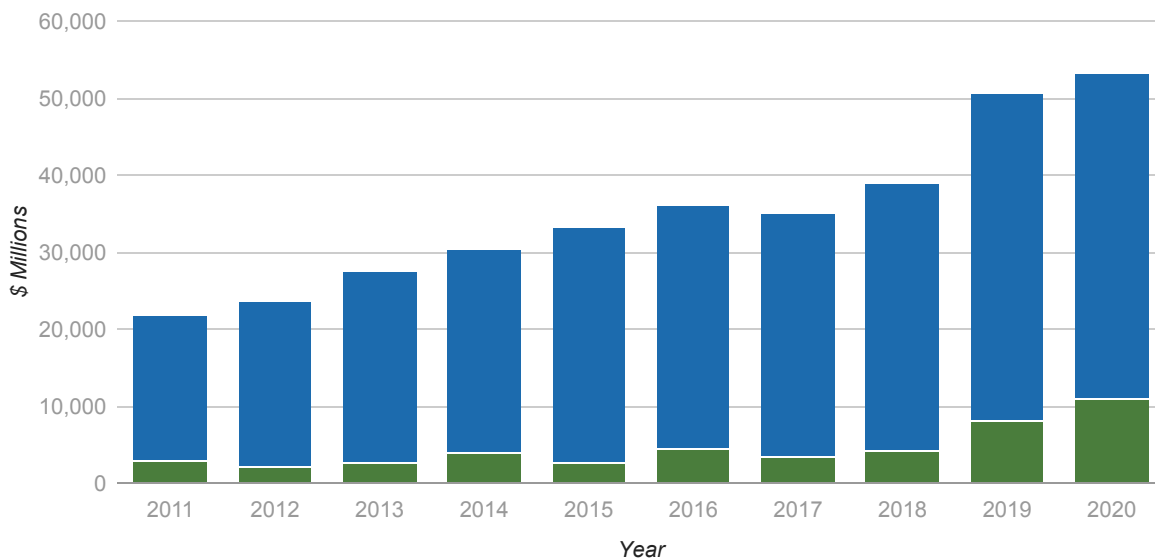
The construction sector is somewhat capital intensive, with investment in equipment and tool inventory varying by segment. The sector spends about 1% of annual revenue on capital expenditures including buildings, structures, machinery and equipment.

Construction firms invest in a broad range of equipment to prepare building sites as well as transport and handle construction materials. Common heavy equipment includes earth moving machinery, cranes, fork lifts, trucks and vans, and trailers. Light equipment and tools include scaffolding and ladders, generators and air compressors, saws, drills, nail guns, paint sprayers, and handtools. To reduce upfront costs, manufacturers may rent or lease equipment. Firms and contractors may also purchase used equipment to contain costs. In addition, the sector spends about \$3.5 billion per year on computers and hardware, \$2 billion on software, \$2 billion on data processing services and \$6 billion on communications services.

Operative, also known as speculative, builders also have costs associated with buying land for development. Firms typically incur the cost of materials and labor for a project before receiving payment for their work. As a result, firms require access to capital to purchase materials and pay employees.

Traditional sources of project funding include commercial loans and private investors. Large development projects may source funds from private equity groups, investment firms, real estate investment trusts (REIT) and public private partnerships (3Ps). Public projects are typically funded through local government bonds, taxes or federal funding.

**Total Capital Expenditures by Construction Firms
Firms with Employees**



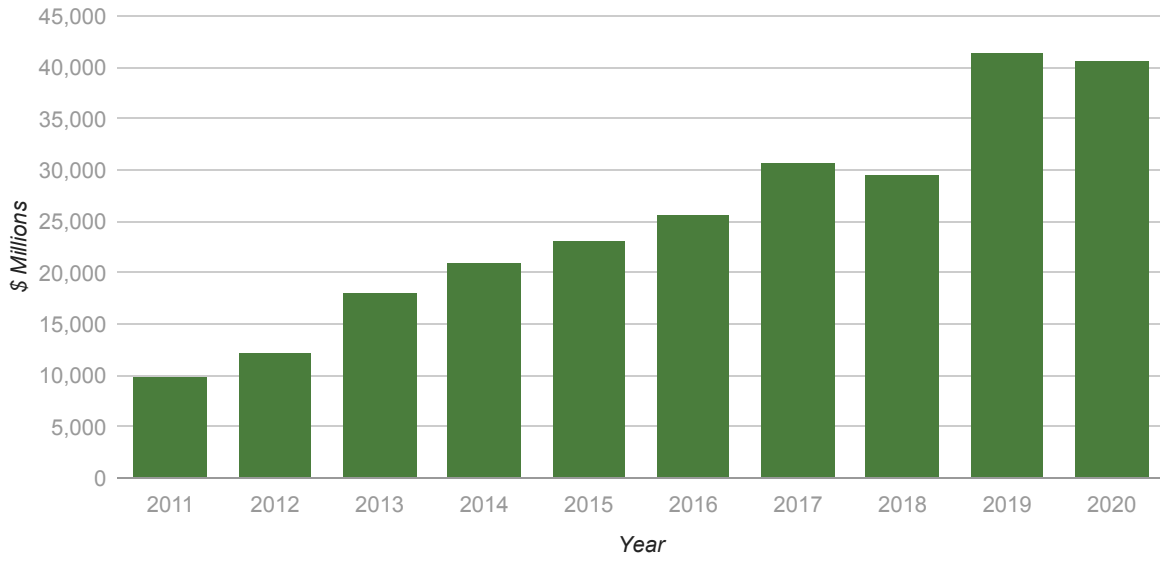
Source: Census Bureau

Foreign Investment

The construction sector represents about 1% of total foreign direct investment in the US. Foreign investors largely use their funds to acquire US firms, but have also financed the establishment of new construction firms and expansion of existing firms. Foreign spending to develop new companies from the ground up or to expand existing businesses is called greenfield investment. In the construction sector, foreign entities have invested more into heavy and civil construction (52% of investment) and building construction (45%) than in specialty contracting (3%).

Annual investment in the US construction sector by foreign interests fell 2.1% in 2020 to \$40.7 billion. Total FDI in the US rose 4.2% in 2020.

Foreign Direct Investment in US Construction Sector



Source: Bureau of Economic Analysis

Financial Benchmarks

The following financial benchmark data is based on annual financial statements submitted by member institutions of the Risk Management Association from Q2 of the first year listed through Q1 of the following year.

Financial Ratios (US Construction Sector, Industry-wide)

MEASURE	2018-19	2019-20	2020-21
Current Ratio [?]	1.49	1.52	1.62
Quick Ratio [?]	.96	1.01	1.05
Days Inventory [?]	33.73	31.69	37.42
Days Receivables [?]	54	53	50
Days Payables [?]	37.3	36.04	35.82
Pre-tax Return on Revenue [?]	5.20%	5.59%	6.40%
Pre-tax Return on Assets [?]	11.18%	12.02%	12.99%
Pre-tax Return on Net Worth [?]	30.60%	31.33%	35.84%
Interest Coverage [?]	13.85	13.79	14.46
Current Liabilities to Net Worth [?]	1.29	1.19	1.23
Long Term Liabilities to Net Worth [?]	0.45	0.41	0.53
Total Liabilities to Net Worth [?]	1.74	1.61	1.76
<i>Number of Firms Analyzed</i>	<i>14,087</i>	<i>10,781</i>	<i>6,901</i>

Income Statement (US Construction Sector, Industry-wide)

ITEM	2018-19	2019-20	2020-21
Revenue	100.0%	100.0%	100.0%
Cost of Sales	73.04%	72.47%	71.48%
Gross Margin	-44.16%	-42.78%	-40.89%
Officers Compensation	1.64%	1.57%	1.62%
Salaries-Wages	-15.85%	-15.65%	-16.02%
Rent	-3.59%	-3.53%	-3.47%
Taxes Paid	-3.71%	-3.64%	-3.62%
Advertising	-0.88%	-0.89%	-0.92%
Benefits-Pensions	-3.07%	-3.01%	-3.09%
<i>Number of Firms Analyzed</i>	<i>14,087</i>	<i>10,781</i>	<i>6,901</i>

ITEM	2018-19	2019-20	2020-21
Repairs	-0.97%	-0.96%	-1.0%
Bad Debt	-0.24%	-0.24%	-0.24%
Other SG&A Expenses	-26.07%	-25.62%	-23.18%
EBITDA	8.58%	9.19%	9.03%
Amortization-Depreciation	2.27%	2.33%	2.27%
Operating Expenses	-50.47%	-49.64%	-47.65%
Operating Income	6.32%	6.86%	6.76%
Interest Expense	0.77%	0.9%	0.8%
Other Income	-0.37%	-0.38%	-1.56%
Pre-tax Net Profit	5.92%	6.34%	7.52%
Income Tax	0.16%	0.2%	0.02%
After Tax Net Profit	5.76%	6.14%	7.5%
<i>Number of Firms Analyzed</i>	<i>14,087</i>	<i>10,781</i>	<i>6,901</i>

Balance Sheet (US Construction Sector, Industry-wide)

ASSETS	2018-19	2019-20	2020-21
Cash	16.66%	17.52%	22.96%
Receivables	33.52%	31.98%	26.97%
Inventory	12.61%	12.94%	13.85%
Other Current Assets	6.44%	6.46%	6.4%
Total Current Assets	69.23%	68.91%	70.17%
Net Fixed Assets	21.15%	21.49%	20.14%
Net Intangible Assets	3.09%	2.9%	3.44%
Other Non-Current Assets	6.53%	6.71%	6.24%
<i>Total Assets</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>
LIABILITIES			
Accounts Payable	16.52%	15.92%	13.37%
Loans/Notes Payable	16.06%	15.34%	15.26%
Other Current Liabilities	14.58%	14.63%	13.35%
<i>Number of Firms Analyzed</i>	<i>14,087</i>	<i>10,781</i>	<i>6,901</i>

LIABILITIES

Total Current Liabilities	47.16%	45.88%	41.97%
Total Long Term Liabilities	18.33%	19.08%	23.97%
Total Liabilities	65.49%	64.96%	65.95%
Net Worth	34.51%	35.04%	34.05%
Total Liabilities & Net Worth	100.0%	100.0%	100.0%
<i>Number of Firms Analyzed</i>	<i>14,087</i>	<i>10,781</i>	<i>6,901</i>

Vertical IQ financial benchmark data is based on data provided by the Risk Management Association (RMA) and Powerlytics, Inc. RMA's Annual Statement Studies provide comparative industry financial benchmarks based on financial statements of small and medium business clients of RMA's member institutions. Additional detail on income statement line items is provided using Powerlytics financial benchmarks, which are based on reporting submitted to the IRS. Additional detail on these data sources can be found at [RMA](#) and [Powerlytics](#).

Quarterly Insight

4th Quarter 2021

Infrastructure Law to Boost Nonresidential Spending

Nonresidential construction spending will get a boost from the \$1 billion bipartisan infrastructure law that President Biden signed into law in mid-November. The law includes \$550 billion in new spending for key areas including transportation, utilities and broadband. The legislation includes \$110 billion for roads, bridges, and other major projects, and \$66 billion for freight and passenger rail improvements. Broadband expansion will get \$65 billion while water systems will get \$55 billion in new investment. The funding is set to be spread out over five years.

3rd Quarter 2021

Nonresidential Outlook Positive

US construction spending was mostly flat in June 2021 compared to the prior month as sluggish nonresidential investments were not enough to offset slight residential gains. Overall, total construction spending rose 0.1% in June, led by a 1.1% rise in residential spending; nonresidential was off 0.9%. Residential spending was up 24.5% in the first half of 2021 compared to an 8.1% drop in nonresidential investment. However, some industry watchers suggest nonresidential spending is poised for a turnaround. In late July 2021, a bipartisan group of senators agreed on the details of an infrastructure bill that includes \$550 billion in new spending. The deal includes funding for roads and bridges, public transit, rail, water and power infrastructure, and high-speed internet. Additionally, despite the pandemic, high raw materials prices, and labor shortages, demand for construction services is stable, according to Associated Builders and Contractors (ABC). The challenges the industry faces have slowed its ability to provide services, but they have not hurt demand. Firms are confident about future demand conditions and their rising backlogs, according to ABC.

Sector Terms

Bid-Hit Ratio

Rate at which companies successfully bid on and win projects

Building Information Modeling (BIM)

Technology that merges the design, job estimation and building processes.

C&D

Construction and demolition

Callback

Request by customer to return to complete unfinished work or remedy unsatisfactory work

CGL (Comprehensive General Liability)

A type of comprehensive insurance that protects contractors from liability for damages to people and property as a result of installation and maintenance

Close Rate

Percent of leads or estimates that result in a signed contract

CM

Construction manager, during the construction phase, company acts as an advisor or takes prime contractor (CM at risk)

Cost Plus

Type of contract in which contractors are reimbursed for costs and given an added fee

Design/Build

Type of contractor who provides both design and construction services

Earnest Money

Deposit to secure a home contract

EPD

Environmental Product Declarations, provides standardized comparable information about the environmental impact of a product

Fixed Price

Type of contract that commits a contractor to a set amount for the job; these are generally used in government projects

Guaranteed Maximum Price (GMP)

Type of contract in which the contractor is paid the cost of the job plus fee arrangements up to a maximum price

LCA

Life Cycle Assessment, evaluates environmental impact of materials based on effects throughout a products entire life cycle

Leadership in Energy and Environmental Design (LEED)

Green building certification system

Lump Sum Contract

Involves a set price – profitability varies depending on how well the contractor controls costs

Mark-up

Multiplier used with the estimated cost of a job to determine the price charged to the customer

Operative Builder

Contractors who own the land they build on, also known as speculative builders

PVF

Pipes, valves and fitting – Most common plumbing supplies

Real Estate Investment Trust (REIT)

Corporation or trust that uses pooled capital to purchase and manage income property or mortgage loans

Retainage

A percentage of the total cost of the job that the client withholds from the contractor until the job is complete

Surety Bond

A guarantee of performance; allows a client to recover losses in the event of a contractor's (or subcontractor's) failure to perform

Take-off

Process of using blueprints to determine the quantity of materials required for a particular project

Web Links

[Constructor](#)

News, trends and statistics from the Associated General Contractors of America

[Builder Magazine](#)

News, trends, and statistics

[Associated General Contractors of America](#)

News, trends, and regulatory issues

[National Association of Home Builders](#)

News, trends, statistics on new home construction and sales

[Construction Business Owner](#)

News and trends for construction business owners

[Associated Builders and Contractors](#)

Government affairs, legislative issues

[For Construction Pros](#)

News, trends, and operational advice for concrete contractors

[Dodge Data & Analytics](#)

News, trends, and statistics

[Engineering News-Record](#)

News, trends, and company ranking for concrete and masonry contractors

[The Journal of Light Construction](#)

News, trends, business advice

[Underground Construction](#)

News and trends for underground construction contractors

[Finishing Contractors Association International](#)

News and issues

Related Profiles

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NAICS: 62 SIC:

US Manufacturing Sector

NAICS: 31-33 SIC: 20-39

US Retail Sector

NAICS: 44, 45 SIC: 52, 53, 54, 55, 56, 57, 59

US Wholesale Sector

NAICS: 42 SIC: 50xx, 51xx

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