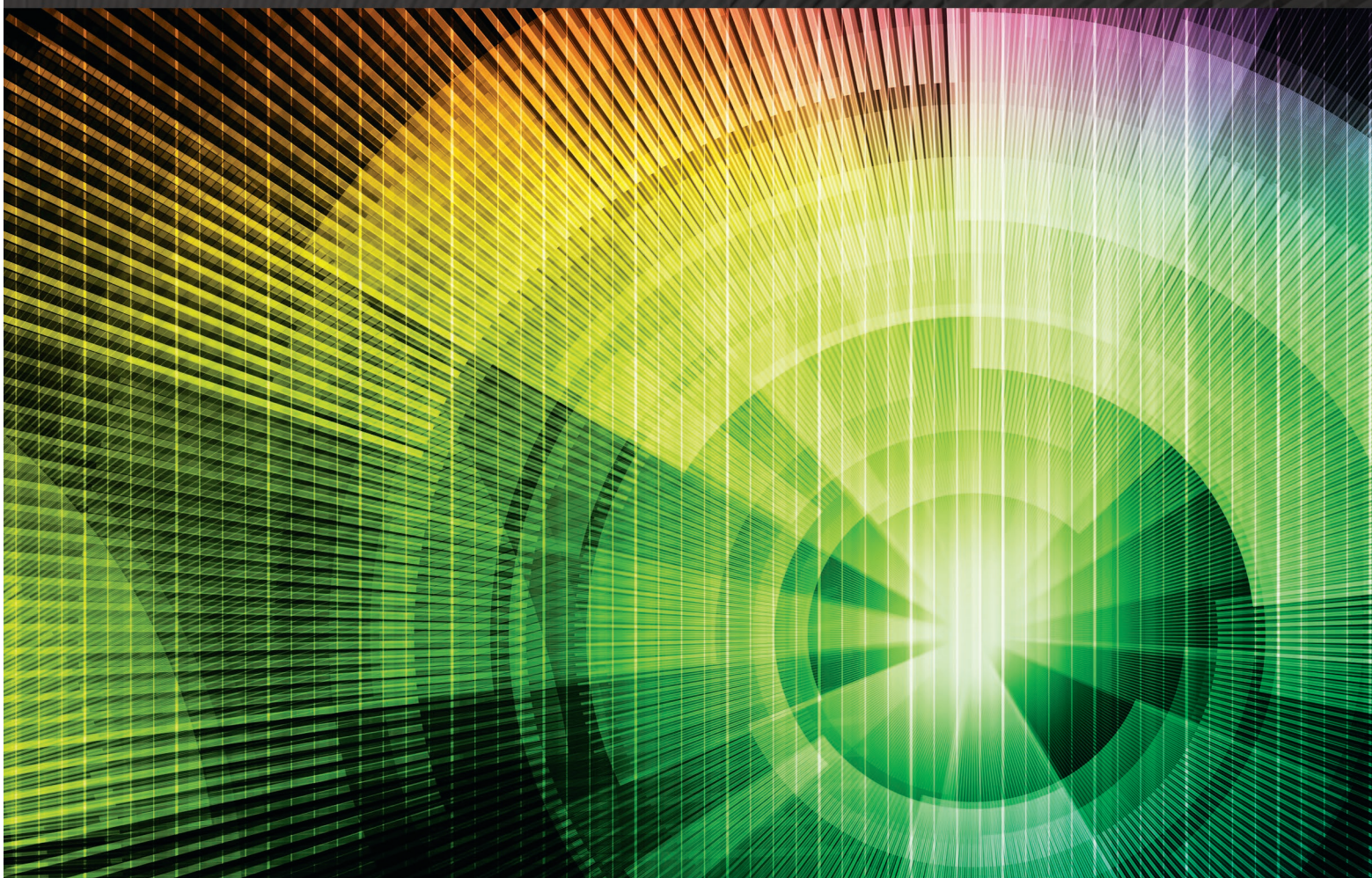


NSCA Electronic Systems Outlook

Summer Edition

2023



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YOUR VOICE • RESOURCE • ADVISOR

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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).

KEY TAKEAWAYS

- Total U.S. engineering and construction spending is forecast to end 2023 up 3% compared to up 11% in 2022. Spending in reported target nonresidential building segments is forecast to end 2023 up 15% from 2022, compared to up 13% between 2022 and 2021. Residential construction accounts for most of the difference between total and targeted spending growth.
- Strong, double-digit investment growth in target building segments, including lodging, manufacturing, and retail, will drive increased spending through 2023.
- Nearly all targeted segments, except for houses of worship, are expected to realize investment growth exceeding 4%, outpacing historical rates of inflation by year-end.

2023 Construction Segments (2023 compared to 2022)

- Up** (5% or more) **Stable** (0% to 4%) **Down** (Less than 0%)
- Corporate
 - Education
 - Government
 - Healthcare
 - Lodging
 - Manufacturing
 - Retail
 - Houses of Worship
 - None

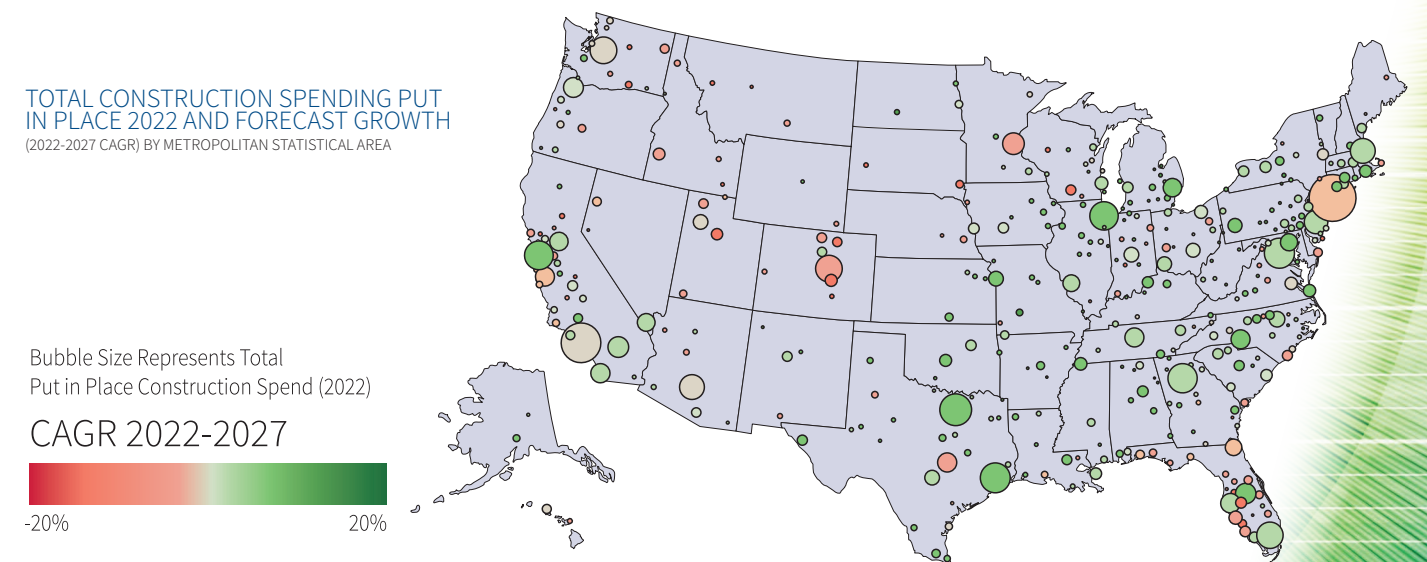
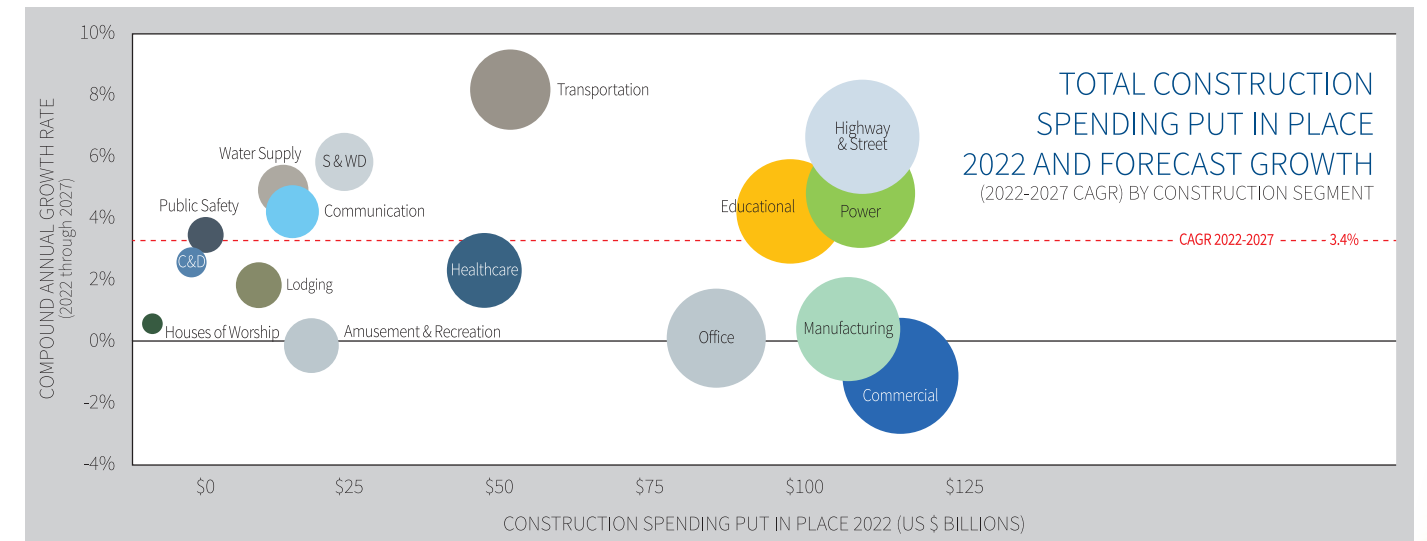
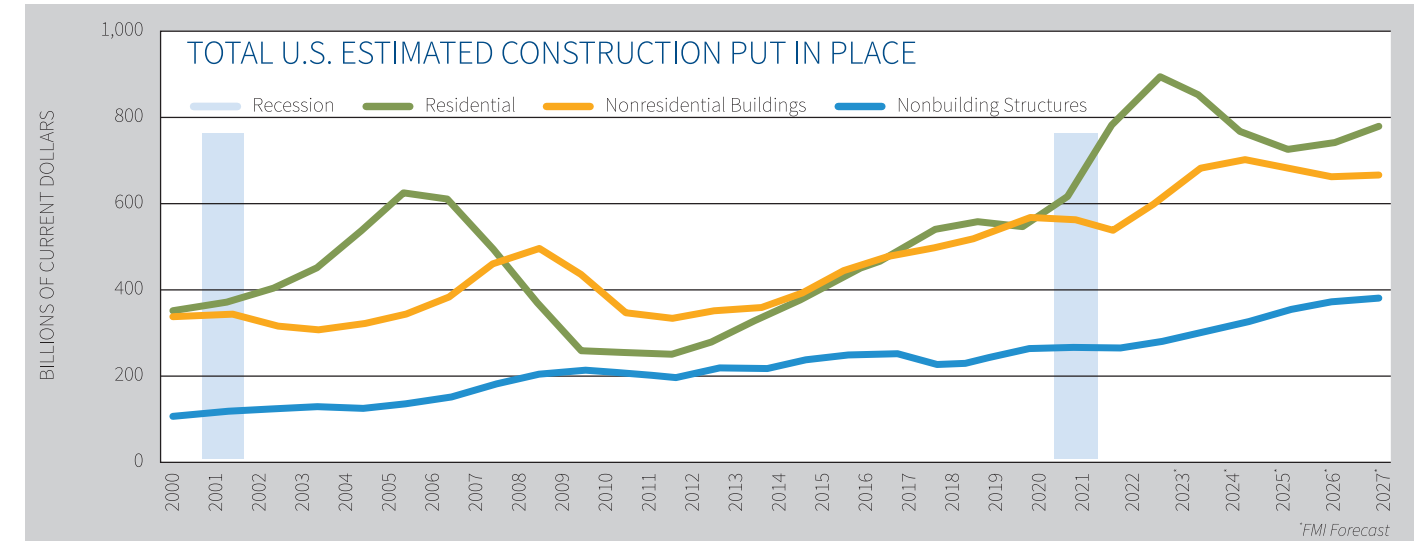
CONSTRUCTION OUTLOOK Overall, our forecast for commercial building construction put in place in 2023 calls for 15% growth, led by manufacturing, lodging, and retail. Short-term growth is fueled by strong demand for domestic services alongside targeted government spending programs, including the Inflation Reduction Act and the CHIPS and Science Act. Growth between 2024 and 2026 will not be nearly as robust with various private segments experiencing contraction, including corporate, lodging, manufacturing, and retail, due to lagging effects of aggressive monetary policy, reduced business investment, and tightened bank lending.

COMMERCIAL ELECTRONIC SYSTEMS CONSTRUCTION PUT IN PLACE

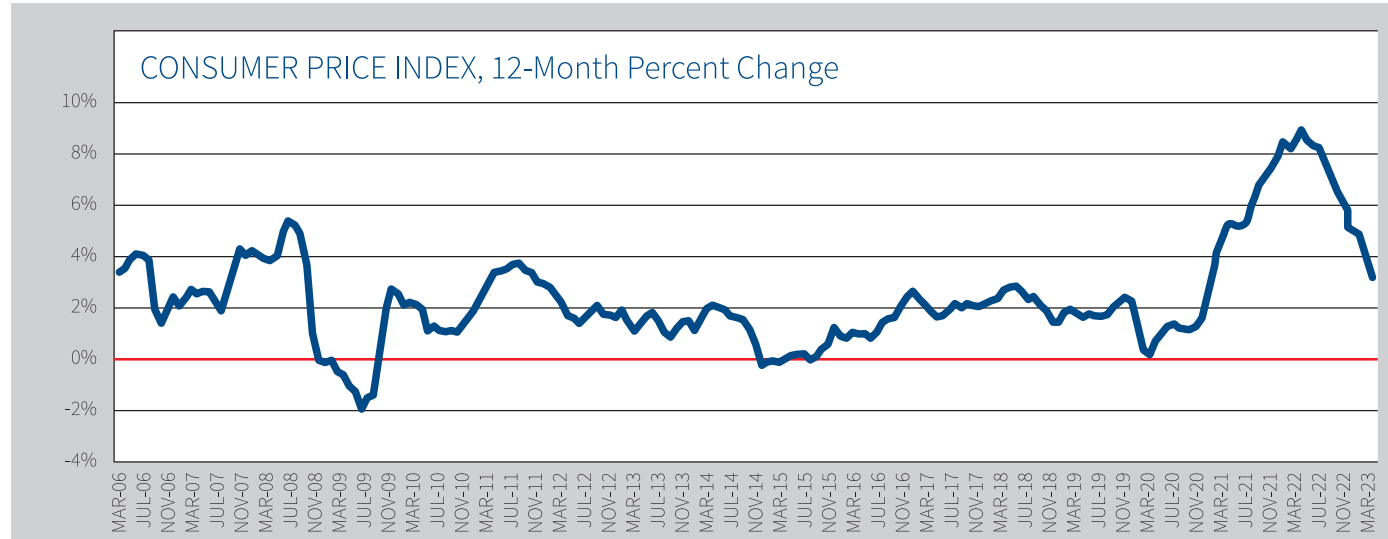
Estimated Forecast for the United States / Millions of Current Dollars

	2023
Target Commercial Building Construction Volume	573,907
Target Commercial Electronic Systems Construction	32,992
Share of Total Construction	5.75%

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

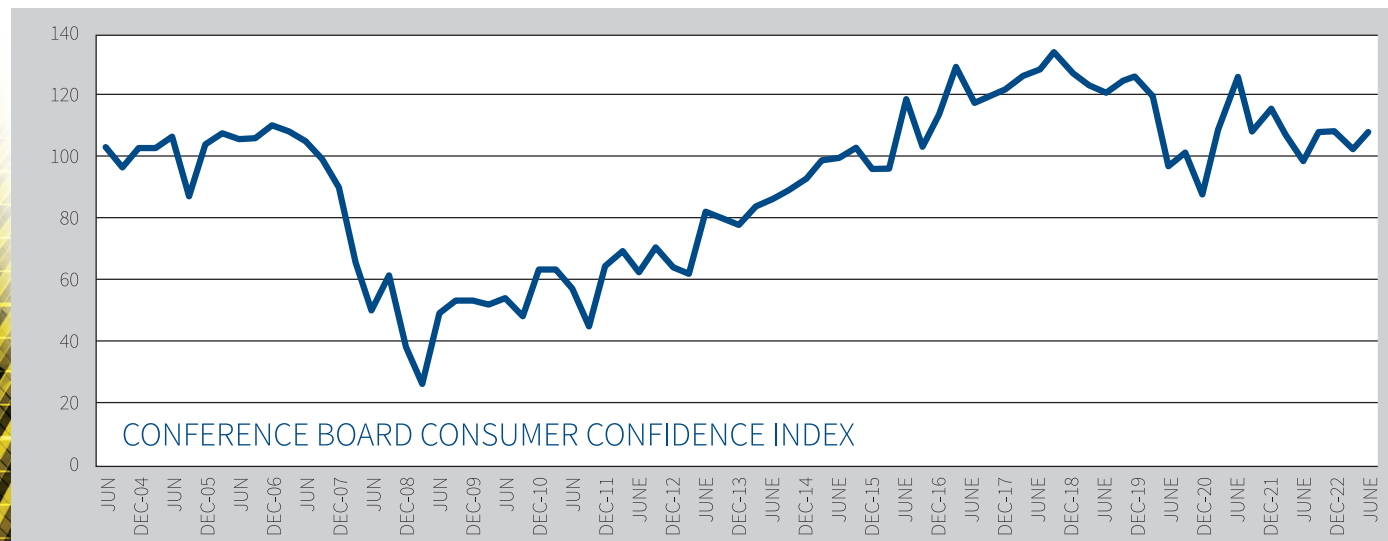


KEY ECONOMIC INDICATORS It's important to consider key economic indicators, such as CPI, CCI, and unemployment rates, when evaluating this report because they provide the general pulse of the economy; these three factors determine interest rates and funding of construction projects. The Fed (formerly 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 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.

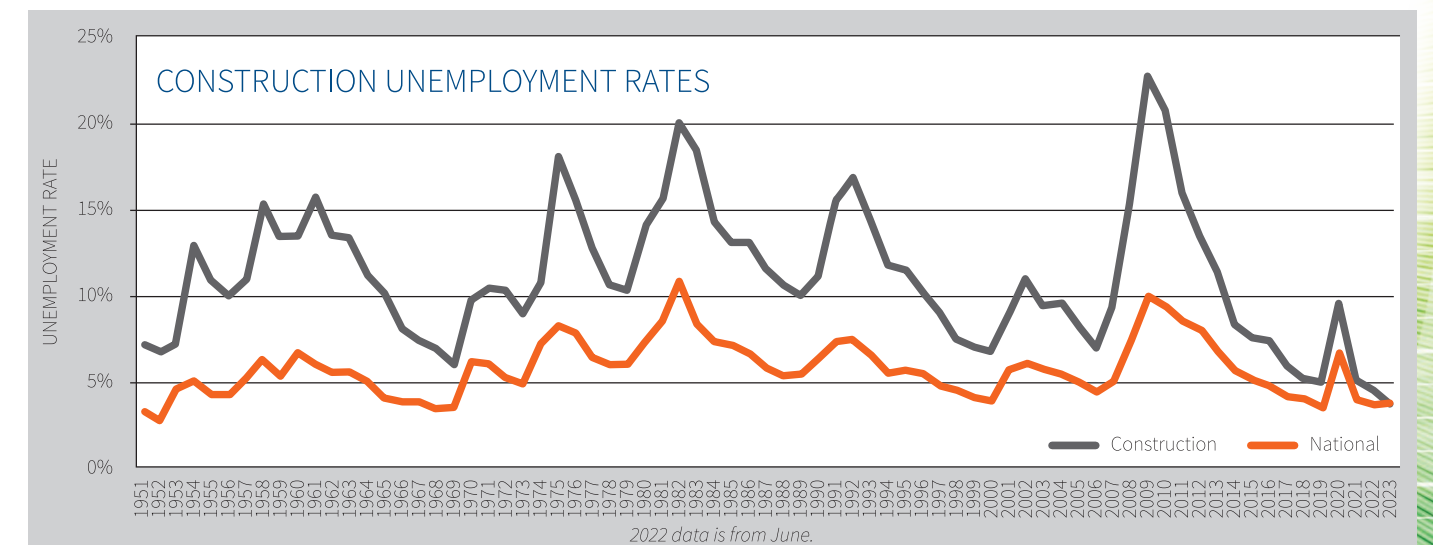
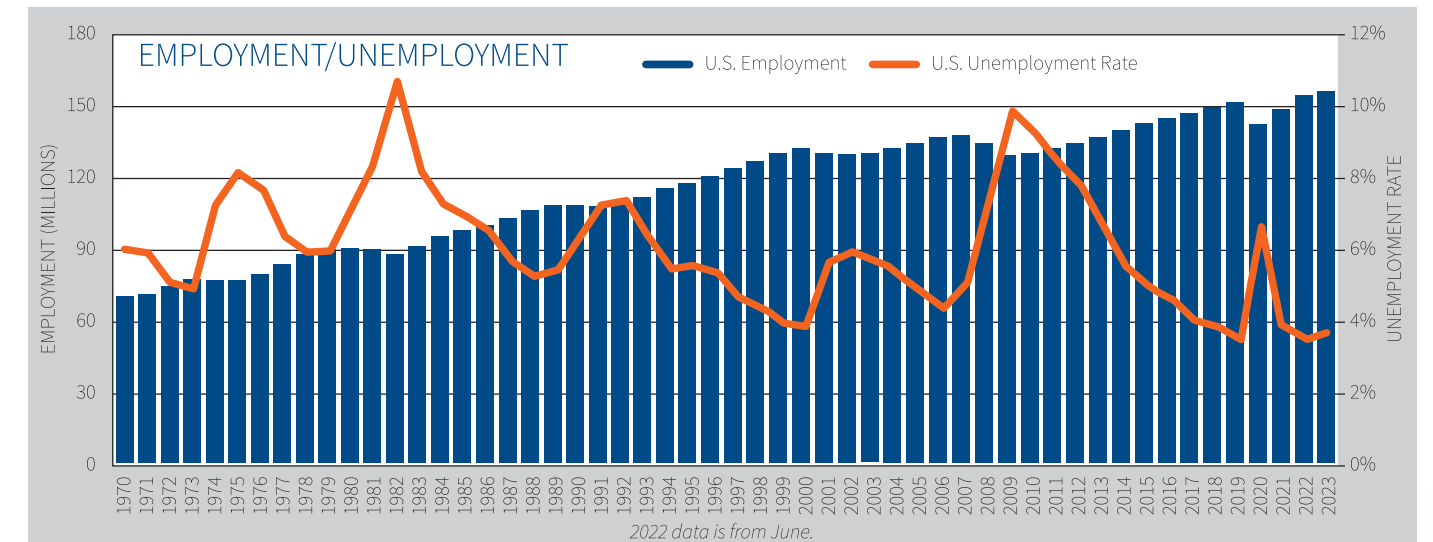


CCI is calculated based on a survey of 5,000 U.S. households; it is interpreted by the Conference Board, which extracts data from the survey to forecast future spending by consumers. In general, a 5% swing in either direction is needed to influence a change in decision-making.

Given their direct correlation to construction project funding that includes integrated solutions, integrators would love to have a crystal ball to indicate where interest rates are headed. In 2023, economic trends are particularly difficult to predict, with many economists raising recession concerns. Meanwhile, the Consumer Price Index is trending down after peaking in 2022, Consumer Confidence Index remains stable and relatively high, and unemployment rates fell to under 4%. These somewhat mixed messages make it difficult for integrators to read the tea leaves.

The low unemployment rate has a unique relationship to the integration industry, as many NSCA members have trouble filling open positions. One contributing factor involves adjacent industries reaching into member companies to recruit. NSCA members that provide traditional AV, physical security, alarms, and life safety systems at low margin are especially vulnerable. We're seeing dramatic compensation differences among building automation and control, MSPs, IT VARs, solutions providers, and bundled services providers. Higher billed rates have afforded the competitors in adjacent industries to drive up labor costs in businesses that haven't prepared for increases.

NSCA continues to assist members in understanding the transition to managed and value-added services as a way to combat low-margin business and compete for top technical talent.



RESIDENTIAL CONSTRUCTION

DOWN 6%

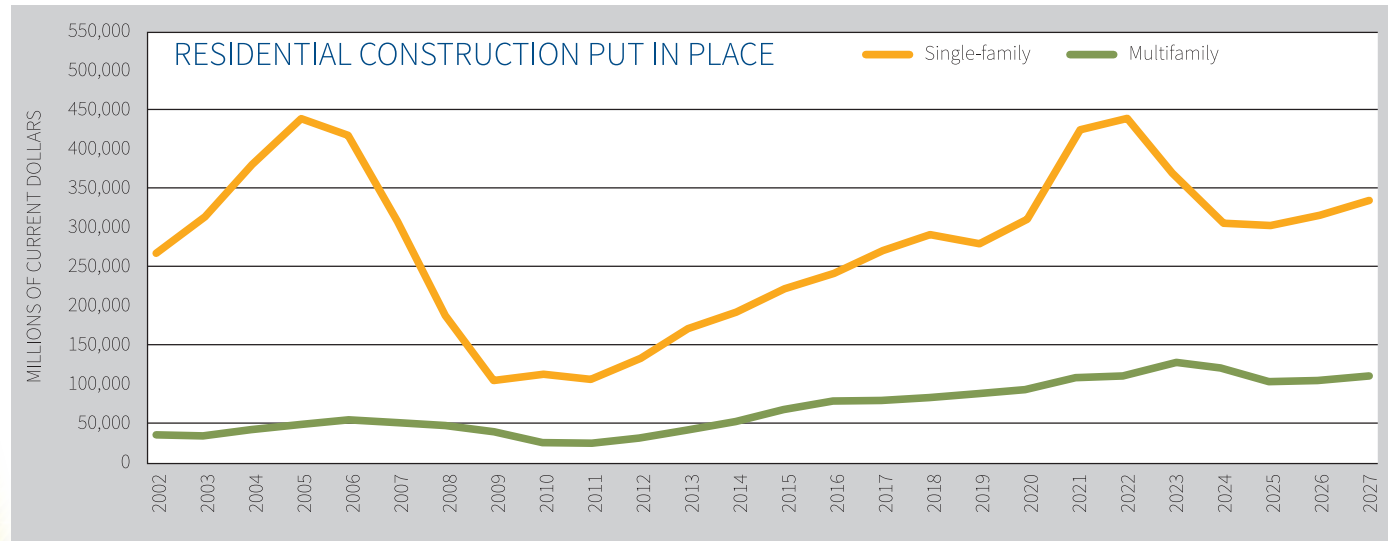
\$856 Billion

2023/2022 Comparison

Trends:

- Homebuilders have become well-positioned to deliver inventory against extremely constrained market conditions (i.e., historically low active listings).
- Home prices have been upheld, with builders offering a combination of upgrade incentives, rate buydowns, and price cuts across select markets to maintain volumes.
- Stabilization of rates into the second half of 2023 will help moderate prices and drive increased demand.
- Both inflation and supply chain constraints are expected to continue to ease into 2024, offering builders relief against margin erosion.

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. In particular, commercial, healthcare, and educational segments 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.

VERTICAL MARKET OUTLOOK Each of the market segments detailed in this report (corporate, education, government, healthcare, houses of worship, lodging, manufacturing, and retail) feature a 2023 outlook to show growth potential and the evaluation of electronic systems for that market, as well as trends and drivers. This information is based upon actual data through Q1 of 2023 and forecasted 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.

CORPORATE

UP 8%

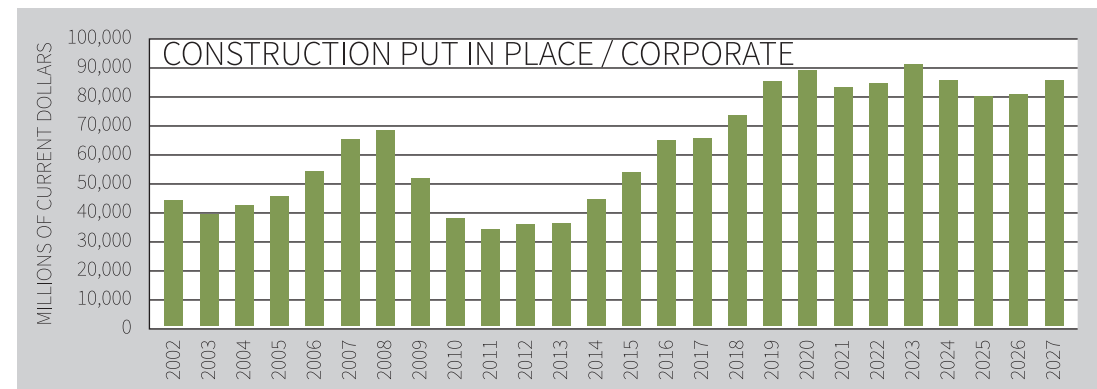
\$91 Billion

2023/2022 Comparison

Trends:

- High vacancies and sublease activity, rising unemployment, and tighter lending standards all suggest ongoing difficulties for traditional office construction spending.
- Demand for the newest Class-A office space has been upheld in most major markets, while less desirable Class-B and Class-C office space is where vacancies are a problem.
- Increasing foreclosures and distressed sales will create investment opportunities for renovation or repurpose projects.
- Data centers, a subset of corporate office, will continue to outperform traditional office investment.

Key drivers include office vacancy rates and unemployment rates.



CORPORATE CONSTRUCTION

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Millions of Current Dollars	65,335	66,083	73,758	85,363	89,315	83,360	84,429	90,762	85,777	79,865	80,756	85,290
% Change From Year Prior	21.2%	1.1%	11.6%	15.7%	4.6%	-6.7%	1.3%	7.5%	-5.5%	-6.9%	1.1%	5.6%

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
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 Total	694.9	1,743.6	492.8	1,566.7	555.9	5,053.9
2022 Total	736	1,857.2	526.1	1,628.7	565.9	5,313.8
2023 Summer Outlook	808.2	2,043.9	591.5	1,803.8	609.1	5,856.4
% of Total Construction	0.89%	2.25%	0.65%	1.99%	0.67%	6.45%

2018 through 2022 Totals – total electronic systems construction put in place in their respective years
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EDUCATION

UP 8%

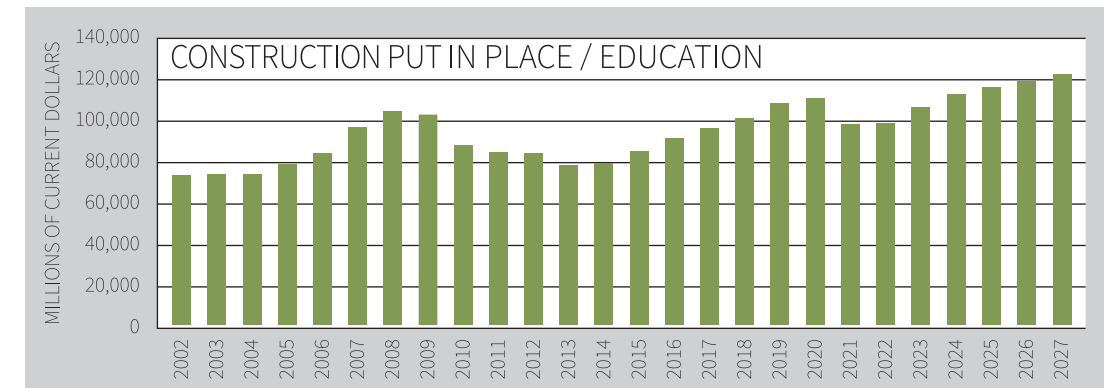
\$107 Billion

2023/2022 Comparison

Trends:

- Both public and private investment in educational construction will be strengthened by recent spending programs (e.g., Inflation Reduction Act) alongside increased tax collections, new bond measures, and the Renew America's Schools grant programs.
- Demand for higher-education services will benefit from a weakened labor market.
- Capital investment will remain challenged due to strained budgets, higher operational costs, and ongoing staffing challenges.

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

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Millions of Current Dollars	91,629	96,685	101,210	108,952	110,692	98,426	99,191	106,790	113,161	116,848	119,335	122,964
% Change From Year Prior	7.4%	5.5%	4.7%	7.6%	1.6%	-11.1%	0.8%	7.7%	6%	3.3%	2.1%	3%

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
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 Total	656.1	1,117.1	301.4	3,511	1,507.2	7,092.8
2022 Total	648.2	1,109.6	303	3,494.5	1,490.1	7,045.4
2023 Summer Outlook	679	1,180.5	362.6	3,853.9	1,639.6	7,715.6
% of Total Construction	0.64%	1.11%	0.34%	3.61%	1.54%	7.23%

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GOVERNMENT

UP 5%

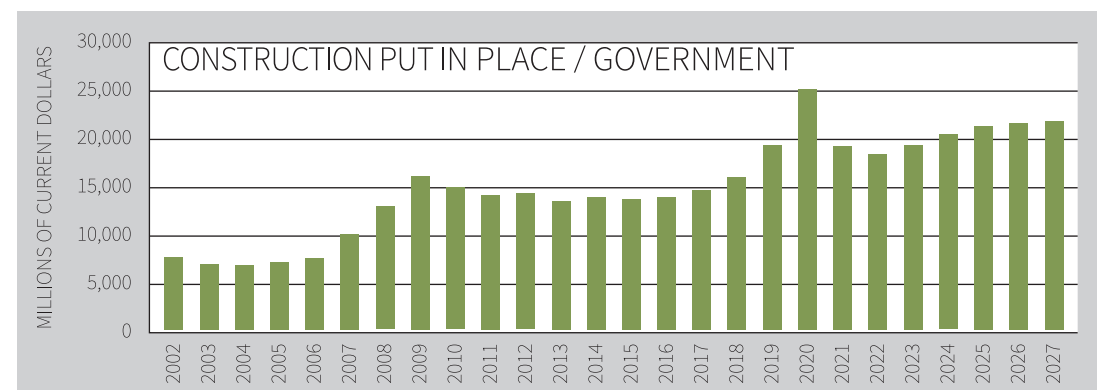
\$19 Billion

2023/2022 Comparison

Trends:

- Strong spending growth through 2025 is expected due to the policy support and heightened tax collections aiding state and municipal budgets.
- Ongoing and increased military and correctional spending is anticipated over the coming years.

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



GOVERNMENT CONSTRUCTION

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Millions of Current Dollars	14,046	14,705	16,169	19,442	25,358	19,376	18,537	19,483	20,587	21,491	21,794	21,973
% Change From Year Prior	1.4%	4.7%	10%	20.2%	30.4%	-23.6%	-4.3%	5.1%	5.7%	4.4%	1.4%	0.8%

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
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 Total	51.2	321.1	170.8	608.1	215.2	1,366.5
2022 Total	50.9	334	180.6	612.2	216.9	1,394.6
2023 Summer Outlook	52.1	345.7	188.1	636.5	224.2	1,446.6
% of Total Construction	0.27%	1.77%	0.97%	3.27%	1.15%	7.43%

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HEALTHCARE

UP 9%

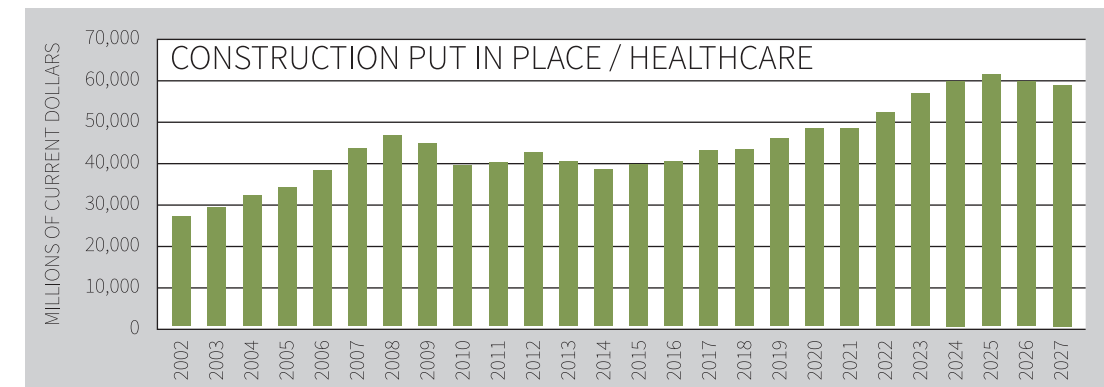
\$57 Billion

2023/2022 Comparison

Trends:

- Demand for healthcare will be led by large hospital expansions and a resurgence in demand for outpatient and medical offices.
- Significant ongoing and planned projects are supported by recent demographic shifts, capacity and maintenance needs, and new technologies impacting health services (e.g., wearables, telehealth).
- Specialty care and nursing home facilities remain severely resource-constrained.

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



HEALTHCARE CONSTRUCTION

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Millions of Current Dollars	40,574	43,120	43,450	46,263	48,599	48,459	52,710	57,187	60,004	61,809	60,242	59,262
% Change From Year Prior	2.3%	6.3%	0.8%	6.5%	5%	-0.3%	8.8%	8.5%	4.9%	3%	-2.5%	-1.6%

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
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 Total	118.3	955.4	218.4	1,656	691.5	3,639.5
2022 Total	144.1	1,012.7	240.8	1,699.2	696	3,792.8
2023 Summer Outlook	155.8	1,115.8	256.8	1,915.7	766.3	4,210.4
% of Total Construction	0.27%	1.95%	0.45%	3.35%	1.34%	7.36%

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VERTICAL MARKET OUTLOOKS Houses of Worship

HOUSES OF WORSHIP

STABLE 4%

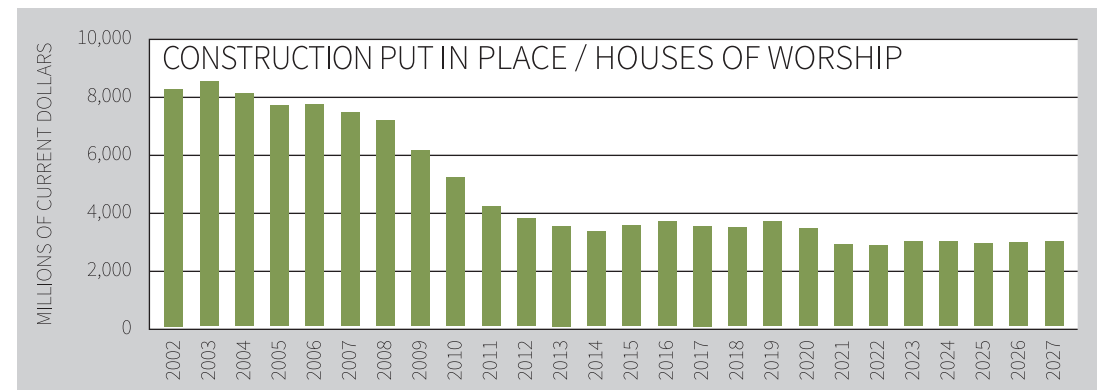
\$3 Billion

2023/2022 Comparison

Trends:

- Recessionary factors (e.g., rising unemployment) will weigh on income levels and ultimately decrease donations, while participation and community involvement are expected to rise.
- The permanence and preference for online/hybrid services reduce overall construction needs.
- Churches are closing at a faster rate than they are opening, presenting renovation and repurpose opportunities.

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



HOUSES OF WORSHIP CONSTRUCTION

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Millions of Current Dollars	3,752	3,586	3,499	3,730	3,472	2,926	2,887	2,990	2,99	2,954	2,963	2,997
% Change From Year Prior	4.3%	-4.4%	-2.4%	6.6%	-6.9%	-15.7%	-1.3%	3.6%	0%	-1.3%	0.3%	1.1%

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
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 Total	23.4	27.9	24.9	77.7	49.2	203.1
2022 Total	23.7	28	22.3	73.9	46.1	194
2023 Summer Outlook	26.7	30.5	24.8	81.7	52.4	216.1
% of Total Construction	0.89%	1.02%	0.83%	2.73%	1.75%	7.23%

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Lodging VERTICAL MARKET OUTLOOKS

LODGING

UP 21%

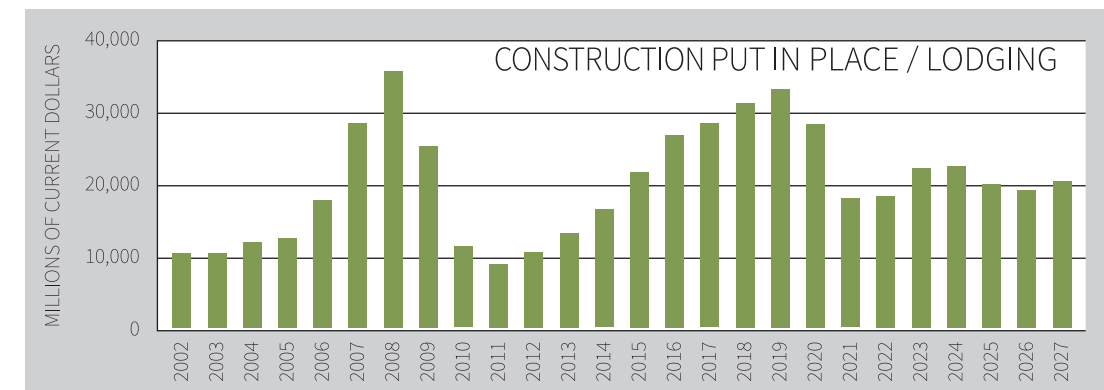
\$22 Billion

2023/2022 Comparison

Trends:

- Planned development is following strategic public or public-private-led economic investments, including transportation infrastructure, downtown revitalization plans, and entertainment venues.
- The current large wave of projects in planning and development will remain challenged by a weakening economic climate and tighter lending standards.

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



LODGING CONSTRUCTION

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Millions of Current Dollars	27,077	28,660	31,464	33,461	28,483	18,236	18,638	22,482	22,738	20,133	19,392	20,487
% Change From Year Prior	23%	5.8%	9.8%	6.3%	-14.9%	-36%	2.2%	20.6%	1.1%	-11.5%	-3.7%	5.6%

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
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 Total	87.2	198.9	54.5	485	264.3	1,089.9
2022 Total	88.6	198.4	52	468.3	253.5	1,060.8
2023 Summer Outlook	107	245	67.4	584.5	317	1,320.8
% of Total Construction	0.48%	1.09%	0.3%	2.6%	1.41%	5.88%

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MANUFACTURING

UP 36%

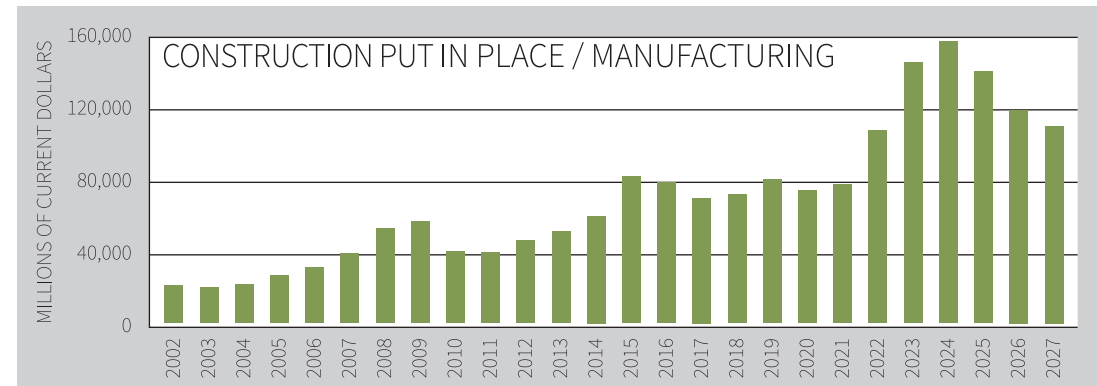
\$146 Billion

2023/2022 Comparison

Trends:

- Trade disputes and geopolitical tensions continue to encourage reshoring of manufacturing capacity investments, backed by policy support via the CHIPS and Science Act and Buy America requirements.
- Manufacturers are racing to address current domestic and international market demands, which include electronic vehicles, various energy technologies (LNG processing, batteries, wind, solar, etc.), semiconductors, and biopharmaceuticals.
- Institute for Supply Management's Manufacturing Purchasing Managers Index (PMI) suggests ongoing challenges, with seven months of the index remaining below 50.

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



MANUFACTURING CONSTRUCTION

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Millions of Current Dollars	79,633	70,682	72,508	80,978	75,425	78,872	107,904	146,385	158,133	140,966	119,661	110,559
% Change From Year Prior	-4.2%	-11.2%	2.6%	11.7%	-6.9%	4.6%	36.8%	35.7%	8%	-10.9%	-15.1%	-7.6%

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
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 Total	35.9	314.2	1,463.5	1,301.9	475.9	3,591.4
2022 Total	41.6	422.5	1,907	1,650.7	595.6	4,617.3
2023 Summer Outlook	69.5	639.7	2,857.8	2,489.3	897	6,953.3
% of Total Construction	0.05%	0.44%	1.95%	1.7%	0.61%	4.75%

2018 through 2022 Totals – total electronic systems construction put in place in their respective years
 2023 Summer Outlook – outlook of total 2023 electronic systems construction put in place based on actual data from 2023 Q1 and Q2 and forecasted for the remainder of 2023
 % of total construction – percentage of 2023 dollars spent on electronic systems in relation to the total dollars spent on construction in each vertical market

RETAIL

UP 11%

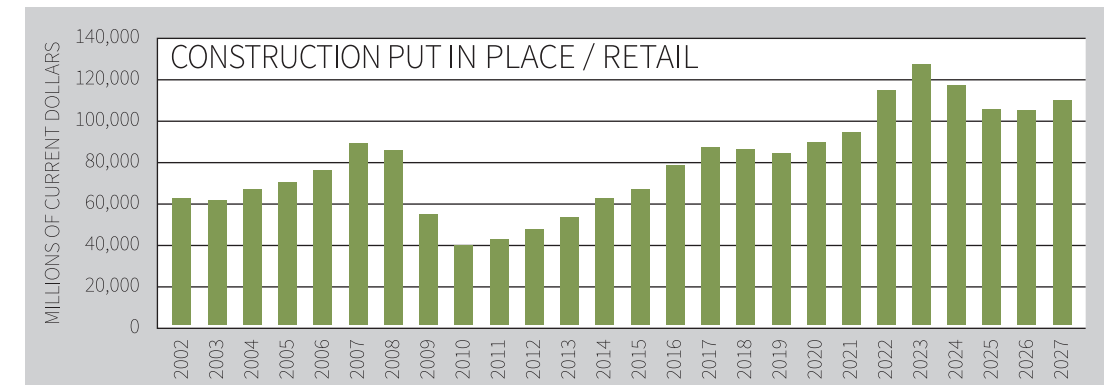
\$128 Billion

2023/2022 Comparison

Trends:

- Big-box stores are consolidating space and investing in e-commerce, while demand for smaller and community retail accelerates a shift away from goods to service-led businesses.
- In efforts to uphold purchasing power, consumers will continue to increase e-commerce, discount, and big-box retail shopping.

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



RETAIL CONSTRUCTION

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Millions of Current Dollars	78,696	87,626	86,422	84,345	89,714	94,553	115,577	127,829	117,711	105,654	105,453	110,125
% Change From Year Prior	17.5%	11.3%	-1.4%	-2.4%	6.4%	5.4%	22.2%	10.6%	-7.9%	-10.2%	-0.2%	4.4%

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
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 Total	110.2	651.9	330.6	1,359	1,221.2	3,672.8
2022 Total	139.3	813.2	417.8	1,644.4	1,478.2	4,492.9
2023 Summer Outlook	152.9	975.5	500.9	1,911.4	1,732.2	5,272.9
% of Total Construction	0.12%	0.76%	0.39%	1.5%	1.36%	4.13%

2018 through 2022 Totals – total electronic systems construction put in place in their respective years
 2023 Summer Outlook – outlook of total 2023 electronic systems construction put in place based on actual data from 2023 Q1 and Q2 and forecasted for the remainder of 2023
 % of total construction – percentage of 2023 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 2023 Forecast)

	Acoustics, Audio, AV				Phone Systems, Data Networks, IT				Building Automation & Control			
	2020	2021	2022	2023	2020	2021	2022	2023	2020	2021	2022	2023
Corporate	574.9	694.9	736	808.2	1,629	1,743.6	1,857.2	2,043.9	467.1	492.8	526.1	591.5
Education	591.3	656.1	648.2	679	1,256.5	1,117.1	1,109.6	1,180.5	369.5	301.4	303	362.6
Government	40.8	51.2	50.9	52.1	312.6	321.1	334	345.7	163.1	170.8	180.6	188.1
Healthcare	137.5	118.3	144.1	155.8	876.4	955.4	1,012.7	1,115.8	189	218.4	240.8	256.8
Houses of Worship	20.6	23.4	23.7	26.7	26.8	27.9	28	30.5	26.8	24.9	22.3	24.8
Lodging	129.4	87.2	88.6	107	266.4	198.9	198.4	245	68.5	54.5	52	67.4
Manufacturing	42.3	35.9	41.6	69.5	287.8	314.2	422.5	639.7	1,354.3	1,463.5	1,907	2,857.8
Retail	122.7	110.2	139.3	152.9	556.4	651.9	813.2	975.5	261.8	330.6	417.8	500.9
Total	1,659.5	1,777.2	1,872.2	2,051.1	5,211.6	5,330.2	5,775.6	6,576.5	2,900.1	3,056.8	8,649.6	4,850

	Life Safety: Fire & Security				Lighting, Digital Signage				All Systems			
	2020	2021	2022	2023	2020	2021	2022	2023	2020	2021	2022	2023
Corporate	1,533.1	1,566.7	1,628.7	1,803.8	586.9	555.9	565.9	609.1	4,791	5,053.9	5,313.8	5,856.4
Education	3,621.6	3,511	3,494.5	3,853.9	1,552.1	1,507.2	1,490.1	1,639.6	7,390.9	7,092.8	7,045.4	7,715.6
Government	618.4	608.1	612.2	636.5	224.2	215.2	216.9	224.2	1,359	1,366.5	1,394.6	1,446.6
Healthcare	1,580.9	1,656	1,699.2	1,915.7	653	691.5	696	766.3	3,436.7	3,639.5	3,792.8	4,210.4
Houses of Worship	80.3	77.7	73.9	81.7	51.5	49.2	46.1	52.4	206	203.1	194	216.1
Lodging	669.7	485	468.3	584.5	388.1	264.3	253.5	317	1,522.1	1,089.9	1,060.8	1,320.8
Manufacturing	1,235.8	1,301.9	1,650.7	2,489.3	465.5	475.9	595.6	897	3,385.6	3,591.4	4,617.3	6,953.3
Retail	1,227.3	1,359	1,644.4	1,911.4	1,104.6	1,221.2	1,478.2	1,732.2	3,272.8	3,672.8	4,492.9	5,272.9
Total	10,567	10,565.2	11,272	13,276.8	5,025.9	4,980.5	5,342.3	6,237.7	25,364.1	25,710	27,911.6	32,992.1

CONSTRUCTION OUTLOOK / U.S. in Millions of Current Dollars (July 2023 Forecast)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Corporate	65,335	66,083	73,758	85,363	89,315	83,360	84,429	90,762	85,777	79,865	80,756	85,290
Education	91,629	96,685	101,210	108,952	110,692	98,426	99,191	106,790	113,161	116,848	119,335	122,964
Government	14,046	14,705	16,169	19,442	25,358	19,376	18,537	19,483	20,587	21,491	21,794	21,973
Healthcare	40,574	43,120	43,450	46,263	48,599	48,459	52,710	57,187	60,004	61,809	60,242	59,262
Houses of Worship	3,752	3,586	3,499	3,730	3,472	2,926	2,887	2,990	2,992	2,954	2,963	2,997
Lodging	27,077	28,660	31,464	33,461	28,483	18,236	18,638	22,482	22,738	20,133	19,392	20,487
Manufacturing	79,633	70,682	72,508	80,978	75,425	78,872	107,904	146,385	158,133	140,966	119,661	110,559
Retail	78,696	87,626	86,422	84,345	89,714	94,553	115,577	127,829	117,711	105,654	105,453	110,125
Target Commercial Buildings	400,742	411,148	428,480	462,534	471,058	444,208	499,873	573,907	581,103	549,720	529,596	533,657
Total Commercial Buildings	486,615	503,985	530,357	568,513	579,781	546,925	604,085	686,099	702,723	678,826	663,183	670,699
Total Residential Buildings	485,964	545,754	563,877	553,442	644,257	802,933	910,416	855,918	764,477	725,003	745,977	783,937
Total Nonbuilding Structures	251,090	230,104	238,951	269,085	275,533	276,588	284,425	308,733	330,610	351,583	367,171	376,985
Total Construction Put in Place	1,223,669	1,279,843	1,333,185	1,391,040	1,499,571	1,626,446	1,798,926	1,850,750	1,797,811	1,755,413	1,776,332	1,831,621

CONSTRUCTION OUTLOOK / U.S. % Change From Year Prior (July 2023 Forecast)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Corporate	21.2%	1.1%	11.6%	15.7%	4.6%	-6.7%	1.3%	7.5%	-5.5%	-6.9%	1.1%	5.6%
Education	7.4%	5.5%	4.7%	7.6%	1.6%	-11.1%	0.8%	7.7%	6%	3.3%	2.1%	3%
Government	1.4%	4.7%	10%	20.2%	30.4%	-23.6%	-4.3%	5.1%	5.7%	4.4%	1.4%	0.8%
Healthcare	2.3%	6.3%	0.8%	6.5%	5%	-0.3%	8.8%	8.5%	4.9%	3%	-2.5%	-1.6%
Houses of Worship	4.3%	-4.4%	-2.4%	6.6%	-6.9%	-15.7%	-1.3%	3.6%	0%	-1.3%	0.3%	1.1%
Lodging	23.0%	5.8%	9.8%	6.3%	-14.9%	-36%	2.2%	20.6%	1.1%	-11.5%	-3.7%	5.6%
Manufacturing	-4.2%	-11.2%	2.6%	11.7%	-6.9%	4.6%	36.8%	35.7%	8%	-10.9%	-15.1%	-7.6%
Retail	17.5%	11.3%	-1.4%	-2.4%	6.4%	5.4%	22.2%	10.6%	-7.9%	-10.2%	-0.2%	4.4%
Target Commercial Buildings	9%	3%	4%	8%	2%	-6%	13%	14.8%	1%	-5%	-4%	1%
Total Commercial Buildings	7.5%	3.6%	5.2%	7.2%	2%	-5.7%	10.5%	14%	2.4%	-3.4%	-2.3%	1.1%
Total Residential Buildings	10.8%	12.3%	3.3%	-1.9%	16.4%	24.6%	13.4%	-6%	-10.7%	-5.2%	2.9%	5.1%
Total Nonbuilding Structures	0.9%	-8.4%	3.8%	12.6%	2.4%	0.4%	2.8%	9%	7.1%	6.3%	4.4%	2.7%
Total Construction Put in Place	7.3%	4.6%	4.2%	4.3%	7.8%	8.5%	10.6%	3%	-2.9%	-2.4%	1.2%	3.1%

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

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Corporate	8,637	8,670	9,754	10,882	11,157	9,901	10,042	10,344	9,886	10,017	10,512	11,047
Education	6,645	7,729	7,678	6,744	6,829	7,610	7,925	8,082	8,430	8,806	9,148	9,418
Government	1,904	2,236	2,306	2,812	2,926	2,728	2,879	3,108	3,188	3,354	3,519	3,644
Healthcare	4,823	5,168	5,252	5,319	5,745	6,289	6,686	6,578	7,327	8,053	8,120	8,270
Houses of Worship	413	386	382	444	419	320	299	312	322	335	344	355
Lodging	2,569	2,557	2,766	2,750	2,567	2,614	3,280	3,448	3,230	3,238	3,349	3,553
Manufacturing	17,916	16,221	20,116	23,189	21,110	20,509	22,795	24,206	25,958	25,857	26,834	28,361
Retail	13,357	13,472	14,002	16,072	15,001	15,277	19,169	20,140	19,383	19,048	19,635	20,360
Target Commercial Buildings	56,264	56,439	62,255	68,214	65,754	65,249	73,075	76,219	77,724	78,708	81,461	85,010
Total Commercial Buildings	71,725	72,214	79,749	86,063	85,187	85,918	96,943	101,837	104,220	106,212	110,220	114,881
Total Residential Buildings	105,454	113,821	118,714	118,428	125,761	161,536	179,603	166,602	164,116	164,378	168,528	177,102
Total Nonbuilding Structures	83,136	85,994	81,197	78,920	68,275	75,933	87,378	92,911	99,700	107,624	112,004	112,858
Total Construction Put in Place	260,314	272,030	279,660	283,411	279,224	323,388	363,925	361,350	368,036	378,214	390,752	404,841

CONSTRUCTION OUTLOOK / CANADA % Change From Year Prior

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Corporate	0.4%	12.5%	11.6%	2.5%	-11.3%	1.4%	3%	-4.4%	1.3%	4.9%	5.1%
Education	16.3%	-0.7%	-12.2%	1.3%	11.4%	4.1%	2%	4.3%	4.5%	3.9%	3%
Government	17.4%	3.1%	21.9%	4.1%	-6.8%	5.5%	8%	2.6%	5.2%	4.9%	3.5%
Healthcare	7.1%	1.6%	1.3%	8%	9.5%	6.3%	-1.6%	11.4%	9.9%	0.8%	1.9%
Houses of Worship	-6.6%	-1.1%	16.4%	-5.8%	-23.5%	-6.5%	4.2%	3.3%	4.1%	2.5%	3.2%
Lodging	-0.5%	8.2%	-0.6%	-6.7%	1.8%	25.5%	5.1%	-6.3%	0.2%	3.4%	6.1%
Manufacturing	-9.5%	24%	15.3%	-9%	-2.8%	11.1%	6.2%	7.2%	-0.4%	3.8%	5.7%
Retail	0.9%	3.9%	14.8%	-6.7%	1.8%	25.5%	5.1%	-3.8%	-1.7%	3.1%	3.7%
Target Commercial Buildings	0.3%	10.3%	9.6%	-3.6%	-0.8%	12%	4.3%	2%	1.3%	3.5%	4.4%
Total Commercial Buildings	0.7%	10.4%	7.9%	-1%	0.9%	12.8%	5%	2.3%	1.9%	3.8%	4.2%
Total Residential Buildings	7.9%	4.3%	-0.2%	6.2%	28.4%	11.2%	-7.2%	-1.5%	0.2%	2.5%	5.1%
Total Nonbuilding Structures	3.4%	-5.6%	-2.8%	-13.5%	11.2%	15.1%	6.3%	7.3%	7.9%	4.1%	0.8%
Total Construction Put in Place	4.5%	2.8%	1.3%	-1.5%	15.8%	12.5%	-0.7%	1.9%	2.8%	3.3%	3.6%



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