BUILDFORCE CANADA

CONSTRUCTION & MAINTENANCE LOOKING FORWARD

# ALBERTA

Potential growth returns over the long term

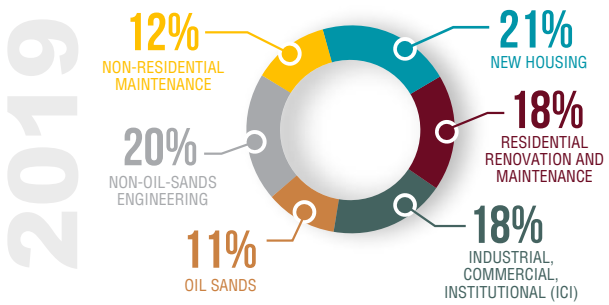
## HIGHLIGHTS 2019–2028

The commissioning of Fort Hills at the beginning of 2018 marked the end of large-scale oil sands expansion projects and, in the near term, focus shifts to sustaining and maintaining oil sands production, and rising infrastructure and industrial and institutional building requirements, driven by economic diversification.

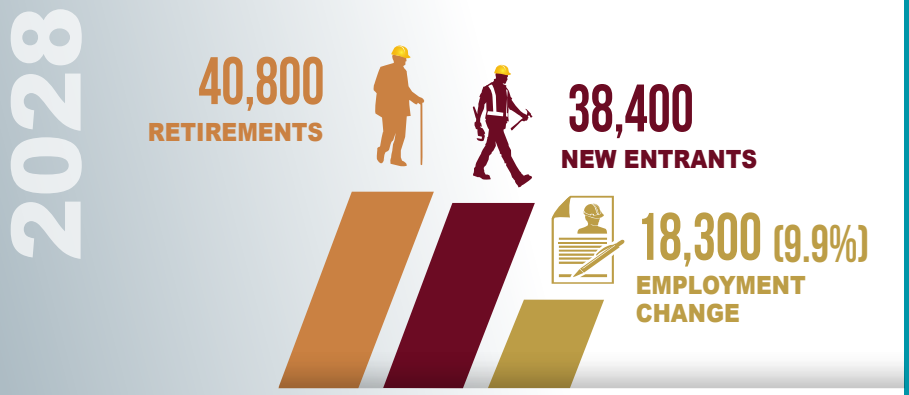
Construction employment rose in 2018 for the first time since 2015, bolstered by continued recovery in new homebuilding and gains in the construction of non-residential ICI (industrial, commercial, institutional) buildings. The 2019–2028 outlook scenario projects overall construction employment will remain stable over the near term, but residential and non-residential markets diverge. Employment requirements related to major manufacturing, transportation infrastructure, and utility projects rise to a peak in 2020, while residential construction activity recedes due to softening economic conditions and lower housing starts. Growth is expected to strengthen after 2021, driven by moderate gains in industrial and commercial building construction, renewed oil sands investment, and a housing up-cycle driven by population growth. Total construction employment is expected to rise by 20,400 jobs (+11%) between 2021 and 2028.

Alberta's construction and maintenance industry will need to hire and retain almost 59,500 workers over the coming decade to meet the demands of moderate growth and the need to replace an estimated 40,800 workers expected to retire. The industry can look to potentially drawing in 38,400 new entrants aged 30 and younger from the local population, but a projected gap of more than 21,100 workers will need to be met from outside the province's construction labour force.

### DISTRIBUTION OF CONSTRUCTION EMPLOYMENT IN 2019, ALBERTA




### 10-YEAR WORKFORCE OUTLOOK FOR ALBERTA




**AVERAGE UNEMPLOYMENT RATE** 8.2%

### HIGHLIGHTS

- Total construction employment was sustained near current levels over the near term, but weaker economic growth limits housing starts, causing residential and non-residential markets to diverge.
- Broader-based growth is anticipated to resume across the second half of the coming decade, adding 20,400 jobs between 2021 and 2028, restoring construction employment to previous peak levels.
- Preparation for the future remains a priority due to the projected need to replace 40,800 retiring skilled workers over the decade.

## BuildForce's LMI System

BuildForce Canada uses a scenario-based forecasting system to assess future construction labour requirements in the heavy industrial, residential, and non-residential construction markets. This labour market information (LMI) system tracks 34 trades and occupations. To further improve the robustness of the system, BuildForce consults with industry stakeholders, including owners, contractors, and labour groups, to validate the scenario assumptions and construction project lists, and seeks input from government on related analysis. The information is then distilled into labour market condition rankings to help industry employers with the management of their respective human resources.

## ALBERTA CONSTRUCTION OUTLOOK

Alberta's construction market continues to grapple with a disruptive transformation to slower growth since the peak of the resource expansion in 2014. Heavy-industrial investment, dominated by major oil sands expansion projects, which accounted for 42% of total construction investment in the province in 2014, has been cut in half, releasing many of the out-of-province skilled workers that were built up over the past decade.

The slight increase in Alberta's construction employment in 2018, mostly attributed to a strong residential recovery in 2017 and the slower pace of decline in non-residential construction, suggests that the floor of a "new normal" in Alberta's construction activity and employment needs has been reached. The 2019–2028 *Construction and Maintenance Looking Forward* outlook projects a period of relative stability as demands related to new manufacturing diversification, utilities transmission, infrastructure (transportation), and pipeline projects sustain employment near current levels. Total employment growth, however, is restricted by an expected downward trend in the construction of new housing over the near term caused by a confluence of factors, including stricter mortgage qualification regulations, rising interest rates, and weaker economic growth.

The longer-term outlook is more positive. Alberta is expected to lead Canada in population growth due largely to the younger population, a by-product of the strong levels of in-migration during the extended resource expansion. Positive natural population growth (births less deaths) and the projected arrival of more than 332,100 immigrants over the next 10 years is expected to sustain long-term growth in employment requirements related to new housing, and institutional and commercial building construction. Labour demand related to non-residential engineering construction is expected to increase across the scenario period, fuelled by diversification projects and an acceleration of growth in manufacturing investment, rising sustaining capital and maintenance work, and new oil sands investment as oil prices and overall economic conditions improve later in the decade. Although Alberta is not expected to require the large numbers of out-of-province workers as it did in the past, the resident Albertan labour force is projected to return to pre-2015 levels with 20,000 new jobs created between 2021 and 2028 – an 11% increase over a seven-year period.

In addition to meeting moderate growth requirements, Alberta's construction industry will need to replace an estimated 40,800 workers expected to retire over the next decade, while transitioning to a more local construction labour force and shifting skills requirements to meet the growing demands of a potentially diversifying economy.

## SECTOR INSIGHTS

The following sections provide sector-specific insights into the provincial oil sands, residential, and non-residential labour markets.

The BuildForce LMI system tracks supply and accounts for the change in the available labour force, including retirements, new entrants[1], and net in-mobility[2].

BuildForce assesses market conditions for 34 construction trades and occupations using a ranking system that combines measures of the change in employment, unemployment, net in-mobility, and adjustments based on industry input. The rankings reflect residential and non-residential market conditions unique to Alberta based on current and proposed construction activity. In addition, assumptions on provincial economic and population growth, new entrants to the labour force, and migration patterns (interprovincial and international) are built into the forecast scenario and included in the ranking assessment.

The rankings for some trades are suppressed due to the small size of the workforce (<100 workers) and limited statistical reliability when assessing labour market conditions at the sector level. Some trades are also excluded because they typically do not work in the sector being assessed (e.g., boilermakers and millwrights in residential construction, and homebuilding and renovation managers in non-residential). For Alberta, rankings are reported for 25 residential and 33 non-residential trades and occupations.

### RESIDENTIAL SECTOR

The strong recovery in residential construction in 2017 extended into 2018, supported by modest growth in renovation work, but employment demands related to new housing declined. Overall demands in the residential sector are projected to continue weakening between 2019 and 2021, before growth resumes later in the scenario period. Housing starts recovered significantly in 2017 – approaching 30,000 units – buoyed by improved economic conditions and the rebuilding effort in Fort McMurray, but stricter mortgage rules, rising interest rates, and falling oil prices should contribute to weaker economic conditions and are expected to lead to further declines in housing starts over the next three years.

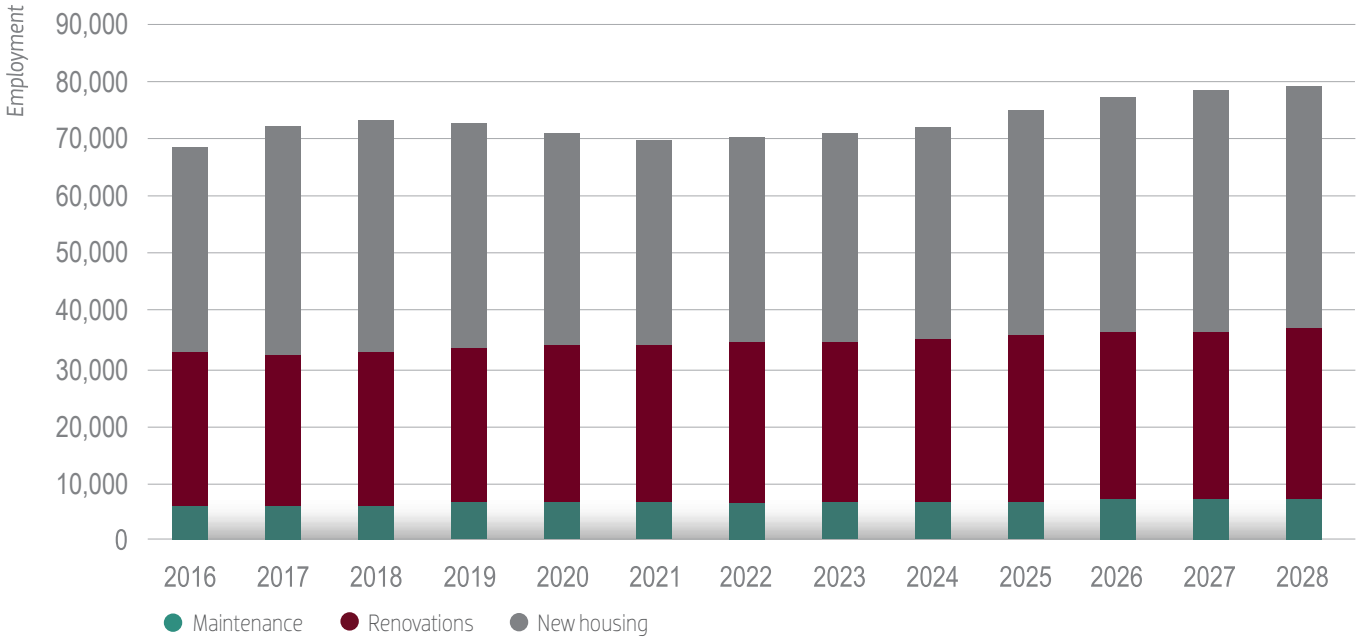
The long-term outlook strengthens considerably with an up-cycle projected to take hold after 2023. Acceleration in population growth, attributed to higher levels of in-migration, is expected to fuel a moderate recovery in new housing in line with rising household formations[3].

[1] **New entrants** are measured by applying the traditional proportion of the provincial labour force that enters the construction industry. The projected estimate across the scenario period assumes the construction industry can recruit this group in competition with other industries.

[2] **In-mobility** refers to the arrival of workers from outside the local construction industry. In-mobility includes the interprovincial employee workforce described above. Many members of this group will move quickly out of the province as work declines, and this out-mobility, even if it is a very short-term change, is a signal of a weak market.

[3] **Household formation** refers to the change in the number of households (persons living under one roof or occupying a separate housing unit) from one year to the next. It is how population growth is transformed into demand for new housing.

## Figure 1: Residential construction employment growth outlook, Alberta




Source: Statistics Canada, BuildForce Canada

Housing starts are expected to recede below 27,000 units by 2021, and then recover to 34,400 units by 2028, but are not projected to surpass the 40,600-unit peak reached in 2014.

Employment related to new housing is expected to decline by 4,600 jobs by 2022. Renewed growth then adds 1,300 jobs at the end of the scenario period in 2028. Rising levels of renovation investment should cushion the industry in the near term and contribute to a net increase of 5,600 jobs (+8%) by 2028 compared to 2018 levels.

Figure 1 shows the employment trends by sector for residential construction.

### THE AVAILABLE LABOUR FORCE

Table 1 provides a summary of the estimated changes in the residential labour force in 2018, the five-year period between 2019 and 2023, and across the full 2019–2028 scenario period.

### RESIDENTIAL RANKINGS, RISKS, AND MOBILITY

Table 2 shows generally balanced residential labour market conditions through 2020 and a moderate strengthening in demands related to new housing and rising renovation activity thereafter.

## Table 1: Changes in the residential labour force, Alberta

| RESIDENTIAL LABOUR FORCE ADJUSTMENT | | 2018 | 5 years 2019–2023 | 10 years 2019–2028 |
|---|---|---|---|---|
| Demand | Labour force change | 1,100 | -2,700 | 5,800 |
| | Retirements | 1,500 | 7,700 | 15,900 |
| Supply | New entrants | 1,300 | 6,500 | 13,600 |
| | Net mobility | 1,200 | -1,500 | 8,100 |

Source: BuildForce Canada

## RESIDENTIAL HIGHLIGHTS

- Housing starts receded in 2018 following a recovery in 2017, buoyed by improved economic conditions and rebuilding in Fort McMurray.
- Housing starts are expected to recede below 27,000 units by 2021, before recovering to 34,400 units by 2028.
- Employment related to new housing is expected to decline by 4,600 jobs by 2022, before increasing again by 1,300 jobs. Renovation work adds to employment opportunities across the scenario period.
- Combined new residential and renovation construction demands should translate into a total employment increase of 5,600 jobs by 2028.

## MARKET RANKINGS

**1** Workers meeting employer qualifications are available in local markets to meet an increase in demand at the current offered rate of compensation and other current working conditions. Excess supply is apparent and there is a risk of losing workers to other markets.

**2** Workers meeting employer qualifications are available in local markets to meet an increase in demand at the current offered rate of compensation and other working conditions.

**3** The availability of workers meeting employer qualifications in the local market may be limited by large projects, plant shutdowns or other short-term increases in demand. Employers may need to compete to attract needed workers. Established patterns of recruiting and mobility are sufficient to meet job requirements.

**4** Workers meeting employer qualifications are generally not available in local markets to meet any increase. Employers will need to compete to attract additional workers. Recruiting and mobility may extend beyond traditional sources and practices.

**5** Needed workers meeting employer qualifications are not available in local markets to meet current demand so that projects or production may be delayed or deferred. There is excess demand, competition is intense and recruiting reaches to remote markets.

## Table 2: Residential market rankings, Alberta

| TRADES AND OCCUPATIONS – RESIDENTIAL | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bricklayers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Carpenters | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Concrete finishers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Construction estimators | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Construction managers | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Contractors and supervisors | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Electricians | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Floor covering installers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Gasfitters | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Glaziers | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Heavy equipment operators (except crane) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Heavy-duty equipment mechanics | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Homebuilding and renovation managers | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 3 | 3 |
| Insulators | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Painters and decorators (except interior decorators) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Plasterers, drywall installers and finishers, and lathers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Plumbers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Refrigeration and air conditioning mechanics | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Residential and commercial installers and servicers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Roofers and shinglers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Sheet metal workers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Tilesetters | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Trades helpers and labourers | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Truck drivers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Welders and related machine operators | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

Source: BuildForce Canada

## OIL SANDS CONSTRUCTION

Uncertainty around oil prices, transportation bottlenecks, and final investment decisions for new capital projects loom heavy for the oil sands sector. The Fort Hills oil sands project marked the end of the large-scale pre-oil-price collapse oil sands projects. The effects from the oil price collapse were significant, as employment declined and the effects were spread across the economy. The biggest impact was initially concentrated on the out-of-province workers, but job losses were also experienced by the Albertan construction labour force, as employment related to oil sands construction declined by 14,600 jobs in 2017 and 2018 with the completion of the Fort Hills project.

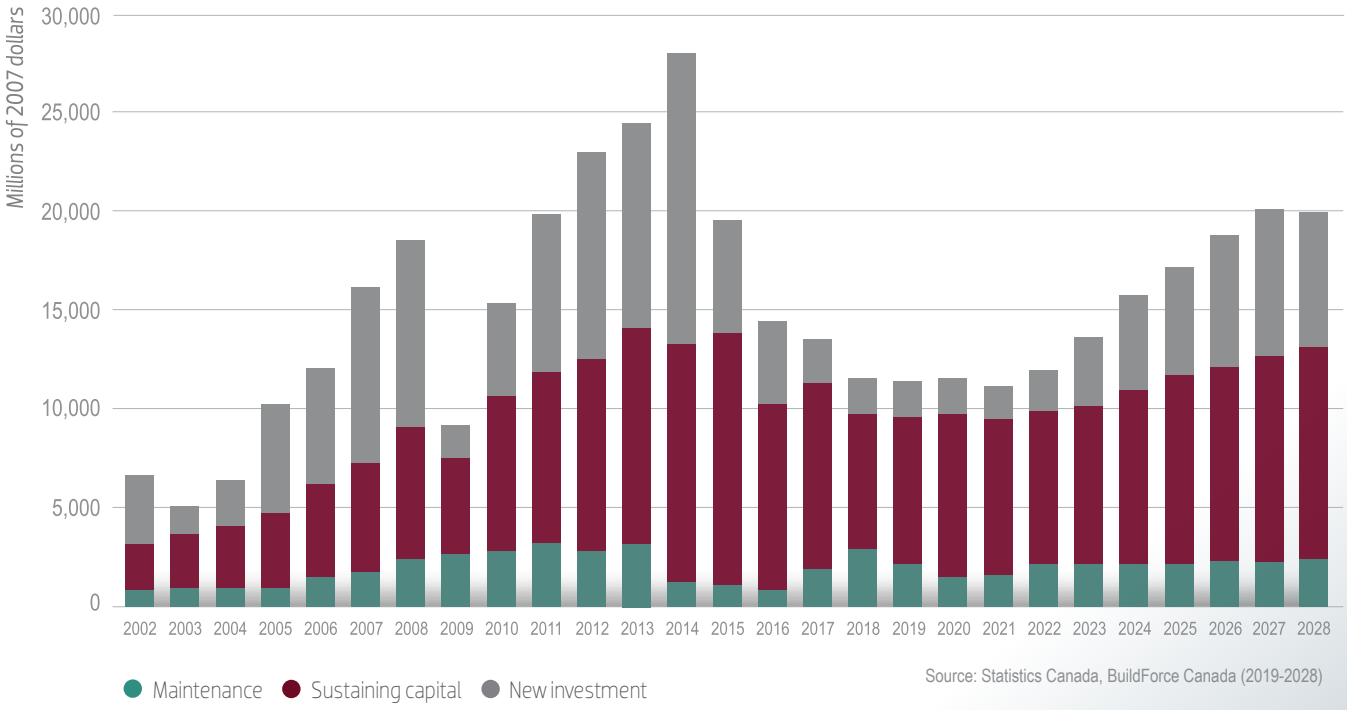
The 2019 outlook scenario anticipates investment declines will level off in 2018 with the end of the Fort Hills project. New capital investment is expected to remain mostly unchanged over the near term to 2022, though maintenance of the current oil sands facilities will generate increased employment as investment transitions to sustaining capital[4]. Maintenance work[5] is expected to account for a higher share of total oil sands activity and employment, accounting for around 85% of total oil sands activity between 2019 and 2022. Figure 2 captures this change in new, maintenance, and sustaining capital investments.

Based on the current outlook, employment in oil-sands-related engineering construction averages just under 20,000 jobs to 2022, before oil prices and transportation are expected to improve and restore confidence with renewed oil sands investment growth over the long term. As new capital investment increases, 7,300 jobs are restored between 2022 and 2028, but employment remains below previous peak demands and potentially less reliant on out-of-province workers.

Unique to the oil sands sector is the volatility of shutdown/turnaround maintenance work, which, depending on the number and types of projects scheduled, can generate significant market challenges, driven by distinct seasonal peak demands within a year for brief periods (weeks/months). Demand requirements typically require workers with industrial experience and often specialized skills within a trade or occupation, including alloy welders, scaffolders, all-terrain crane operators, and other specialized workers.

Shutdown/turnaround labour demands were higher than normal in 2018, which translated into some recruiting challenges as demands ramped up to a spring peak. While there is uncertainty around the timing of the next major wave of shutdown/turnaround work, early signals indicate 2020 or 2021. Meeting peak labour demands for

**Figure 2: Alberta oil sands investment – construction, machinery, and equipment**
(millions of 2007 dollars*)




Source: Statistics Canada, BuildForce Canada (2019-2028)

* $2007 millions indicates that the investment values are in year 2007 dollars (base year), that is, adjusted for inflation. This is used to calculate the real physical year-to-year change of the value of construction, factoring out growth (increased value) due to increases in prices.

[4] **Sustaining capital** refers to the periodic addition (or replacement) of capital that is required to maintain operations at existing levels.

[5] **Maintenance** refers to the process of maintaining equipment, including routine or on-stream work and turnaround/shutdown work, where an operating unit may be temporally taken out of production.

maintenance work requires recruiting from outside the local Alberta labour force, which could produce recruiting challenges, as Alberta will be competing for highly specialized workers in competition with other provinces where scheduled major capital projects will also be peaking around the same time, especially in Ontario and British Columbia.

## NON-RESIDENTIAL SECTOR

Labour force demands in Alberta's non-residential sector are expected to remain near 2018 levels for the first half of the coming decade. A significant number of utility projects (gas, wind, transmission), oil and gas pipelines, an integrated propane dehydrogenation and polypropylene plant project, and further expansion in the commercial sector are projected to sustain employment requirements in 2019. The proposed start of another new integrated propylene and polypropylene production facility, planned transportation infrastructure projects, and additional pipeline projects should keep employment requirements stable to 2022.

Overall non-residential employment is expected to remain flat between 2019 and 2023, as modest gains in employment requirements related to the construction of ICI buildings and overall non-residential maintenance offset continued declines in heavy-industrial engineering construction investment. The pace of growth is expected to strengthen after 2023, driven by increased institutional investment and renewed growth in oil sands investment, as oil prices and overall economic conditions are expected to improve.

Figure 3 tracks the change in non-residential employment by sector for key reference points across the scenario period, including the start in 2019, at the middle in 2023, and then at the end of the period in 2028.

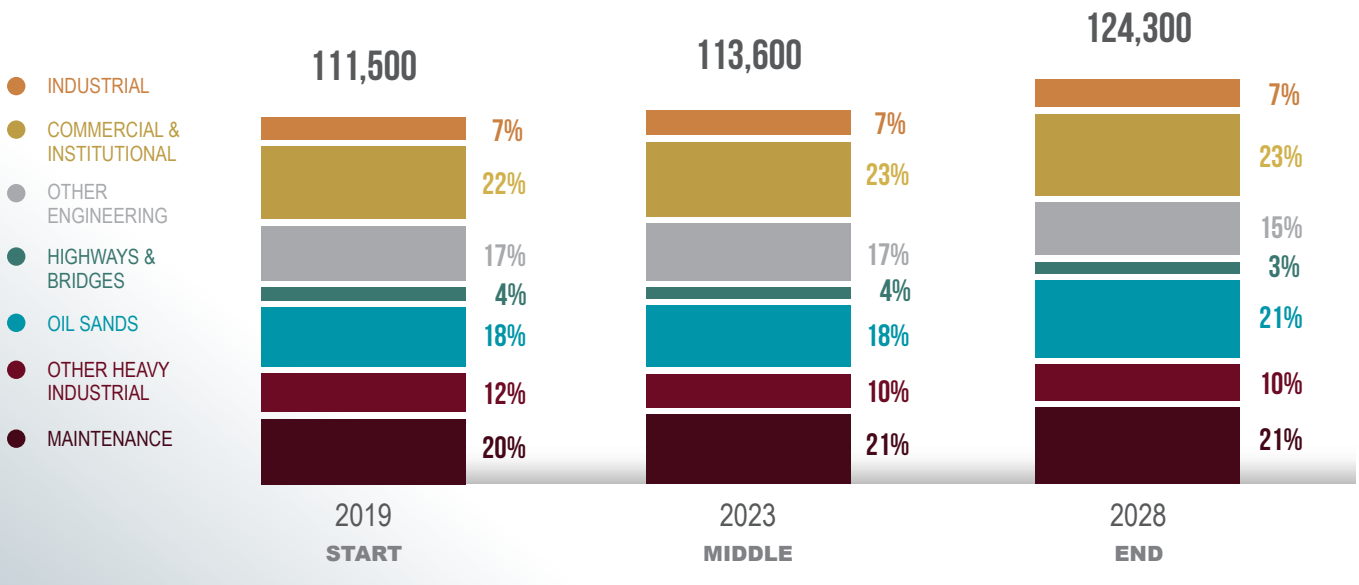
Despite the recent collapse of new investment due to continued uncertainty surrounding oil prices and pipeline capacity, the oil and gas sector is expected to remain a prominent driver of economic growth and overall employment in the province. Over the near term, employment related to oil sands and heavy-industrial engineering construction should continue to recede, but continuing growth in non-residential maintenance work, which includes shutdown/ turnarounds, is expected to rise by close to 1,200 jobs between 2019 and 2021, and by 3,900 over the full 10-year scenario period. Longer-term demands are expected to be driven by a recovery in new oil sands investments after 2023.

Major investments in public transportation and road and highway infrastructure in and around Edmonton and Calgary increase demands between 2019 and 2021, but also extend across the decade. Key projects include major light rail transit, Yellowhead Trail upgrades, and Calgary's Ring Road projects.

The projected strengthening in ICI building construction is driven by expectations of a moderate expansion in manufacturing and increased institutional construction to meet the needs of a growing population, while commercial demands recover after 2020, as office vacancy rates are expected to recede. Employment requirements related to the construction of ICI buildings are projected to rise by 5,200 jobs over the coming decade, or a 16% increase compared to the 2018 starting point. Overall non-residential employment requirements are expected to rise by 12,700 jobs, or 11% over the coming decade, but 10,700 are concentrated after 2023.

Table 3 summarizes the percent change in non-residential employment by sector across two periods: the first captures the anticipated slower growth of the five-year period to 2023, and the

### Figure 3: Non-residential employment distribution by sector, Alberta, 2019, 2023 and 2028




Source: Statistics Canada, BuildForce Canada

second shows the latter part of the scenario period as overall construction and economic conditions improve.

Figure 4 shows the employment trends by sector for non-residential construction.

## THE AVAILABLE LABOUR FORCE

The out-migration from Alberta following the 2015 collapse in oil prices appears to have stemmed, and construction unemployment fell below 8% in 2018 compared to highs above 9% in 2016 and 2017. Based on the latest-available Statistics Canada migration flows data, Alberta experienced positive net interprovincial migration for a third consecutive quarter in the first quarter of 2018. This follows two consecutive years of interprovincial migration losses. Alberta's migratory gains came primarily from Saskatchewan, Manitoba, Nova Scotia, and Newfoundland and Labrador, with gains partially offset by migratory losses to Ontario and Quebec.[6]

A period of stable levels of employment is expected to allow rates of unemployment to continue receding to more normal levels. While the exodus of interprovincial workers is a significant change, there are larger long-term demographic forces at work as well. In particular, retirements account for a large and growing loss from the labour force. Anticipated first-time new entrants aged 30 and younger drawn from the local population into the construction labour force will partly offset expected losses due to retirements; however, attracting young workers during a prolonged period of slower growth poses new industry challenges.

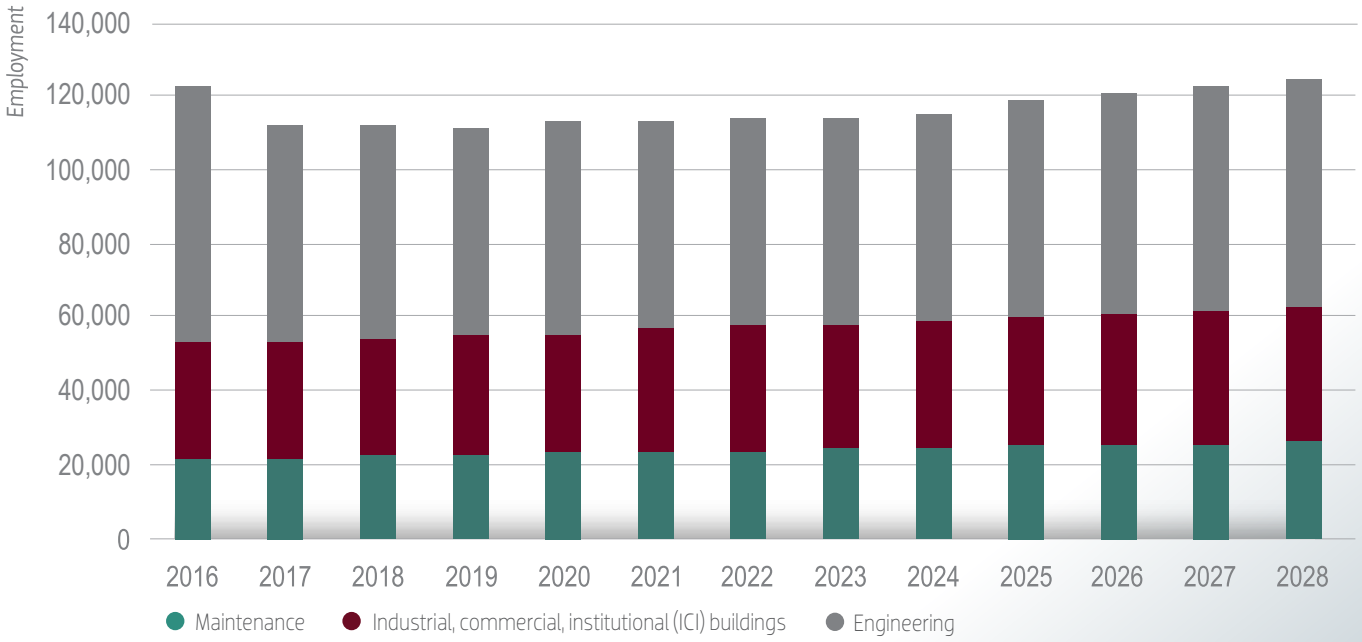
Table 4 provides a summary of changes in the non-residential labour force in 2018, the five-year period between 2019 and 2023, and across the full 10-year scenario period.

### Table 3: Changes in non-residential employment by sector, Alberta

| SECTOR | | % CHANGE 2019–2023 | % CHANGE 2024–2028 |
|---|---|---|---|
| Total non-residential employment | | 0% | 10% |
| ICI buildings | Industrial | 9% | 10% |
| | Commercial, institutional and government | 6% | 9% |
| Engineering | Highways and bridges | -9% | -8% |
| | Oil Sands | -5% | 27% |
| | Other Heavy industrial | -14% | 12% |
| | Other engineering | -1% | -6% |
| Maintenance | | 9% | 8% |

Source: Statistics Canada, BuildForce Canada

### Figure 4: Non-residential construction employment growth outlook, Alberta




Source: Statistics Canada, BuildForce Canada

[6] Quarterly Demographic Estimates, Statistics Canada, https://www150.statcan.gc.ca/n1/pub/91-002-x/91-002-x2018001-eng.htm

## Table 4: Changes in the non-residential labour force, Alberta

| NON-RESIDENTIAL LABOUR FORCE ADJUSTMENT | | 2018 | 5 years 2019–2023 | 10 years 2019–2028 |
|---|---|---|---|---|
| Demand | Labour force change | -2,200 | 2,100 | 12,900 |
| | Retirements | 2,300 | 12,100 | 24,900 |
| Supply | New entrants | 2,400 | 11,900 | 24,800 |
| | Net mobility | -2,300 | 2,300 | 13,000 |

Source: BuildForce Canada

### NON-RESIDENTIAL HIGHLIGHTS

- Total non-residential employment requirements are expected to rise by 12,700 jobs (+11%) over the scenario period, but gains are concentrated after 2023.
- Employment requirements related to the construction of ICI buildings are projected to rise by 5,200 jobs (+16%) over the coming decade.
- Engineering construction employment demands fall by 2,000 jobs to 2023. Between 2024 and 2028, 5,600 jobs are recovered.

## NON-RESIDENTIAL RANKINGS, RISKS, AND MOBILITY

Table 5 shows generally balanced non-residential labour markets across the scenario period. The end of the Fort Hills oil sands project released large numbers of trades and occupations in early 2018, but demand for several trades, including boilermakers, pipefitters, and specialty welders, were elevated for parts of the year due to significant scheduled shutdown and turnaround maintenance work. A wind-down of existing commercial construction activity should slow demands for several trades by 2020, while a number of new industrial building and infrastructure projects raise the demands for others.

Any significant, new large-scale oil sands projects could quickly translate into recruiting challenges, but under the current outlook scenario, increased new oil sands investment is not anticipated until after 2022 to meet anticipated long-term production capacity increases.

## Table 5: Non-residential market rankings, Alberta

| TRADES AND OCCUPATIONS – NON-RESIDENTIAL | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boilermakers | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |
| Bricklayers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Carpenters | 3 | 3 | 4 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |
| Concrete finishers | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| Construction estimators | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Construction managers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 3 |
| Construction millwrights and industrial mechanics | 3 | 2 | 2 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 |
| Contractors and supervisors | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Crane operators | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 3 |
| Drillers and blasters | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Electrical power line and cable workers | 4 | 4 | 4 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Electricians | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Elevator constructors and mechanics | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Floor covering installers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Gasfitters | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Glaziers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Heavy equipment operators (except crane) | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Heavy-duty equipment mechanics | 4 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Industrial instrument technicians and mechanics | 3 | 3 | 3 | 3 | 4 | 2 | 2 | 3 | 3 | 3 | 3 |
| Insulators | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Ironworkers and structural metal fabricators | 3 | 3 | 4 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |
| Painters and decorators (except interior decorators) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Plasterers, drywall installers and finishers, and lathers | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Plumbers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Refrigeration and air conditioning mechanics | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Residential and commercial installers and servicers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Roofers and shinglers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Sheet metal workers | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Steamfitters, pipefitters, and sprinkler system installers | 2 | 3 | 4 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |
| Tilesetters | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Trades helpers and labourers | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Truck drivers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Welders and related machine operators | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

Source: BuildForce Canada

## BUILDING A SUSTAINABLE LABOUR FORCE

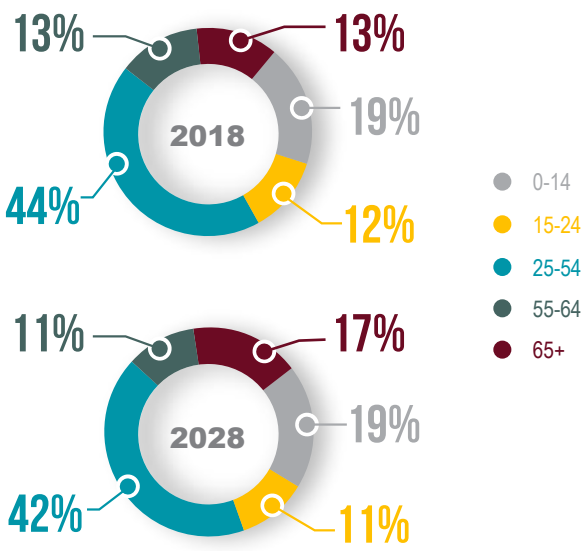
Replenishing a retiring labour force will be a priority for the construction industry across the country over the coming decade. In Alberta, retirements over the next 10 years are estimated at 40,800 workers. This reflects a significant loss of skilled workers, requiring proactive planning to ensure a long-term sustainable labour force exists to meet the future needs of the construction and maintenance industry.

Although Alberta has one of the youngest populations in Canada, it has seen a steady aging over the past decade. These shifts in the province's demographics have the potential to tighten labour markets even during periods of slower growth, as all industries will be competing for talented youth. Over the next 10 years, the share of the population in the older age bracket (65 years and over) is expected to increase, and at the same time, the share of the population at prime working age (25-54 years old) is expected to decline. Additionally, the share of the population that is potentially available to enter the labour force (15-24 years old) is expected to decline. (See Figure 5.)

As a considerable share of the population moves into the older age bracket, the labour force participation rate (percent of the population 15 years and older in the labour force) is expected to fall steadily. Replenishing a retiring labour force may become increasingly difficult, as all industries will be recruiting from a relatively smaller pool of youth.

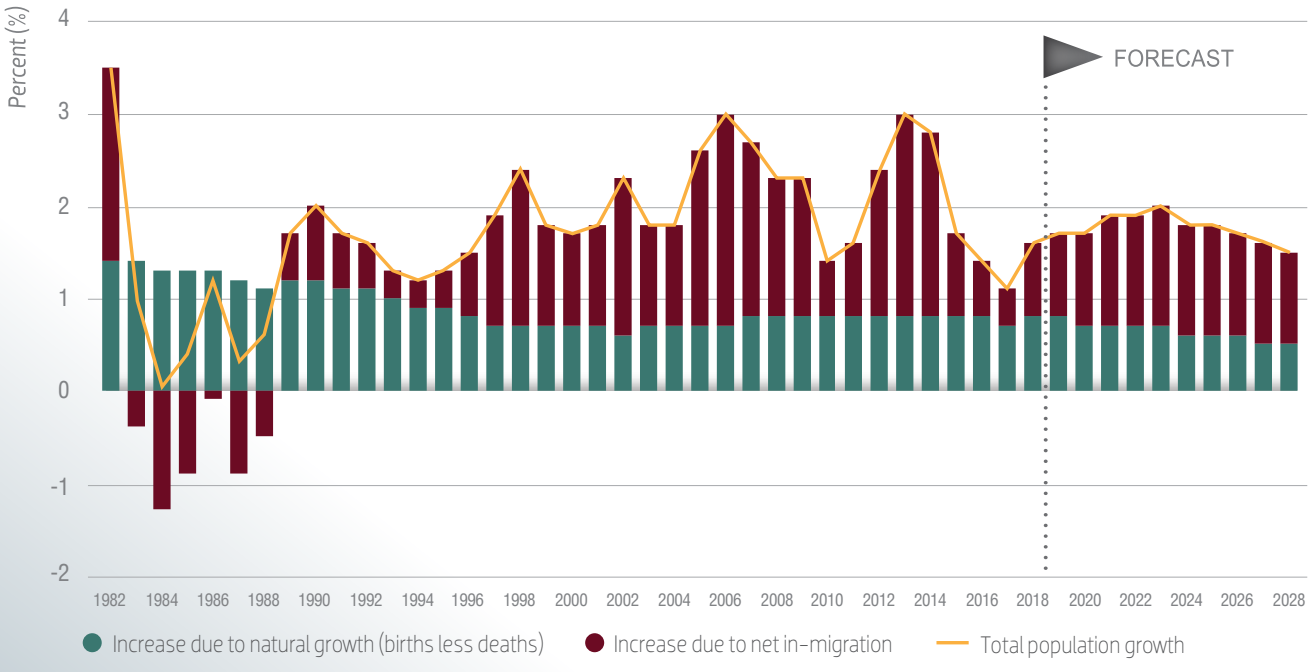
The steady aging of Alberta's population is expected to translate into slower population growth over the coming decade due to receding natural rate of population growth[7]. Moreover, the oil boom of the previous decade that brought in thousands of migrants annually has slowed, and this will limit population growth despite higher levels of immigration. Figure 6 shows the sources of population growth for Alberta.

### Figure 5: Population age distribution, Alberta




Source: BuildForce Canada

### Figure 6: Sources of population growth (%), Alberta




Source: Statistics Canada, BuildForce Canada (2019–2028)

[7] **Natural rate of population growth** refers to the growth in the population due to the number of births exceeding the number of deaths.

Alberta's population growth is expected to recover moderately over the decade, averaging 1.7% annually. The rate of growth, however, is expected to be relatively weaker than the previous decade, limiting labour force growth and forcing industry to search outside of regular recruitment sources.

Based on historical trends, the Alberta construction industry is expected to draw in an estimated 38,400 first-time new entrants aged 30 and younger from the local population over the next decade. Over the same period, the retiring labour force is expected to exceed the number of new entrants coming into construction, driving industry to look to other industries and other provinces for additional new workers to augment the available pool of local new entrants.

## APPRENTICESHIP

More than 77,000 apprentices registered in the 15 largest construction programs in Alberta between 2012 and 2018. Completions totalled 35,000 over the same period. Apprenticeship data from Statistics Canada's Registered Apprenticeship Information System (RAIS) shows annual new registrations have decreased by 37% from 2012 to 2018 – a significant decline compared to construction employment, which decreased by only 1.5% over the same period. New registrations gradually increased until 2014 before a drop of nearly 5,000 new registrations in 2015. Since 2016, new registrations have been gradually increasing, but have not recovered to the level prior to the decline. BuildForce Canada is working to better track apprenticeship training information to provide data on industry trends and training needs to ensure there are sufficient numbers of apprentices and newly certified journeypersons to sustain a skilled workforce over the long term.

## UNDERREPRESENTED GROUPS OF WORKERS

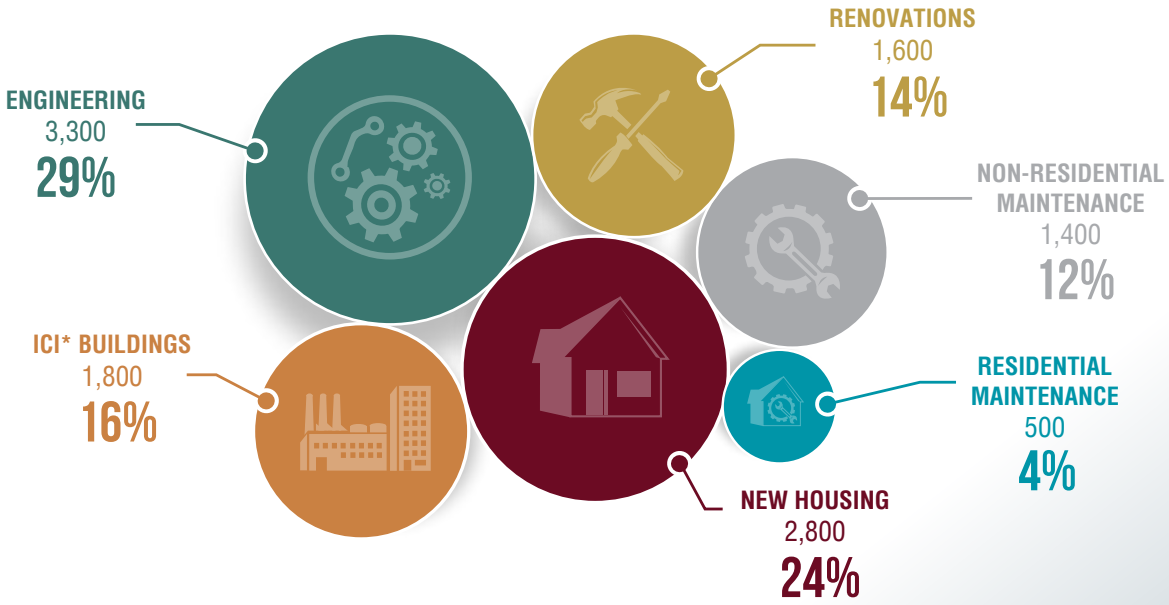
Building a sustainable workforce will require the construction and maintenance industry to increase recruitment from groups traditionally underrepresented in the current construction labour force, including women, Indigenous Canadians, and new Canadians.

In 2018, there were nearly 1.1 million women employed in Alberta, representing 46% of the province's total labour force. The province's healthcare and social assistance, educational services, and retail trade industries are key employers of women, representing nearly half (473,000) of all female employment. The construction industry employed approximately 3.5% of Albertan women.

Alberta's construction labour force is made up of approximately 15% women, of which about 30% work directly on construction projects, while the remaining 70% work primarily in administrative and management-related occupations. This translates into women representing 4.6% of employment in direct trades and occupations.

Given the size of Alberta's engineering construction sector, nearly one in three tradeswomen are employed in the sector. The province's non-residential sector employs 6,500 women, or 57% of all tradeswomen, while the residential sector employs 4,900 women, or 42% as shown in Figure 7.

### Figure 7: Breakdown of female construction employment (2018), Alberta



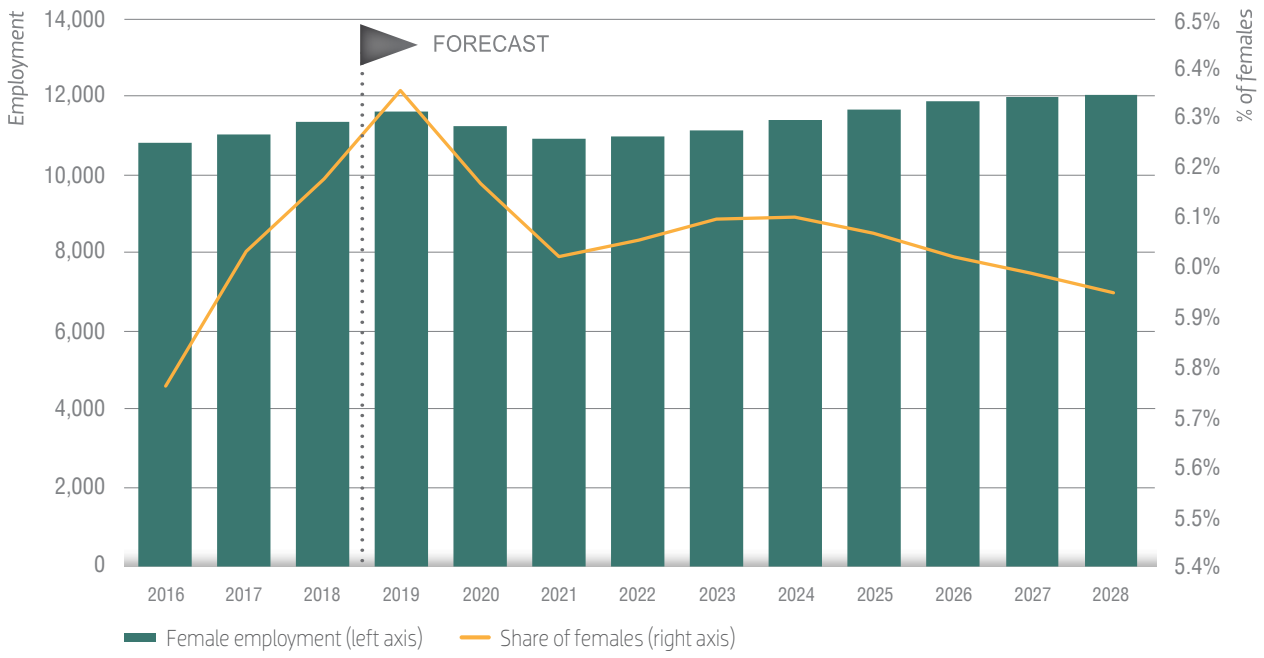

* industrial, commercial, institutional

Source: BuildForce Canada calculations based on Statistics Canada's Labour Force Survey (LFS) and 2016 Census of the Population.

[8] Programs include Sheet Metal Worker, Boilermaker, Ironworker (Generalist), Ironworker (Structural/Ornamental), Welder, Construction Electrician, Powerline Technician, Steamfitter/Pipefitter, Carpenter, Insulator, Industrial Mechanic (Millwright), Refrigeration and Air Conditioning Mechanic, Mobile Crane Operator, Plumber, and Heavy-duty Equipment Technician.

[9] Statistics Canada's apprenticeship data is only available to 2016. BuildForce Canada estimated the 2017 and 2018 values.

## Figure 8: Female construction employment and share of total direct trades and occupations*, Alberta




* **Direct trades and occupations** refers to the 34 trades and occupations tracked by BuildForce Canada, which excludes administrative-type occupations.

Source: BuildForce Canada calculations based on Statistics Canada's Labour Force Survey (LFS) and 2016 Census of the Population.

The sharp declines in oil and commodity prices, which had spin-off effects across residential construction and the overall economy, caused the share of female participation in the construction industry to decline between 2014 and 2016. Since then, stabilizing non-residential activity and a recovery in residential construction has helped to attract more women into the industry.

Weakness in Alberta's construction industry has potentially discouraged women from pursuing careers in construction trades and occupations, as seen by a 50% decline in new female apprenticeship registrations. These dynamics are expected to lead apprenticeship completions lower over the next two or three years, limiting the supply of new women entering the labour force.

Based on historical in- and out-flows of women to the construction industry, female employment is expected to recede between 2020 and 2021, driven by weakening demand for new homebuilding and further declines in the heavy-industrial sector. Steady activity in ICI building construction, a modest recovery in residential, and renewed growth in engineering-related employment is expected to boost total female employment over the longer term. Figure 8 shows the change in female employment and percentage of women in direct construction trades and occupations over the next decade.

### 10-YEAR AVERAGE

**1.8%** POPULATION GROWTH

**60,200** BIRTHS

**30,400** DEATHS

**53,200** NET MIGRATION

### BY 2028

**41** AVERAGE AGE OF CONSTRUCTION WORKFORCE

**20%** PERCENT OF CURRENT LABOUR FORCE LOST TO RETIREMENT

The Indigenous Canadian population is another underrepresented group that presents significant recruitment opportunities for Alberta's construction industry, as 18% of all Indigenous people reside in the province. The Indigenous population is the fastest growing in Canada and has a higher propensity to choose the construction industry as a career choice. In 2016, an estimated 7.6% of non-Indigenous Canadians were employed in the construction industry, compared to 9.6% for the Indigenous population.

Approximately 6.4% of Alberta's construction labour force is made up of Indigenous Canadians, of which about 80% work directly on construction projects, while the remaining 20% work in administrative and management-related occupations.

Building a sustainable labour force may also require Alberta's construction industry to count on new Canadians (immigrants). Between 2019 and 2028, the province is expected to welcome 332,100 newcomers, making the immigrant population a key driver of labour force growth.

Alberta's construction labour force is made up of approximately 17% new Canadians. Historically, a key source of immigrants to the province were Europeans, who tend to have a higher affinity to the construction industry. The new wave of immigration primarily includes workers from Asia (Philippines, India, and China), whose citizens may have a lower inclination toward construction trades and occupations.

## CONCLUSIONS AND IMPLICATIONS

The transition to a "new normal" continues in Alberta, and employment has stabilized. Unemployment rates are falling and the out-flow of workers from the province has been stemmed. However, uncertainty around oil prices, transportation bottlenecks, and economic conditions cast a shadow over the near-term outlook. A period of relatively stable employment, concealing continued shifts between market segments, should be followed by stronger growth ahead – eventually. The challenge for industry is to adapt to shifting demands while continuing to recruit and train new workers to meet long-term requirements, which includes replacing retiring workers.

Hiring and attracting new entrants following a period of decline may pose challenges, but failing to do so could result in a loss of training capacity and skew the demographic age profile of the future labour force, resulting in potential skills gaps between older and younger workers.

The industry scenario-based approach developed by BuildForce Canada to assess future labour market conditions provides a powerful planning tool for industry, government, and other stakeholders to better track labour market conditions and identify potential pressure points. The anticipated labour market conditions reflect the current long-term oil price outlook and industry capital investment assumptions.




Funded by the Government of Canada's Sectoral Initiatives Program

The opinions and interpretations in this publication are those of the author and do not necessarily reflect those of the Government of Canada

Canada