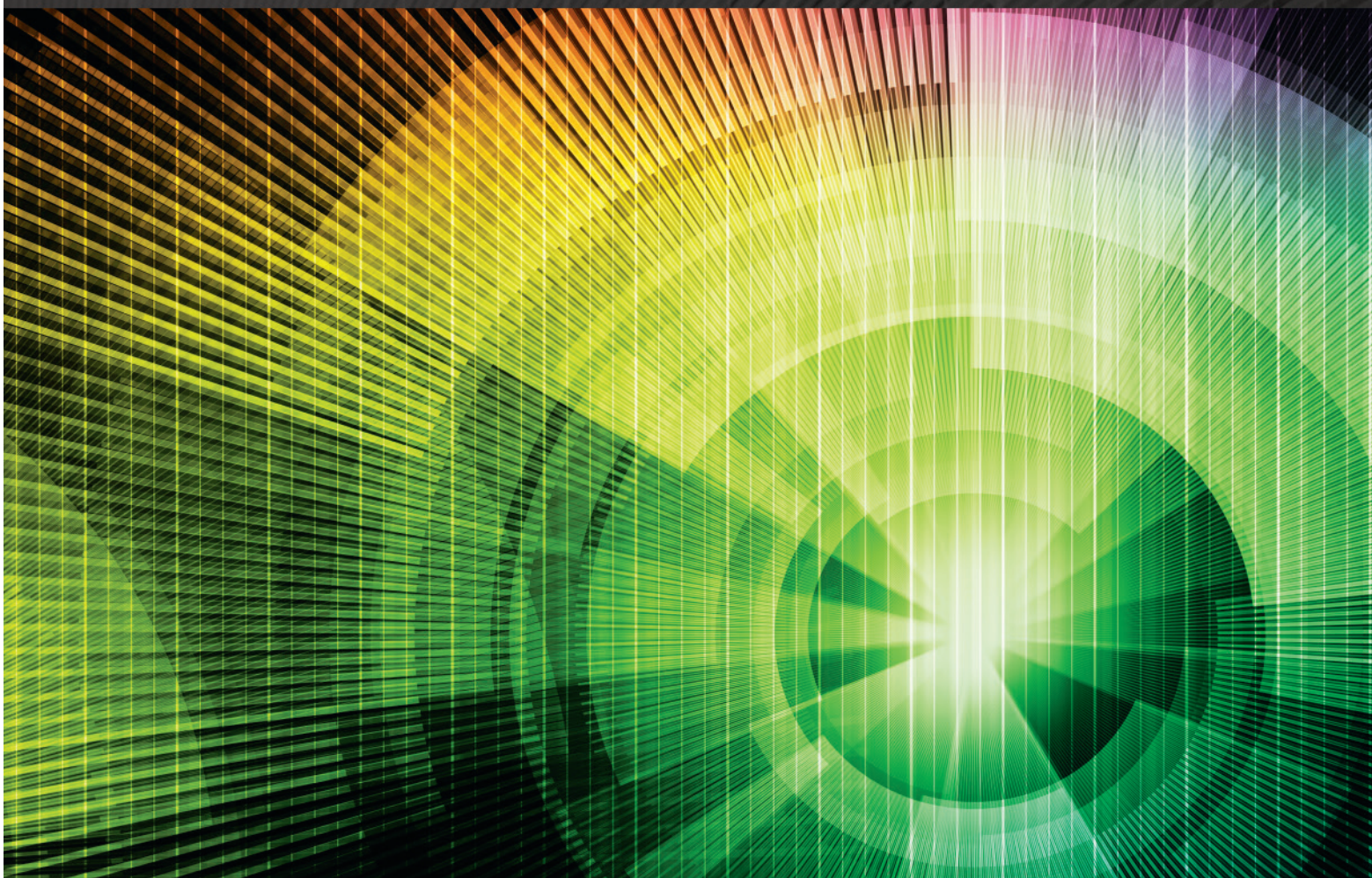


NSCA Electronic Systems Outlook

Summer Edition

2021



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YOUR VOICE • RESOURCE • ADVISOR



This report was made possible through a partnership between NSCA and FMI. FMI is a leading provider of management consulting, investment banking, and research to the engineering and construction industry. They work in all segments of the industry, providing clients with value-added business solutions (learn more about FMI at www.fminet.com).

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EXECUTIVE SUMMARY

KEY TAKEAWAYS

- Total U.S. engineering and construction spending is forecast to end 2021 up 2% compared to up 5% in 2020. Spending in reported target commercial segments is forecast to end 2021 down 3% from 2020 compared to down 2% between 2020 and 2019.
- Declines in 2021 will be led by falling investments in nonresidential buildings, especially among private segments, including lodging, office, and commercial construction. Further, declines in publicly funded, nonresidential building segments will be realized across education and government buildings.
- Manufacturing and healthcare are expected to end the year with growth roughly in line with the rate of inflation (between 0% and 4%) and are therefore considered stable.

2021 Construction Segments (2021 compared to 2020)

Up (5% or more)

- None

Stable (0% to 4%)

- Healthcare
- Manufacturing

Down (Less than 0%)

- Lodging
- Office
- Commercial
- Education
- Houses of Worship
- Government Buildings

CONSTRUCTION OUTLOOK Overall, our forecast for commercial building construction put in place in 2021 calls for a 3% decline; however, with unemployment and GDP reporting improving conditions through Q1, the U.S. economy appears to be in the early stages of economic recovery. Rebounding commercial construction activity is anticipated over the next 18 to 24 months.

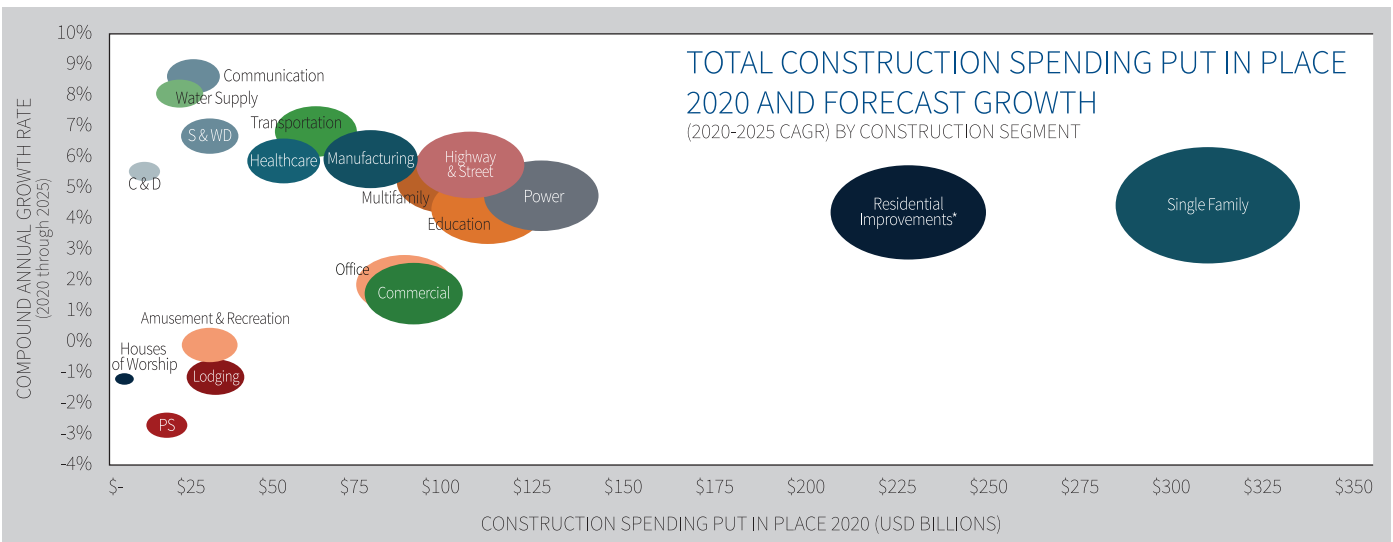
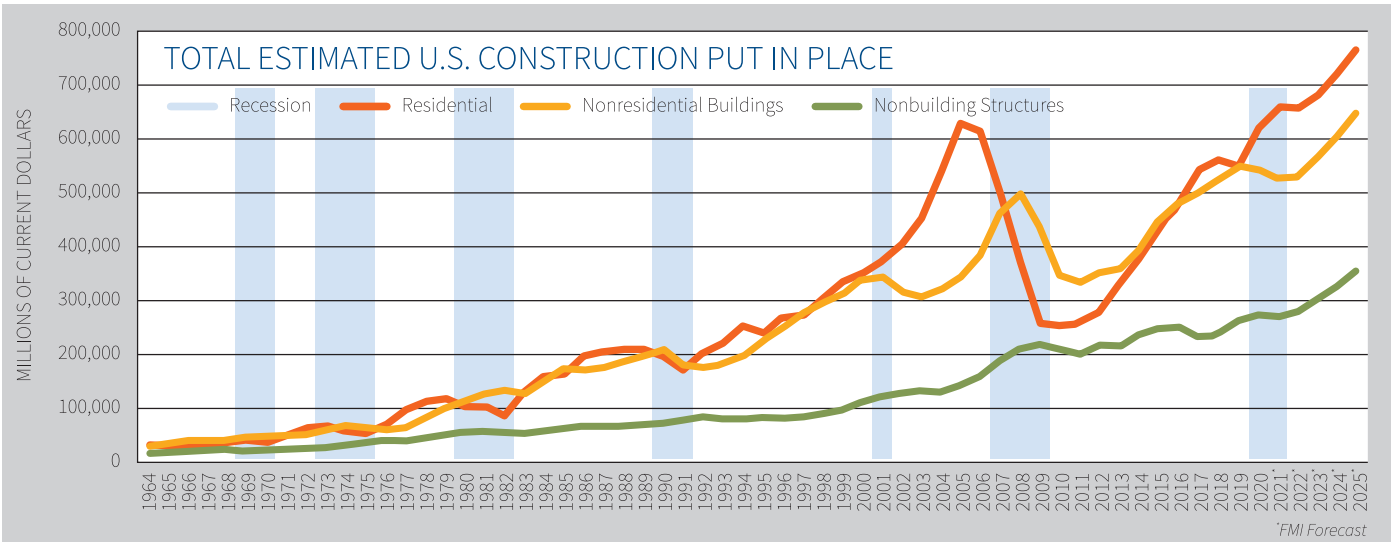
COMMERCIAL ELECTRONIC SYSTEMS CONSTRUCTION PUT IN PLACE

Estimated Forecast for the United States / Millions of Current Dollars

	2021
Total Commercial Building Construction Volume	425,830
Total Commercial Electronic Systems Construction	24,923
Share of Total Construction	5.85%

Visit the Summary section of this report on pages 18-19 that provides outlines for all the markets and electronic systems, in addition to showing Canadian construction trends.

EXECUTIVE SUMMARY

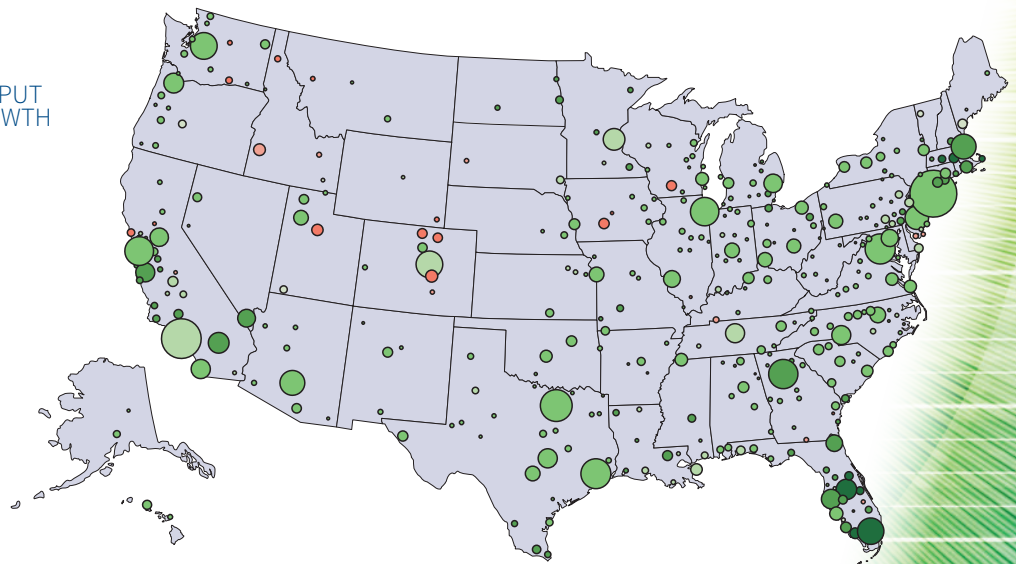


*Improvements include additions, alterations, and major replacements. It does not include maintenance and repairs.

TOTAL CONSTRUCTION SPENDING PUT IN PLACE 2020 AND FORECAST GROWTH (2020-2025 CAGR) BY METROPOLITAN STATISTICAL AREA

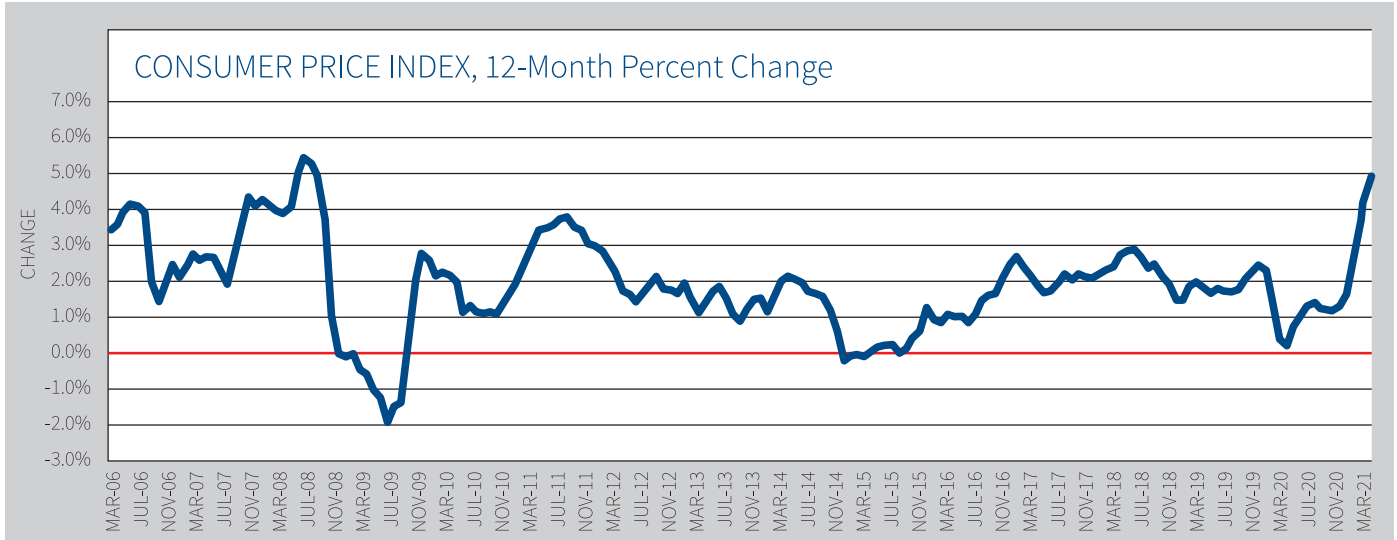
Bubble Size Represents Total Put in Place Construction Spend (2020)

CAGR 2020-2025



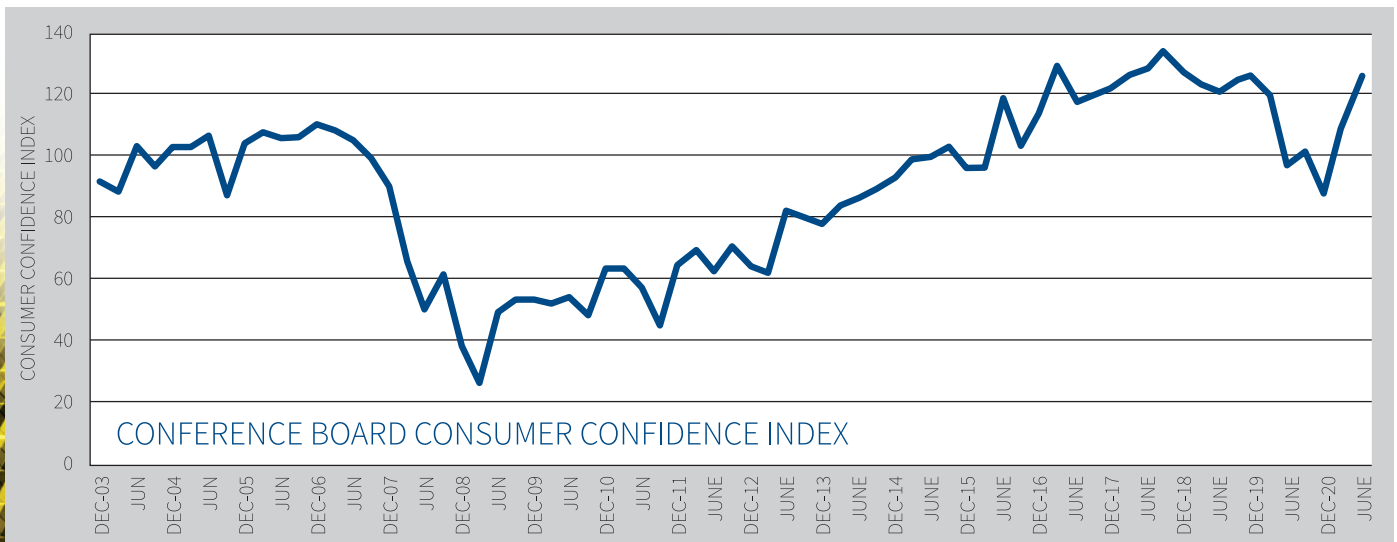
EXECUTIVE SUMMARY

KEY ECONOMIC INDICATORS It's important to consider key economic indicators, such as CPI, CCI, and unemployment rates, when evaluating this report; they provide the general pulse of the economy. These three factors determine interest rates and funding of construction projects. The Fed (formerly known as the Federal Reserve Bank/Federal Reserve) controls interest rates, which CPI, CCI, and unemployment all affect. The graphs below highlight historical changes in CPI, CCI, and unemployment rates.



CPI is a measure of the average change over time in the price paid by urban households for a set of consumer goods and services. An increase in CPI usually leads to adjustments in interest rates in order to control costs of goods and adjust for inflation. Additionally, CPI is often used in calculating wages, pensions, and salaries.

The CPI graph shows the national percent of change of costs for consumer goods and services over the course of the last 15 years.

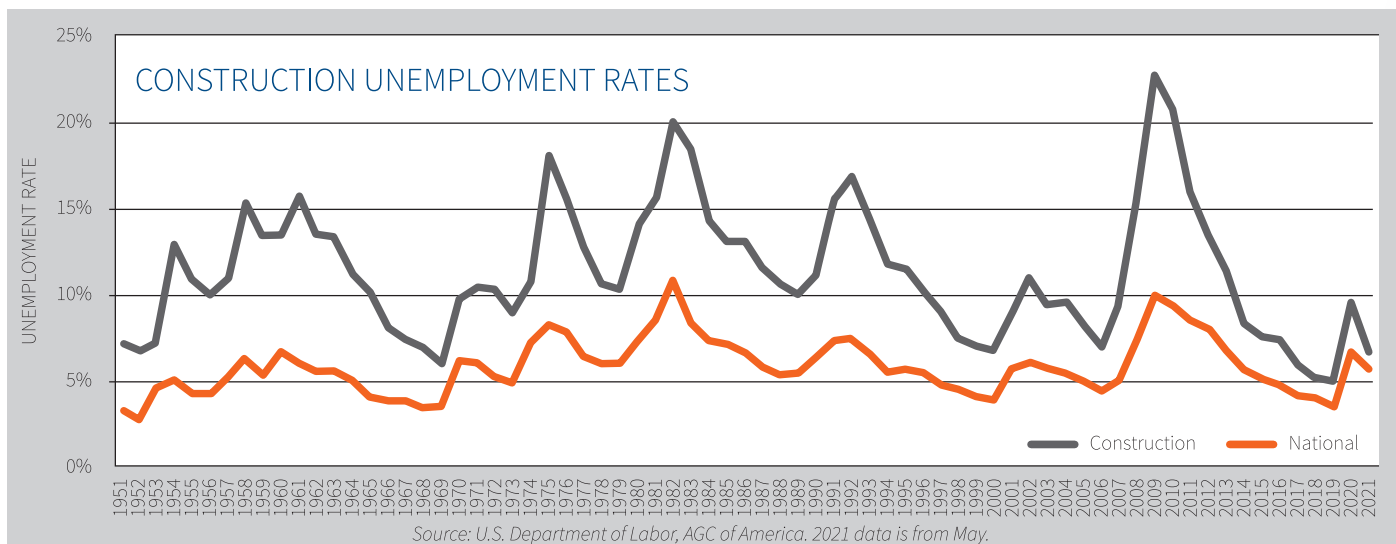
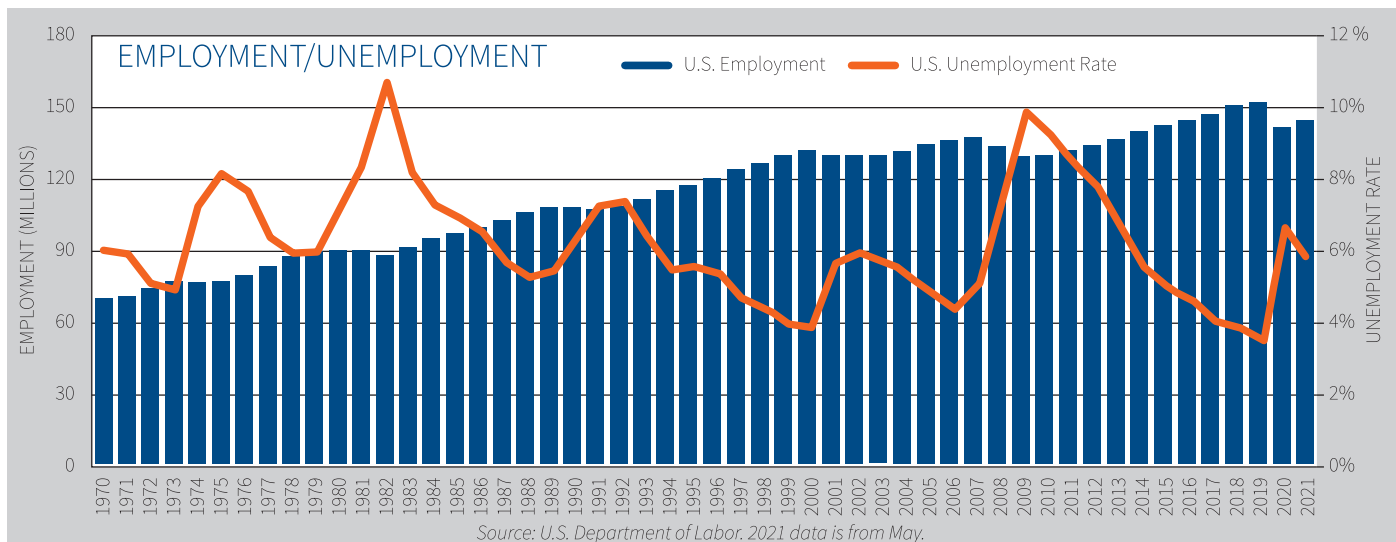


CCI is calculated based on a survey of 5,000 U.S. households; it's interpreted by the Conference Board, which extracts data from the survey to forecast future spending by consumers. In general, a 5% swing in either direction is needed to influence a change in decision-making.

EXECUTIVE SUMMARY

The Conference Board Consumer Confidence Index graph shows that consumer spending took a dramatic hit during the pandemic and is aggressively scratching its way back to pre-COVID-19 levels. The fact that confidence levels are climbing might seem to conflict with construction trends (spending in key commercial segments is forecast to end 2021 down 3%, and no vertical markets are likely to end 2021 up more than 5%); however, the integration market is uniquely positioned to align itself with increased consumer confidence. Customers across all vertical markets are poised to invest in their facilities to accommodate a reimagined work environment. More employees may be working from home or using a hybrid work model and will need to use optimized communication solutions and office technology. This is applicable even for customers that may consider reducing their real estate footprint. Integrators will continue to offer value for customers even amid reduced construction.

Obstacles remain. Too many integration companies have battled through the pandemic only to have their recovery disrupted by talent and product availability challenges. Many integration companies struggle to recruit and hire the talent needed to address escalating demand. Meanwhile, supply chain difficulties create challenges when executing projects. NSCA continues to create content centered on business continuity, including education on government programs. The business continuity resources have evolved to include stepped-up efforts to assist members with employment and supply chain challenges.



EXECUTIVE SUMMARY

RESIDENTIAL CONSTRUCTION

UP 7%

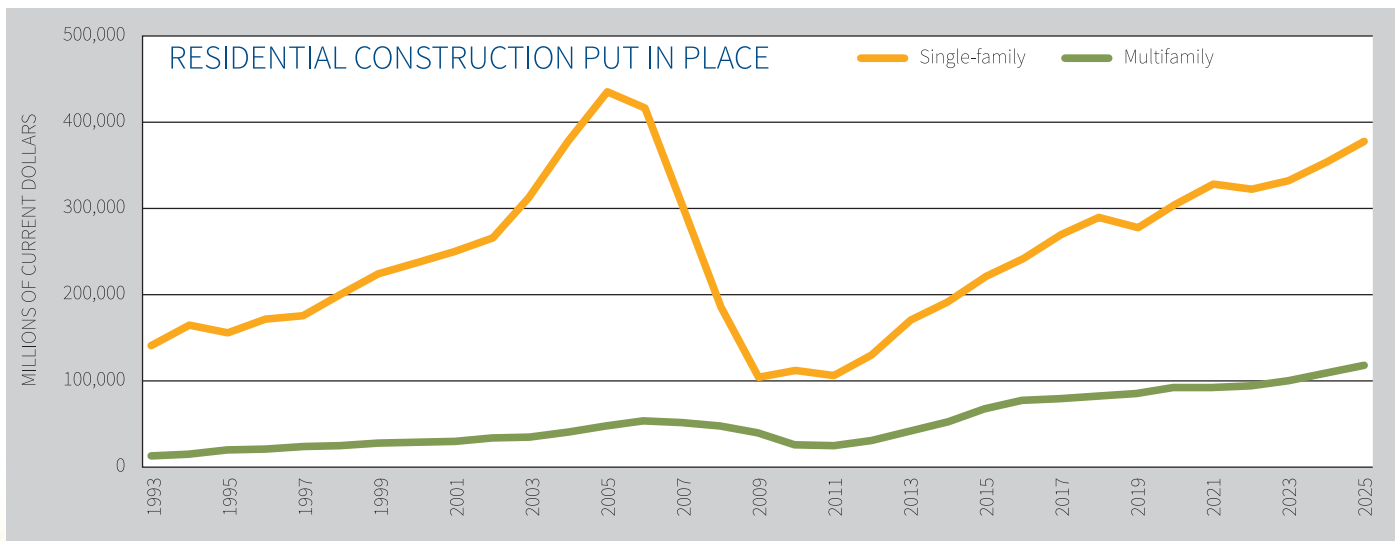
\$660 Billion

2021/2020 Comparison

Trends:

- Extremely high construction costs via material prices and lack of labor will continue to strain builders' capabilities in supplying homes (especially for low-cost starter homes)
- Rising mortgage rates will stall home price appreciation and reduce demand
- Affordability will be challenged by rising living costs (e.g., food, energy, transportation, etc.)
- Expect ongoing disruptions via delays or cancellations in mixed-use investment
- Affordable housing becomes a political platform as the nation begins to expire pandemic stimulus programs alongside heightened unemployment

Drivers include unemployment rates, core CPI, income, mortgage rates, home prices, housing starts, and housing permits.



While the residential sector does not directly create demand for most NSCA members, we should recognize the impact that housing has on other construction segments. Commercial, healthcare, and education segments in particular tend to follow changes in the housing sector. Likewise, home equity values have direct impact on consumer confidence and discretionary spending that drive markets such as retail and hospitality. As it often plays out when residential markets are booming, it puts additional pressure on NSCA members to recruit and retain key employees whose skills can be used by residential integration companies.

EXECUTIVE SUMMARY

VERTICAL MARKET OUTLOOK Each of the market segments detailed in this report (corporate, education, government, healthcare, houses of worship, lodging, manufacturing, and retail) features a 2021 outlook to show growth potential and the evaluation of electronic systems for that market, as well as trends and drivers. This information is based on actual data through Q1 2021 and forecast for the remainder of the year.

Consultants and integrators will find this data helpful in the very early stages of design and should consider using the “percentage of total vertical market construction” averages as a starting point in discussions with clients, tracking how their local marketplace compares to national averages.

Furthermore, this information is critical when budgeting for a project. It can be used to measure growth opportunities and monitor market-share potential. These averages can be used when working with clients to show comparable solutions that fit within the average dollars spent on systems in each vertical market. It gives a baseline average for a good-better-best solution and helps guide clients by avoiding underfunding, which leads to a subpar system installation.

The graphs throughout this report specifically outline the systems involved in the low-voltage industry:

- **Acoustics, Audio, and AV:** includes, but not limited to, cable and satellite television systems, public address, paging and intercom systems, security cameras, videoconferencing, video projectors, CCTV, touchscreen controls
- **Phone Systems, Data Networks, IT:** includes, but not limited to, phone and computer systems and cabling, buses, networks, fiber optics
- **Building Automation & Control:** includes, but not limited to, energy metering and monitoring, mechanical systems, malfunction alarms, humidity and ventilation, water systems monitoring, emergency power, electrical fault detection, leak detection
- **Life Safety – Fire & Security:** includes, but not limited to, fire, smoke and security alarm systems, flood safety, air quality sensors, building access systems, nurse call systems
- **Lighting, Digital Signage:** includes, but not limited to, building lighting control, emergency lighting, accent lighting, digital signage

DATA COLLECTION This biannual report includes forecasting and systems modeling. FMI first generates a forecast for building construction put in place (new construction, repair, and renovation). Econometric modeling is used to estimate demand. Each market segment has an independent algorithm based on five to eight metrics that have historically correlated best to changes in activity for that market segment over the past 50 years. A preliminary forecast is generated based on projections for each metric (retail sales, consumer confidence, population under age 18) supporting each market segment. The preliminary forecast is then adjusted based on database records for current/planned projects, funding and timing of those projects, contractor backlogs, and FMI’s direct interaction with engineers, architects, owners, and contractors in the field.

Next, the forecast for total construction put in place is modeled to its components and systems. This report is based on analysis of proprietary project records (what goes into construction of a K-12 school of a certain size and geography, for example) and through discussion with architects and estimators. Emerging trends (code changes) are explored through supporting secondary research; final adjustments to the model are then made.

VERTICAL MARKET OUTLOOKS Corporate

CORPORATE

DOWN 5%

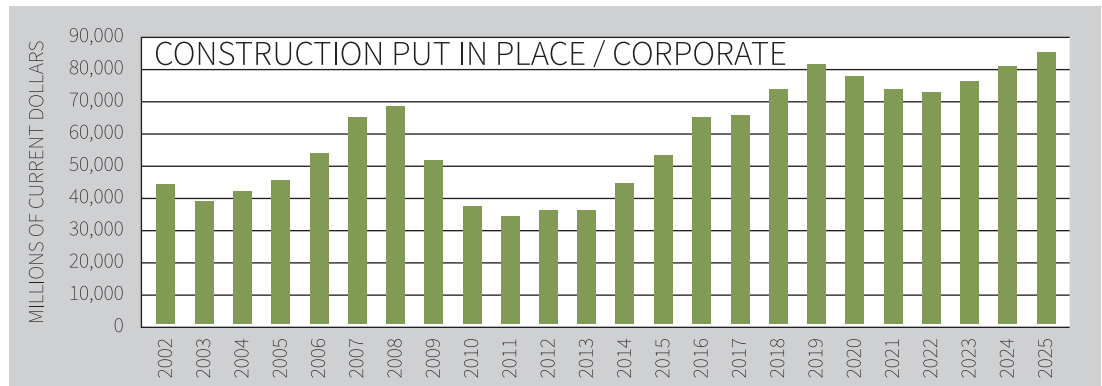
\$74 Billion

2021/2020 Comparison

Trends:

- Organizations will more widely open doors through the second half of 2021, offering flexible/hybrid work conditions while assessing space requirements
- Expect vacancies to rise over the next several years as leases expire, alongside increasing renovation spending
- Increased relocation activity due to widened variances between state/local taxes and increased potential for federal corporate tax revisions

Key drivers include office vacancy rates and unemployment rates.



CORPORATE CONSTRUCTION

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Millions of Current Dollars	44,817	53,891	65,335	66,083	73,758	81,647	78,085	74,028	72,949	76,641	81,093	85,486
% Change From Year Prior	22.7%	20.2%	21.2%	1.1%	11.6%	10.7%	-4.4%	-5.2%	-1.5%	5.1%	5.8%	5.4%

SYSTEMS OUTLOOK / CORPORATE in Millions of Current Dollars

	Acoustics, Audio, AV	Phone Systems, Data Networks, IT	Building Automation & Control	Life Safety: Fire & Security	Lighting, Digital Signage	All Systems
2016 Total	442.8	1,107	147.6	1,273	719.5	3,690
2017 Total	516.7	1,112.9	238.5	1,430.8	675.7	3,974.5
2018 Total	638.9	1,320.5	319.5	1,405.6	575	4,259.5
2019 Total	739.7	1,434.5	347.4	1,423.3	538	4,482.9
2020 Total	574.9	1,629	467.1	1,533.1	586.9	4,791.1
2021 Summer Outlook	623.1	1,569.3	438.5	1,453.9	530.8	4,615.6
% of Total Construction	0.84%	2.12%	0.59%	1.96%	0.72%	6.24%

2016 through 2020 Totals – total electronic systems construction put in place in their respective years

2021 Summer Outlook – outlook of total 2021 electronic systems construction put in place based on actual data from Q1 and Q2 2021 and forecast for the remainder of 2021

% of total construction – percentage of 2021 dollars spent on electronic systems in relation to the total dollars spent on construction in each vertical market

Education VERTICAL MARKET OUTLOOKS

EDUCATION

DOWN 2%

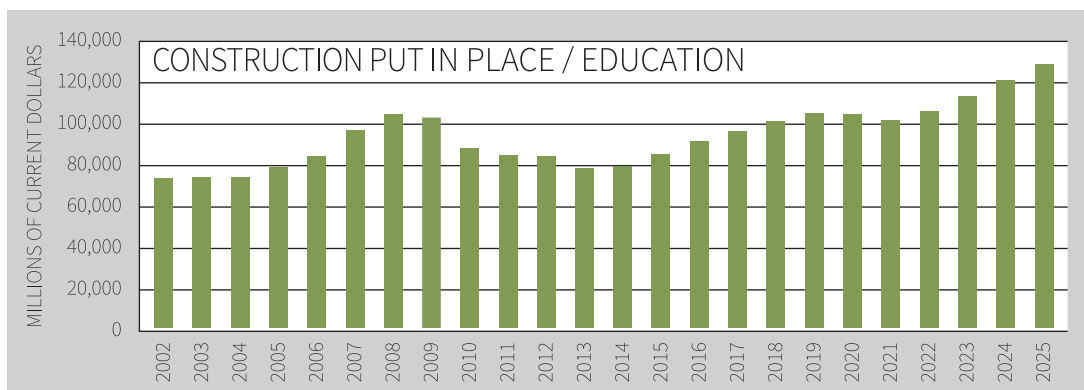
\$102 Billion

2021/2020 Comparison

Trends:

- Expect most K-12 and higher-education facilities to be fully open and functional by the end of 2021
- Significant and long-running K-12 renovation and reconstruction needs persist
- Higher-education owners face ongoing challenges and restructure in the coming year(s)

Key drivers include population change in those younger than age 18, population change in ages 18-24, stock market, government spending, and nonresidential structure investment.



EDUCATION CONSTRUCTION

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Millions of Current Dollars	79,681	85,346	91,629	96,685	101,210	105,374	104,525	102,147	106,356	113,261	121,145	129,192
% Change From Year Prior	08.0%	7.1%	7.4%	5.5%	4.7%	4.1%	-0.8%	-2.3%	4.1%	6.5%	7%	6.6%

SYSTEMS OUTLOOK / EDUCATION in Millions of Current Dollars

	Acoustics, Audio, AV	Phone Systems, Data Networks, IT	Building Automation & Control	Life Safety: Fire & Security	Lighting, Digital Signage	All Systems
2016 Total	718.7	639.6	243.6	3,106.4	1,382.7	6,091
2017 Total	724.6	664.2	241.5	3,079.6	1,328.5	6,038.5
2018 Total	801.3	801.3	267.1	3,405.7	1,402.3	6,677.8
2019 Total	825.9	791.4	309.7	3,509.9	1,445.2	6,882.1
2020 Total	591.3	1,256.5	369.5	3,621.6	1,552.1	7,390.9
2021 Summer Outlook	652.7	1,160.4	290.1	3,553.7	1,595.5	7,252.4
% of Total Construction	0.64%	1.14%	0.28%	3.48%	1.56%	7.1%

2016 through 2020 Totals – total electronic systems construction put in place in their respective years

2021 Summer Outlook – outlook of total 2021 electronic systems construction put in place based on actual data from Q1 and Q2 2021 and forecast for the remainder of 2021

% of total construction – percentage of 2021 dollars spent on electronic systems in relation to the total dollars spent on construction in each vertical market

VERTICAL MARKET OUTLOOKS Government

GOVERNMENT

DOWN 11%

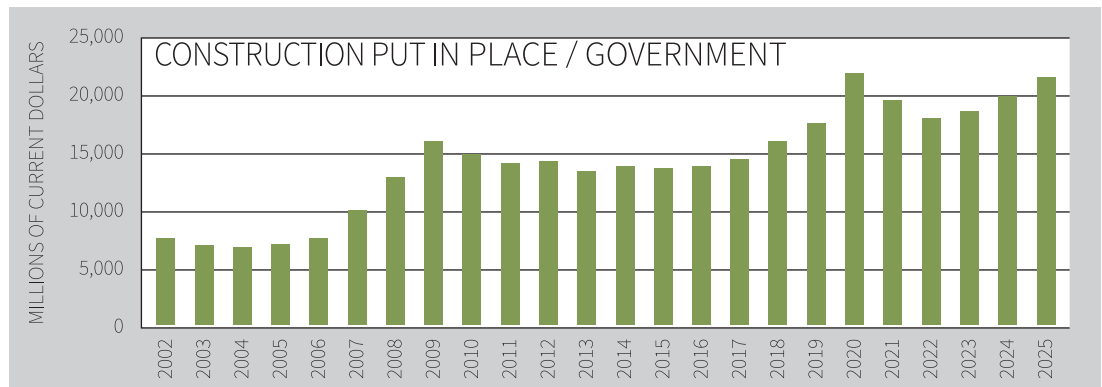
\$20 Billion

2021/2020 Comparison

Trends:

- Social unrest is expected to continue into 2022 alongside pullback of stimulus programs/ payments and increased mental health concerns, homelessness, and violent crime
- Emergency response, military, and correctional spending all experienced significant growth in construction spending through 2020 under the support of various waves of stimulus funding
- Short-term declines are expected through 2022 as stimulus funding reaches expiration and investment focus is redirected into infrastructure

Key drivers include population, government spending, incarceration rates, and nonresidential structure investment.



GOVERNMENT CONSTRUCTION

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Millions of Current Dollars	14,016	13,856	14,046	14,705	16,169	17,745	22,092	19,694	18,151	18,785	20,186	21,693
% Change From Year Prior	2.9%	-1.1%	1.4%	4.7%	10%	9.8%	24.5%	-10.9%	-7.8%	3.5%	7.5%	7.5%

SYSTEMS OUTLOOK / GOVERNMENT in Millions of Current Dollars

	Acoustics, Audio, AV	Phone Systems, Data Networks, IT	Building Automation & Control	Life Safety: Fire & Security	Lighting, Digital Signage	All Systems
2016 Total	50.8	202.2	43.3	479.7	164.6	940.6
2017 Total	47.6	219	66.6	476.1	142.8	952.1
2018 Total	64.8	248.3	86.4	518.2	161.9	1,079.6
2019 Total	65.4	243.9	107.1	577	196.3	1,189.7
2020 Total	40.8	312.6	163.1	618.4	224.2	1,359
2021 Summer Outlook	49.1	326.2	171.9	631.4	224.5	1,403.2
% of Total Construction	0.25%	1.66%	0.87%	3.21%	1.14%	7.13%

2016 through 2020 Totals – total electronic systems construction put in place in their respective years

2021 Summer Outlook – outlook of total 2021 electronic systems construction put in place based on actual data from Q1 and Q2 2021 and forecast for the remainder of 2021

% of total construction – percentage of 2021 dollars spent on electronic systems in relation to the total dollars spent on construction in each vertical market

Healthcare VERTICAL MARKET OUTLOOKS

HEALTHCARE

UP 2%

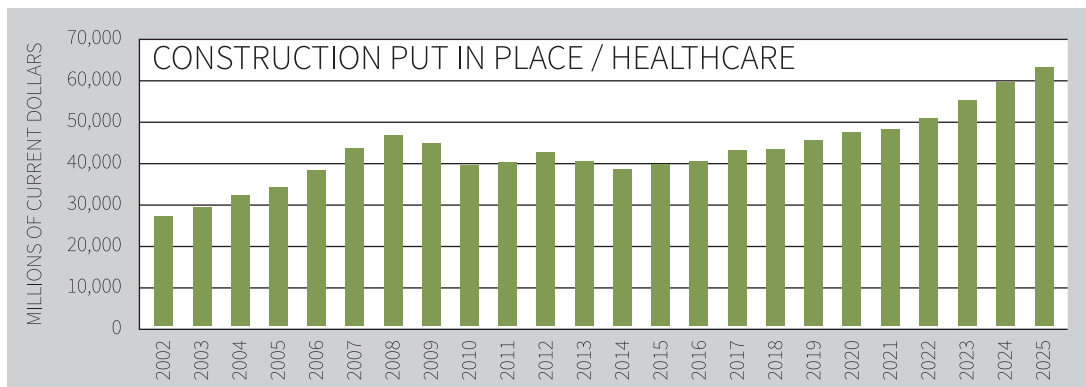
\$48 Billion

2021/2020 Comparison

Trends:

- Expect declines through 2021 on specialty care facilities (e.g., testing sites and drug clinics) due to significant needs and growth seen through 2020
- Many large hospital investments are in planning stages and are likely to move forward across major metropolitans
- Aging demographics (i.e., Baby Boomers) support increased healthcare investment through the forecast period and beyond

Key drivers include population change, population change in ages 75 and up, uninsured population, government spending, and nonresidential structure investment.



HEALTHCARE CONSTRUCTION

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Millions of Current Dollars	38,647	39,665	40,574	43,120	43,450	45,560	47,619	48,368	51,049	55,288	59,836	63,385
% Change From Year Prior	-5%	2.6%	2.3%	6.3%	0.8%	4.9%	4.5%	1.6%	5.5%	8.3%	8.2%	5.9%

SYSTEMS OUTLOOK / HEALTHCARE in Millions of Current Dollars

	Acoustics, Audio, AV	Phone Systems, Data Networks, IT	Building Automation & Control	Life Safety; Fire & Security	Lighting, Digital Signage	All Systems
2016 Total	115.8	637	86.9	1,476.7	579.1	2,895.6
2017 Total	84	644.2	140	1,400.3	532.1	2,800.7
2018 Total	105.1	705.9	120.1	1,486.8	585.7	3,003.7
2019 Total	109.1	724.6	140.3	1,527.2	615.5	3,116.7
2020 Total	137.5	876.4	189	1,580.9	653	3,436.7
2021 Summer Outlook	123.2	906.1	202.3	1,627.4	659.8	3,518.8
% of Total Construction	0.25%	1.87%	0.42%	3.36%	1.36%	7.28%

2016 through 2020 Totals – total electronic systems construction put in place in their respective years

2021 Summer Outlook – outlook of total 2021 electronic systems construction put in place based on actual data from Q1 and Q2 2021 and forecast for the remainder of 2021

% of total construction – percentage of 2021 dollars spent on electronic systems in relation to the total dollars spent on construction in each vertical market

VERTICAL MARKET OUTLOOKS Houses of Worship

HOUSES OF WORSHIP

DOWN 11%

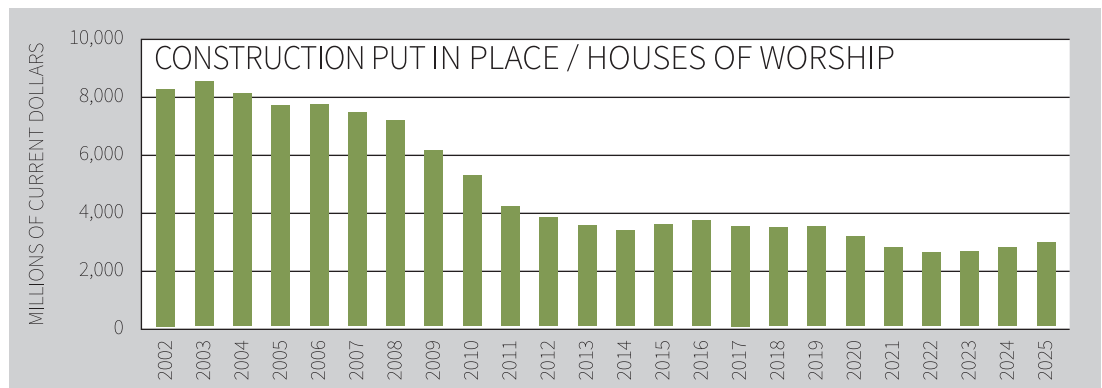
\$3 Billion

2021/2020 Comparison

Trends:

- Facility investments have largely been targeting civic-based needs to better attract and connect with communities
- Successful religious institutions have leveraged communication technologies to increase participation and reach their audience, ultimately reducing traditional facility needs
- Opportunities for expansion will become more viable and attractive over the coming years alongside rising vacancies across lodging, office, and commercial space

Key drivers include GDP, population, income, and personal savings.



HOUSES OF WORSHIP CONSTRUCTION

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Millions of Current Dollars	3,386	3,598	3,752	3,586	3,499	3,544	3,160	2,816	2,635	2,688	2,816	2,976
% Change From Year Prior	-5.7%	6.3%	4.3%	-4.4%	-2.4%	1.3%	-10.8%	-10.9%	-6.4%	2%	4.8%	5.7%

SYSTEMS OUTLOOK / HOUSES OF WORSHIP in Millions of Current Dollars

	Acoustics, Audio, AV	Phone Systems, Data Networks, IT	Building Automation & Control	Life Safety: Fire & Security	Lighting, Digital Signage	All Systems
2016 Total	28.4	24.9	31.7	84.5	58	227.5
2017 Total	26.2	23	27.3	78	55.4	209.9
2018 Total	24.4	22.4	26.4	75.3	54.9	203.5
2019 Total	26.6	20.7	26.6	72.8	50.2	196.7
2020 Total	20.6	26.8	26.8	80.3	51.5	206
2021 Summer Outlook	22.3	24.2	23.8	73.2	46.6	190.1
% of Total Construction	0.79%	0.86%	0.84%	2.6%	1.65%	6.75%

2016 through 2020 Totals – total electronic systems construction put in place in their respective years

2021 Summer Outlook – outlook of total 2021 electronic systems construction put in place based on actual data from Q1 and Q2 2021 and forecast for the remainder of 2021

% of total construction – percentage of 2021 dollars spent on electronic systems in relation to the total dollars spent on construction in each vertical market

Lodging VERTICAL MARKET OUTLOOKS

LODGING

DOWN 18%

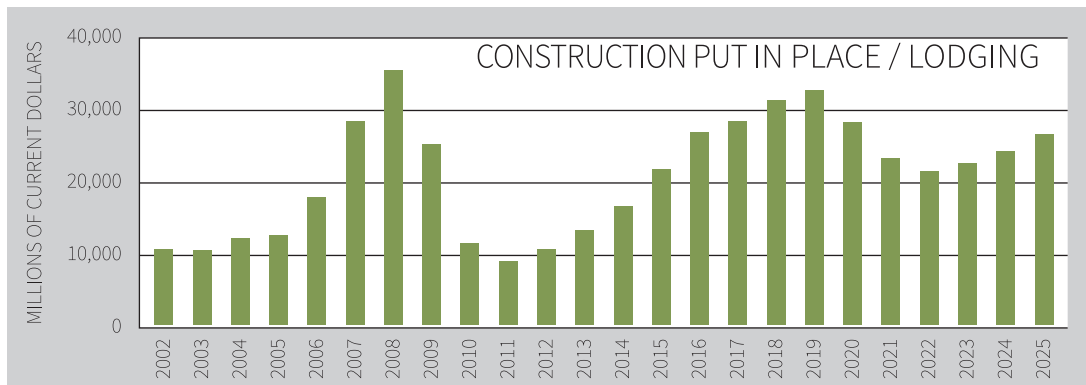
\$24 Billion

2021/2020 Comparison

Trends:

- Spring and summer leisure travel are pushing key indicators (occupancy, ADR, and RevPAR) to monthly and weekly pandemic-era highs; metrics are still well below 2019 levels
- Pent-up demand for destination vacations will lead the industry's recovery through late 2022
- Anticipate permanent losses among business travelers
- Costar research predicts that nearly half of rooms will remain empty through 2021 with accelerated recovery into the second half of the year

Key drivers include occupancy rates, RevPAR, average daily rates, and room starts.



LODGING CONSTRUCTION

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Millions of Current Dollars	16,738	22,012	27,077	28,660	31,464	33,071	28,585	23,538	21,708	22,786	24,562	26,949
% Change From Year Prior	24.1%	31.5%	23%	5.8%	9.8%	5.1%	-13.6%	-17.7%	-7.8%	5%	7.8%	9.7%

SYSTEMS OUTLOOK / LODGING in Millions of Current Dollars

	Acoustics, Audio, AV	Phone Systems, Data Networks, IT	Building Automation & Control	Life Safety: Fire & Security	Lighting, Digital Signage	All Systems
2016 Total	53.9	161.7	26.9	687.2	417.7	1,347.4
2017 Total	89.1	163.4	44.6	742.5	445.5	1,485.1
2018 Total	137.5	257.9	86	808	429.8	1,719
2019 Total	176.2	255.5	88.1	801.7	440.5	1,762
2020 Total	129.4	266.4	68.5	669.7	388.1	1,522.1
2021 Summer Outlook	103.6	233.2	61.5	573.2	323.8	1,295.3
% of Total Construction	0.44%	0.99%	0.26%	2.44%	1.38%	5.5%

2016 through 2020 Totals – total electronic systems construction put in place in their respective years

2021 Summer Outlook – outlook of total 2021 electronic systems construction put in place based on actual data from Q1 and Q2 2021 and forecast for the remainder of 2021

% of total construction – percentage of 2021 dollars spent on electronic systems in relation to the total dollars spent on construction in each vertical market

VERTICAL MARKET OUTLOOKS Manufacturing

MANUFACTURING

UP 1%

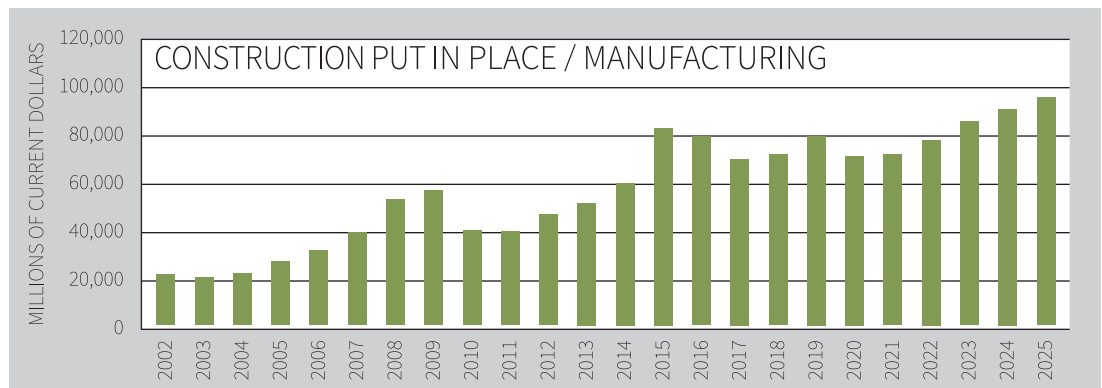
\$72 Billion

2021/2020 Comparison

Trends:

- Supply chain constraints are expected to remain in place through 2022 as the global economy recovers and international trade negotiations resume
- Spending growth is expected to return in 2022 and 2023, fueled by infrastructure spending and as owners pursue modernization investments
- Industry-wide labor shortages will limit expansion efforts

Key drivers include PMI, industrial production, capacity utilization, durable goods orders, and manufacturing inventories.



MANUFACTURING CONSTRUCTION

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Millions of Current Dollars	60,645	83,143	79,633	70,682	72,508	80,079	71,843	72,434	78,395	85,922	91,170	95,947
% Change From Year Prior	15.5%	37.1%	-4.2%	-11.2%	2.6%	10.4%	-10.3%	0.8%	8.2%	9.6%	6.1%	5.2%

SYSTEMS OUTLOOK / MANUFACTURING in Millions of Current Dollars

	Acoustics, Audio, AV	Phone Systems, Data Networks, IT	Building Automation & Control	Life Safety: Fire & Security	Lighting, Digital Signage	All Systems
2016 Total	59.3	178	1,008.7	1,068	652.7	2,966.7
2017 Total	54.6	136.5	1,010.3	1,037.6	491.5	2,730.4
2018 Total	61.3	245.1	1,164.4	1,103.1	490.3	3,064.1
2019 Total	65.3	244.8	1,224.1	1,207.8	522.3	3,264.2
2020 Total	42.3	287.8	1,354.3	1,235.8	465.5	3,385.6
2021 Summer Outlook	33.6	285.2	1,359.1	1,224.9	453	3,355.9
% of Total Construction	0.05%	0.39%	1.88%	1.69%	0.63%	4.63%

2016 through 2020 Totals – total electronic systems construction put in place in their respective years

2021 Summer Outlook – outlook of total 2021 electronic systems construction put in place based on actual data from Q1 and Q2 2021 and forecast for the remainder of 2021

% of total construction – percentage of 2021 dollars spent on electronic systems in relation to the total dollars spent on construction in each vertical market

Retail VERTICAL MARKET OUTLOOKS

RETAIL

DOWN 1%

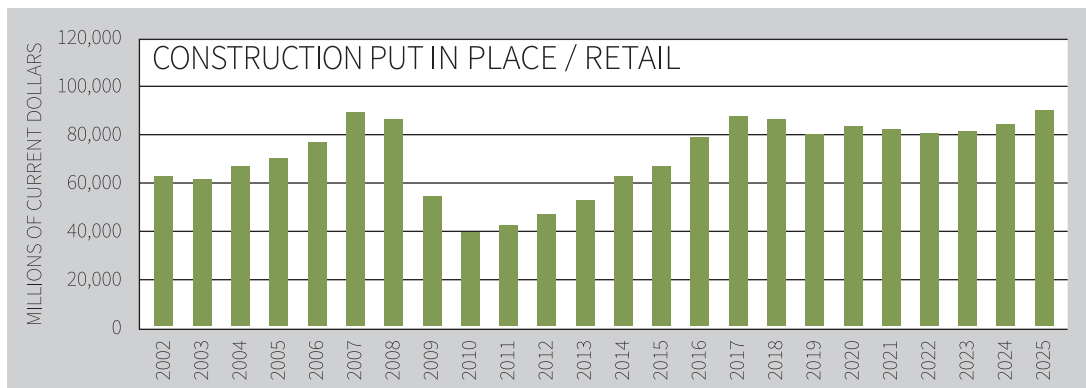
\$83 Billion

2021/2020 Comparison

Trends:

- Expect fewer new retail investments via delays or cancellations in mixed-use alongside oversupply conditions due to shuttered/distressed businesses and restaurants
- Share of e-commerce sales jumped significantly between 2019 (11%) and 2020 (14%) as consumers shopped online for goods and services
- Significant losses in construction spending were realized in multi-retail and food and beverage investment through 2020

Key drivers include retail sales, CPI, income, home prices, housing starts, and housing permits.



RETAIL CONSTRUCTION

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Millions of Current Dollars	62,841	66,977	78,696	87,626	86,422	80,435	83,706	82,805	80,839	81,461	84,656	90,392
% Change From Year Prior	18.2%	6.6%	17.5%	11.3%	-1.4%	-6.9%	4.1%	-1.1%	-2.4%	0.8%	3.9%	6.8%

SYSTEMS OUTLOOK / RETAIL in Millions of Current Dollars

	Acoustics, Audio, AV	Phone Systems, Data Networks, IT	Building Automation & Control	Life Safety: Fire & Security	Lighting, Digital Signage	All Systems
2016 Total	147.3	334.8	80.3	1,071.3	1,044.5	2,678.3
2017 Total	194	355.6	129.3	1,293.2	1,260.8	3,232.9
2018 Total	173.1	450.1	173.1	1,384.8	1,280.9	3,461.9
2019 Total	151	497.3	248.6	1,411.9	1,243.1	3,551.8
2020 Total	122.7	556.4	261.8	1,227.3	1,104.6	3,272.8
2021 Summer Outlook	115.2	576	279.8	1,226.1	1,094.4	3,291.5
% of Total Construction	0.14%	0.7%	0.34%	1.48%	1.32%	3.98%

2016 through 2020 Totals – total electronic systems construction put in place in their respective years

2021 Summer Outlook – outlook of total 2021 electronic systems construction put in place based on actual data from Q1 and Q2 2021 and forecast for the remainder of 2021

% of total construction – percentage of 2021 dollars spent on electronic systems in relation to the total dollars spent on construction in each vertical market

CONSTRUCTION OUTLOOK SUMMARIES

SYSTEMS OUTLOOK in Millions of Current Dollars (July 2021 Forecast)

	Acoustics, Audio, AV				Phone Systems, Data Networks, IT				Building Automation & Control			
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
Corporate	638.9	739.7	574.9	623.1	1,320.5	1,434.5	1,629	1,569.3	319.5	347.4	467.1	438.5
Education	801.3	825.9	591.3	652.7	801.3	791.4	1,256.5	1,160.4	267.1	309.7	369.5	290.1
Government	64.8	65.4	40.8	49.1	248.3	243.9	312.6	326.2	86.4	107.1	163.1	171.9
Healthcare	84	109.1	137.5	123.2	644.2	724.6	876.4	906.1	120.1	140.3	189	202.3
Houses of Worship	24.4	26.6	20.6	22.3	22.4	20.7	26.8	24.2	26.4	26.6	26.8	23.8
Lodging	137.5	176.2	129.4	103.6	2257.9	255.5	266.4	233.2	86	88.1	68.5	61.5
Manufacturing	61.3	65.3	42.3	33.6	245.1	244.8	287.8	285.2	1,164.4	1,224.1	1,354.3	1,359.1
Retail	173.1	151	122.7	115.2	450.1	497.3	556.4	576	173.1	248.6	261.8	279.8
Total	2,006.5	2,159.1	1,659.5	1,722.8	4,051.4	4,212.7	5,211.6	5,080.7	2,243	2,491.8	2,900.1	2,827

	Life Safety: Fire & Security				Lighting, Digital Signage				All Systems			
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
Corporate	1,405.6	1,423.3	1,533.1	1,453.9	575	538	586.9	530.8	4,259.5	4,482.9	4,791.	4,615.6
Education	3,405.7	3,509.9	3,621.6	3,553.7	1,402.3	1,445.2	1,552.1	1,595.5	6,677.8	6,882.1	7,390.9	7,252.4
Government	518.2	577	618.4	631.4	161.9	196.3	224.2	224.5	1,079.6	1,189.7	1,359	1,403.2
Healthcare	1,486.8	1,527.2	1,580.9	1,627.4	585.7	615.5	653	659.8	3,003.7	3,116.7	3,436.7	3,518.8
Houses of Worship	75.3	72.8	80.3	73.2	54.9	50.2	51.5	46.6	203.5	119.6	206	190.1
Lodging	808	801.7	669.7	573.2	429.8	440.5	388.1	323.8	1,719	1,762	1,522.1	1,295.3
Manufacturing	1,103.1	1,207.8	1,235.8	1,224.9	490.3	522.3	465.5	453	3,064.1	3,264.2	3,385.6	3,355.9
Retail	1,384.8	1,411.9	1,227.3	1,226.1	1,280.9	1,243.1	1,104.6	1,094.4	3,461.9	3,551.8	3,272.8	3,291.5
Total	10,187.5	10,531.5	10,567	10,363.8	4,980.9	5,051.1	5,025.9	4,928.5	23,469.2	24,446.3	25,364.1	24,922.8

CONSTRUCTION OUTLOOK / U.S. in Millions of Current Dollars (July 2021 Forecast)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Corporate	44,817	53,891	65,335	66,083	73,758	81,647	78,085	74,028	72,949	76,641	81,093	85,486
Education	79,681	85,346	91,629	96,685	101,210	105,374	104,525	102,147	106,356	113,261	121,145	129,192
Government	14,016	13,856	14,046	14,705	16,169	17,745	22,092	19,694	18,151	18,785	20,186	21,693
Healthcare	38,647	39,665	40,574	43,120	43,450	45,560	47,619	48,368	51,049	55,288	59,836	63,385
Houses of Worship	3,386	3,598	3,752	3,586	3,499	3,544	3,160	2,816	2,635	2,688	2,816	2,976
Lodging	16,738	22,012	27,077	28,660	31,464	33,071	28,585	23,538	21,708	22,786	24,562	26,949
Manufacturing	60,645	83,143	79,633	70,682	72,508	80,079	71,843	72,434	78,395	85,922	91,170	95,947
Retail	62,841	66,977	78,696	87,626	86,422	80,435	83,706	82,805	80,839	81,461	84,656	90,392
Target Commercial Buildings	320,771	368,488	400,742	411,148	428,480	447,456	439,615	425,830	432,082	456,832	485,463	516,018
Total Commercial Buildings	394,071	452,583	486,615	503,985	530,357	551,654	541,906	523,768	531,506	564,510	605,543	650,640
Total Residential Buildings	382,528	438,696	485,964	545,754	563,877	550,942	617,886	660,461	654,491	680,889	722,694	768,990
Total Nonbuilding Structures	238,695	248,883	251,090	230,104	238,951	262,541	272,550	270,826	280,685	302,751	330,751	357,282
Total Construction Put in Place	1,015,294	1,140,162	1,223,669	1,279,843	1,333,185	1,365,137	1,432,342	1,455,055	1,466,682	1,548,149	1,658,989	1,776,912

CONSTRUCTION OUTLOOK / U.S. % Change From Year Prior (July 2021 Forecast)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Corporate	22.7%	20.2%	21.2%	1.1%	11.6%	10.7%	-4.4%	-5.2%	-1.5%	5.1%	5.8%	5.4%
Education	0.8%	7.1%	7.4%	5.5%	4.7%	4.1%	-0.8%	-2.3%	4.1%	6.5%	7%	6.6%
Government	2.9%	-1.1%	1.4%	4.7%	10%	9.8%	24.5%	-10.9%	-7.8%	3.5%	7.5%	7.5%
Healthcare	-5%	2.6%	2.3%	6.3%	0.8%	4.9%	4.5%	1.6%	5.5%	8.3%	8.2%	5.9%
Houses of Worship	-5.7%	6.3%	4.3%	-4.4%	-2.4%	1.3%	-10.8%	-10.9%	-6.4%	2.0%	4.8%	5.7%
Lodging	24.1%	31.5%	23%	5.8%	9.8%	5.1%	-13.6%	-17.7%	-7.8%	5.0%	7.8%	9.7%
Manufacturing	15.5%	37.1%	-4.2%	-11.2%	2.6%	10.4%	-10.3%	0.8%	8.2%	9.6%	6.1%	5.2%
Retail	18.2%	6.6%	17.5%	11.3%	-1.4%	-6.9%	4.1%	-1.1%	-2.4%	0.8%	3.9%	6.8%
Target Commercial Buildings	9.6%	14.9%	8.8%	2.6%	4.2%	4.4%	-1.8%	-3.1%	1.5%	5.7%	6.3%	6.3%
Total Commercial Buildings	8.7%	14.8%	7.5%	3.6%	5.2%	4%	-1.8%	-3.3%	1.5%	6.2%	7.3%	7.4%
Total Residential Buildings	14%	14.7%	10.8%	12.3%	3.3%	-2.3%	12.2%	6.9%	-0.9%	4%	6.1%	6.4%
Total Nonbuilding Structures	10.2%	4.3%	0.9%	8.4%	3.8%	9.9%	3.8%	-0.6%	3.6%	7.9%	9.2%	8%
Total Construction Put in Place	11%	12.3%	7.3%	4.6%	4.2%	2.4%	4.9%	1.6%	0.8%	5.6%	7.2%	7.1%

NOTE: "Nonbuilding Structures" are generally horizontal construction projects, including roadways, bridges, tunnels, etc. This data is construction-related, and only projects with building permits were factored into the data.

CANADA CONSTRUCTION OUTLOOK

FMI does work extensively in Canada with a team dedicated to that area. The historic rule of thumb for Canada was that it was 10% of the United States — no matter what you were talking about. Over the past eight years, that has changed dramatically; today, total Canadian construction volume is closer to one-quarter of the United States. The recession in Canada was not nearly as deep or broad, and the residential sector held up relatively well. The government invested heavily in real infrastructure projects, especially in Ontario. And the oil and gas industry created a boom in Western Canada. We are expecting moderation in the rate of Canada's growth, but the economy will show steady gains for the next 10 years. It is estimated that the Canadian volume is about 18% of the U.S. systems contracting based on the nonresidential building sector; however, drivers and owner practices are different in Canada, which needs to be taken into consideration. NSCA will review this information in the reports to come.

CONSTRUCTION OUTLOOK/CANADA in Millions of Current Canadian Dollars

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Corporate	11,049	8,853	8,637	8,670	9,754	10,873	10,556	10,771	10,846	11,061	11,702	12,141
Education	6,029	5,945	6,645	7,729	7,678	6,744	6,799	7,446	7,841	8,100	8,204	8,366
Government	1,270	2,414	1,949	2,292	2,397	2,912	2,840	2,814	2,915	3,032	3,141	3,217
Healthcare	4,463	5,111	4,823	5,168	5,252	5,319	5,756	6,554	7,033	7,478	7,691	7,788
Houses of Worship	398	442	413	386	382	444	415	385	379	392	403	413
Lodging	2,126	2,470	2,569	2,557	2,766	2,695	2,606	2,467	2,486	2,575	2,680	2,778
Manufacturing	14,361	12,989	13,038	12,177	14,525	15,558	13,082	12,982	13,387	14,360	15,032	15,369
Retail	14,831	14,270	13,357	13,472	14,002	15,748	15,228	14,050	14,144	14,705	15,424	15,951
Target Commercial Buildings	54,528	52,494	51,431	52,451	56,755	60,294	57,282	57,470	59,031	61,702	64,278	66,023
Total Commercial Buildings	69,478	66,915	68,077	69,691	76,624	80,799	77,514	79,132	82,037	86,305	89,717	92,127
Total Residential Buildings	98,215	100,853	105,454	113,821	118,714	118,204	123,416	132,431	129,911	132,729	137,805	142,163
Total Nonbuilding Structures	116,394	96,850	84,404	85,571	78,292	76,112	70,417	74,429	80,310	83,829	86,612	88,276
Total Construction Put in Place	284,086	264,618	257,934	269,084	273,630	275,115	271,347	285,992	292,258	302,862	314,134	322,565

CONSTRUCTION OUTLOOK / CANADA % Change From Year Prior

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Corporate	-19.88%	-2.44%	0.38%	12.51%	11.48%	-2.92%	2.04%	0.69%	1.98%	5.8%	3.75%
Education	-1.39%	11.76%	16.32%	-0.67%	-12.16%	0.83%	9.51%	5.3%	3.3%	1.29%	1.98%
Government	90.08%	-19.23%	17.59%	4.58%	21.49%	-2.49%	-0.89%	3.59%	4.01%	3.58%	2.42%
Healthcare	14.52%	-5.63%	7.15%	1.64%	1.28%	8.2%	13.87%	7.3%	6.33%	2.85%	1.25%
Houses of Worship	10.98%	-6.59%	-6.63%	-1.06%	16.45%	-6.52%	-7.38%	-1.42%	3.27%	2.9%	2.46%
Lodging	16.15%	4.03%	-0.48%	8.17%	-2.57%	-3.3%	-5.32%	0.77%	3.56%	4.1%	3.63%
Manufacturing	-9.55%	0.38%	-6.6%	19.28%	7.11%	-15.92%	-0.76%	3.12%	7.27%	4.68%	2.24%
Retail	-3.78%	-6.4%	0.86%	3.93%	12.47%	-3.3%	-7.74%	0.67%	3.96%	4.89%	3.42%
Target Commercial Buildings	3.73%	-2.02%	1.98%	8.21%	6.24%	-5%	0.33%	2.72%	4.52%	4.17%	2.71%
Total Commercial Buildings	-3.69%	1.74%	2.37%	9.95%	5.45%	-4.07%	2.09%	3.67%	5.2%	3.95%	2.69%
Total Residential Buildings	2.69%	4.56%	7.93%	4.3%	-0.43%	4.41%	7.3%	-1.9%	2.17%	3.82%	3.16%
Total Nonbuilding Structures	-16.79%	-12.85%	1.38%	-8.51%	-2.78%	-7.48%	5.7%	7.9%	4.38%	3.32%	1.92%
Total Construction Put in Place	-6.85%	-2.53%	4.32%	1.69%	0.54%	-1.37%	5.4%	2.19%	3.63%	3.72%	2.68%

NOTE: We don't have the actual system type values per category determined as of yet. For now, use the averages in the U.S. to estimate value.

NOTE: "Nonbuilding Structures" are generally horizontal construction projects, including roadways, bridges, tunnels, etc. This data is construction-related project based, and only projects with building permits were factored into the data.



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