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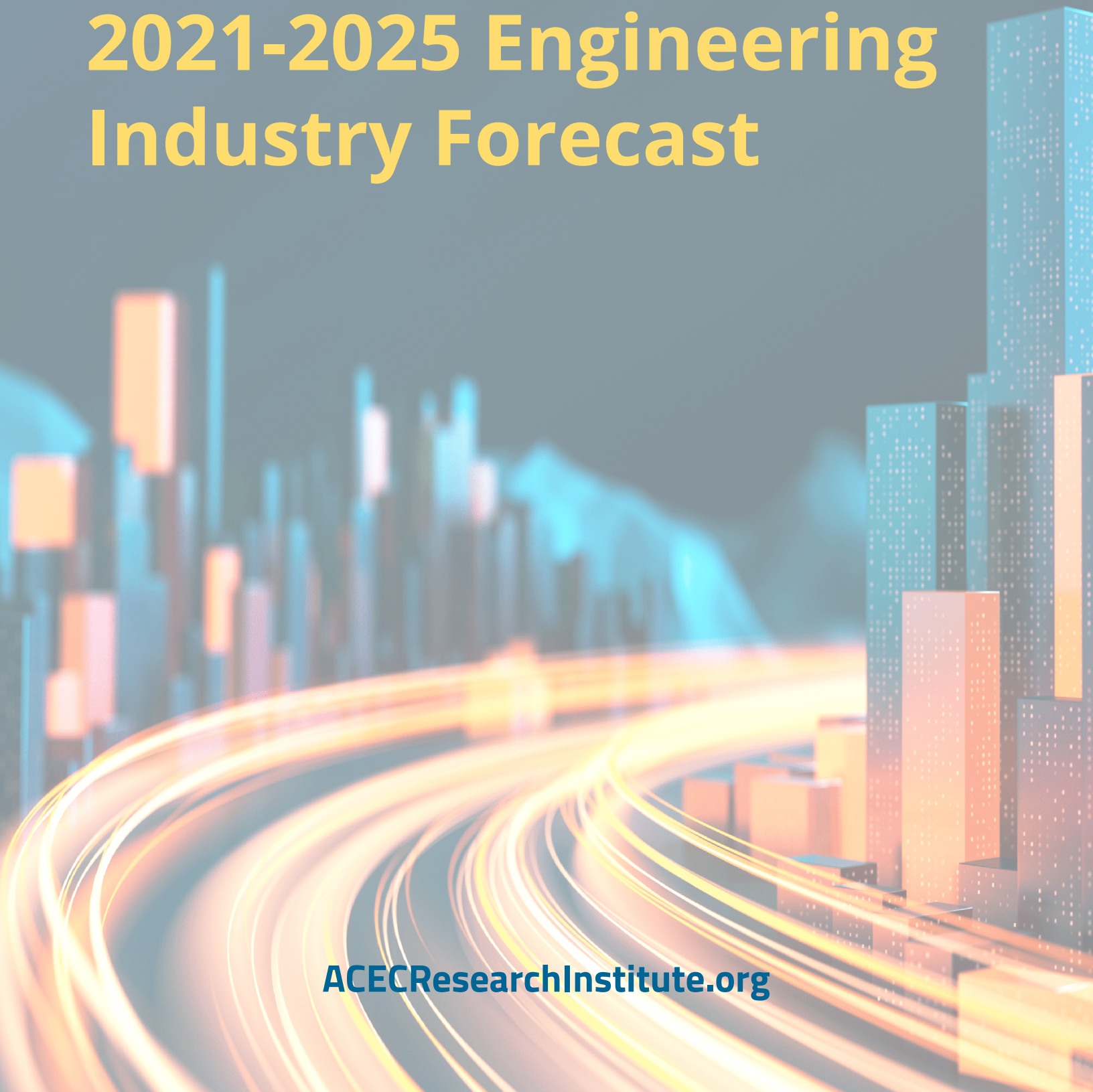
2021-2025 Engineering Industry Forecast



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Top-line Industry Indicators

This section provides some top-line takeaways from the forecast. Read on for more information in the detailed sections below to understand additional context and see the full picture behind the Engineering Industry Forecast.

- Engineering and Design Services revenue fell an estimated 7% in 2020, significantly underperforming overall construction activity over the period. The slowdown in A/E is the result of an anticipated decline in construction activity in 2021. Typically, Engineering and Design Services leads construction activity by two to three quarters, and we expect the downturn in A/E activity in 2020 is a harbinger for construction activity in 2021 and 2022.

- We expect total Engineering and Design Services revenue will again witness declines in 2021, falling 4% from 2020 levels. Recovery should begin during the back-half of the year. We expect annual growth in Engineering and Design Services to remain in the 3% range from 2022 – 2024, before tailing off slightly in 2025 as the hangover from post-pandemic economic stimulus is likely to curtail economic growth.

- Construction in the U.S. remained relatively resilient in 2020, buoyed by both fiscal and monetary stimulus. While the pandemic caused some disruption to economic activity in the sector, many construction projects were deemed essential, which prevented the level of disruption experienced by many other sectors of the economy during shutdown periods. Still, many projects have been put on hold or did not start which will put pressure on the sector through 2021 and 2022.

- Following growth of 4.7% in 2020, construction activity is expected to slow significantly in 2021 with declines being led by both the residential and non-residential segments. Residential construction will be impacted by headwinds to consumer confidence, declining home affordability and the risk of rising interest rates. Non-residential construction will be plagued by many of the emerging trends from the back-half of 2020 including decreased demand for commercial and office space and further deterioration in the lodging development.

- Non-building construction, which is less economically sensitive in the short run, performed relatively well in 2020 growing 4.3% over 2019. Leading the way was investment in water supply systems and power plants/pipelines/communications, which grew 16.6% and 4.6%, respectively. Investment in infrastructure to support the proliferation of 5G technologies will continue to remain strong over the coming years as the 5G rollout continues.

- Despite declining consumer confidence on the heels of the pandemic, residential real estate grew 11.8% last year, spurred by low interest rates and fiscal and monetary stimulus. The single-family segment was particularly strong as homeowners eyed more suburban markets in lieu of city dwellings. This is likely to continue as the work-from-home trend that has been rapidly accelerated by the pandemic will incentivize homeowners away from city centers and multifamily properties.

Top-line Industry Indicators (continued)

- Demographic trends and pandemic-driven behavioral change are also at the center of our outlook. For example, household formation is on the rise as a delay of home purchases by many millennials has been receding over the last couple of years. Moreover, shifts from multi-family to single-family housing will continue as work from home incentivizes households to move to the suburbs. Urban areas also offer residents fewer benefits in a "socially-distant" world. Finally, we expect significant pressure on office, retail, and commercial construction through 2021, as many firms reconfigure work from home policies and consumers continue the shift towards shopping on-line.

- There are both upside and downside risks to our forecast. On the upside is the potential for a federal infrastructure plan that would give a tremendous shot in the arm to Engineering and Design Services demand. The size of which would be dependent, of course, on the scope of the package. Downside risks include a protracted pandemic that puts further pressure on consumer and business confidence and the demand for commercial, office and hotel construction, as well as the potential for rising interest rates. We also expect headwinds to state and local infrastructure spending as the pandemic takes its toll on state and local tax revenues.

Overview

Introduction

The ACEC Research Institute commissioned a series of studies – the Industry Impact Series – to profile and analyze performance in the Engineering and Design Services Industry (A/E Services). The series was conducted by Rockport Analytics, an independent market and economic research firm using both publicly and privately available data, as well as proprietary analysis. The study aims to describe, measure, and demonstrate the indispensable partnership between engineering, architects, and other design services to deliver the built environment of the United States. The built environment refers to all human-made surroundings that provide the setting for human activity, ranging in scale from buildings and parks/green space to neighborhoods and cities including their supporting infrastructure, such as water supply or energy networks.

The overarching goals of this research are to:

- Establish a definition of the Engineering & Design Services sector based upon published recurring data that can be continuously updated and called upon to track performance for ACEC's many constituencies.

- Provide a comprehensive view of the size, growth, and composition of the engineering and related professional services sector using the most current and comprehensive data available. This is covered in the first report, the 2020 Engineering Industry Profile, which can be found at https://programs.acec.org/impact-report/.

- Measure the economic contribution of the Engineering & Design Services industry using established metrics found in virtually all industry economic impact analysis. The second report, 2020 Engineering Industry Economic Contribution, can also be found at https://programs.acec.org/impact-report/.

- This report focuses on analyzing the key economic drivers of the Engineering & Design Services sector, building a statistical model using the strongest correlations between Engineering & Design Services performance and those drivers, and constructing a recurring industry outlook. The outlook and modeling assets can be used to forecast future Engineering & Design Services performance and evaluate scenarios surrounding policy, geopolitical, and other future conditions.

- This research is intended to be of value to ACEC members and their constituents. It will provide industry insight to members and can be leveraged as a planning and educational resource. It will also assist ACEC advocacy, communications, and other outreach efforts.

Engineering and Design Services Industry Definition

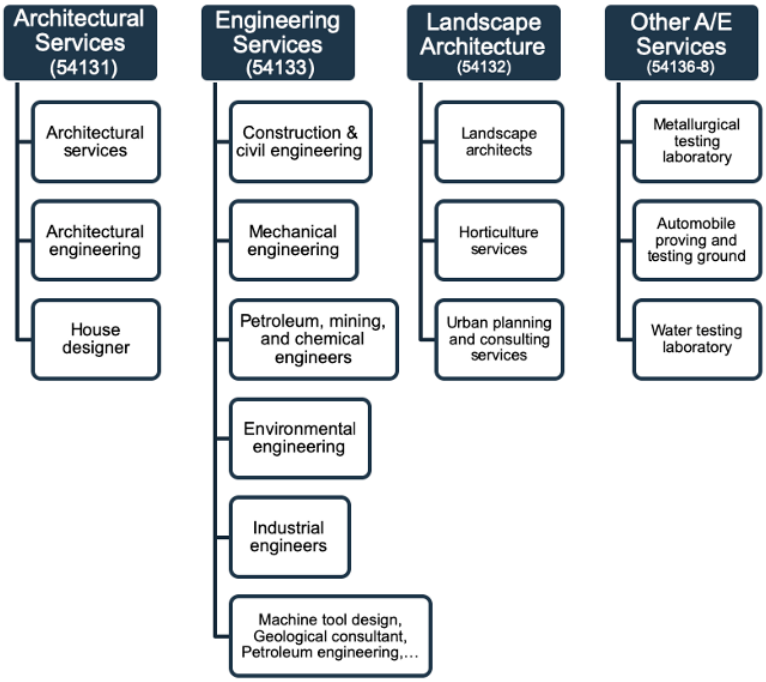
It is important to note that the definition of the Engineering & Design Services industry has been primarily developed based upon the ways in which public and private data sources collect and publish information from all businesses across the U.S. -the North American Industry Classification System, or NAICS. NAICS is a hierarchical industry taxonomy that provides classification standards for businesses according to their stated activities. Most public and private data collection conforms to these standards. This study focuses on engineering services first, given their dominant role (e.g., 67% of all jobs) in the overall Engineering & Design Services industry. Where other related professional services must be included due to data constraints will be noted throughout the report.

The NAICS code "5413, Architectural, Engineering, and Related Services" is part of the broad category, "54 - Professional, Scientific, & Technical Services" and includes both private and public sector organizations from a number of sub-sectors including:

- Architectural Services
- Landscape Architectural Services
- Engineering Services
- Drafting Services
- Building Inspection Services
- Geophysical Surveying and Mapping Services
- Surveying and Mapping (except Geophysical) Services
- Testing Laboratories

This study will focus on the all-inclusive NAICS 5413 category to define Engineering & Design Services activity for several reasons:

- More data with higher frequencies and greater regional detail are available at the 4-digit (5413) NAICS level. The deeper we drill into the NAICS structure, the less available and robust the data describing sector performance.
- Second, as a result of mergers and/or vertical integration strategies, more and more traditional ACEC members do operate across many of the sub-sectors within 5413.
- Third, given the economic and policy drivers of the Engineering and Design Services industry, it is likely that measured trends for NAICS 5413 will hold for most, if not all, of its member sub-sectors. Finally, a broader definition of A/E may bring more potential members into the ACEC family.



One important note regarding the analysis and interpretation of the results in this study. Our focus on NAICS 5413 in its entirety is not perfectly representative of board licensed professionals providing engineering services for the built environment (physical infrastructure) and the firms for which they work. Such firms are notable and different for a number reasons, including:

- Professional licensure creates direct moral and liability considerations for the licensed professional and their firms, regarding the safety and health of people and property.
- Federal, state, and local governments have laws and statutes which provide for separate procurement processes that involve the selection of providers of licensed professional and related services based on capability and experience criteria.
- Services can only be provided in disciplines (civil, mechanical, electrical, structural, environmental, etc.) the professionals are qualified to perform, and in many states, firm ownership is required to consist of all or a certain percentage of active professionals in the firm. This has the effect of also limiting the size of many such firms.
- Design work usually requires the teaming of firms with varied discipline capabilities and experience.

- Board licensing is for individual states or territories, resulting in geographical emphasis or limits on where work can be performed by individual firms.

- Since built environment involves facilities and infrastructure that are unique, due to the physical conditions involved, their designs must be correct when complete. Prototypes and beta testing are not an option since the initial construction costs and later corrections are prohibitive. The designs must be right the first time.

Since the definitions of NAICS Code 5413 and 541330 do not distinguish design of built environment from the design of equipment, systems, materials, instruments, software, and similar repeatable products and most data gathering surveys and processes allow for self-determination of NAICS Code reporting, many manufacturing, industrial, and management firms are included in the results. Often these are large enterprises that may skew the results.

While these firms may be "applying physical laws and principles of engineering in their design work", they are essentially operating in a different business sector of the A/E industry. ACEC represents the business interests of firms across all of NAICS Code 5413, but recognizes the difference involved. We have attempted to provide context and insight where we have evidence that the more relevant data might deviate from the broader findings.

It must be emphasized that while the data contained in this report is suitable for many purposes, including understanding the size and impact of the A/E services industry, the data available and presented is not suitable for evaluating and establishing guidance for decisions on procurement practices or developing size standards for either the aggregate industry or the portion of the industry focused on design of the built environment. The latter portion is heavily concentrated in physical infrastructure design services provided to federal, state, and local governments and entities involved in public works. The firms operating in this sector of the A/E services industry make up the largest portion of ACEC membership.

The 2021 – 2025 Engineering Industry Forecast Methodology

This is the third component of the Industry Impact Series. The foundation for the forecast for Engineering and Design Services includes the historical trends of sector-level output that were established in earlier phases of research. The goal of this phase of research is to:

- establish a quantitative forecast for Engineering and Design Services activity over the next five years

- provide context around the key drivers of the forecast for Engineering and Design Services

- analyze key trends, risks, and opportunities

The Engineering and Design Services industry forecast is developed by analyzing historical correlations between key driver variables of A/E services with overall A/E output. Using these mathematical correlations allows us to make inferences around the direction of Engineering and Design Services activity in the future. The forecast is further informed by quantitative data and industry insight to account for additional factors that may not be included in the econometric model.

The 2021 – 2025 Engineering Industry Forecast Data Sources

The data-driven effort to profile and forecast the Engineering and Design Services industry took advantage of a comprehensive set of published data from several public and private sources including:

- **U.S. Census Bureau** - Statistics of U.S. Business (SUBS) - demographics, housing, income, employment and business establishment data and trends
- **U.S. Census Bureau** - Value of Construction Put in Place
- **U.S. Census Bureau** – Quarterly Services Survey (QSS)
- **Bureau of Labor Statistics (BLS)** - industry employment & earnings plus occupational employment and annual salary statistics
- **Bureau of Economic Analysis (BEA)** - National Income & Product Accounts (GDP), employment, sales, wages, and supply chain purchases
- **Dodge Data & Analytics** - commercial construction project data
- Other public and private sources

Forecast for Engineering and Design Services

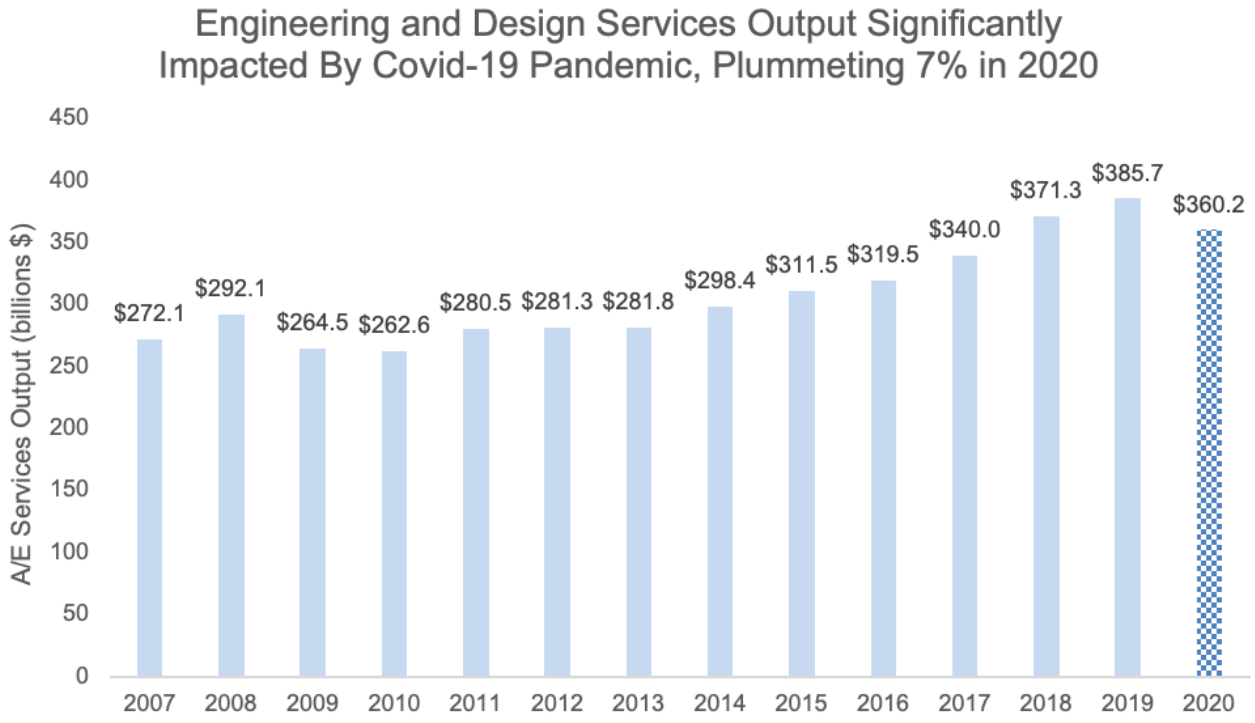
Engineering and Design Services Activity Witnessed Significant Declines in 2020

Our approach analyzes historical trends between Engineering and Design Services activity and key driver variables. Those mathematical relationships act as the foundation to forecast annual A/E Output over the next five years.

- Engineering and Design Services Output declined 7% across the U.S. in 2020 to $360.2 billion[1]. This is the first year of negative growth for the Engineering and Design Services sector since 2009 and 2010 when the industry was impacted by the financial crisis and the Great Recession.

- Engineering and Design Services was impacted greater than overall U.S. GDP, which declined only 3.5[2]% in 2020.

- Overall construction activity grew by 4.7% in 2020 outperforming Engineering and Design Services revenue growth. Construction revenue was buoyed by strength in both residential and non-building construction as other non-residential and commercial activity declined. Given the tendency for Engineering and Design Services activity to precede construction by two to three quarters, declining A/E revenue in 2020 is a harbinger for construction activity in 2021.

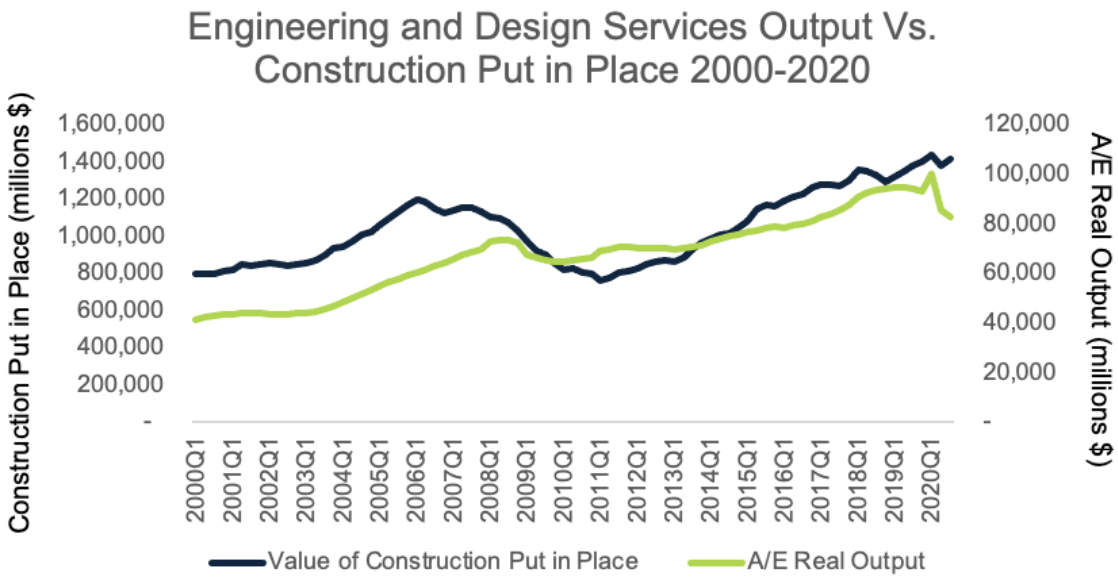


Source: Bureau of Economic Analysis (BEA), US Census Bureau, Rockport Analytics

[1]Based upon preliminary data for 2020 subject to revision.
[2]Bureau of Economic Analysis

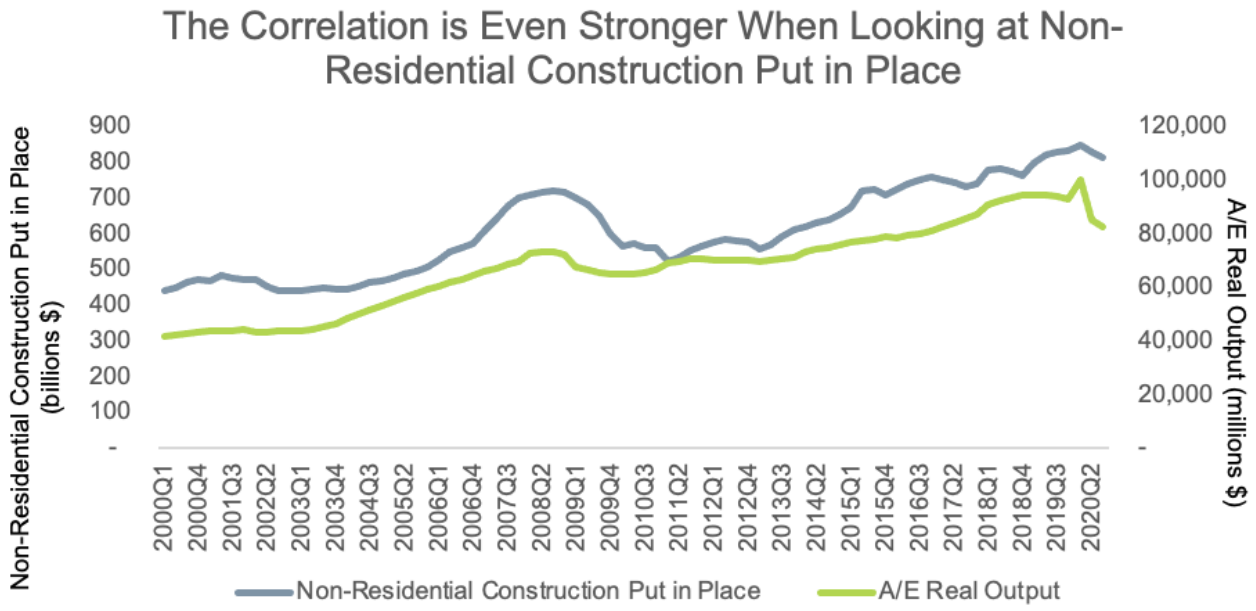
Engineering and Design Services Activity Tends to Lead Overall Construction Activity by Two to Three Quarters

- When analyzing historical trends, the linked relationship between the Engineering and Design Services sector and construction activity is readily apparent and useful (indicated in the chart below). While the value of Engineering and Design Services is included in the construction put in place numbers, there is a lead-lag relationship that is revealed once A/E is removed and analyzed alongside construction. The A/E Services sector tends to lead construction put in place by 2-3 quarters and is more resilient than construction through recessions. Consider that during the Great Recession, Engineering and Design Services revenue declined 10% from peak to trough compared to a 36% peak-to-trough decline in construction spending.



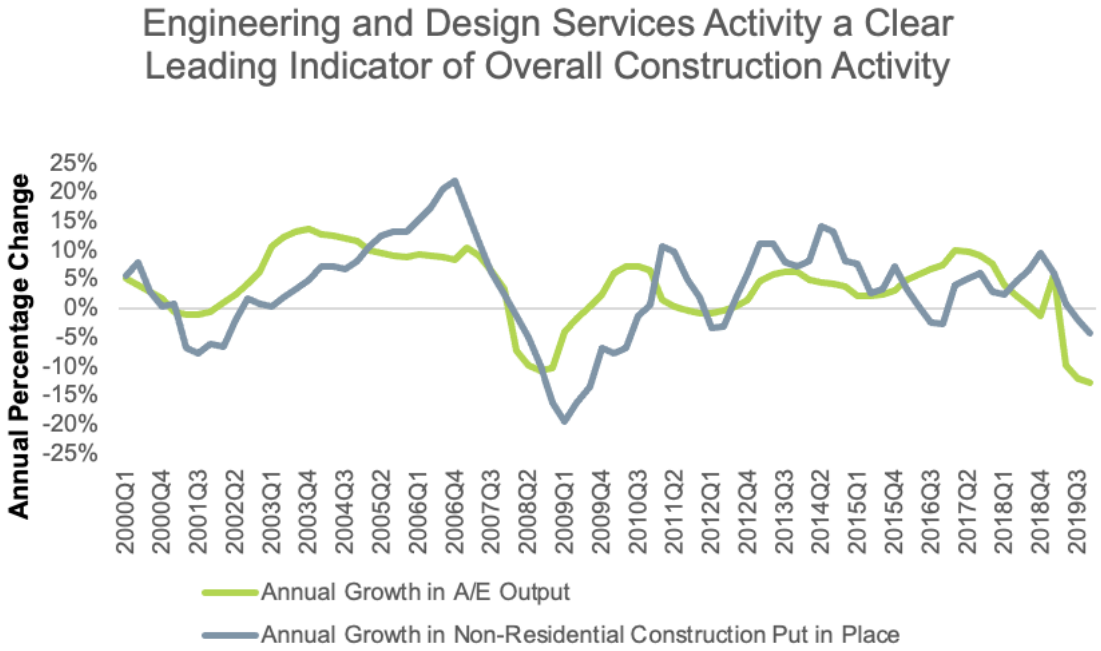
Bureau of Economic Analysis (BEA), US Census Bureau, Rockport Analytics

- While Engineering and Design Services activity drives all construction, non-residential construction (building and non-building) spending has the highest overall correlation with A/E activity as highlighted in the chart below.



Bureau of Economic Analysis (BEA), US Census Bureau, Rockport Analytics

- The lead-lag relationship becomes even more apparent when analyzing a year-on-year rate of change chart like the one below. Clearly, the cyclical declines or increases in Engineering and Design Services (green line) lead changes in construction put in place (blue line) consistently over time. The rate of change analysis underscores this leading relationship, particularly at cyclical turning points. It also highlights the relatively stable growth in A/E activity versus the more volatile construction put in place figures, with much wider cyclical swings in the latter. The sharp downturn in Engineering and Design Services in late 2020, therefore, suggests a significant downturn in construction activity in 2021.



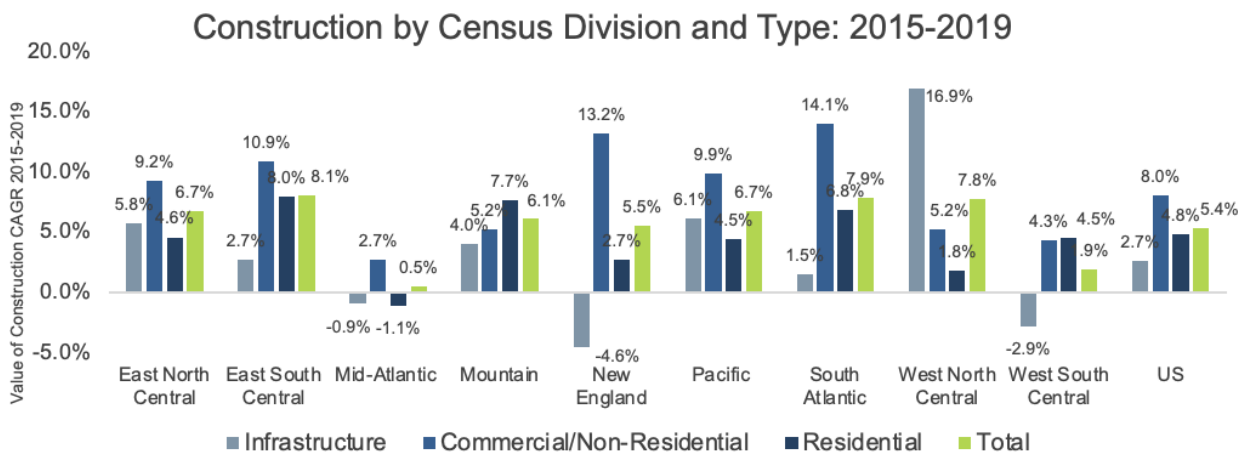
Bureau of Economic Analysis (BEA), US Census Bureau, Rockport Analytics

Shifting Demographic Trends Will Drive Shifts in Engineering and Design Services and Construction Activity Over the Coming Years

- The Census Bureau has not yet finalized regional construction put in place for 2020 (available summer 2021). The below chart, however, highlights the compound annual growth by region over the period from 2015 to 2019.

- Total construction grew at a compound annual rate greater than 5% in every Census Division except the Mid-Atlantic and the West South Central over the last five years. Commercial/non-residential construction was the best performer over the period, growing above 5% in most Divisions and double digits in the East South Central, New England and the South Atlantic.

- Millennials represent the largest opportunity for new and existing home purchases over the next ten years and their preferences and rate of household formation will have a significant impact on the demand for Engineering and Design Services activity and construction in the coming years. Many Millennials have delayed home purchases to later in life than their predecessors in Gen X or Baby Boomer generations.

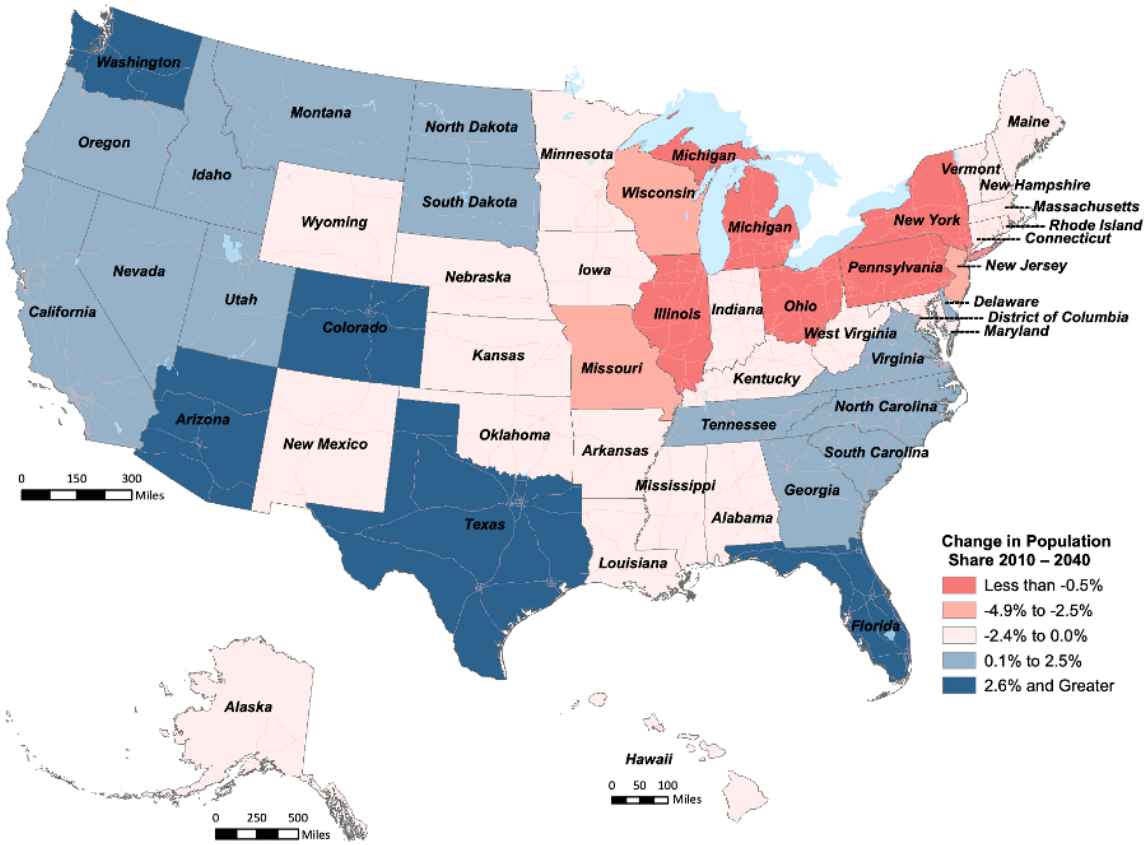


US Census Bureau

- There is evidence that housing demand is shifting away from urban markets and into the suburbs as many workers are working from home, decreasing the need to live closer to work and incentivizing moves to suburban and rural areas. These trends may persist, post-pandemic, as many employers reconsider work-from-home policies and consumers' behavioral trends go through a more permanent shift.

- We expect many of the population trends that have taken place over the last ten to fifteen years will continue over the next twenty years with declining population shares in the Northeast and Mid-Atlantic while the Sun Belt states and states in the West continue to gain share. Increased mobility could accelerate the movement to more desirable climates and states with lower tax burdens. The map below highlights the expected shifts in regional population over the next 10 years.

Expected Change in State Population Share 2010 - 2040

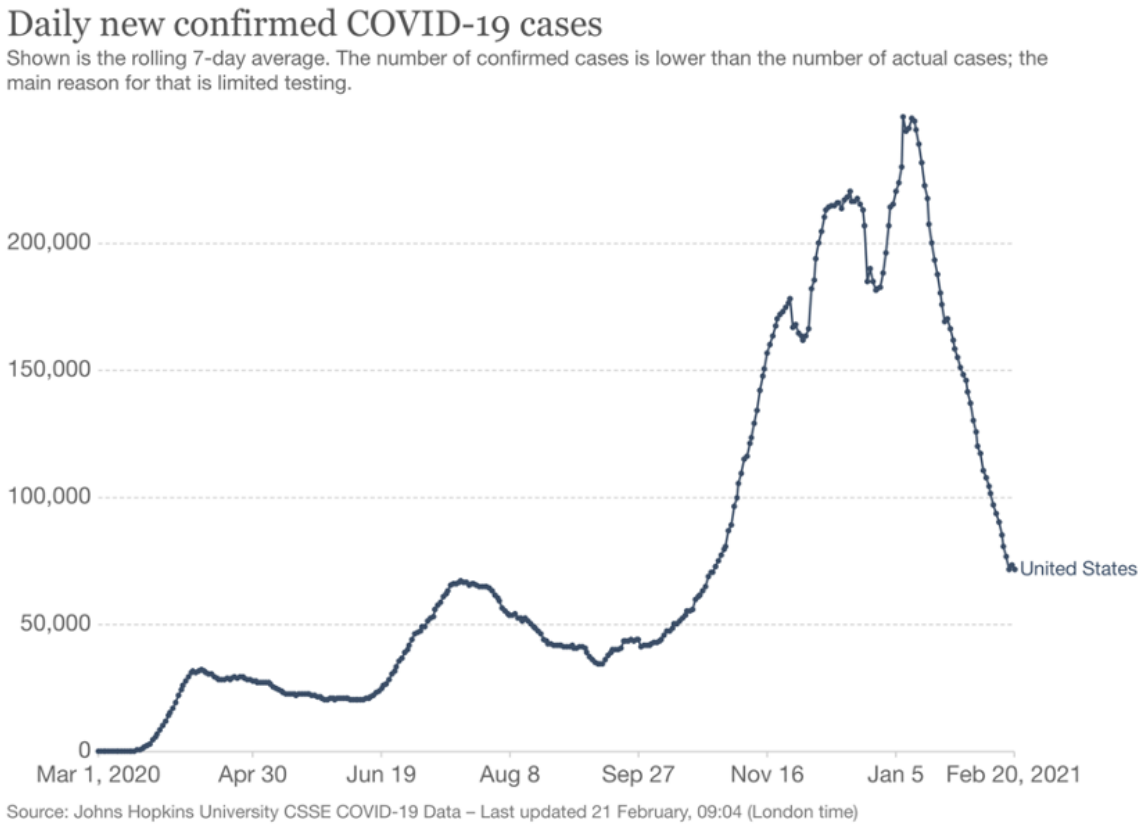


Source: University of Virginia Weldon Cooper Center, National Population Projections (2018)

The Timing and Trajectory of the US Recovery from the Covid-19 Pandemic is Central to Our Outlook

- The Covid-19 recovery is obviously key to the recovery of the US economy and our outlook for Engineering and Design Services activity. While the national vaccination effort is well underway, we are far from out of the woods on getting a critical mass of the population vaccinated, reaching herd immunity, and returning the daily lives of hundreds of millions of US citizens back to normal.

- Daily Covid-19 case numbers in the US peaked on January 8th at over 249,000 confirmed cases. Our baseline assumption in our outlook for A/E Services includes no major setbacks in the vaccination rollout. The outlook would be negatively impacted by any resurgence in case numbers or major setbacks in the rollout of the vaccines.



- Various mutations of the virus present a heightened risk to the vaccination effort and experts will need to be vigilant to ensure that testing, treatment and vaccination remain effective. The more the virus is able to spread the more opportunities it will have to mutate, making the race to herd immunity that much more important.

Overall Construction Activity Resilient in 2020 But Significant Declines Expected in 2021 and 2022

U.S. Construction Starts

In billions $$	2018	2019	2019 Y/Y %	2020[P]	2020 Y/Y %
Non-Building	**$239**	**$263**	**9.9%**	**$272**	**3.5%**
Water Supply Systems	$15	$16	2.6%	$19	16.6%
Sewerage & Waste Disposal	$24	$26	9.0%	$27	1.9%
Streets and Highways	$92	$98	6.3%	$99	1.6%
Power Plants/Pipeline/Communications	$100	$114	14.4%	$119	4.6%
Total Conservation and Development	$8	$9	10.9%	$8	-7.6%
Non-Residential & Commercial	**$530**	**$552**	**4.0%**	**$542**	**-1.8%**
Office	$77	$85	10.7%	$81	-4.4%
Communication	$25	$22	-9.2%	$23	2.0%
Transportation	$53	$57	7.4%	$57	-0.8%
Public safety	$9	$11	12.6%	$15	42.4%
Lodging	$31	$33	5.1%	$28	-13.9%
Educational	$101	$105	4.1%	$105	-0.8%
Amusement and recreation	$28	$29	2.6%	$27	-6.6%
Manufacturing	$73	$80	10.4%	$72	-10.3%
Health care	$43	$46	4.9%	$48	4.3%
Religious	$3	$4	1.3%	$3	-10.9%
Commercial	$86	$80	-6.9%	$84	4.2%
Residential:*	**$564**	**$551**	**-2.3%**	**$616**	**11.8%**
Single Family	$290	$280	-3.3%	$284	1.1%
Multi Family	$83	$86	3.0%	$86	0.5%
Improvements	$191	$185	-3.1%	$195	5.7%
Total Put in Place	**$1,333**	**$1,365**	**2.4%**	**$1,430**	**4.7%**

The value of U.S. construction starts reached $1.43 trillion in 2020 growing 4.7%. This follows 2.4% growth in total construction put in place in 2019.

Non-building construction was up 10% in 2019 and another 3.5% in 2020 driven by pipeline, water, and other utility construction. Road, bridge, and other public infrastructure building continues to lag, however.

Non-residential construction grew by 4% in 2019 but declined by 1.8% in 2020. Declines were driven by pandemic-sensitive sectors of the economy such as lodging, entertainment and recreation, manufacturing and office construction.

Residential construction fell 2.3% in 2019 but rose 11.8% in 2020. Improvements and single family construction picked up in 2020 likely driven by pandemic-induced shifts in housing trends.

[P] 2020 figures are preliminary
Source: US Census Bureau Seasonally Adjusted Construction Spending, Rockport Analytics.
*Residential category data from FMI U.S. Engineering & Construction Outlook

- We expect significant pressure on office and commercial construction through 2021 as many firms reconfigure work-from-home policies which will lead to lower demand for office space, particularly in urban environments.
- End markets that sit at the epicenter of the pandemic will also see significant declines over the next few years. This includes lodging, amusement and recreation.
- The FMI baseline forecast for growth in non-building construction is relatively modest at 1%. There is significant upside in the offing, however, if the Biden Administration can get some form of its "Build Back Better" infrastructure plan pushed through Congress. Headwinds will include lower projected state and local tax revenues over the next few years (covered in more detail on page 17).
- Interest rates should be monitored over the next couple years and could become a potential headwind to construction activity in 2022 and beyond. The unprecedented amount of stimulus that has been introduced into the US economy (passage of the current proposed $1.9 billion in additional stimulus would bring total fiscal stimulus to $5.2 trillion) coupled with the potential for real economic recovery in the back half of 2021, could start to spur inflation, driving rates higher. The Fed is likely to stay dovish (favoring full employment over stable prices) but at some point, if we stay on a path to economic recovery, rates will start to rise.

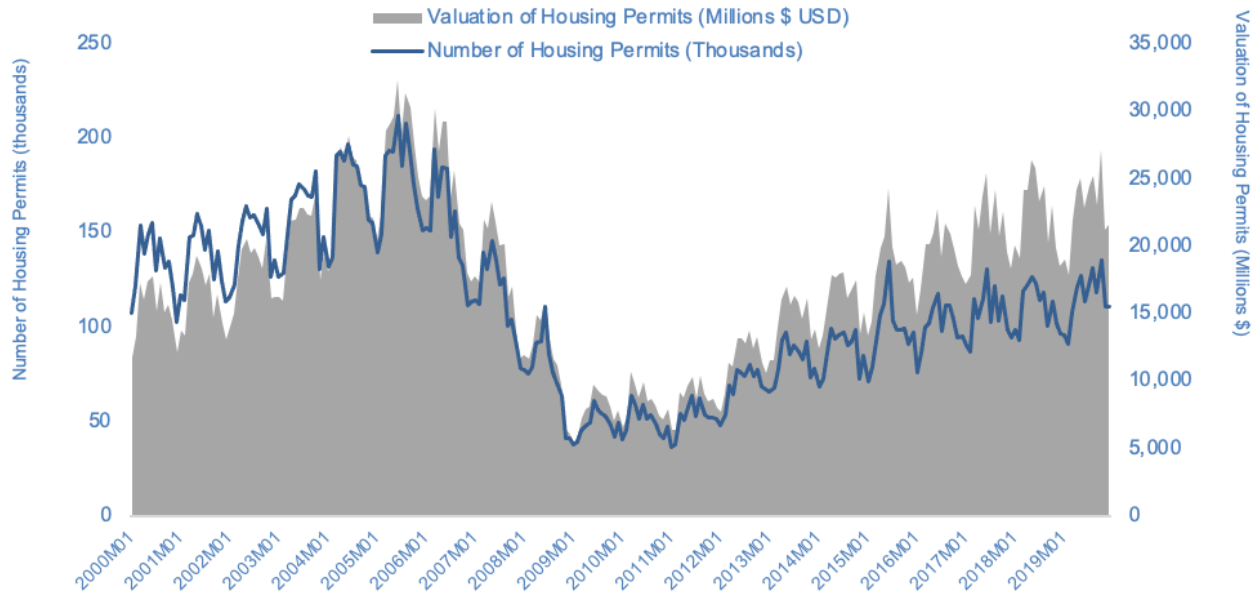
Expected Annual Growth/Decline By Structure Type: Compound Annual Growth Rate 2020 - 2024

Residential Buildings	
Single-family	-3%
Multifamily	-5%
Improvements	-4%
Total Residential Buildings	**-4%**
Non-Residential Buildings	
Lodging	-9%
Office	-6%
Commercial	-6%
Health Care	0%
Educational	0%
Religious	-6%
Public Safety	-2%
Amusement & recreation	-9%
Transportation	-2%
Communication	4%
Manufacturing	0%
Total Non-Residential Buildings	**-3%**
Non-Building Structures	
Power	0%
Highway & Street	2%
Sewage & Waste Disposal	-2%
Water Supply	-2%
Conservation & Development	-2%
Total Non-Building Structures	**1%**

Numerous trends have driven the residential construction market over the last year including:

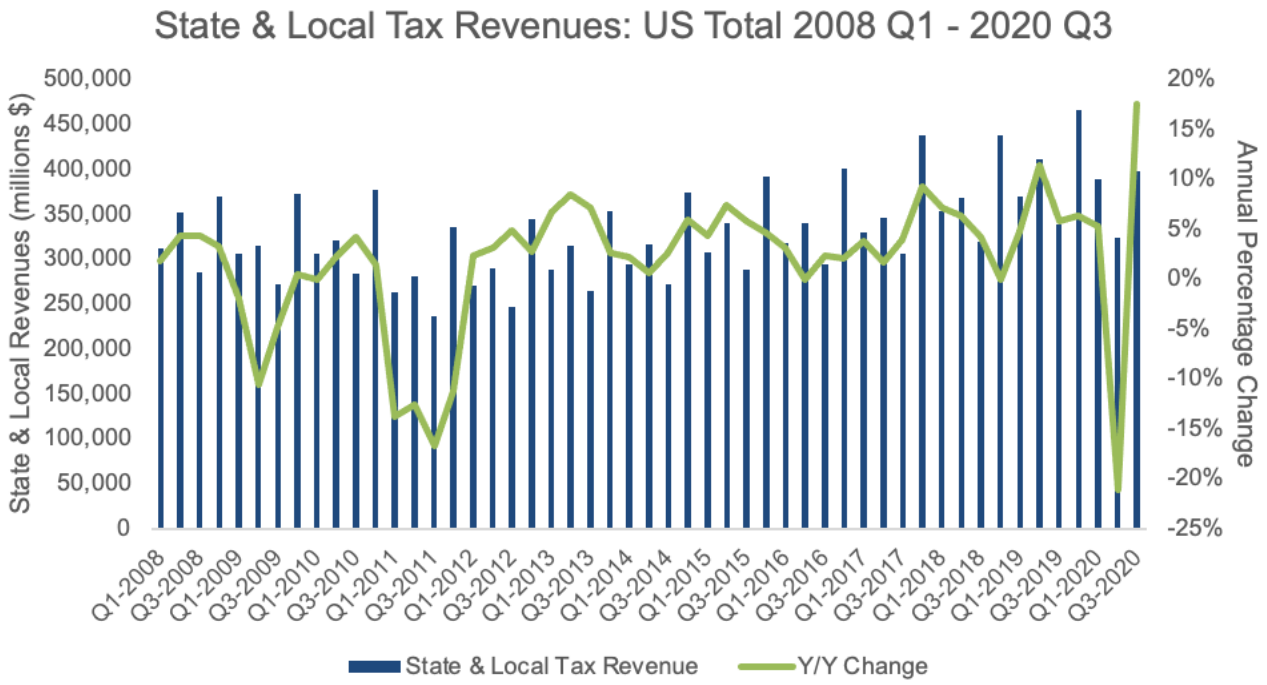
- Tailwinds from record low interest rates and an abundance of capital given historic fiscal and monetary stimulus, rise in asset prices.
- Household formation is on the rise as a delay of home purchases by many millennials has been receding over the last couple of years. We expect this trend to accelerate through the forecast horizon.
- Shift from multi-family to single-family as work-from-home incentivizes households to move to the suburbs.
- Urban areas also offer residents fewer benefits in a "socially-distant" world- i.e., a shorter commute, social benefits of living close together, access to restaurants, entertainment, the arts, etc.

U.S. Total New Privately Owned Monthly Housing Permits and Value of Units: 2000-2019

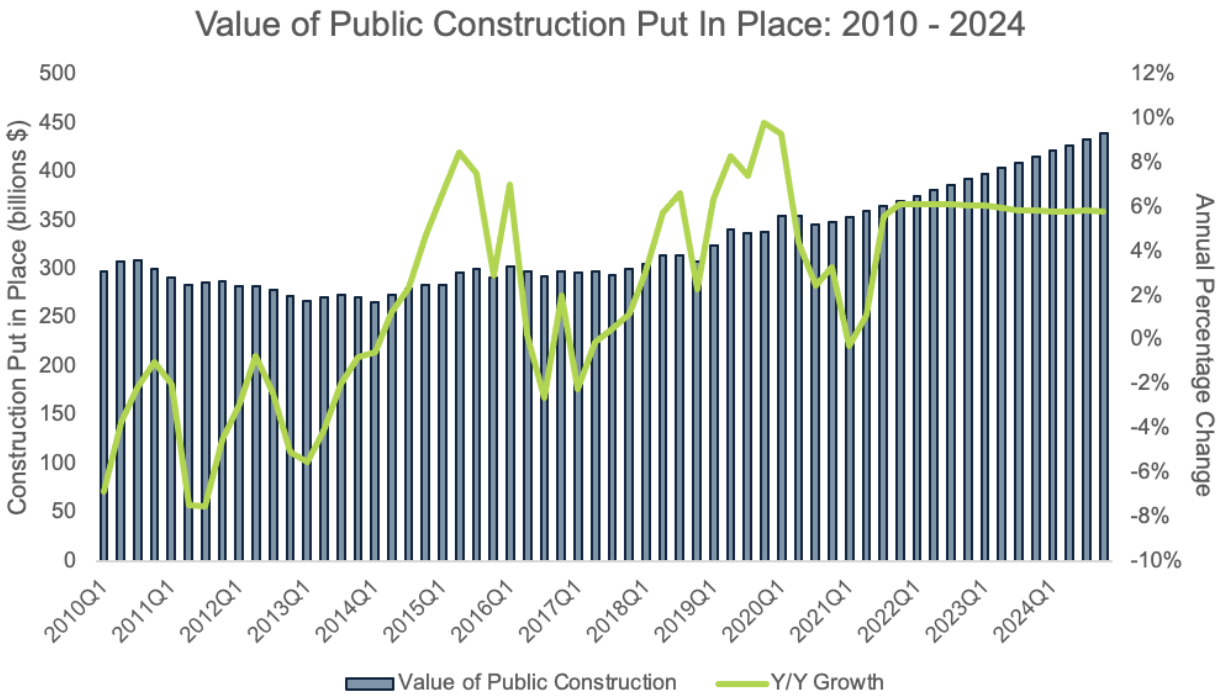


Headwinds from Decreased State and Local Budgets Could Impact Infrastructure Spending; Federal Stimulus Would Provide Much Needed Relief

- Prospects for infrastructure development pose both a risk and an opportunity to the prospects for Engineering and Design Services. We expect significant headwinds to state and local investment in infrastructure as state and local governments contend with declining tax revenues. While state and local tax revenues rebounded in the third quarter of 2020 after a steep decline in Q2, we expect heightened uncertainty around state and local collections over the next couple of years, which could act as a headwind to infrastructure spending.



- There is significant upside to infrastructure development in the form of a major federal infrastructure package, however. The economic and political setup for major infrastructure plan is in place:
    - The Biden Administration has placed infrastructure development at the cornerstone of its agenda with a proposed $1.9 trillion plan to modernize and improve America's infrastructure.
    - An infrastructure plan could garner bi-partisan support given the need to modernize infrastructure to improve long-run economic productivity and to further support the economic recovery from the Covid-19 pandemic.
    - The current low interest rate environment provides an additional economic incentive to pass a major infrastructure bill.
- The baseline assumption provided by Moody's Analytics (see below), is that non-building construction will grow 3.1% in 2021 before picking up steam throughout the forecast horizon, growing in the range of 6% per annum. A major infrastructure plan would boost these growth rates into high double-digits.



US Census Bureau, Moody's Analytics

- For every dollar spent on non-building construction, 6.02 cents flow directly to the Engineering and Design Services sector. Given a $1.9 trillion in infrastructure package, an estimated $114 billion would be generated in A/E Services sales.

Engineering and Design Services Activity Will Continue Its Decline in 2021 but Rebound by 2022

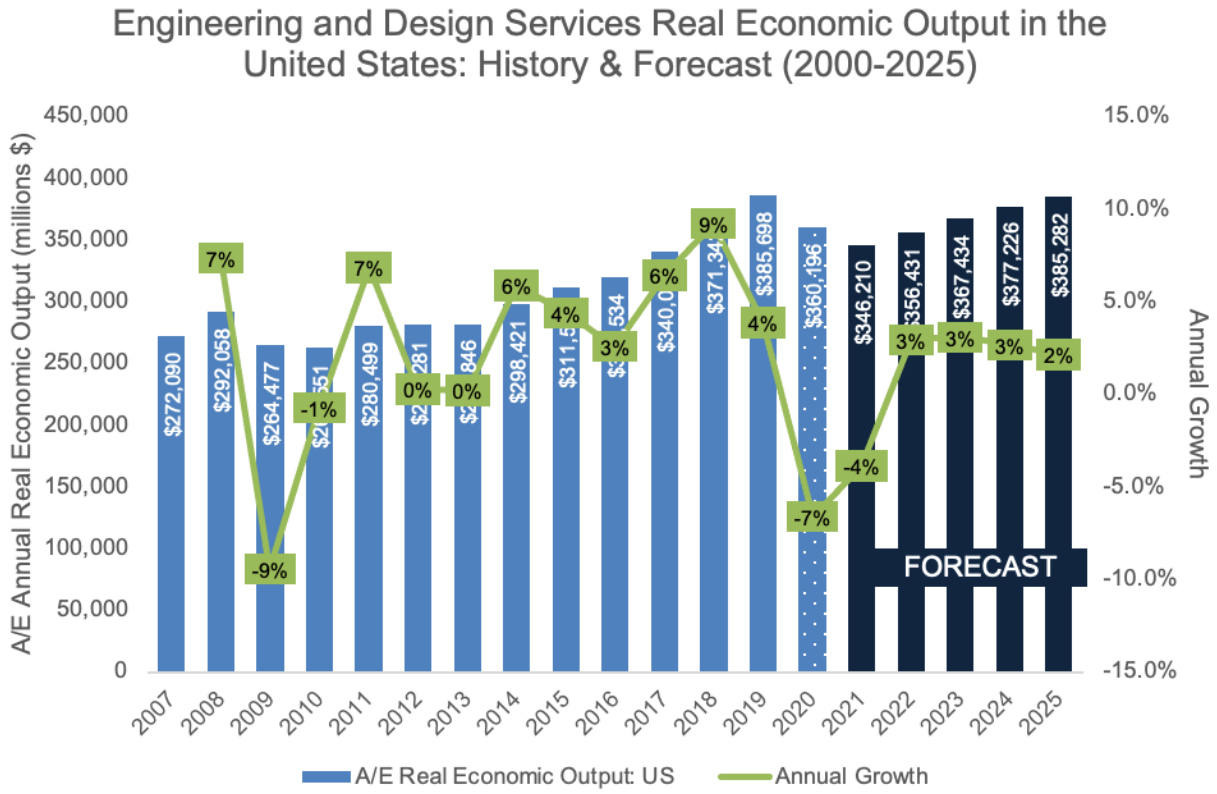
- We estimate that the steepest decline in Engineering and Design Services activity was in 2020 as Real Output fell 7% from its peak of $386 billion in 2019. We expect A/E Output to continue its decline in 2021 but the dip will be less pronounced, falling 4% and bottoming at $346 billion.

- Construction activity will continue its decline into next year as the potential for rising interest rates and continued headwinds in non-residential construction persist. The Engineering and Design Services sector, however, will begin to recover over the period, growing 3% to $356 billion in 2022.

- The recovery will persist through the forecast horizon although growth will slow in 2024 and 2025 as rising interest rates, inflation and public debt levels will likely take their toll on economic growth.

- We do not expect Engineering and Design Services Output to regain its 2019 peak by 2025, falling just shy at $385.3 billion.

- The aggregate declines in Engineering and Design Services Output due to the Covid-19 recession will total nearly $40 billion over 2020 and 2021. This compares to aggregate declines in A/E Output of just under $30 billion in the two years immediately following the Great Recession. It took around five years for a full recovery from the Great Recession and we expect a similar revival from the current crisis.



Bureau of Economic Analysis (BEA), US Census Bureau, Rockport Analytics
Note: 2020 is preliminary and subject to revision

Study Appendix

Appendix I: Definitions

Engineering and Architectural Industry NAICS Definitions

541310 Architectural Services: This industry comprises establishments primarily engaged in planning and designing residential, institutional, leisure, commercial, and industrial buildings and structures by applying knowledge of design, construction procedures, zoning regulations, building codes, and building materials.

541320 Landscape Architectural Services: This industry comprises establishments primarily engaged in planning and designing the development of land areas for projects, such as parks and other recreational areas; airports; highways; hospitals; schools; land subdivisions; and commercial, industrial, and residential areas, by applying knowledge of land characteristics, location of buildings and structures, use of land areas, and design of landscape projects.

541330 Engineering Services: This industry comprises establishments primarily engaged in applying physical laws and principles of engineering in the design, development, and utilization of machines, materials, instruments, structures, processes, and systems. The assignments undertaken by these establishments may involve any of the following activities: provision of advice, preparation of feasibility studies, preparation of preliminary and final plans and designs, provision of technical services during the construction or installation phase, inspection and evaluation of engineering projects, and related services.

541340 Drafting Services: This industry comprises establishments primarily engaged in drawing detailed layouts, plans, and illustrations of buildings, structures, systems, or components from engineering and architectural specifications.

541350 Building Inspection Services: This industry comprises establishments primarily engaged in providing building inspection services. These establishments typically evaluate all aspects of the building structure and component systems and prepare a report on the physical condition of the property, generally for buyers or others involved in real estate transactions. Building inspection bureaus and establishments providing home inspection services are included in this industry.

541360 Geophysical Surveying and Mapping Services: This industry comprises establishments primarily engaged in gathering, interpreting, and mapping geophysical data. Establishments in this industry often specialize in locating and measuring the extent of subsurface resources, such as oil, gas, and minerals, but they may also conduct surveys for engineering purposes. Establishments in this industry use a variety of surveying techniques depending on the purpose of the survey, including magnetic surveys, gravity surveys, seismic surveys, or electrical and electromagnetic surveys.

541370 Surveying and Mapping (except Geophysical) Services: This industry comprises establishments primarily engaged in performing surveying and mapping services of the surface of the earth, including the sea floor. These services may include surveying and mapping of areas above or below the surface of the earth, such as the creation of view easements or segregating rights in parcels of land by creating underground utility easements.

541380 Testing Laboratories: This industry comprises establishments primarily engaged in performing physical, chemical, and other analytical testing services, such as acoustics or vibration testing, assaying, biological testing (except medical and veterinary), calibration testing, electrical and electronic testing, geotechnical testing, mechanical testing, nondestructive testing, or thermal testing. The testing may occur in a laboratory or on-site.

About ACEC Research Institute

The ACEC Research Institute is the research arm of the American Council of Engineering Companies – the business association of the nation's engineering industry. The ACEC Research Institute's mission is to deliver knowledge and business strategies that guide and elevate the engineering industry and to be the leading source of knowledge and thought leadership for creating a more sustainable, safe, secure and technically advanced built environment.

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