Economic Assessment and 5-Year Forecast of the Engineering and Design Services Industry in Canada

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ASSOCIATION OF CONSULTING ENGINEERING COMPANIES | CANADA

Research Conducted by:

ACEC RESEARCH INSTITUTE

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Introduction

This is the inaugural release of the Engineering and Design Services industry forecast for Canada. This study aims to describe, measure, and analyze the economic significance of the Engineering and Design Services industry in Canada and demonstrate the inextricable partnership between engineering, architects, and other design services to deliver the built environment of Canada. 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 backward-looking data included in this analysis is for 2022 as that is the last period for which we have a full set of historical measures. All current figures in the report are in Canadian Dollars (CAD) unless specified otherwise. The study was conducted by ACEC Research Institute and Rockport Analytics, an independent market and economic research firm using both publicly and privately available data, as well as proprietary analysis.

The overarching goals of this research are to:

- Provide a comprehensive view of the size, growth, and composition of the Engineering and Design Services sector using the most current and comprehensive data available.
- Measure the economic contribution of the Engineering and Design Services industry in Canada using established metrics found in virtually all industry economic impact analyses.
- Analyze the current market environment for the Engineering and Design Services sector in Canada, including key challenges and opportunities. This includes modeling key market and macro drivers of the industry to help inform ACEC-Canada's membership on the future performance of the Engineering and Design Services industry. The outlook and modeling assets can be used to forecast industry revenue in the Engineering and Design Services sector and evaluate scenarios surrounding policy, geopolitical, and other future conditions.

This research is intended to be of value to ACEC-Canada 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-Canada advocacy, communications, and other outreach efforts.

Overview of Industry Performance in 2022-2023

Key Points

Industry Revenue & Performance:

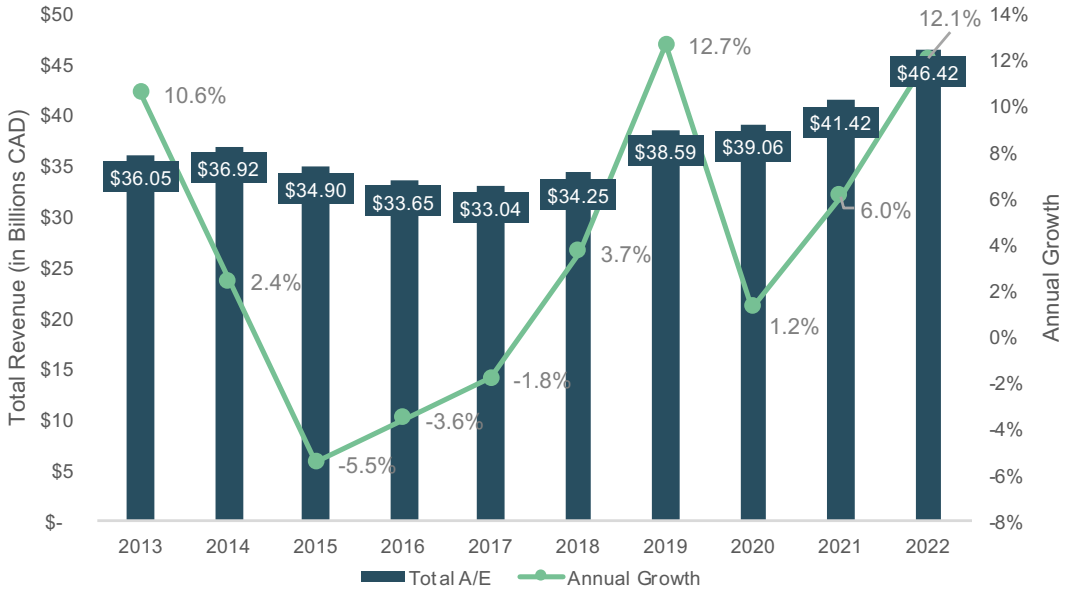
- The Canadian Engineering and Design Services industry grew by 12.1 percent in 2022, hitting an all-time high of $46.4 billion.
- While inflation eroded some of these gains, real growth was relatively strong at 5.1 percent.
- Growth has been fueled in part by stimulus from the Investing in Canada Plan, and support from the Canada Infrastructure Bank for private sector co-investment. Both residential and commercial construction were strong coming out of the pandemic but have been hampered by the higher interest rate environment.
- Every dollar of A/E operating revenue generates $1.3 dollars in Canadian GDP. The A/E services sector is a key input and enabler for Canada's construction industry which amassed $244 billion in spending in 2022.
- The provinces that saw the most A/E revenue growth in 2022 were Newfoundland and Labrador, growing 21 percent, followed by New Brunswick at 20 percent. Among the four largest provinces, Alberta and British Columbia led the way with 15 percent and 13 percent growth, respectively.

Industry Jobs and Wages

- Total A/E industry employment outpaced employment in the broader economy, advancing 7.5 percent over 2021 levels (compared to 6.4 percent nationwide).
- Average A/E wages surged 7.4 percent in 2022, challenging profitability for many Canadian firms in the Engineering and Design Services sector.
- Fortunately, productivity rates have also risen, which has helped to fuel the top and bottom lines of many A/E firms.
- Engineering and Design Services firms supported 225,000 direct jobs and paid $19.8 billion in direct wages in 2022.

Annual Canadian Engineering and Design Services Operating Revenue (2013 - 2022)

(in billions CAD)



Sources: Statistics Canada, OECD, Rockport Analytics

Key Drivers of Revenue Growth

Canada's Engineering and Design Services industry grew over 12 percent in 2022 and remains on a solid growth trajectory. Several key factors (as highlighted below) have defined the industry's growth characteristics over the last two years.

KEY REVENUE DRIVERS FOR THE INDUSTRY

Population Growth

Canada recorded unprecedented population growth in 2022, driven by a surge in both permanent and temporary immigration. This boom will continue to benefit the Engineering and Design Services industry over the coming years as the influx of immigrants will heighten the need for residential housing and community facilities, as well as non-residential projects such as commercial buildings and transportation systems.

Infrastructure Investment

A surge in public and private infrastructure investment fueled the Engineering and Design Services industry. Upgrading roads, bridges, utilities, and public buildings created a pressing need for engineers and designers. Government programs like the Investing in Canada Plan and the Canada Infrastructure Bank significantly boosted these projects, driving industry growth.

Inflation and Interest Rates

Interest rates and inflation have been two of the biggest factors driving Engineering and Design Services revenue over the last couple years. As the Bank of Canada raised rates to help stave off inflation, construction in many segments has cooled. Wage inflation in Engineering and Design Services has been particularly sticky. Higher wages and shortages of skilled workers have challenged many firms to maintain profitability despite significant revenue opportunities.

Oil Prices

Oil prices can have a significant impact on the Canadian economy and A/E sector. The 2014 crash had economy-wide reprecussions, affecting the value of the dollar, trade balances, and gross domestic income. The energy industry is also a key end market for many Canadian A/E firms.

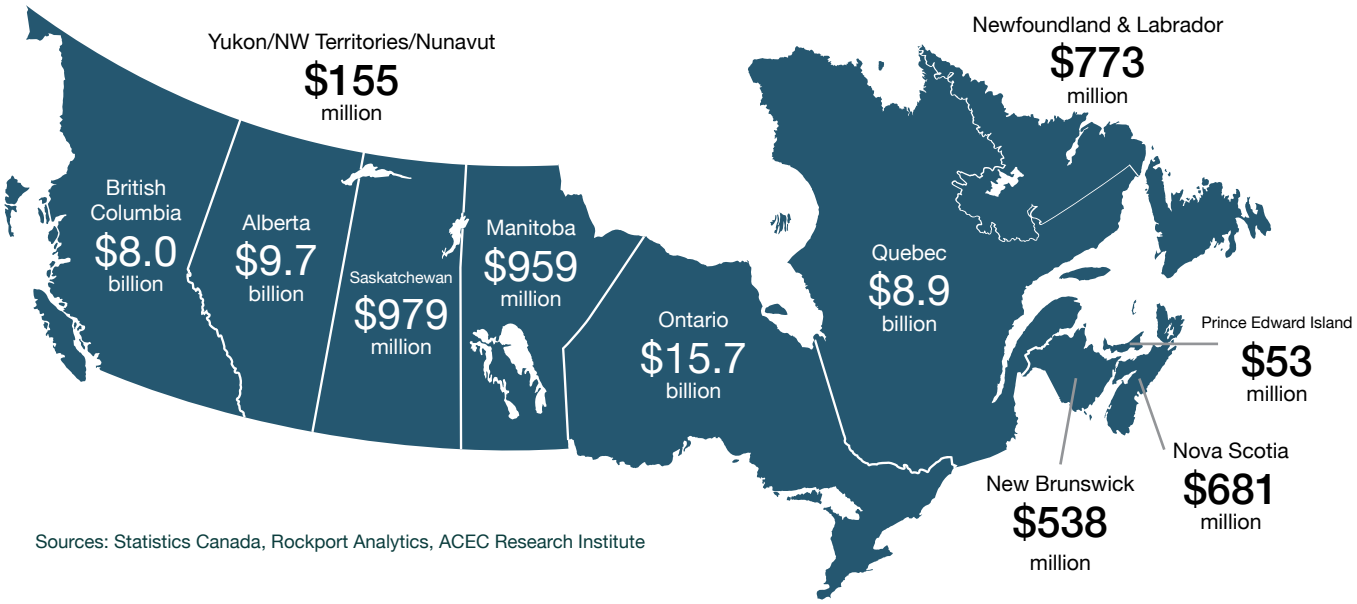
Technological Transformation & Sustainable Building Practices

Social responsibility initiatives and green building measures have become a larger focus for Canadian AEC firms and will continue to play a major role in Canada's built environment over the coming years. Technological advancements are also playing a key role in revenue generation for Canadian A/E firms. Technologies such as building information modeling (BIM), virtual design and 3D printing are helping improve efficiency and project workflows.

Revenue by Province/Territory

While Engineering and Design Services revenue was well distributed across the provinces and territories of Canada in 2022 – four provinces (Ontario, Quebec, Alberta, and British Columbia) – produced over 90 percent of total economic output over the period. On a per capita basis, Alberta and British Columbia have the highest levels of A/E economic output.

2022 A/E Operating Revenue By Provice/Territory

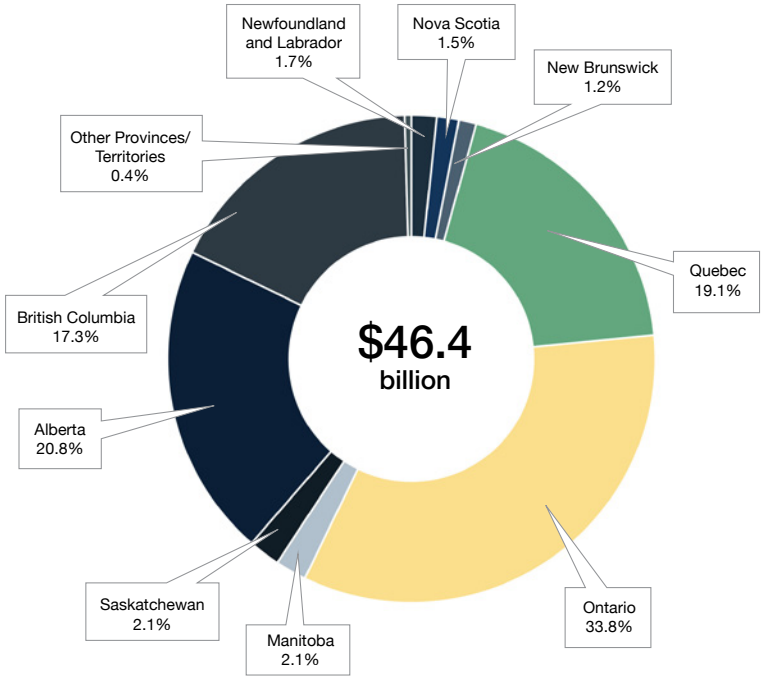


Sources: Statistics Canada, Rockport Analytics, ACEC Research Institute

Provinces that outperformed broader national growth in Engineering and Design Services included Newfoundland and Labrador and New Brunswick, growing 21 percent and 20 percent, respectively. Among the four largest provinces, Alberta and British Columbia led the way with 15 percent and 13 percent growth, respectively.

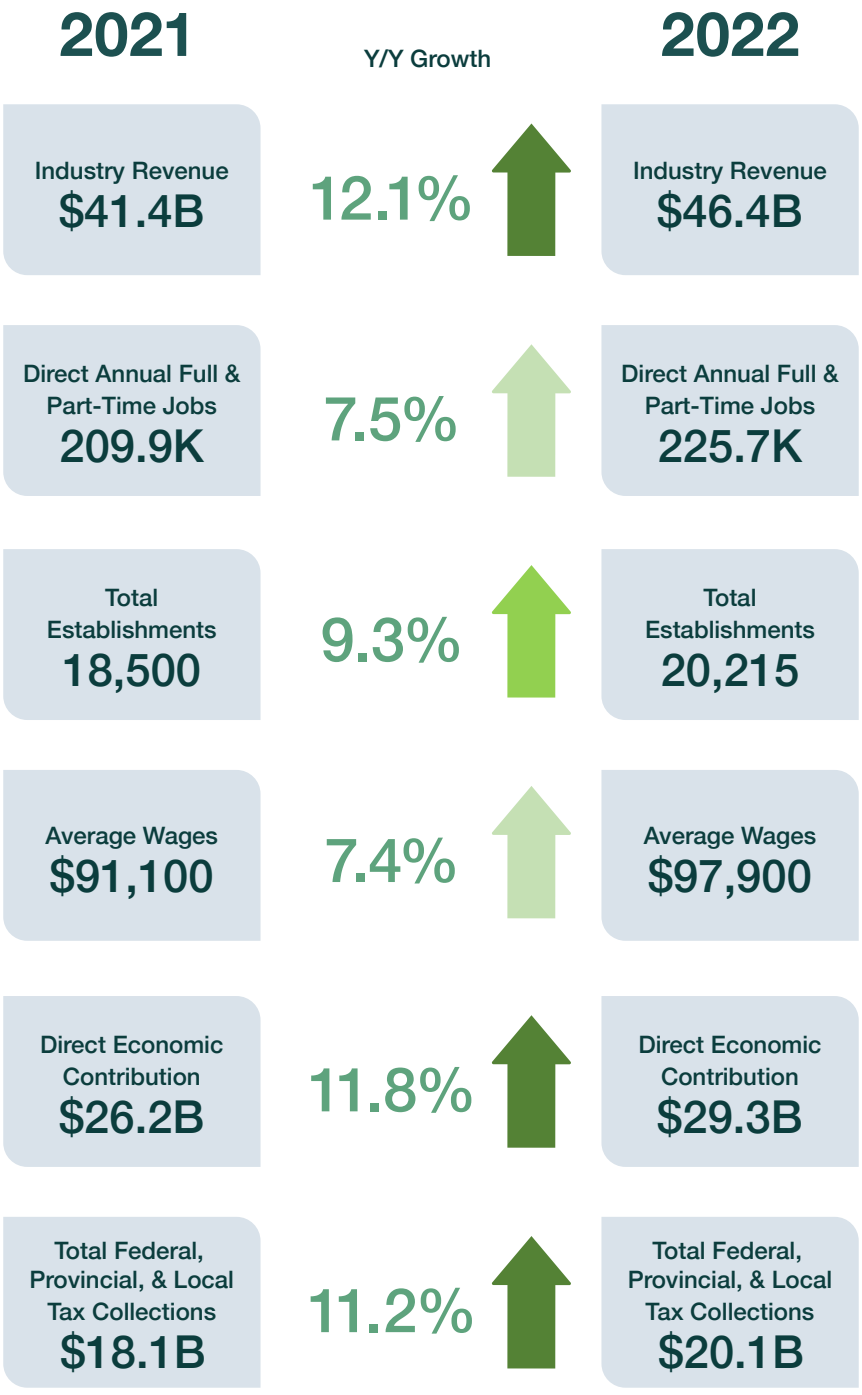
2022 A/E Operating Revenue By Provice/Territory

Province/Territory	Operating Revenue (in millions CAD)
Ontario	$15,671
Alberta	$9,675
Quebec	$8,885
British Columbia	$8,046
Saskatchewan	$979
Manitoba	$959
Newfoundland and Labrador	$773
Nova Scotia	$681
New Brunswick	$538
Northwest Territories	$83
Yukon	$61
Prince Edward Island	$53
Nunavut	$11
Total Canada	$46,416



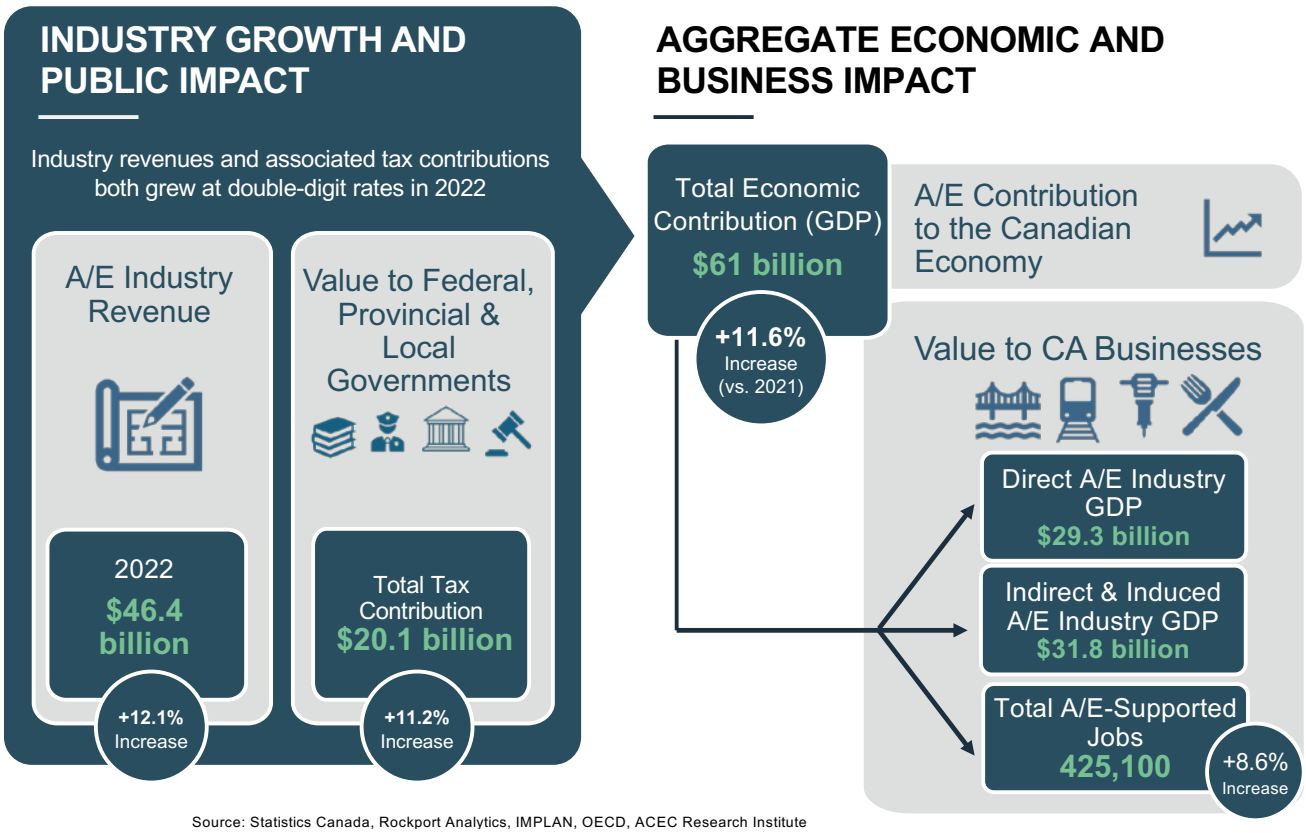
Sources: Statistics Canada, Rockport Analytics, ACEC Research Institute

Engineering and Design Services: By the Numbers



The Bottom Line: Engineering and Design Services Contribution to the Canadian Economy

Typically, an industry's economic significance is measured by how much it sells of its product or service, how much it buys from other sectors, the number of jobs it directly and indirectly supports, and how much tax revenue it generates. This approach, and the economic contribution metrics derived from it, are universal across all industries, facilitating comparison and contrast. While A/E Services contribute significantly to the Canadian Construction industry, the figures below do not include the value of the built environment supported by those services. That would be part of the Construction sector's economic contribution. Instead, the metrics below include only the unique economic footprint of the Engineering and Design Services industry itself.



Source: Statistics Canada, Rockport Analytics, IMPLAN, OECD, ACEC Research Institute

Engineering and Design Services 2022 revenue increased 12.1 percent over 2021. Revenue ($46.4 billion) includes sales to public and private construction, business services, energy, mining manufacturing, exports, and other end-market sectors.

The industry's contribution to Canadian GDP totaled $61 billion and was up 11.6 percent compared to 2021. The components of total economic contribution include direct, indirect, and induced value-added. Direct A/E ($29.3 billion) refers to the value-added of businesses engaged in engineering, architectural, and surveying services (NAICS Code 5413). Indirect refers to A/E's supply chain businesses. Induced contributions arise from the re-spent wages of direct and indirect employees. Indirect and induced ($31.8 billion) comprise upstream and downstream effects.

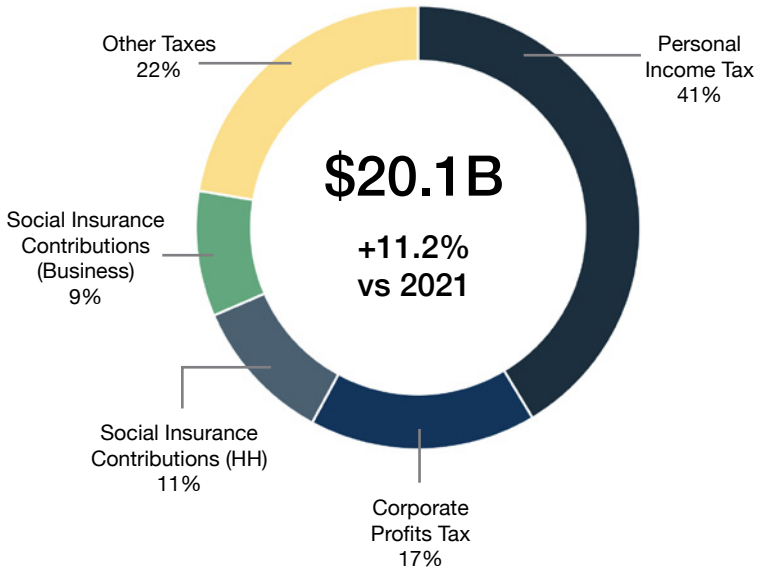
Engineering and Design Services contributed $20.1 billion in provincial, local, and federal taxes in 2022. Taxes include Personal Income Taxes ($8.3B), Corporate Profit Taxes ($3.3 B), Social Insurance ($3.9B), and Other Taxes ($4.5B).

Engineering and Design Services directly employed nearly 226,000 workers. Considering both the up and downstream contribution of A/E's activities, **a total of over 425,000 full- and part-time jobs can be attributed to the A/E industry**. A/E's contribution to payrolls was $36.3 billion in 2022.

2022 Engineering and Design Services Industry Bottom Line					
For the Canadian Economy *in billions CAN unless otherwise noted*	**Direct**	**Indirect** (Supply Chain)	**Induced** (Ripple Effect)	**Total**	**% vs 2021**
Total Industry Revenue				**$46.4**	**12.1%**
Total Economic Contribution:					
A/E Contribution to GDP	$29.3	$11.8	$20.0	$61.0	11.6%
Jobs Supported (Full & Part-Time)	225,730	81,890	117,480	425,100	8.6%
Contribution to Payrolls	$19.8	$7.6	$8.9	$36.3	12.3%
Total A/E-Initiated Tax Receipts	$8.4	$3.8	$7.9	$20.1	11.2%
Source: Bureau of Economic Analysis, Bureau of Labor Statistics, IMPLAN, ACEC Research Institute, Rockport Analytics					

2022 A/E Tax Contribution by Source

Source	2022 (in millions CAD)
Personal Income Tax	$8,308.8
Corporate Profits Tax	$3,311.7
Social Insurance Contributions (Households)	$2,131.1
Social Insurance Contributions (Business)	$1,833.2
Other Taxes	$4,484.9
Total	$20,069.7



Economic Contribution by Sector

Assessing the economic contribution of the Engineering and Design Services industry is an exercise in tracking the interindustry relationships between A/E activity and its upstream and downstream industry partners.

Engineering and Design Service Activity Supports Jobs Across the Canadian Economy

At the national level, over 425,000 Canadian jobs, including full and part-time workers, could be attributed to the Engineering and Design Services industry in 2022. Direct A/E industry jobs totaled over 225,000, representing over half (53 percent) of the industry's total impact. The remaining 48 percent can be attributed to jobs supported along the industry's supply chain (82,000) and the jobs supported by the re-spent wages (117,000) of A/E workers and the workers along the A/E supply chain.

A/E Contribution to Canadian Employment by Industry Sector

NAICS Code	Industry (NAICS)1	Direct	Indirect	Induced	Total
54	Professional, Scientific, and Technical Services	225,730	23,600	5,050	254,380
44	Retail Trade	-	3,890	26,580	30,470
72	Accommodation and Food Services	-	6,600	15,460	22,060
56	Administrative and Support and Waste Management and Remediation Services	-	10,040	6,180	16,220
81	Other Services	-	5,340	8,930	14,270
52	Finance and Insurance	-	4,550	9,630	14,180
48	Transportation and Warehousing	-	4,000	6,070	10,070
31	Manufacturing	-	3,990	5,820	9,820
62	Health Care and Social Assistance	-	1,130	8,420	9,540
42	Wholesale Trade	-	3,060	4,630	7,680
51	Information	-	3,890	2,850	6,740
53	Real Estate and Rental and Leasing	-	3,380	2,370	5,760
71	Arts, Entertainment, and Recreation	-	1,640	3,640	5,280
61	Educational Services	-	1,540	3,270	4,810
91	Public Administration	-	2,240	1,960	4,200
23	Construction	-	1,560	2,450	4,010
11	Agriculture, Forestry, Fishing and Hunting	-	300	2,610	2,910
22	Utilities	-	380	910	1,290
55	Management of Companies and Enterprises	-	540	360	900
21	Mining, Quarrying, and Oil & Gas Extraction	-	220	290	510
	Grand Total	225,730	81,890	117,480	425,100

[1]North American Industrial Classification System (NAICS). For specific industry definitions, see www.statcan.gc.ca/en/concepts/industry

The Economic Contribution of Canada's Engineering and Design Services Industry: In Perspective

Total A/E Revenue: $46.4B

This was up 12.1% versus 2021. A/E services revenue represents 0.8% of Canadian revenue. Most of this revenue (85%) was generated from Engineering Services in 2022. Meanwhile, Architectural Services contributed the other $6.8B (15%) that same year.

Gross Domestic Product: $61B

The Engineering and Design Services industry contributed 11.6% more to Canadian GDP in 2022 compared to 2021. This includes direct value-added, supply chain, and income ripple effects. The industry accounts for 2.8% of Canadian GDP, surpassing Management, Scientific and Technical Consulting Services, and Specialized Design Services.

Total Employment: 425,000

The A/E sector supported over 425,000 workers in 2022, with 226,000 directly employed by A/E firms and 200,000 through supply chain and wage re-spending. A/E employment accounts for 2.4% of total Canadian employment, exceeding that of Residential Building Construction and Real Estate.

Total A/E Wages: $36.3B

The Engineering and Design Services industry saw total wages increase 8.8% over 2021. This includes the total wages paid across direct, indirect and induced jobs (full and part time). The average industry wage grew by 7.4% to $97,900.

Supporting $244B in Construction Put In Place

Engineering and Design Services is inextricably linked to the built environment and **is a critical input to nearly every major construction project in Canada**

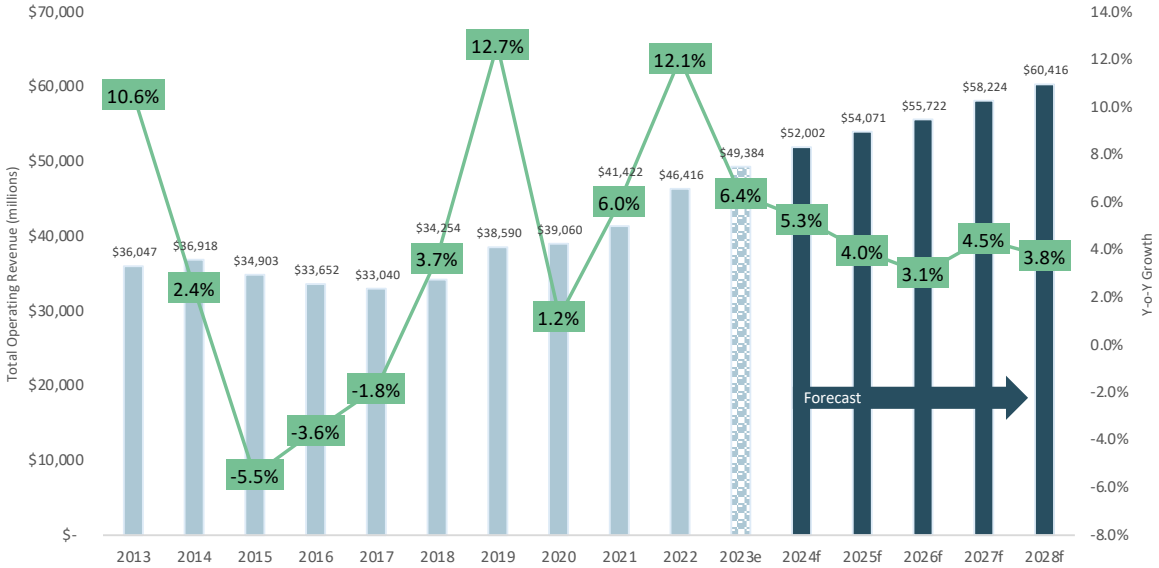
Canadian Engineering and Design Services Industry in 2024 and Beyond

Navigating a Slower Growth Landscape in A/E: Public Spending and Population Growth Will Help Counterbalance the Impact of Higher Interest Rates

The Canadian Engineering and Design Services industry exhibited resiliency throughout the pandemic years, showing no declines in revenue in 2020, before growing 6 percent in 2021 and surging 12.2 percent in 2022. As of the end of 2023, revenues are 28 percent above pre-pandemic levels, outpacing the broader Canadian economy, which sits at 5 percent above pre-pandemic levels.

The industry is currently presented with a mixed economic picture, however, that will challenge these outsized levels of growth over the coming years. We expect growth in Engineering and Design Services revenue to moderate to an average rate of just under 4 percent annually through 2028.

Canadian Engineering and Design Services: Industry Operating Revenue Forecast



Sources: Statistics Canada, Moody's Analytics, Rockport Analytics

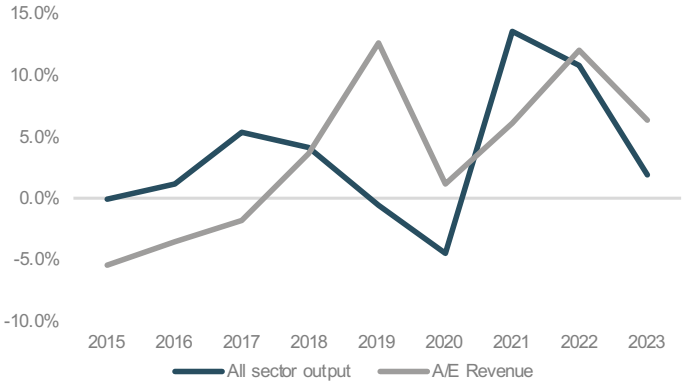
	2023e	2024f	2025f	2026f	2027f	2028f
Nominal Growth	6.4%	5.3%	4.0%	3.1%	4.5%	3.8%
Real Growth	3.8%	2.4%	3.0%	2.9%	2.6%	2.4%

- Higher interest rates have slowed the prognosis for growth in both residential and non-residential construction. These higher rates have helped to bring inflation closer to the Bank of Canada's target rate of 2 percent, but wage inflation remains sticky which has put pressure on the bottom lines of many firms in the Engineering and Design Services space.
- The growth in public A/E activity via the Investing in Canada Plan (IICP) will aid in offsetting weakness in residential and non-residential construction through 2028.
- Population growth in Canada is at historic highs, driven by international migration (both permanent and temporary immigration), which will help support demand for both residential, commercial, and non-building construction over the next few years and offset some of the impact of higher interest rates.
- We expect revenue growth to slow to 5.3 percent in 2024 and 4 percent in 2025. Despite the slowdown, growth is still above historic norms, and as inflation subsides, real growth will pick up pace in 2025.

Canadian A/E Outpacing the Broader Economy, A/E Exports Rising

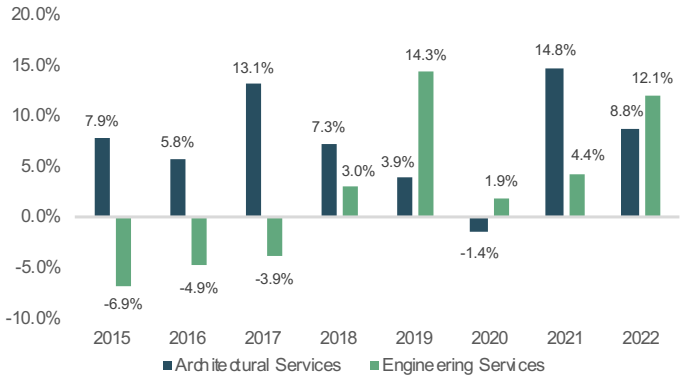
Engineering and Design Services revenue outpaced aggregate output for all sectors in the Canadian economy in 2019 and managed to post growth in 2020 as the broader economy slipped into recession due to the Covid-19 pandemic. As the Canadian economy normalized, A/E revenue kept pace with overall growth. In 2023, A/E again outperformed, growing 6.4 percent compared with 1.9 percent growth in the broader economy.

Annual Growth in Canadian A/E Revenue vs. All Sector Output



Sources: Statistics Canada, S&P Global, Rockport Analytics

Engineering vs. Architectural Services - Y/Y Growth in Revenue

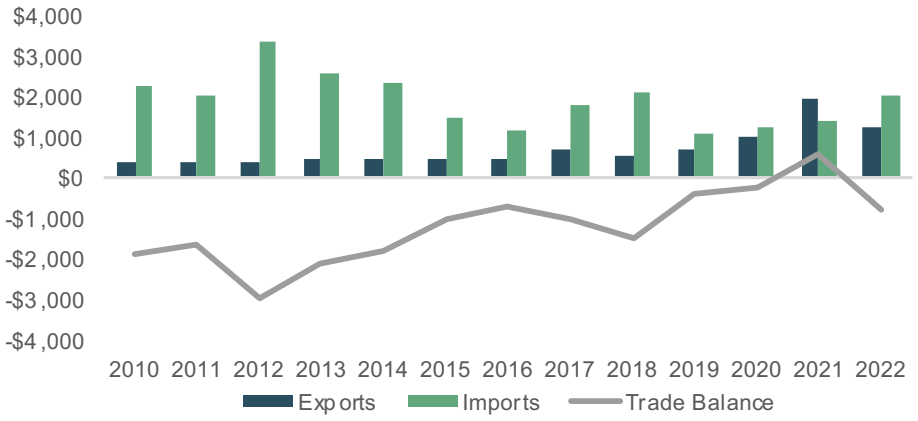


Sources: Statistics Canada, Rockport Analytics

The Architectural Services sector outpaced Engineering Services in growth before the pandemic. Both felt the 2020 downturn, with Architecture experiencing its first decline in five years. However, both sectors have seen strong rebounds. The compound annual growth rate since 2019 for the Architectural Services sector was 7.2 percent, while it was 6.0 percent for Engineering Services. This means that, on average, the Architectural Services sector has experienced slightly faster annual growth compared to the Engineering Services since the pandemic began.

Historically, Canada has a trade deficit in A/E services with the United States. The trade balance for the Engineering and Design Services Industry remained negative throughout the past decade, with Canada importing an average of $1.9 billion in A/E services between 2010 and 2020 from the U.S. Since 2018, however, U.S. export demand for Canadian A/E services has been on the rise. In fact, in 2021 Canada's A/E sector ran a $576 million surplus to the U.S. with exports peaking at almost $2 billion. While the balance of trade dipped in 2022, exports remain firmly above pre-pandemic levels.

Canada Trade Balance in A/E Services with United States (in millions CAD)



Sources: Bureau of Economic Analysis, International Services

Construction Performance Mixed in Higher Interest Rate Environment

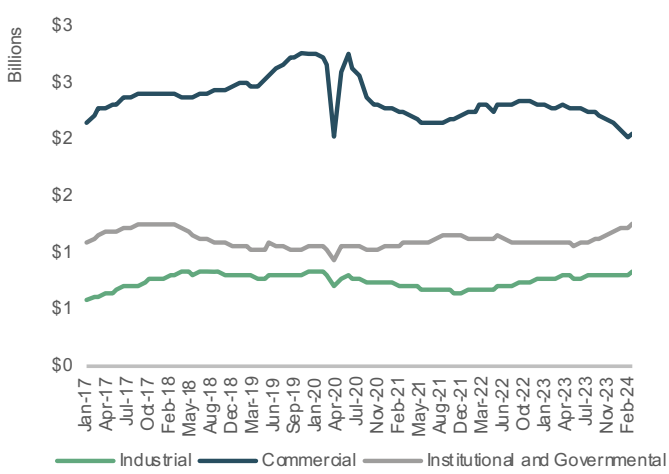
Canada's construction industry has seen mixed results. While residential investment boomed in 2021 due to low interest rates, it has since cooled along with rising rates. Non-residential construction has seen modest growth and is expected to rebound due to increased public infrastructure spending.

- Growth has slowed due to higher interest rates and tighter credit conditions for developers.
- Projected rate cuts and population growth could lead to continued residential recovery.
- Non-residential construction has seen sub-1 percent growth but is expected to rebound in 2025.
- Commercial construction declined since mid-2022 but ticked up in February 2024.
- Public infrastructure spending is driving a resurgence in non-building construction.

Total Value of Canadian Residential Construction Put in Place

Source: Statistics Canada

Total Value of Canadian Non-Residential Construction Put in Place



Source: Statistics Canada

Total Construction Put in Place soared in 2022, growing 10% but elevated construction prices, labor shortages, and rising interest rates hampered performance in 2023 with activity falling 6.2%. We expect construction to regain footing over the next year and grow at a compound annual growth rate of 4.1% through 2028.

Construction output grew 10.6% in 2022, bolstered by a 10.8% increase in manufacturing output. In 2023, non-residential & commercial construction declined 4.7%, along with a 4% decline in the manufacturing sector.

Output in the construction industry is projected to pick back up, however, potentially growing 25% over the next five years.

Non-building construction grew 20.6% in 2022, led by Other engineering construction, which includes waste disposal and pollution abatement (41.7%). Non-building construction remained a bright spot in 2023, growing an additional 10.4%.

Housing shortages and demographics fueled residential construction in 2022 but rising rates put pressure on demand and development in 2023. Residential construction grew 7.8% in 2022 but dipped 11.4% in 2023.

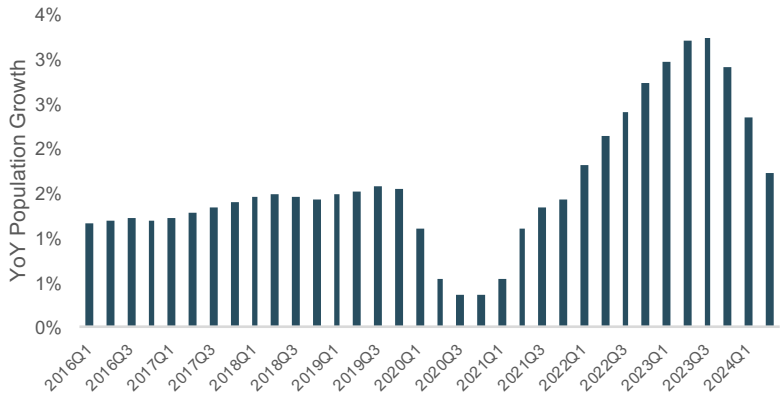
We expect residential softness to continue in 2024 but the sector will gain momentum into next year as rates normalize and housing shortages deepen.

Trends Driving the Outlook for Engineering and Design Services

Population Growth: A Key Driver of the Canadian Economy

Population growth has ramped up significantly in the years post-2020. This extreme growth is mostly the result of international migration (both permanent and temporary immigration). The third quarter of 2023 saw a 3 percent year-over-year growth rate, and although these rates are moderating, population growth has steadily remained over 2 percent. This will no doubt lead to an increase in demand for A/E services due to the need for more residential and non-residential buildings, as well as infrastructure improvements. Additionally, population growth will help to bolster the labor force, further fueling economic expansion in the A/E industry in the coming years.

Historic Population Growth Will Help Drive the A/E Industry Over the Forecast Period

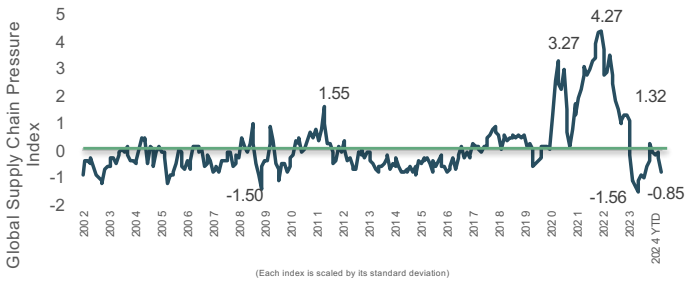


Sources: Statistics Canada, Rockport Analytics

Global Supply Chain Headwinds and Significant Pricing Pressures Subsiding

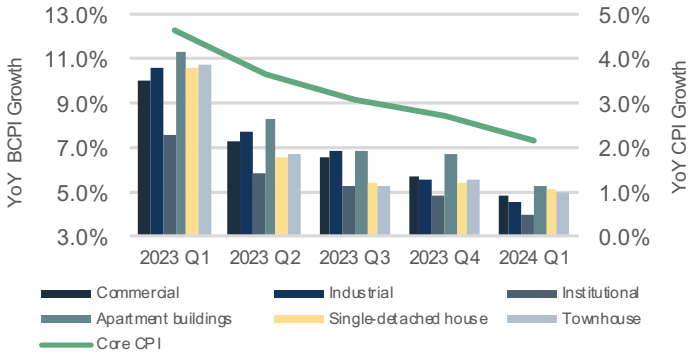
The Global Supply Chain Pressure Index (GSCPI) tracks the state of global supply chains using data from the transportation and manufacturing sectors. The GSCPI reached a historical high in December 2021 (4.36) and then reached a historical low in May 2023 (-1.56). The current index (April 2024) has been dropping and below normal since December 2023 at -0.84, indicating very low pressure on the global supply chain.

Global Supply Chain Pressure Index



Sources: Federal Reserve Bank of New York, Rockport Analytics

Annual Growth in Building Construction Price Index (BCPI) and Consumer Price Index (CPI) Decelerating



Sources: Statistics Canada, Moody's Analytics, Rockport Analytics

YoY CPI Growth

Industry Product Price Index	2022/2023 Y/Y %change	2023/2024 YTD* Y/Y %change
Lumber and other wood products	-24.0%	0.5%
Fabricated metal products and construction materials	-1.3%	-2.8%
Cement, glass, and other non-metallic mineral products	12.0%	9.1%

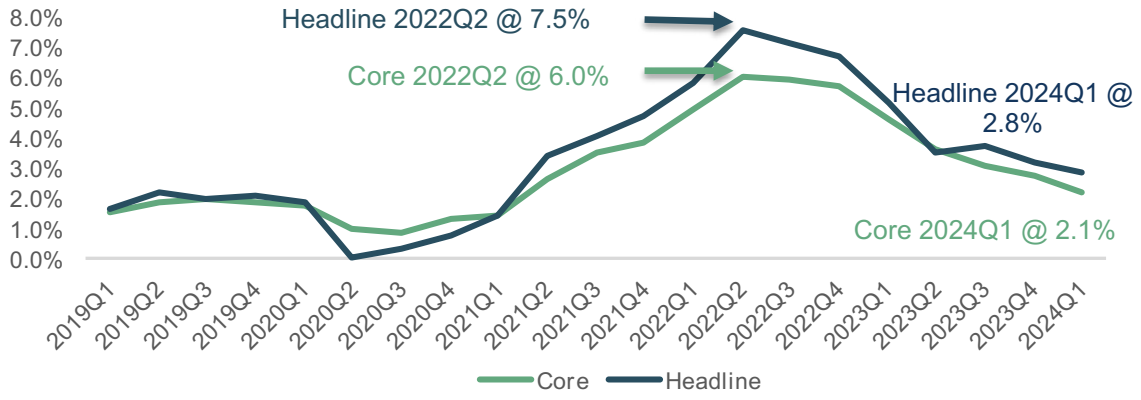
*January through March 2024

Sources: Statistics Canada, Rockport Analytics

The prices of construction materials such as lumber and metal products have improved significantly over the past year. In general, the Building Construction Price Index (BCPI), which includes the cost of materials, equipment, overhead, among others, has been growing at a much slower rate on a year-over-year basis. On average, the BCPI for non-residential buildings has come down five percentage points since the first quarter of 2023, while the BCPI for residential construction has declined closer to six percentage points. However, the price of increases in some materials such as cement, glass, and other non-metallic mineral products remain elevated.

Inflationary pressures have gradually begun to unwind from their post-pandemic highs, declining from their peak in 2022. The headline Consumer Price Index (CPI), which tracks the prices of all goods and services in the economy, reached its highest year-over-year growth in the second quarter of 2022. Core inflation, which excludes items with more volatile prices such as energy and food, also peaked during the same period. Although inflation is still rising, causing prices to increase at uneven levels and rates, the rate of increase in core inflation is currently close to four percentage points lower than its peak, now at 2.1 percent. It is reasonable to expect that this leveling-off pattern will continue in the coming quarters, given the Bank of Canada's commitment to a contractionary monetary policy.

Inflation Pressures Continue to Ease

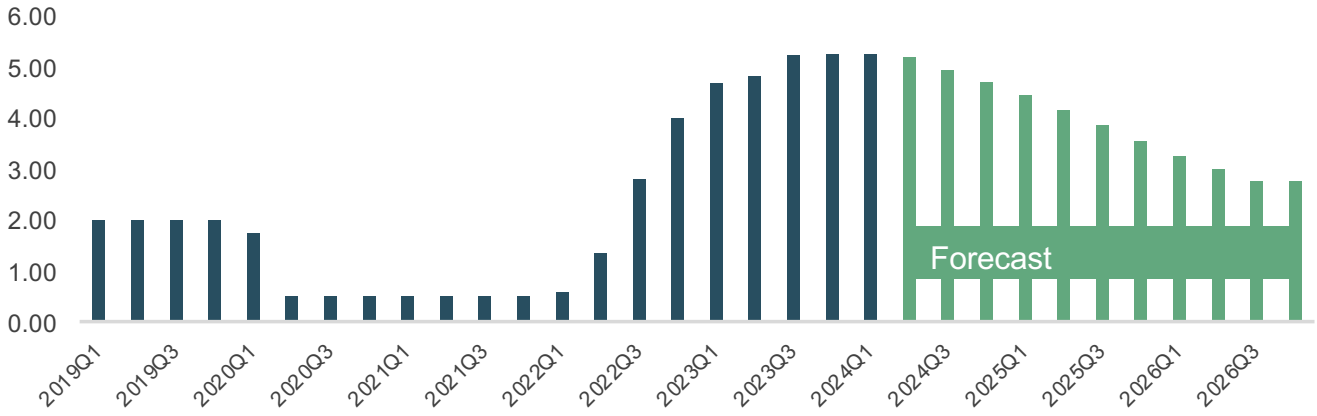


Sources: Statistics Canada, Moody's Analytics, Rockport Analytics

Interest Rates Have Likely Peaked but Will Continue to Act as a Headwind to A/E Growth Over the Next Couple Years

The Bank of Canada has raised interest rates from the sub-1 percent levels set during the COVID-19 pandemic. These rates were initially lowered to maintain the flow of credit, and to counteract the effects of the economic downturn that occurred because of the restrictions implemented during this period. The Bank rapidly ratcheted up rates beginning in the second quarter of 2022, increasing around 0.5 percentage points each quarter until reaching 5 percent in the first quarter of 2024. Rates are expected to decrease as inflation comes back in line with the Bank of Canada's 2 percent target. A combination of global risks that may feed inflation, and concerns about the inflation rate stalling above the Bank's target of 2 percent means that rate cuts are likely to be sparser and of a smaller magnitude than the increases witnessed during the tightening cycle.

Bank of Canada Key Interest Rate: Historical Rates and Expectations through 2026



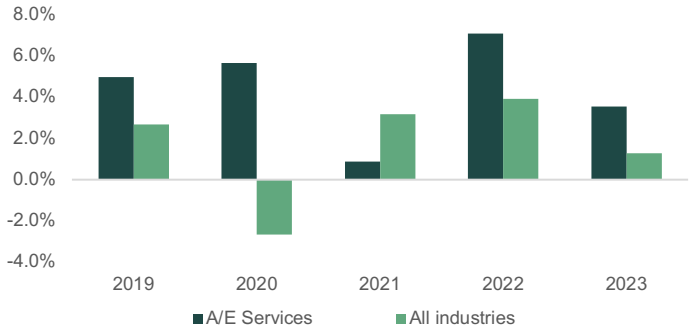
Sources: Moody's Analytics

Employment and Productivity for A/E Firms Continue to Outpace Other Industries. Hourly Earnings on Uptick, while Wage Growth Beginning to Level-off.

The A/E Services sector saw above average employment growth in the lead-up to 2020; averaging a 3 percent growth rate from 2015 to 2019. The industry recovered from declining employment in 2020, reaching double-digit growth levels in 2021 with an 11.7 percent increase. Employment growth has since moderated back to levels similar to those of the pre-pandemic years, at an average annual rate of 4 percent.

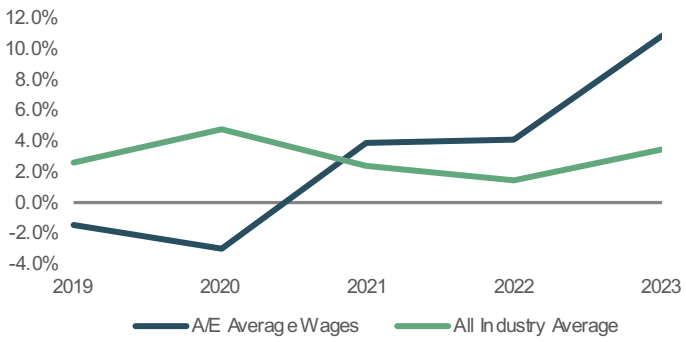
Productivity as measured by GDP per hours worked has increased significantly in the A/E services sector, peaking in 2022 at 7.1 percent. Rises in productivity are generally associated with rises in wages, so the cool-off in productivity growth coming out of 2022's high-point is mirrored in the wage data. It is important to note, however, that average wage growth for the aggregate of all sectors is outpacing that of the A/E industry.

A/E Services vs. All Industries GDP per Hours Worked - Y/Y Growth



Sources: Statistics Canada, Rockport Analytics

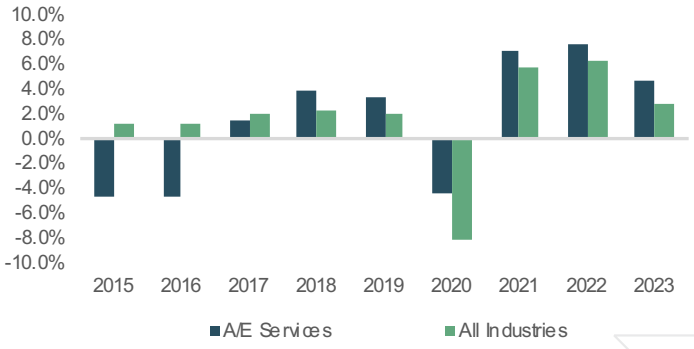
A/E Services vs. All Industries Average Hourly Earnings - Y/Y Growth



Sources: Statistics Canada, Rockport Analytics

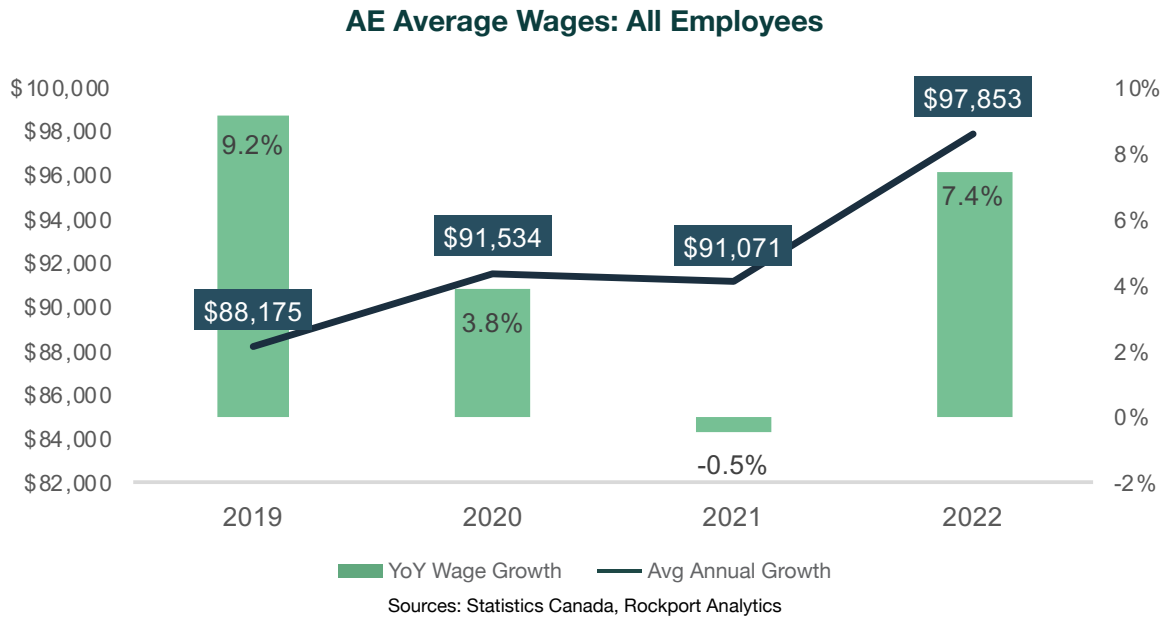
Average hourly earnings have been steadily increasing since 2019, closely mirroring the rise in productivity. This metric reflects variations in overtime rates and the volume of work completed on a piece-rate basis. Furthermore, a shift towards a greater proportion of high-paying jobs within the workforce has also contributed to the growth in average hourly earnings.

A/E Services vs. All Industries Employment Growth Rate



Sources: Statistics Canada, Rockport Analytics

The average annual wage for employees in the A/E services sector increased from around $88K in 2019 to nearly $98K in 2022, marking an 11% rise over this period. Despite a dip in 2021, wages have recovered and surpassed pre-Covid levels. While part of this nominal increase can be attributed to the surge in inflation, wages have also risen in real terms, showing a 7.8% increase since 2018.



Sources: Statistics Canada, Rockport Analytics

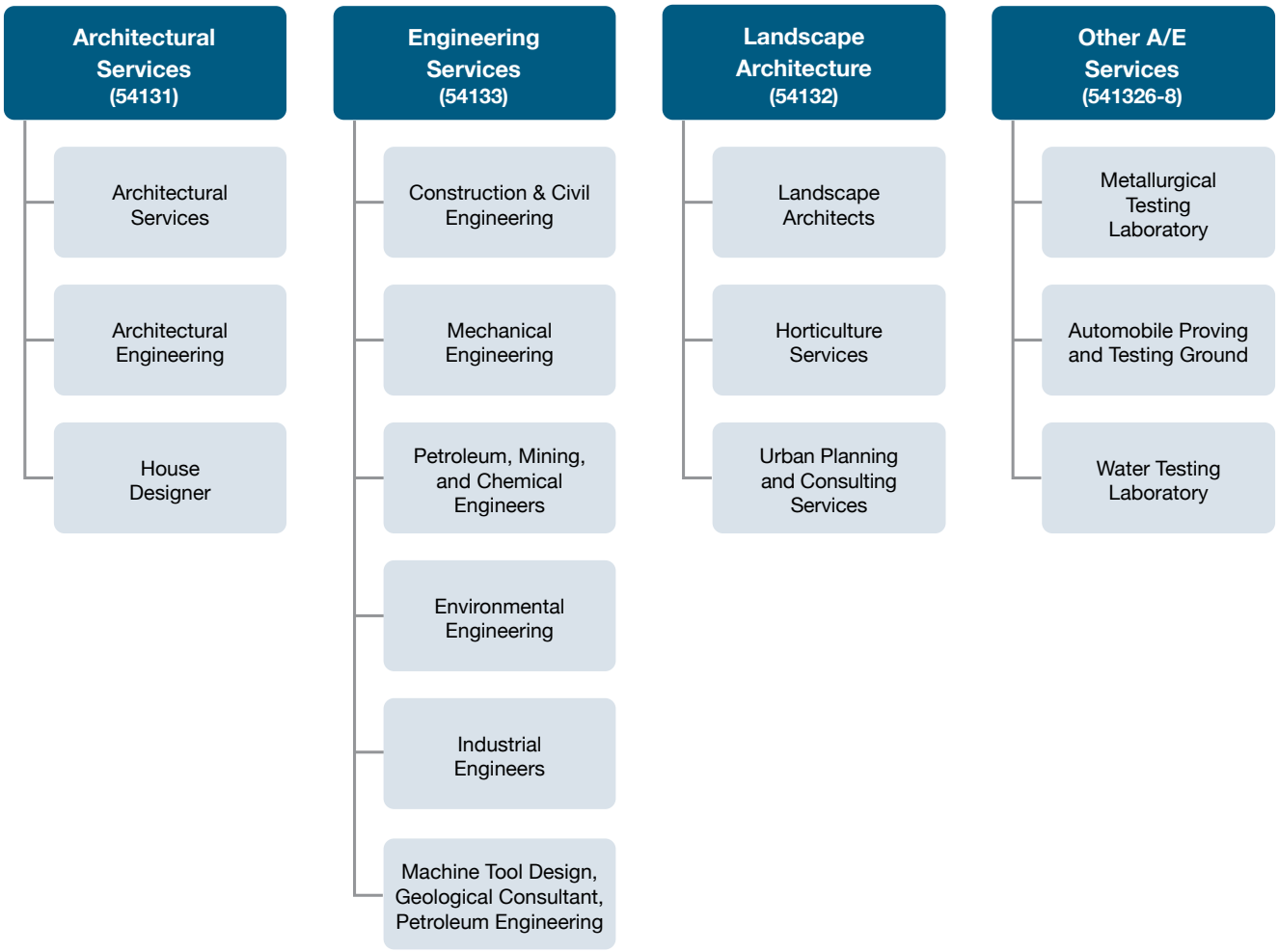
Appendix

Engineering and Design Services Industry Definition

The definition of the Engineering and 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 Canada – 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.

The NAICS code "5413, Architectural, Engineering, and Related Services" is part of the broad category, "54 -Professional, Scientific, and 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 and 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-Canada 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-Canada 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 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 of 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.
- Public sector clients usually use separate procurement processes that involve the selection of providers of licensed professional and related services that consider 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 provinces, firm leadership is required to represent the disciplines for which the firm offers services. This may have the effect of also limiting the size of many such firms.
- Design work often requires the teaming of firms with varied discipline capabilities and experience.
- Professional licensure is provincially regulated, 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-Canada represents the business interests of firms across all 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, provincial, 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-Canada membership.

The 2024 – 2028 Canadian Engineering Industry Forecast Methodology

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 industry revenue. 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 goal of this phase of research is to:

(1) Provide a forecast for Canadian Engineering and Design Services activity over the next five years;

(2) Provide context around the key drivers of the forecast for Canadian Engineering and Design Services; and,

(3) Analyze key trends, risks, and opportunities.

Data Sources

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

- **Statistics Canada** – demographics, income, employment and business establishment data and trends
- **Moody's Analytics** – CPI, value of construction, industry forecasts
- **S&P Global** – Comparative Industry Rev.4 – nominal output and profit by industry
- **U.S. Bureau of Economic Analysis (BEA)** – International Services – imports, export, trade balance
- **Organization for Economic Cooperation and Development (OECD)** – currency exchange rates
- Other public and private sources

About ACEC Research Institute

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. The ACEC Research Institute is an independent 501c3 non-profit organization.

About Rockport Analytics

Rockport Analytics is a research and analytical consulting firm providing high quality quantitative and qualitative research solutions to business, government, and non-profit organization clients across the globe. We provide fast, nimble service in a completely transparent environment. Capabilities include:

- Industry/Market Analysis and Forecasting
- Economic Impact Assessment and Economic Development
- Market Modeling and Decision Support Tools
- Project Feasibility Assessment
- Primary and Secondary Research Synthesis