2022 REPORT

ECONOMIC IMPACTS OF THE CONSTRUCTION INDUSTRY ON THE STATE OF COLORADO

Sponsored by grants from the:

NECA Rocky Mountain Chapter

RMMCA Rocky Mountain Mechanical Contractors Association

SMACNA

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GREETINGS

January 2022

On behalf of the Rocky Mountain Chapter of the National Electrical Contractors Association (NECA), the Rocky Mountain Mechanical Contractors Association (RMMCA) and the Sheet Metal and Air Conditioning Contractors National Association, Colorado Chapter (SMACNA), collectively referred to as the MEP (Mechanical Electrical and Plumbing) Alliance, we are pleased to present the **2022 Report of the Economic Impacts of the Construction Industry on the State of Colorado.**

As in years past, this report provides an analysis of the construction industry and its impacts to the state's economy by examining economic indicators as well as the size of the industry, number of jobs, wages, and employment opportunities. The key takeaways from this year's report show that despite unprecedented economic challenges in 2020 because of the COVID-19 pandemic, the construction sector has remained strong – and our opportunities are expected to grow well into the future.

As you will see from the report, Colorado's construction industry, or sector, contributed $23.5 billion to the state's GDP in 2020. For every $1 billion added to Colorado's construction sector in 2020, the state saw a return of $2.2 billion in total output across all the industries; household earnings across all industries amounted to $802 million, and the construction sector supported over 14,800 jobs. ***In other words, support for construction spending is an excellent investment choice that benefits all of Colorado.***

While the report speaks to the industry's economic impact today, it also provides a snapshot of future trends – and those are likewise positive. According to the analysis, in the next decade, Colorado's construction industry employment is projected to grow by 26% and specialty trade contractor employment is expected to grow by 28%. This represents a future employment opportunity and one that we are prepared to embrace as we continue to make recruitment one of our top priorities.

As the MEP Alliance, we are always working to identify strategies to prepare for workforce demands and identify talent to match job growth. As this report highlights, meeting that demand is critical to the future of our industry and our state's economic vitality. ***This year we took that goal to a new level and, along with our partners in labor, launched the Western States College of Construction (WSCC).***

WSCC is the first of its kind in the nation: a professional degree program that provides students with the skills and certification to work in the skilled trades. Students graduate debt free and learn on the job while earning a salary. WSCC will set our industry on a path toward continued labor readiness to meet the industry demands that are projected in the near future. To learn more about WSCC, visit www.westernstatescollege.org.

We invite you to learn more about the positive impacts that result from investment in construction in Colorado by reviewing the findings in this report. Once you do, you will understand why we are so proud of the work that we do to contribute to Colorado's economic success as we continue to build the skylines and communities across this state and why we are looking forward to an even more exciting future.

Sincerely,

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EXECUTIVE SUMMARY

This report introduces the economic impact of the construction sector in Colorado with a focus on the sector in 2020, trends between 2011-2020, and changes from 2019-2020. While there were many economic challenges from 2019-2020, especially considering the COVID-19 pandemic, many promising trends were exhibited in the construction sector. A number of important analyses are included in this report: economic indicators, establishments, employee demographics, employee wages, future employment projections, and educational opportunities in the state. Here is a summary of key takeaways:

According to economic multipliers that include household spending, every $1 billion dollars added to Colorado's construction sector produces:

$2.2 Billion
in total output in all industries

$802 Million
in household earnings in all industries

$1.2 Billion
of added value across all industries

14,841 Jobs
in all industries

In 2020, Colorado's construction sector had:

$23.5 Billion contribution to the state GDP

This ranks 8th among all 20 economic sectors in Colorado, increasing from 3.6% of state GDP in 2011 to 6.2% in 2020.

$68,209 average annual wage

Among Colorado's 20 economic sectors, construction ranks 10th in terms of average annual wages, 5th in number of employees, 4th in sector payroll, and 2nd in number of establishments.

21,025 private construction establishments

53% of private construction establishments are in the specialty trade subsector, and 25% of all private construction establishments are in the building equipment (MEP) contractor industry, more than any other construction industry group.

92% establishments with less than 20 employees

The vast majority of construction establishments are small businesses, with 69% of all construction establishments having fewer than 5 employees.

174,730 employees

30% of all construction employees are building equipment, also known as mechanical, electrical, and plumbing (MEP), contractors, more than twice the number of employees in any other construction industry.

33% Hispanic, Black, Asian, Indigenous, or multiracial employees

Within any race or ethnicity, 27% of Colorado's construction employees are Hispanic, and an additional 6% are non-Hispanic and Black, Asian, Indigenous, or multiracial.

26% employment growth expected by 2030

Colorado's Department of Labor and Employment projects 2.3% growth per year for the construction sector overall, and ten-year total employment growth of 28% for the specialty trades subsector, 23% for the building construction subsector, and 22% for the heavy and civil engineering subsector.

36 institutions statewide offering construction degrees, certificates, and training

Educational institutions across the state offer degrees and certificates in construction trades and construction-related fields, supporting the growth, workforce replenishment, and entrepreneurship in construction and related sectors.

EXECUTIVE SUMMARY (CONT'D)

From 2019-2020, Colorado's construction sector had:

1% growth in GDP

Construction is one of only 10 sectors in Colorado that had a positive growth in GDP from 2019-2020. Across all industries, Colorado's GDP fell by $9.6 billion from 2019-2020.

3% growth in number of establishments

Each of the construction sectors' three subsectors saw an increase in number of establishments from 2019-2020, led by 412 new specialty trade establishments.

4,150 construction jobs lost

Comparing 2020 to 2019, Colorado's construction sector had 2% fewer employees in 2020, but all of Colorado's industries had 5% fewer employees in total.

4.5% increase in unemployment percentage

Across all industries, unemployment in Colorado rose to 7% in 2020 from below 3% in 2019. This is below the nationwide unemployment percentage in 2020 of 8%, and unemployment in Colorado and nationally is decreasing in 2021.

1% increase in employment for women in the construction sector

The number of women in Colorado's construction sector increased despite an overall decrease in employment 2019-2020, including a 2% decrease in employment for men.

2% increase in employment for Asian employees in construction

Construction had fewer employees of all other races or ethnicities in 2020 than 2019. Construction had a smaller percentage decrease in employment for most racial or ethnic groups than the total for all Colorado industries.

INTRODUCTION

Colorado's construction sector touches each Colorado resident, through new construction of buildings, roads, bridges, and the mechanical, electrical, plumbing, and HVAC systems that are used every day.

This report describes the economic impacts of the construction sector, with a particular emphasis on the building equipment contractor industry group, also referred to as the mechanical, electrical, and plumbing (MEP) industry. This industry group includes the largest percentage of construction employees and construction establishments in Colorado. See Figure 1 for a graphical depiction of the construction sector, subsectors, and industry groups.

Data in this report is the most recently available annual data, which in most cases includes data through the end of 2020. Where possible, emphasis is on observed changes from 2019-2020 that may be direct or indirect results of the global COVID-19 pandemic.

This report introduces the economic impact of Colorado's construction sector in the state along four dimensions:

• Section 1 quantifies the overall economic impacts of the construction sector. This includes measures of gross domestic product, economic multiplier effects, and retail sales.

• Section 2 describes the construction sector's establishments, including the number size, and types of establishments.

• Section 3 introduces construction employment and wages, including a descriptive summary of the number of employees, employee demographics, and the wages those employees receive. Also included is a summary of union membership and differences between private and public industry wages.

• Section 4 includes future projections and educational opportunities for construction, which includes a list of the education programs in Colorado that offer construction and construction-related degrees and apprenticeships.

To contextualize the construction sector, statistics and trends are compared to a selection of six of Colorado's 20 economic sectors as defined by the North American Industry Classification System (NAICS). These six sectors which represent the breadth of industries in Colorado. Throughout this report, these sectors together are referred to as comparison sectors:

• Manufacturing

• Retail trade

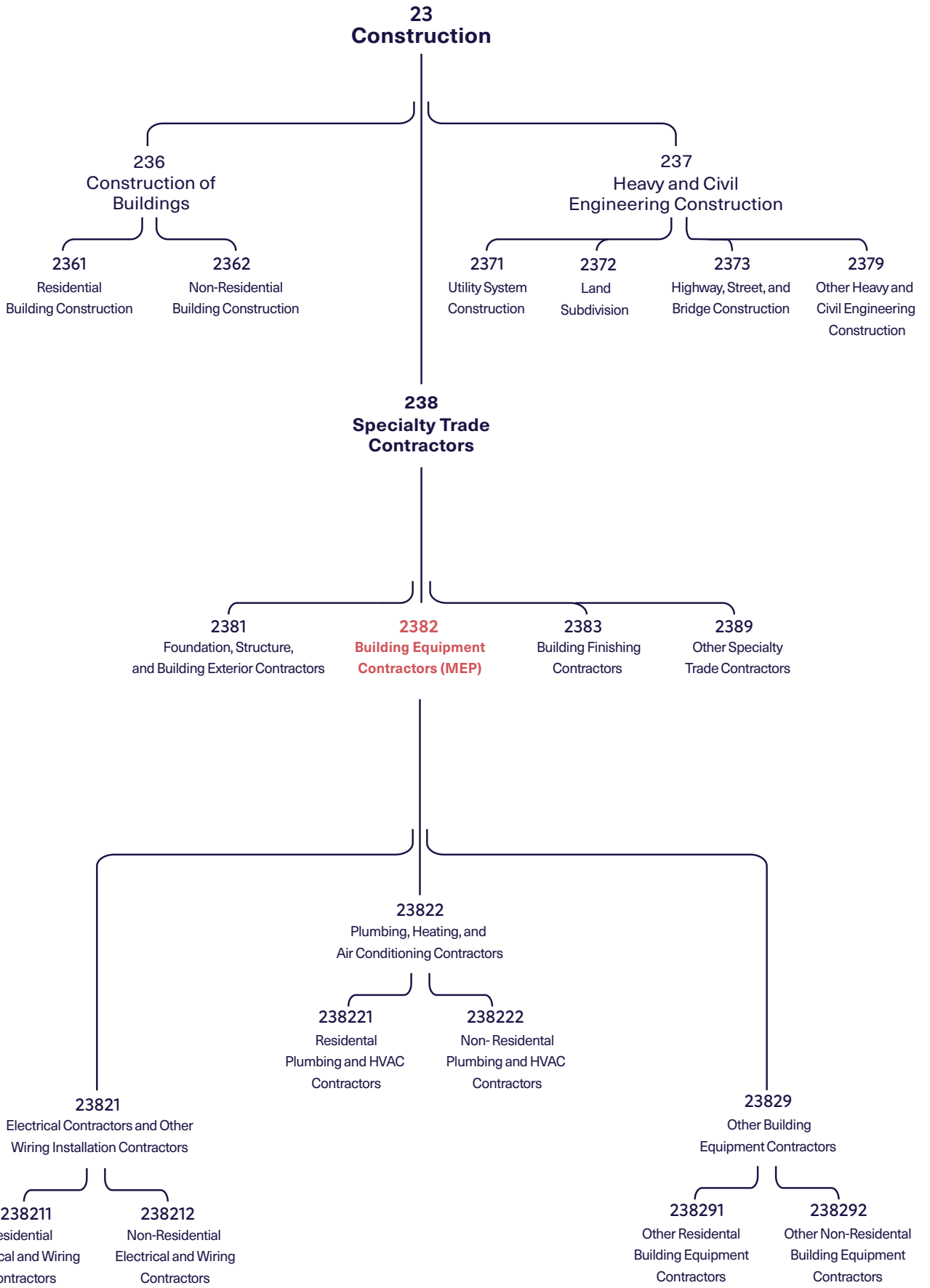
• Finance and insurance

• Real estate, rental, and leasing

• Professional, scientific, and technical services

• Health care and social assistance

Figure 1: Diagram of construction sector organization by 2017 NAICS (North American Industry Classification System) codes, with added detail within the building equipment contractors (MEP) industry group.



SECTION #1
ECONOMIC INDICATORS

Data to quantify the economic impact of the construction sector in Colorado are presented in this section, including contribution to state GDP, economic multiplier effects, and construction-related retail sales data. The most recently available data is used, most of which is only available for the construction sector overall.

The construction sector contributed $23.5 billion to Colorado's GDP in 2020, a 1% positive growth from 2019-2020 and only one of ten sectors with positive growth during 2019-2020. Among Colorado's 20 economic sectors, construction has seen the largest growth in terms of percent contribution to state GDP over the last decade (+2%) and ranks first in terms of average per-year GDP growth 2015-2020 (7%).

Economic multipliers that include household spending indicate that every $1 billion added to the construction sector delivers $2.2 billion in output, $802 million in earnings, 14,841 jobs, and $1.2 billion of added value across all industries.

DATA COLLECTION AND ANALYSIS METHODOLOGY

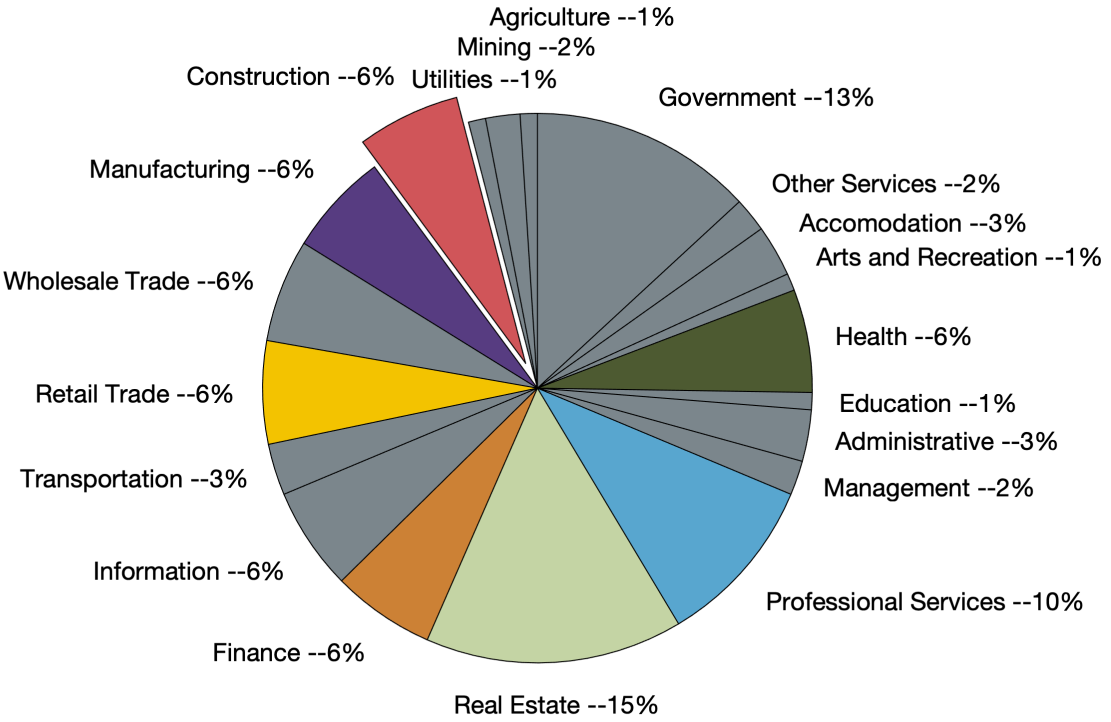
- Sector contribution to state GDP data were collected from the U.S. Bureau of Economic Analysis, Regional Product Division, Gross Domestic Product by State reports for years 2011-2020.
- Economic multipliers were calculated by the Bureau of Economic Analysis, Regional Product Division, Regional Input/Output Modeling System (RIMS II). Data in this report are based on 2012 Input/Output benchmark data and 2019 regional data for Colorado, released in 2021.
- Data on new housing construction permits were obtained from the U.S. Census, Building Permit Survey for 2019-2020.
- Retail Sales data for construction were sourced from the Colorado Department of Revenue Office of Research and Analysis, Retail Sales Reports. Data for construction-related industry were prepared by the Colorado Department of Revenue's Office of Research and Analysis. Retail sales data are sourced from state sales tax returns, and is subject to change.
- Data were retrieved in November-December, 2021.

CONTRIBUTION OF CONSTRUCTION TO STATE GDP

Construction contributed $23.5 billion to Colorado's GDP (6%) in 2020, ranking 8th among Colorado's 20 economic sectors.

The percent contribution by sector to state GDP in 2020 is shown in Figure 2. Sectors with a larger or equivalent percentage contribution to state GDP were real estate, rental, and leasing (15%); government and government enterprises (13%); professional, scientific, and technical services (10%); manufacturing (7%); information (6%); finance and insurance (6%); and health care and social assistance (6%).

Figure 2: Percentage contribution to Colorado GDP by sector in 2020, with selected comparison sectors highlighted. Sectors are ordered by 2017 NAICS code. Source: U.S. Bureau of Economic Analysis, Regional Product Division, Gross Domestic Product by State.



- Agriculture, forestry, fishing and hunting --1%
- Mining, quarrying, and oil and gas extraction --2%
- Utilities --1%
- Construction --6%
- Manufacturing --6%
- Wholesale trade --6%
- Retail trade --6%
- Transportation and warehousing --3%
- Information --6%
- Finance and insurance --6%
- Real estate and rental and leasing --15%
- Professional, scientific, and technical services --10%
- Management of companies and enterprises --2%
- Administrative and support and waste management and remediation services --3%
- Educational services --1%
- Health care and social assistance --6%
- Arts, entertainment, and recreation --1%
- Accommodation and food services --3%
- Other services (except government and government enterprises) --2%
- Government and government enterprises --13%

CONTRIBUTION OF CONSTRUCTION TO STATE GDP

Construction is a strong sector in Colorado with steady growth over the last decade. Construction's contribution to state GDP has increased significantly since 2011, and has increased each year between 2011 and 2020 in both GDP and the percent of Colorado's total GDP. The trend of percent contribution to state GDP for selected comparison sectors is shown in Figure 3.

Construction's percentage contribution to state GDP increased more than any other sector between 2011 and 2020, rising from 4% to 6%. This increase is more than double the next greatest increase, in finance and insurance, which rose from 5% to 6%. The sector with largest negative change in percent contribution to state GDP is mining, quarrying, and oil and gas extraction: 5% of state GDP in 2011 and 2% of state GDP in 2020. Of Colorado's 20 economic sectors, eight have a larger percent contribution to state GDP in 2020 than in 2011, eight sectors have a smaller percent of state GDP in 2020 than in 2011, and four sectors have an equal percent contribution in 2020 compared to 2011.

Construction ranks first out of all 20 economic sectors in Colorado in terms of average year-over-year GDP growth in the five years from 2015-2020 (7%). Construction ranks eighth across all 20 economic sectors and fourth among comparison sectors in terms of 2019-2020 year-over-year growth (1%). Figure 4 shows average year-over-year growth in contribution to state GDP, both over a five-year period 2015-2020 and a single year 2019-2020. Among comparison sectors, three had a higher growth from 2019-2020: finance and insurance (13%), retail trade (6%), and real estate and rental and leasing (1%). The remaining comparison sectors showed a negative growth from 2019-2020.

Figure 3: Percentage contribution to Colorado GDP 2011-2020 for selected comparison sectors. Source: U.S. Bureau of Economic Analysis, Regional Product Division, Gross Domestic Product by State.

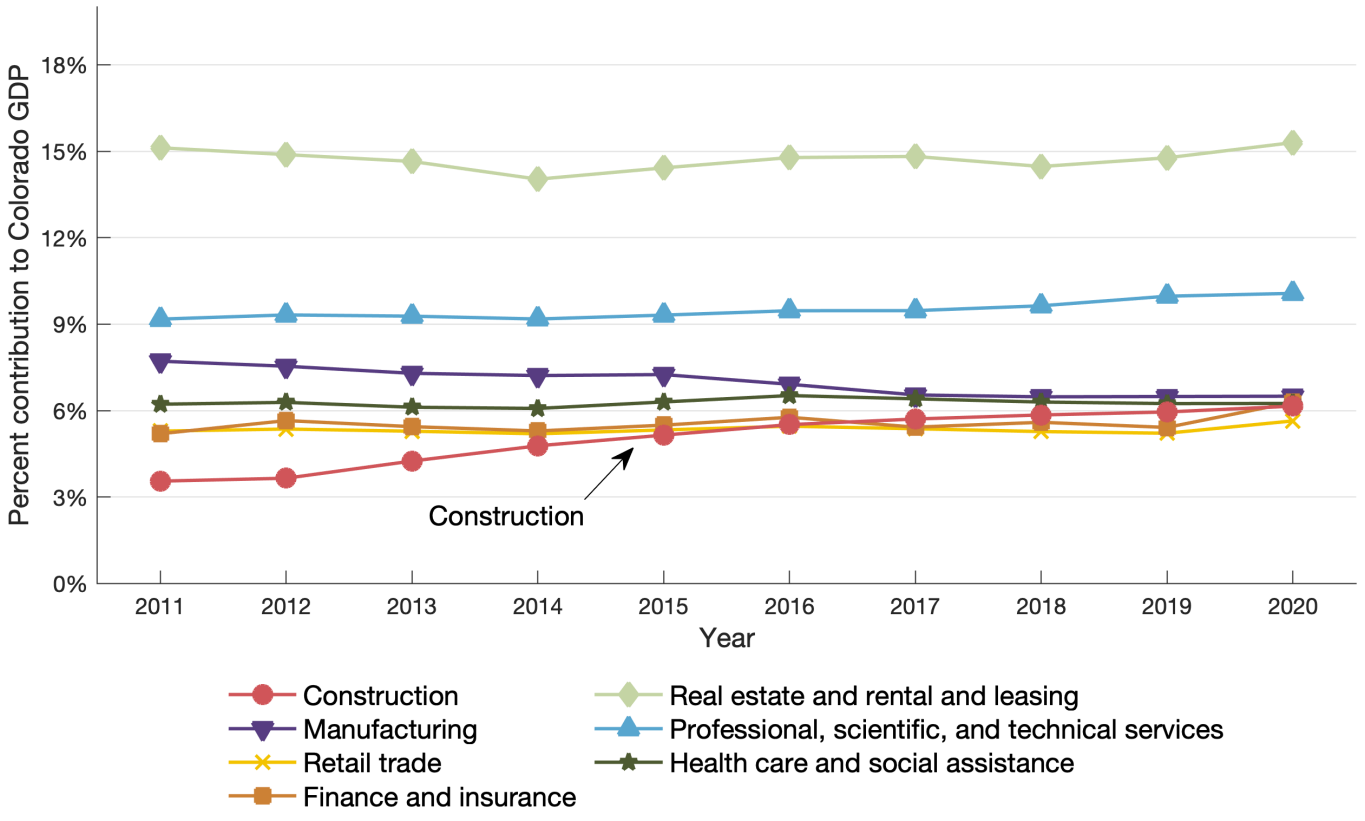
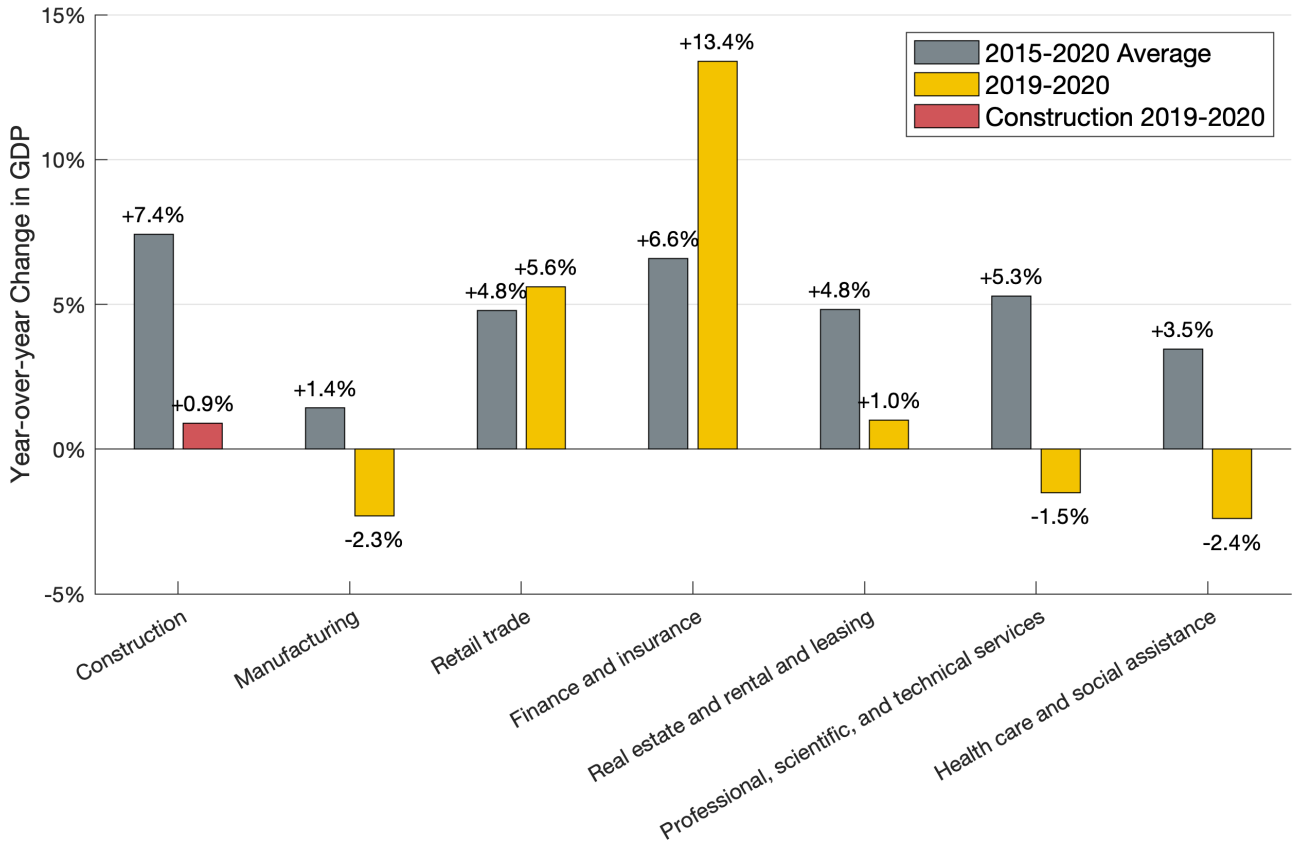


Figure 4: Growth rates for selected comparison sectors based on year-over-year GDP, comparing average year-over-year GDP growth 2015-2020 (grey) and year-over-year change from 2019-2020. Construction is highlighted in red. Source: U.S. Bureau of Economic Analysis, Regional Product Division, Gross Domestic Product by State.



ECONOMIC MULTIPLIER EFFECTS OF CONSTRUCTION

Demand multipliers allow estimation of the effects of economic investment in an industry on other areas of the economy. The final demand multipliers referenced in this report are RIMS (Regional Input/Output Modeling System) Type II multipliers, calculated by the Bureau of Economic Analysis using 2012 Input/Output benchmark data and 2019 regional data for Colorado, released in spring 2021. Type II multipliers account for inter-industry effects and household spending. While in general, household spending assumptions in the model are not necessarily realistic given the context of the COVID-19 pandemic, Type II multipliers are reported here due to the positive growth in construction of new residences in Colorado – 5% growth in building permits for housing 2019-2020 – which suggests household spending such as on a new home is relevant. The multipliers do not account for impacts of state and local government.

According to RIMS II Type II multipliers from 2019, every $1 billion dollars added to Colorado's construction sector produces $2.2 billion in output, $802 million in household earnings, 14,841 jobs, and $1.2 billion of added value across all of Colorado's industries.

RIMS multipliers are calculated for 63 industry groups and sectors that correspond to the 20 economic sectors in the NAICS classification. The construction sector and six comparison sectors referenced earlier correspond to 35 of these industry groups and sectors, including construction, 19 manufacturing industries, 4 retail trade industries, 4 finance and insurance industries, 2 real estate and rental and leasing industries, professional, scientific, and technical services, and 4 health care and social assistance industries.

According to the type II multipliers, in terms of output, construction's $2.2 billion output for a $1 billion investment ranks 9th out of the 63 industry areas in Colorado, and 7th out of 35 comparison industry areas. Industries that rank higher for an equivalent economic stimulus are funds, trusts, and other financial vehicles ($3.0 billion); food and beverage and tobacco product manufacturing ($2.4 billion); securities, commodity contracts, and other financial investments and related activities ($2.4 billion); farms ($2.3 billion); nursing and residential care facilities ($2.3 billion); pipeline transportation ($2.2 billion); hospitals ($2.2 billion); and social assistance ($2.2 billion).

Among the 35 comparison industries that correspond to construction and the 6 comparison sectors, construction ranks 7th in terms of household earnings, 10th in terms of employment, and 12th in terms of value added.

CONSTRUCTION-RELATED RETAIL SALES DATA

In 2020, construction and construction-related retail sales in Colorado totaled $20.4 billion. Of this total, $6.1 billion is from the construction sector, and $14.3 billion from construction-related industries in mining, manufacturing, wholesale trade, retail trade, real estate and rental and leasing, and professional, scientific, and technical services.

In 2020, building equipment (MEP) retail sales totaled $1.8 billion, an increase of 7% from 2019. This increase outpaces the construction sector overall which saw no increase in retail sales 2019-2020.

Of the 2020 retail sales total for building equipment (MEP) contractors, 32% ($606 million) is electrical and other wiring contractor retail sales, 56% ($1.0 billion) is plumbing, heating, and air conditioning contractor retail sales, and 10% ($192 million) is other building equipment contractor retail sales. The two primary industries within the building equipment contractor (MEP) industry group saw an increase in retail sales from 2019-2020: electrical and other wiring contractor retail sales increased 11%, and plumbing, heating, and air conditioning contractors retail sales increased 7%. Retail sales for other building equipment contractors decreased 5% from 2019-2020.

Over the years 2017-2020, building equipment contractor (MEP) retail sales averaged 29% of all construction retail sales, and 9% of all construction and construction-related retail sales.

Table 1: Colorado retail sales, in millions of dollars, for building equipment (MEP) contractors, construction, and construction-related industry, 2017-2020. The percent change from previous year is listed in parentheses. Source: Colorado Department of Revenue Office of Research and Analysis, Retail Sales Reports.

INDUSTRY (NAICS CODES[1])	2017	2018	2019	2020
Electrical and Other Wiring Contractors (23821)	$553 (13%)	$557 (1%)	$544 (-2%)	$606 (11%)
Plumbing, Refrigeration, and HVAC Contractors (23822)	$871 (2%)	$939 (8%)	$960 (2%)	$1,024 (7%)
Other Building Equipment Contractors (23829)	$162 (4%)	$176 (9%)	$203 (15%)	$192 (-5%)
Building Equipment Contractors (2382)	**$1,586 (6%)**	**$1,672 (5%)**	**$1,707 (2%)**	**$1,821 (7%)**
Construction	$5,134 (8%)	$5,758 (12%)	$6,124 (6%)	$6,149 (0%)
Construction Related Industry	$11,142 (8%)	$12,357 (11%)	$12,346 (0%)	$14,276 (16%)
Construction and Construction Related Industry[2]	**$16,276 (8%)**	**$18,115 (11%)**	**$18,469 (2%)**	**$20,424 (11%)**

Notes:

[1] The North American Industry Classification System (NAICS) industry categories are reported to the Department of Revenue by the taxpayer, and they are not generally audited.

[2] Construction Related Industry Retail Sales Defined by the following NAICS codes:
212321, 327120, 327310, 327320, 327331, 327332, 327390, 327410, 327420, 327999, 423310, 423320, 423330, 423390, 423710, 423720, 423730, 423740, 444110, 444130, 444190, 532412, 541310, 541320, 541330, 541340, 541360, 541370

SECTION #2
COLORADO CONSTRUCTION ESTABLISHMENTS

As of 2020, there were 847,018 private construction establishments in the United States, and Colorado's 21,025 construction establishments are 3% of that total. This section includes information about Colorado's construction establishments, including the number of establishments and size of establishment by number of employees.

In Colorado, the majority (53%) of private construction establishments in the specialty trade subsector, 27% are building construction establishments, and 5% are heavy and civil engineering establishments. A quarter (25%) of all private construction establishments are building equipment (MEP) establishments.

DATA COLLECTION AND ANALYSIS METHODOLOGY

- Data on the number of establishments within Colorado industries were obtained from the U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, and are presented as annual averages.
- Data on the number of establishments by number of employees were obtained from the U.S. Census Bureau, 2019 County Business Patterns report.
- All data were retrieved in November-December 2021.

NUMBER OF ESTABLISHMENTS

The number of construction establishments in Colorado has been increasing each year since a low in 2013 (16,667 establishments) at an average rate of 3% per year reaching a total of 21,025 establishments in 2020.

The percentage of establishments in each construction industry group are shown in Figure 5. Specialty trade contractor establishments (red shades on right side of chart) are the majority of establishments, at 14,224 or 53% of all construction establishments. By construction industry group, the largest share of establishments are the 5,156 building equipment (MEP) contractor establishments (25% of all establishments), followed by residential building construction (4,591 establishments, 22% of all establishments), building finishing contractors (3,819 establishments, 18% of all establishments), and building foundation and exterior contractors (3,155 establishments, 15% of all establishments).

Within the building equipment (MEP) industry group, shown in Figure 6, there has consistently been a larger share of plumbing and HVAC contractor establishments than electrical and wiring contractor establishments. Year-over-year growth rates 2019-2020 show growth in both areas: Electrical and wiring establishments grew 4% 2019-2020 while plumbing and HVAC establishments grew 3%. For both areas, this growth rate equals or outpaces the 3% growth in establishments in the construction sector overall 2019-2020.

The number of construction establishments (21,025 in 2020) ranks second among Colorado's private sector employment, and represents 10% of all private establishments. The largest number of establishments in 2020 is the 41,651 establishments in the professional, scientific, and technical services sector. Historical trends for the number of establishments in the construction sector and comparison sectors are shown in Figure 7.

Figure 5: Percentage of establishments in each of Colorado's construction industry group, 2020. Industry groups are ordered by NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

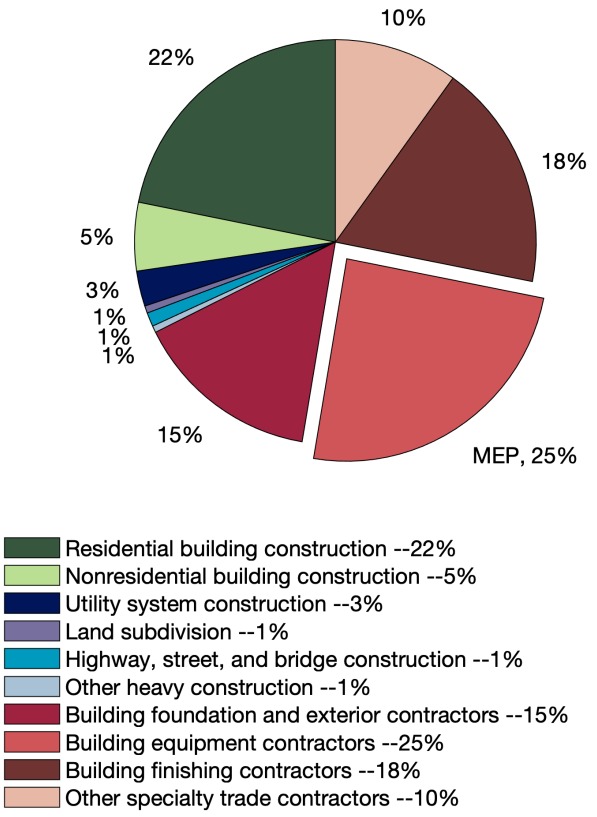


Figure 6: Number of establishments 2011-2020 for building equipment (MEP), electrical and other wiring, and plumbing and HVAC contractors. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

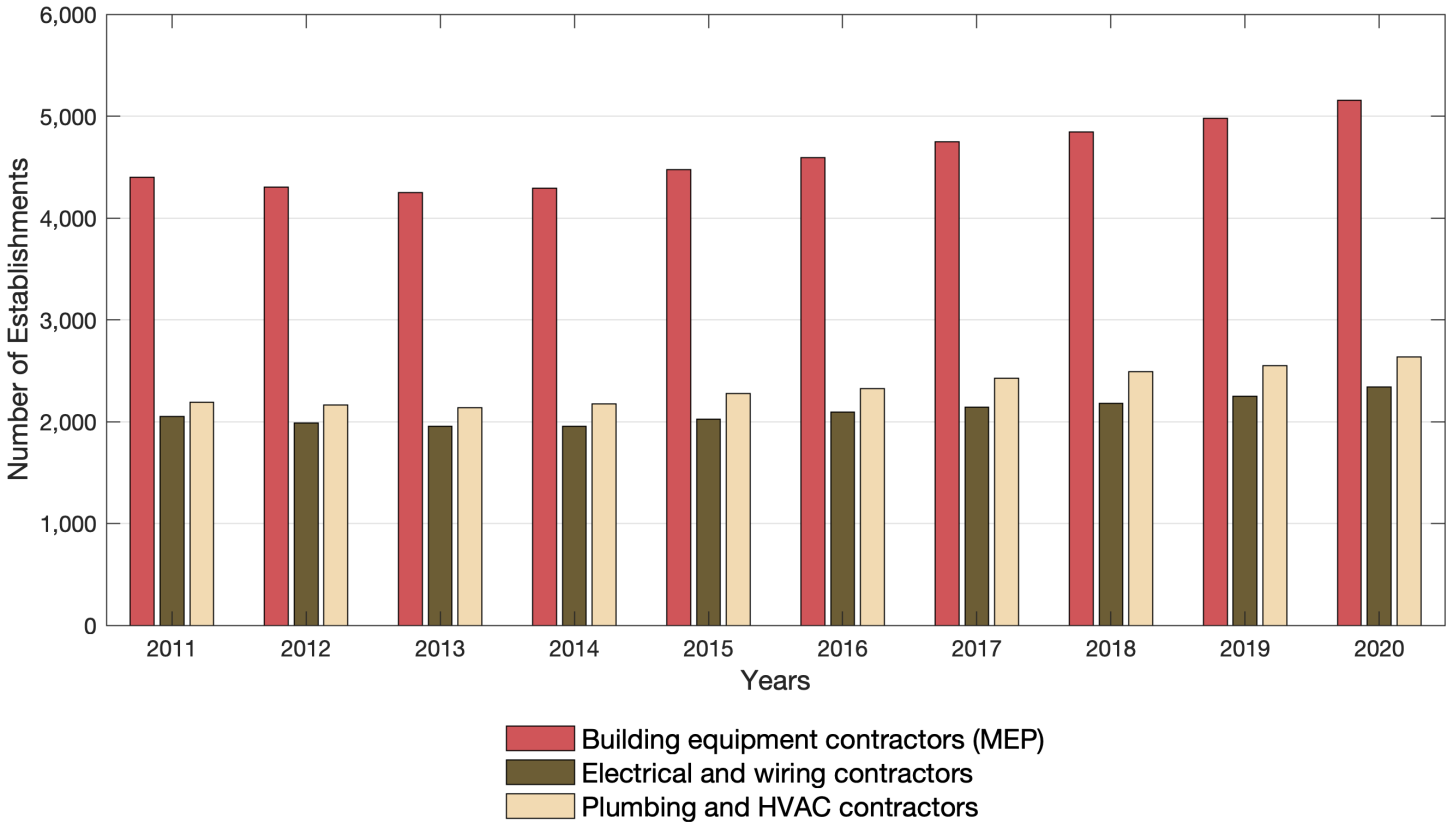
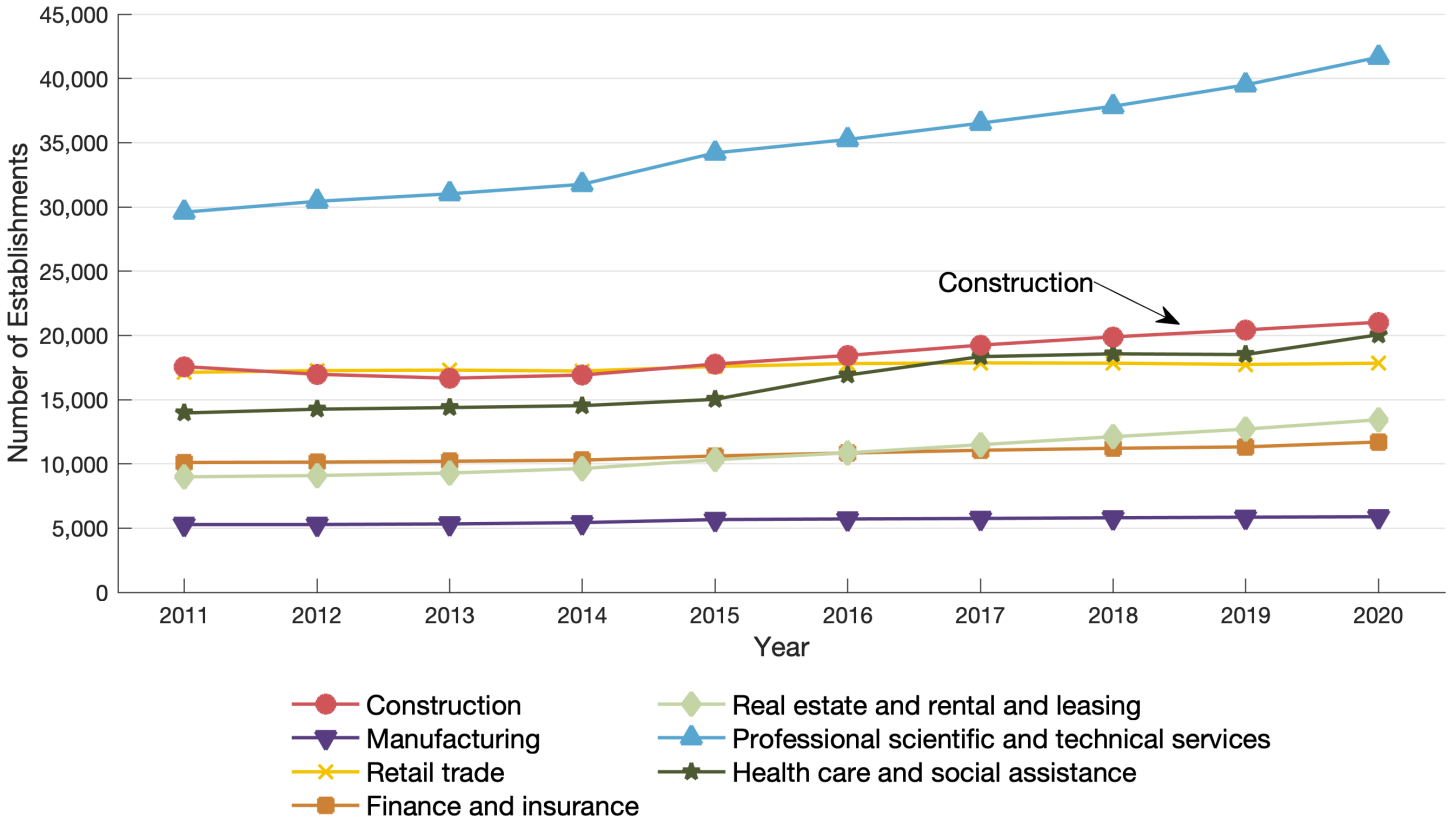


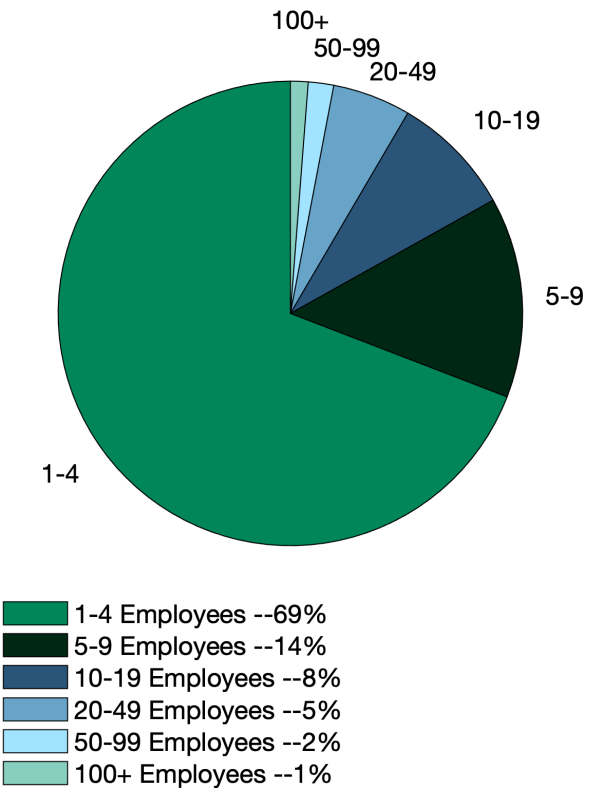
Figure 7: Number of establishments 2011-2020 for selected comparison industries. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



ESTABLISHMENT SIZE

The construction sector is dominated by small establishments: 69% of establishments have fewer than 5 employees, and 92% of establishments have fewer than 20 employees. The breakdown of construction establishments by number of employees as of 2019 is shown in Figure 8.

Figure 8: Percentage of construction establishments by number of employees, 2019. Source: U.S. Census, 2019 County Business Patterns report.

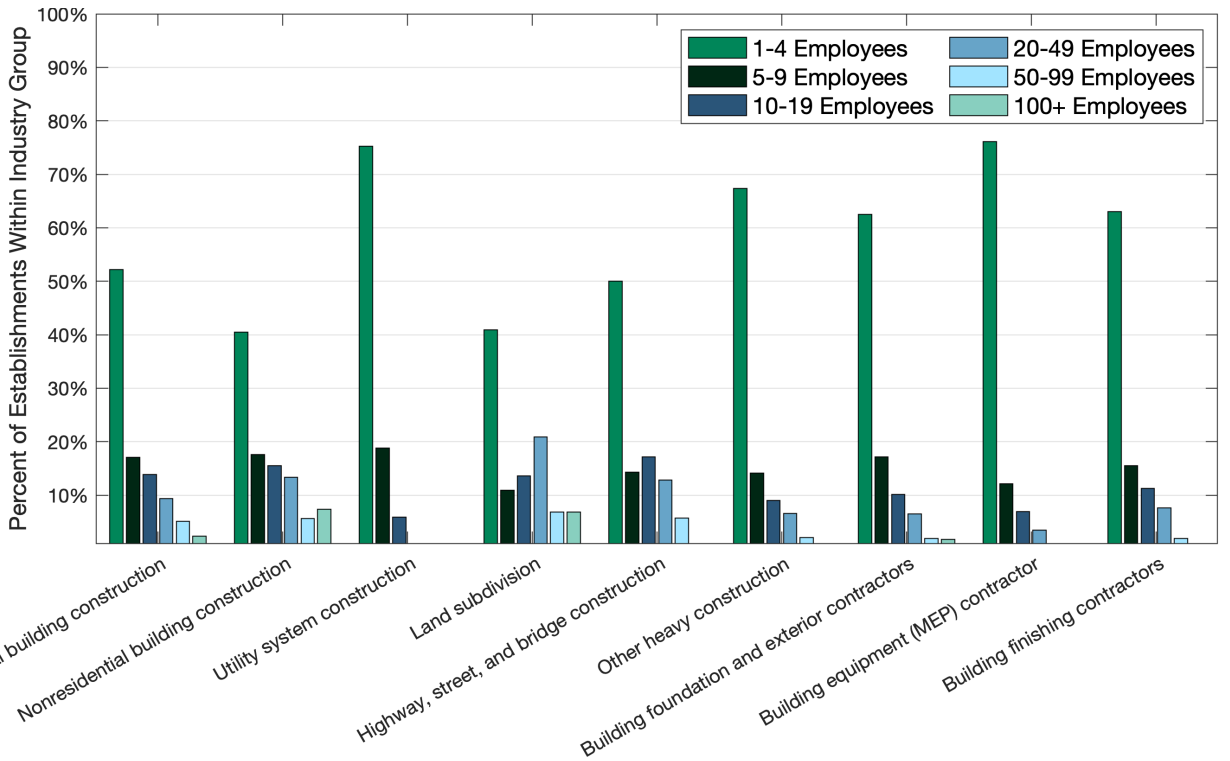


ESTABLISHMENT SIZE (CONT'D)

For the ten construction industry groups, the distribution of number of employees per establishment is shown in Figure 9. By number of establishments with fewer than 5 employees, building equipment (MEP) contractor establishments rank second (2,875 establishments), behind residential building contractor establishments (3,720 establishments). By percentage of establishments with fewer than 5 employees, building equipment contractor establishments rank sixth (62%), behind residential building construction (82%); building finishing contractors (76%); land subdivision (75%); building foundation and exterior contractors (67%); and other specialty trade contractors (63%).

The building equipment (MEP) contractor industry group also has the largest number of establishments with 100+ employees, 78 establishments or 33% of all construction establishments with 100+ employees. These large establishments are only 2% of all building equipment (MEP) establishments. Industries with a larger fraction of establishments with 100+ employees are utility system construction (7%) and highway, street, and bridge construction (7%).

Figure 9: Percent of construction establishments within industry groups in 2019 by number of employees. Source: U.S. Census, 2019 County Business Patterns report.



SECTION #3
CONSTRUCTION EMPLOYMENT & WAGES

Colorado's private construction sector employed 174,730 people in 2020, 8% of Colorado's private employment across all industries.

By employment, specialty trade contractors dominate the construction sector: 66% percent of construction employees are specialty trade contractors, and specialty trade comprises 60% of the construction sector's $11.9 billion annual payroll.

Building equipment (MEP) contractors are 45% of all specialty trade contractors and are 30% of all construction workers. In Colorado, the average annual wages across all construction workers was $68,209 in 2020, with construction industry average annual wages ranging from $55,924 annually for building finishing contractors to $132,312 for land subdivision industry workers. The average annual wage for building equipment (MEP) contractors of $65,938 is below the construction sector average, but equal to the median construction industry pay in 2020, and above both the average and median annual wage for construction occupations and trades in 2020, $57,095 and $51,970 respectively. Annual wages for construction occupations ranged from $30,537 for painter helpers to $107,002 for construction managers.

Colorado's construction industry also employs a higher percentage of employees who are Hispanic, Black or African American, American Indian or Alaska Native, or Asian, and a lower percentage of white employees than expected for its population compared to nationwide construction employment demographics.

DATA COLLECTION AND ANALYSIS METHODOLOGY

- Number of employees, average annual wages, and payroll data for the construction industry and comparison industries were sourced from the U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.
- Estimated average annual wage for construction occupations in Colorado were sourced from the U.S. Bureau of Labor Statistics, Occupational Employment and Wage Statistics Program. Data presented are for construction industry codes and construction occupation codes, excluding mining and extraction and including construction management, welders, cutters, solderers, and brazers, and heating, air conditioning, and refrigeration mechanics and installers.
- Demographics data including employee age, gender, and ethnicity, were sourced from U.S. Census, Quarterly Workforce Indicators. Annual data are calculated as the average of quarterly employment. In some cases only partial year data is available for 2020; the range is indicated on each chart.
- Earnings by educational attainment, age, gender, and ethnicity were sourced from the U.S. Census, Current Population Survey.
- Union membership and affiliation data were U.S. Bureau of Labor Statistics, Labor Force Statistics.
- All data sourced in November-December 2021.

NUMBER OF EMPLOYEES

In 2020, there were 174,730 people employed in Colorado's construction sector. This represents the second-highest number of employees in the construction sector over the last decade: employment over the period 2011-2020 was lowest in 2011 (112,242 employees) and highest in 2019 (178,880).

Construction sector employment grew an average of 6% year-over-year from 2011-2019. 2020 employment in construction was 2% lower than in 2019, a loss of 4,150 jobs.

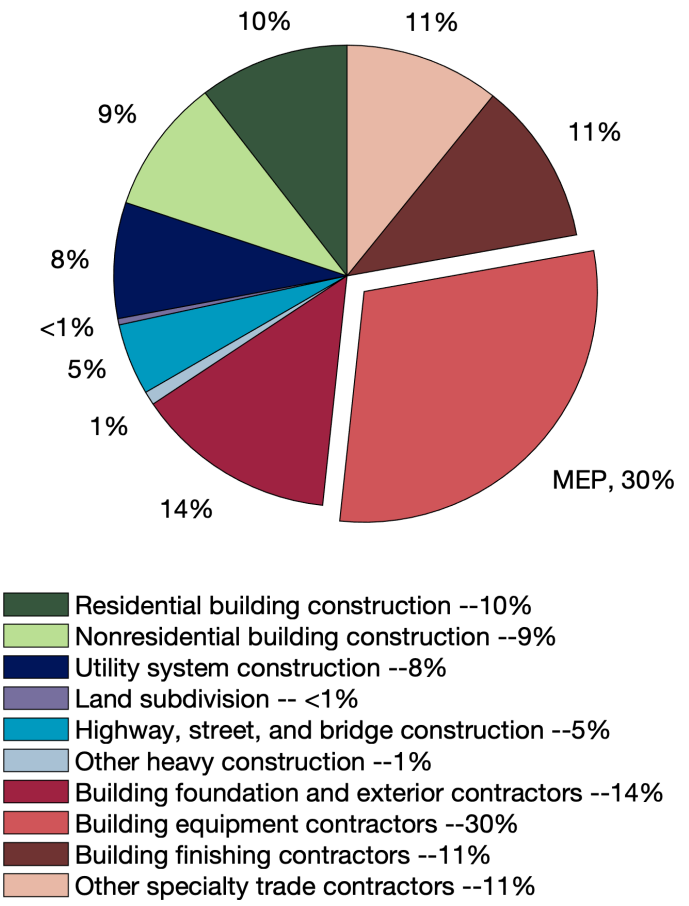
Among the ten industry groups in the construction sector, building equipment contractors (MEP) represent the largest share of employees: 51,572 or 30% of all construction workers in 2020. The percentage of employees in each industry group are shown in Figure 10. The next largest industries by employment are all within specialty trades: building foundation and exterior contractors (14% or 24,382 employees), building finishing contractors (11% or 19,920 employees), and other specialty trade contractors (11% or 18,787 employees). By employment numbers, specialty trades (in red) are 66% of all construction employees, building construction (in green) 20% of construction employees, and heavy and civil engineering construction (in blue) 15% of construction employees.

Building equipment contractor (MEP) employment has grown 60% since 2011, following a similar trend to the industry overall. As shown in Figure 11, building equipment contractor (MEP) employment was lowest in the last decade in 2011 (32,165 employees), highest in 2019 (51,862 employees).

Building equipment contractor (MEP) employment fell 1% from 2019 to 2020. MEP employment in 2020 was 51,572 employees, the second highest industry employment level in the last decade, but 290 fewer jobs than in 2019.

This reduction in employment in 2020 for the building equipment contractor (MEP) industry group is in absolute terms and in percentage terms much less than the construction sector overall, but ranks 6th across construction industry groups in terms of the year-over-year percent change in employment from 2019-2020.

Figure 10: Percentage of employees by construction industry groups, 2020. Industry groups are ordered by NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



The subsectors of land subdivision (8%, +59 jobs), highway, street, and bridge construction (4%, +341 jobs), residential building construction (0%, + 27 jobs), and other specialty trade contractors (0%, -44 jobs) had roughly even or positive growth. Fifth largest percent change in growth 2019-2020 is building foundation and exterior contractors (-1%, -261 jobs), followed by building equipment contractors (MEP), again -1% growth and -290 jobs. All other construction industry groups saw negative growth from 2019-2020: utility system construction (-11%, -1672 jobs), other civil engineering construction (-11%, -199 jobs), building finishing contractors (-6%, -1276 jobs), and nonresidential building construction (-5%, -833 jobs).

NUMBER OF EMPLOYEES (CONT'D)

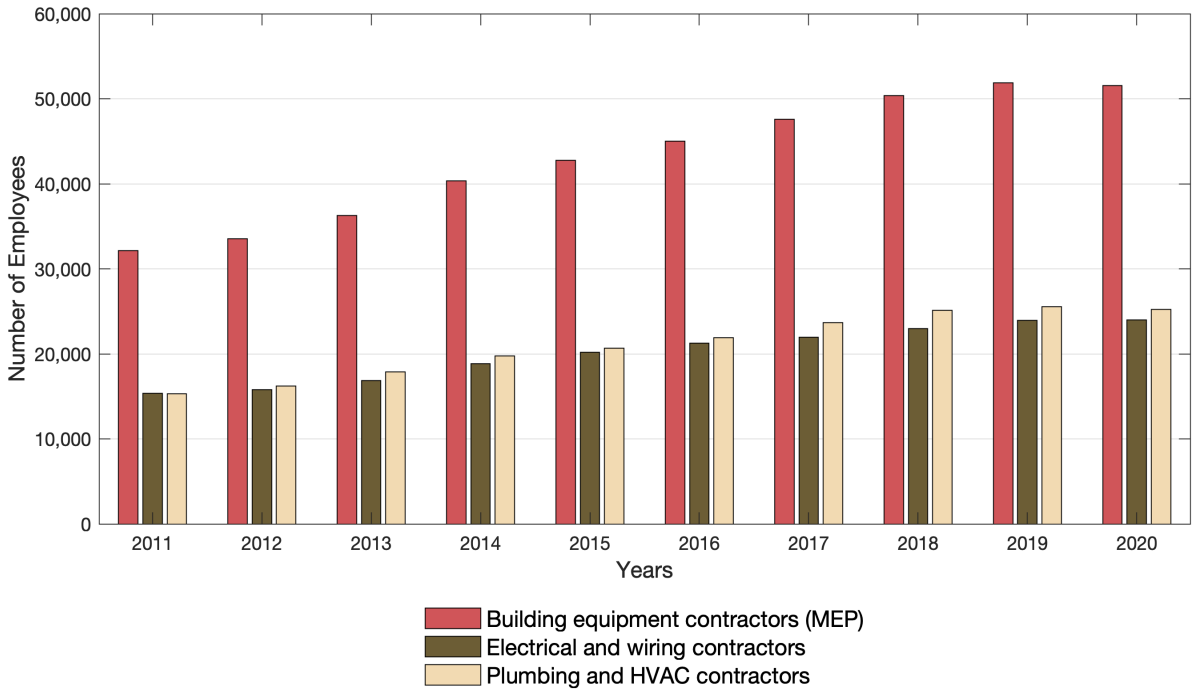
In terms of overall growth in the last ten years (2011-2020), building equipment contractor (MEP) employment ranks second compared to all construction industry groups with 60% growth, behind only residential building construction (89% growth over the same period). In the last five years (2015-2020), the overall growth for building equipment contractor (MEP) employment ranks third among construction industries with 21% growth, behind residential building construction (30%) and land subdivision construction (38% growth). This contrasts to the 18% overall employment growth in the construction sector overall from 2015-2020.

Within the building equipment contractor (MEP) industry group, Figure 11 shows the employment trend of the two primary industry groupings: electrical and wiring contractors and plumbing and HVAC contractors. Each industry follows the same trend as MEP overall, with slightly more plumbing and HVAC contractors than electrical and wiring contractors each year from 2012-2020. The average year-over-year growth for electrical and wiring contractors was 5% per year from 2011-2020 and 4% per year from 2015-2020. The average year-over-year growth for plumbing and HVAC contractors was slightly higher: 6% per year from 2011-2020 and 4% per year from 2016-2020. From 2019 to 2020, electrical and wiring contractor employment showed less than a percent positive employment change, while plumbing and HVAC contractor employment fell 1%. This result is despite the growth seen in number of establishments for both groups from 2019-2020.

Historically, electrical and wiring contractors and plumbing and HVAC contractors have seen annual growth in the number of employees in both the residential and non-residential work between 2% and 12% for years 2011-2018. From 2018-2019, nonresidential plumbing and HVAC employment began to decline, by 1%, but residential plumbing and HVAC contractor employment and both residential and nonresidential electrical and wiring contractor employment continued to increase, each by 4-5%.

From 2019-2020, all four groups saw minimal growth or loss of jobs. Within electrical and wiring contractors, residential contractors saw a 1% growth in jobs (57 jobs) and non-residential electrical and wiring contractors saw less than 1% growth (35 jobs). Within plumbing and HVAC contractors, residential contractors saw a 1% growth (187 jobs), while non-residential contractors saw a 4% decrease (500 jobs lost).

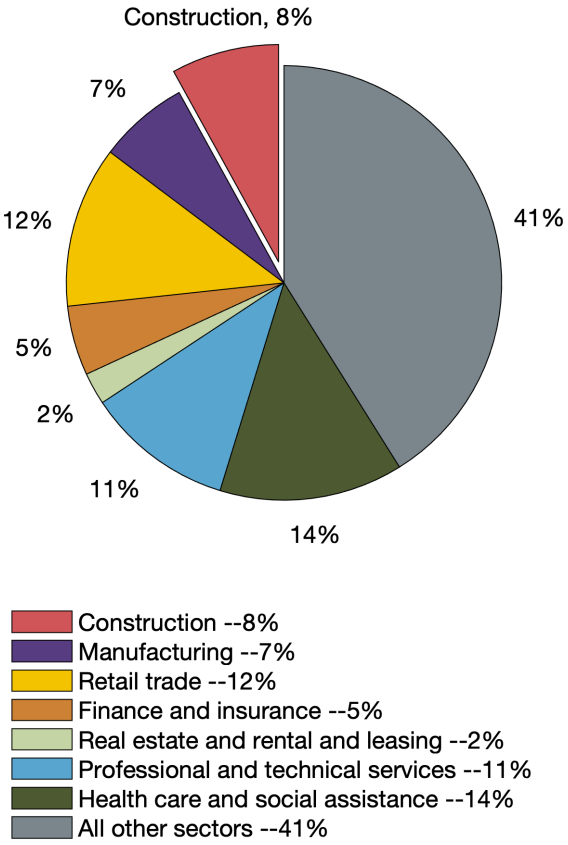
Figure 11: Number of employees 2011-2020 in building equipment contractors (MEP), electrical and wiring contractors, and plumbing and HVAC contractors. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



NUMBER OF EMPLOYEES (CONT'D)

Construction employed 8% of all Colorado workers in private industry in 2020, ranking fourth among selected comparison sectors, shown in Figure 12, and fifth among all 20 economic sectors. The sectors with a higher percentage of employees in the state were health care and social assistance (14%), retail trade (12%), professional and technical services (11%) and accommodation and food services (11%).

Figure 12: Percentage of employees in Colorado's private sectors, 2020, with comparison sectors highlighted. Sectors are ordered by NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



CONSTRUCTION EMPLOYEE DEMOGRAPHICS

Nearly half (45%) of Colorado's construction workers are between the ages of 35-54, about a third (29%) between the ages of 22-34, and another 22% are over the age of 55.

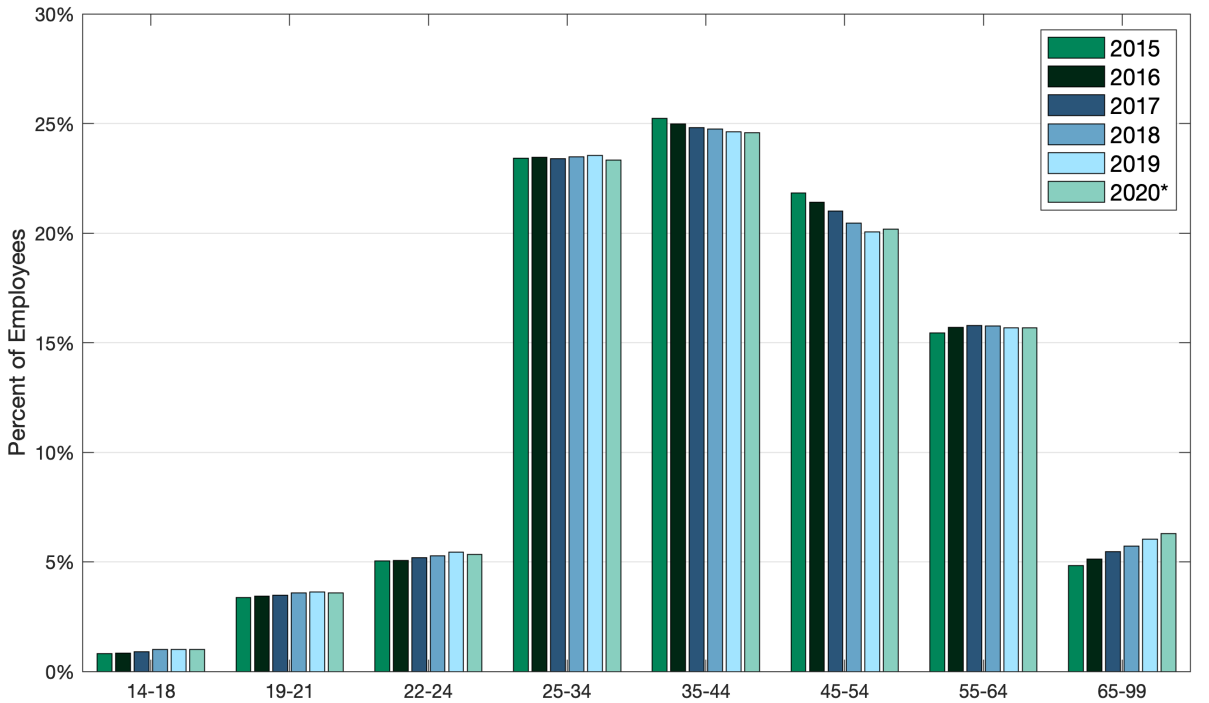
Figure 13 shows the proportion of construction workers in each of eight age groups from 2015-2020. As the number of employees in the sector overall increased each year 2015-2019, each age group in Figure 13 also saw an increase in the total number of employees, though the proportions of the population have changed over time. Age groups with an increasing percent of all construction employees over this time period are the youngest and oldest workers: ages 14-18, 19-21, 22-24, 55-64, and 65-99. Age groups with a decreasing percent of all construction employees are workers age 25-34, 35-44, and 45-54. Note that the employment numbers presented in this section are from a different source than elsewhere in this report, and values differ slightly.

From 2019-2020, the number of Colorado's private construction employees declined. Young employees aged 14-18 maintained a constant employment level 2019-2020, but the number of employees in all other age groups shown in Figure 13 declined by between half a percent and 3 percent in total employment from 2019-2020. Despite this trend, the percentage of workers age 45-54 and 65-99 increased, and the percent of employees in other age groups decreased or stayed constant.

A weighted average of employee age can be calculated using the average age within each of the eight age groups shown in Figure 13. The average employee age using this weighting gives an average age for construction employees as 43 years, for specialty trade contractors 43 years, and building equipment (MEP) as 42 years in 2020.

For construction employees overall and specialty trade contractors, the average age has risen 1% between 2015-2020, and less than half a percent 2019-2020. The average age of building equipment contractors in 2015 was the same as the average age in 2020, and this industry group saw less than half a percent increase in average age from 2019-2020.

Figure 13: Age distribution of construction employees in Colorado, 2015-2020. *2020 data is from Q1-Q3 only. Source: U.S. Census, Quarterly Workforce Indicators.



CONSTRUCTION EMPLOYEE DEMOGRAPHICS (CONT'D)

Nationwide, across all industries, 52% of workers are male and 48% female. The Colorado employee population is a slightly lower percentage female (46%) and higher percentage male (54%). A comparison of the gender distribution in Colorado's employees, nationwide all employees, Colorado's construction sector, the nationwide construction sector, and Colorado's building equipment contractor (MEP) industry is shown in Table 2 along with the percent change in number of employees in each group from 2019-2020. Data for 2020 are also shown in Figure 14.

Women made up 19% of Colorado construction employees in 2020, 18% of nationwide construction employees, and 16% of Colorado building equipment (MEP) employees.

For Colorado's construction sector overall, the fraction of workers who are women has been increasing since 2015, as shown in Figure 15, however the distribution has changed very little: in 2015, 83% of the construction employees were male and 17% female. In 2020, 81% of construction employees were male and 19% female.

Both the number of women and men employees increased each year from 2015-2019. From 2019-2020 the total number of employees in the sector overall decreased; however the average annual employment for women increased (+1%) while the average annual employment for men decreased (-2%).

Table 2: Employee gender in 2020 and percent change in number of employees 2019-2020 for all industries and the construction sector in Colorado and the United States, and for the building equipment contractor (MEP) industry in Colorado. Source: U.S. Census, Quarterly Workforce Indicators.

GENDER	COLORADO ALL INDUSTRIES	U.S. ALL INDUSTRIES	COLORADO CONSTRUCTION	U.S. CONSTRUCTION	COLORADO MEP
Percent of employees, 2020					
Male	54%	52%	81%	82%	84%
Female	46%	48%	19%	18%	16%
Percent change in number of employees, 2019-2020					
Male	-3%	-5%	-2%	-2%	-1%
Female	-4%	-6%	+1%	0%	+2%

Figure 14: Gender of employees in all industries (Colorado and U.S.), construction (Colorado and U.S.), and Colorado's building equipment contractor (MEP) industry, 2020. An asterisk (*) indicates data are from Q1-Q3 only. Source: U.S. Census, Quarterly Workforce Indicators.

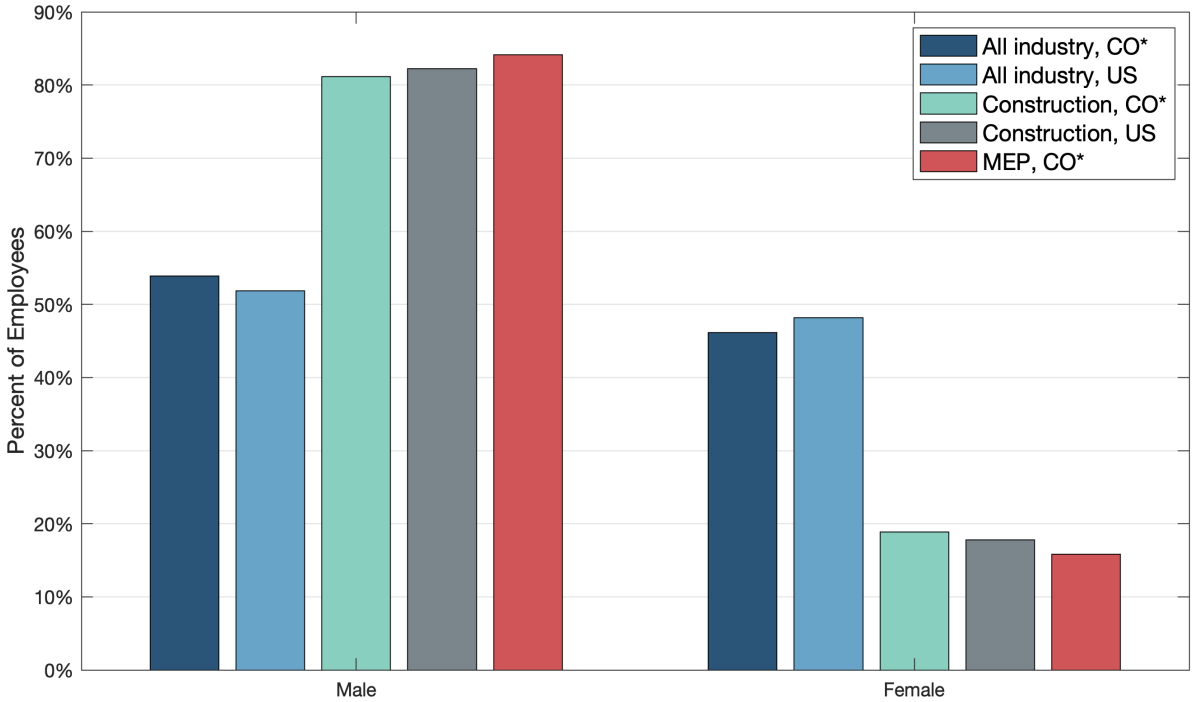
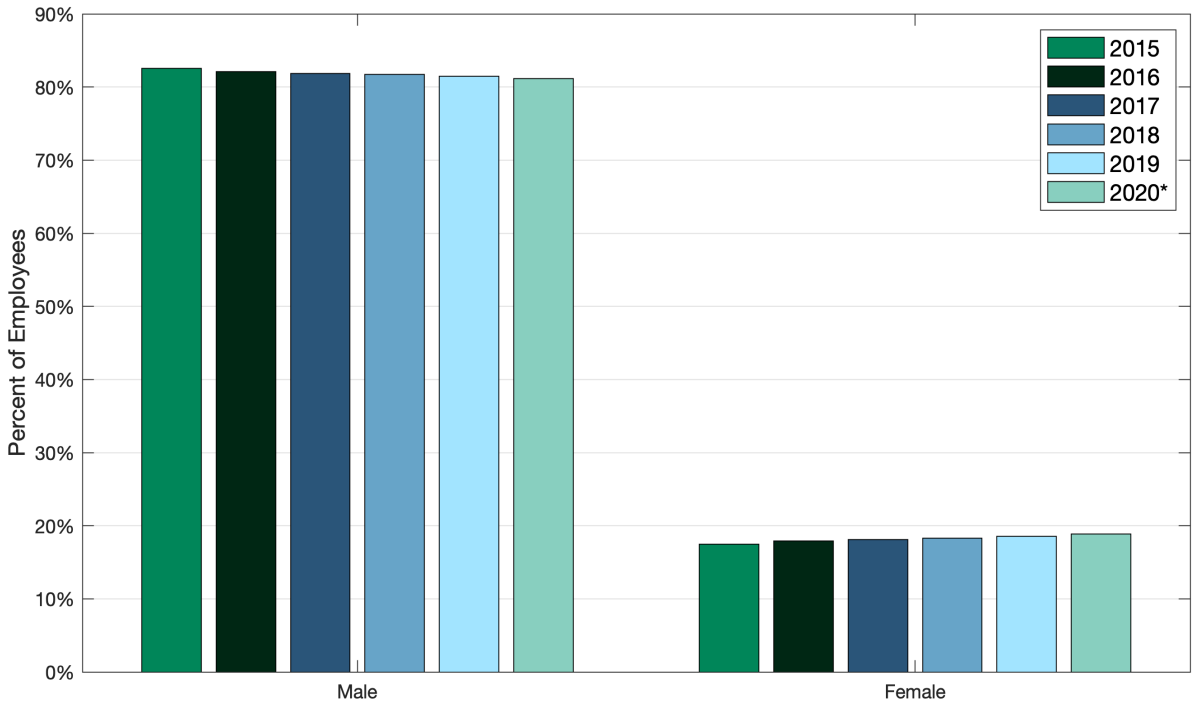


Figure 15: Gender of employees in Colorado's construction industry, 2015-2020. *2020 data are from Q1-Q3 only. Source: U.S. Census, Quarterly Workforce Indicators.



CONSTRUCTION EMPLOYEE DEMOGRAPHICS (CONT'D)

Comparing the racial and ethnicity distribution of Colorado's employees in all industries to that nationally in 2020, as shown in Table 3, Colorado has a larger percentage of employees who are white, Hispanic, or two or more races or ethnicities. Colorado has a smaller percentage of employees who are Black or African American or Asian. The percent of employees who are American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander are equal within a percent for all industries in Colorado and nationwide. The race and ethnicity of employees in all industries (Colorado and U.S.), construction (Colorado and U.S.), and Colorado's building equipment contractor (MEP) industry are shown in Figure 17.

Comparing nationwide employee demographics to Colorado employee demographics, the same trends are seen across all industries and within the construction sector. White and Hispanic employees are a larger percentage of Colorado's employees (87% and 19%, respectively) than nationwide employees (76% and 17% respectively). In construction, Colorado employees are correspondingly a higher percentage white (91%) compared to nationwide (88%), and a higher percentage Hispanic (27%) compared to nationwide (21%).

While the percentage of construction employees in Colorado who are white is greater than the national metric, Colorado's overall population has a much higher proportion of white individuals than the national average. As a result, Colorado has a lower percentage of white construction employees than expected for its population. In contrast, the percentage of Hispanic construction employees in Colorado is slightly higher than expected for the Colorado population compared to the nationwide population.

Table 3: Employee race or ethnicity in 2020 and percent change in number of employees 2019-2020 for all industries and the construction sector in Colorado and the United States, and for the building equipment contractor (MEP) industry in Colorado. Note that Hispanic can apply to all other entries so the total does not sum to 100%. Source: U.S. Census, Quarterly Workforce Indicators.

RACE OR ETHNICITY	COLORADO ALL INDUSTRIES	U.S. ALL INDUSTRIES	COLORADO CONSTRUCTION	U.S. CONSTRUCTION	COLORADO MEP
Percent of employees, 2020					
White	87%	76%	91%	88%	92%
Hispanic	19%	17%	27%	21%	21%
Black	5%	13%	3%	6%	3%
American Indian or Alaska Native	1%	1%	2%	1%	2%
Asian	4%	7%	2%	3%	1%
Native Hawaiian or Other Pacific Islander	<1%	<1%	<1%	<1%	<1%
Two or more	3%	2%	2%	2%	2%
Percent change in number of employees, 2019-2020					
White	-4%	-5%	-1%	-2%	-1%
Hispanic	-3%	-5%	-1%	-2%	0%
Black	-5%	-6%	-3%	-5%	-3%
American Indian or Alaska Native	-5%	-5%	-8%	-3%	-4%
Asian	-2%	-4%	+2%	-1%	+2%
Native Hawaiian or Other Pacific Islander	-1%	-4%	-1%	+1%	0%
Two or more	3%	-4%	-1%	0%	0%

CONSTRUCTION EMPLOYEE DEMOGRAPHICS (CONT'D)

A similar comparison can be made for Black and Asian employees, which are 5% and 4% of Colorado's employees respectively and 13% and 7% respectively of nationwide employees. In Colorado, a lower percentage of construction employees are Black (3%) compared to nationwide (6%), and a lower percentage Asian (2%) compared to nationwide (3%). In both cases, Colorado has a higher percentage of Black and Asian construction employees than expected for its population.

Comparing Colorado's construction sector to the building equipment contractor (MEP) industry, a higher percentage of MEP employees are white or two or more races compared to the construction sector overall, and equal percentages of Black or African American, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander employees.

Year-over-year trends for race and ethnicity in Colorado's construction industry are shown in Figure 16. From 2015-2019, the percentage of employees in Colorado's construction industry who are Black or African American, Asian, or two or more races or ethnicities has been increasing – meaning the numbers of employees with these races or ethnicities has been growing in the construction workforce at a higher rate year-over-year than the construction industry overall - while the percentage of employees who are white has been decreasing. From 2015-2019, the average year-over-year percent employment of each racial or ethnic group was highest for Black or African American employees (10%), followed by employees with two or more races or ethnicities (9%), Asian employees (7%), white employees (5%), Native Hawaiian or Pacific Islander employees (4%) and American Indian or Alaska Native employees (4%). The average for all construction employees in Colorado was 5% average year-over-year growth from 2015-2019.

Employment decreased 2019-2020. Across all industries in Colorado, each racial or ethnic group had 1%-5% lower employment in 2020 compared to 2019, and nationwide 4%-6% lower employment. Within Colorado's construction sector, the largest percent change from 2019-2020 is 8% fewer American Indian or Alaska Native employees (290 fewer employees), followed by 3% fewer Black or African American employees (151 fewer employees). In 2020 there were 45 more Asian employees than in 2019 (+2%), the only racial or ethnic group in Colorado's construction sector to see a positive change in this period.

Figure 16: Race or ethnicity of employees in all industries (Colorado and U.S.), construction (Colorado and U.S.), and Colorado's building equipment contractor (MEP) industry, 2020. An asterisk (*) indicates data are from Q1-Q3 only. Source: U.S. Census, Quarterly Workforce Indicators.

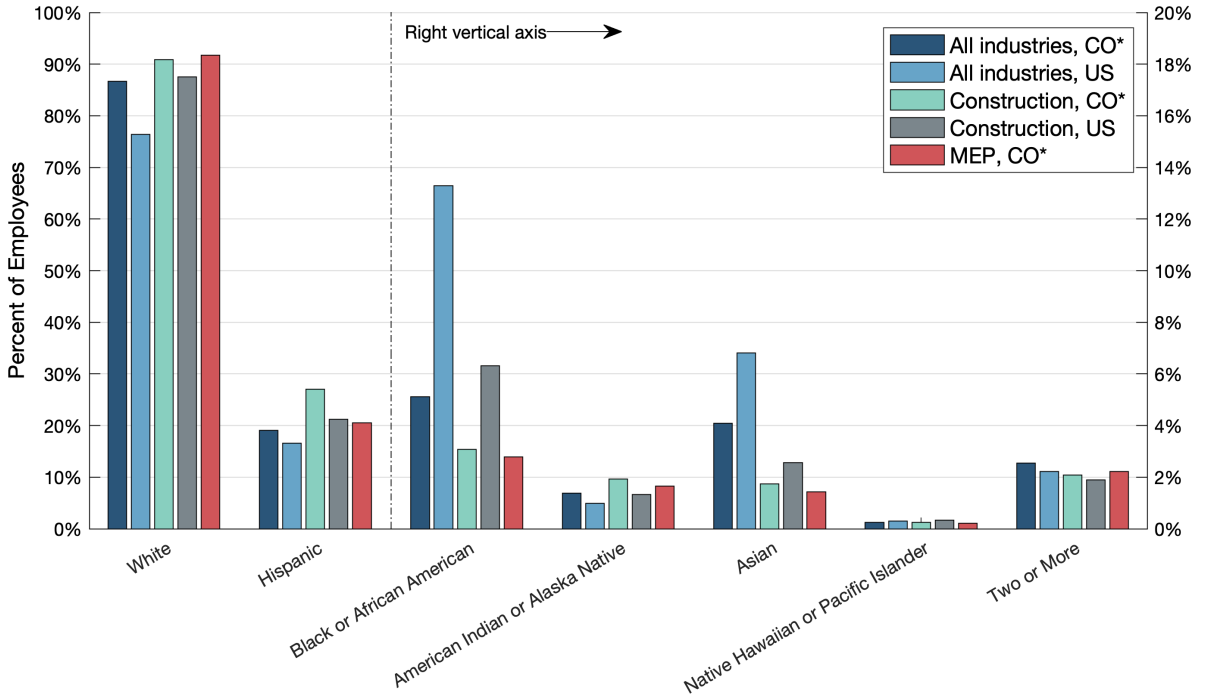
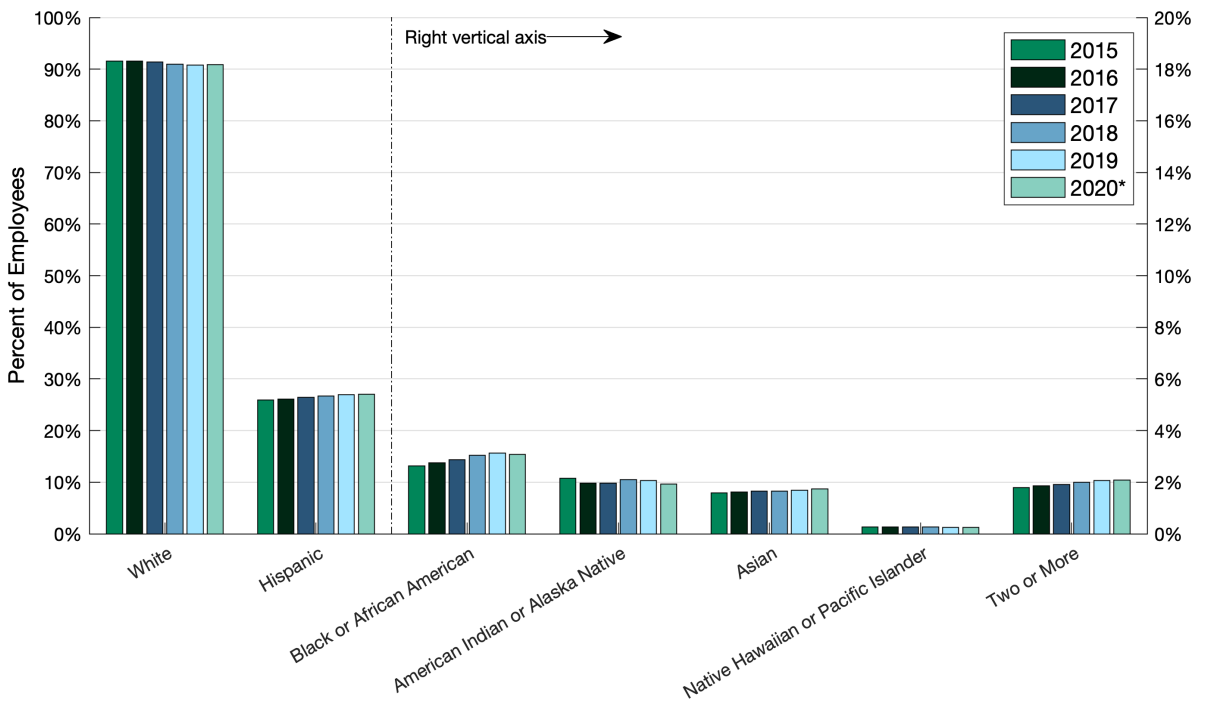


Figure 17: Race or ethnicity of employees in Colorado's construction industry, 2015-2020. *2020 data are from Q1-Q3 only. Source: U.S. Census, Quarterly Workforce Indicators.



AVERAGE ANNUAL WAGES

As of 2020, the average annual wage for construction workers in Colorado was $68,209 per year, and the average annual wage for building equipment contractors (MEP) in Colorado was $65,938 per year.

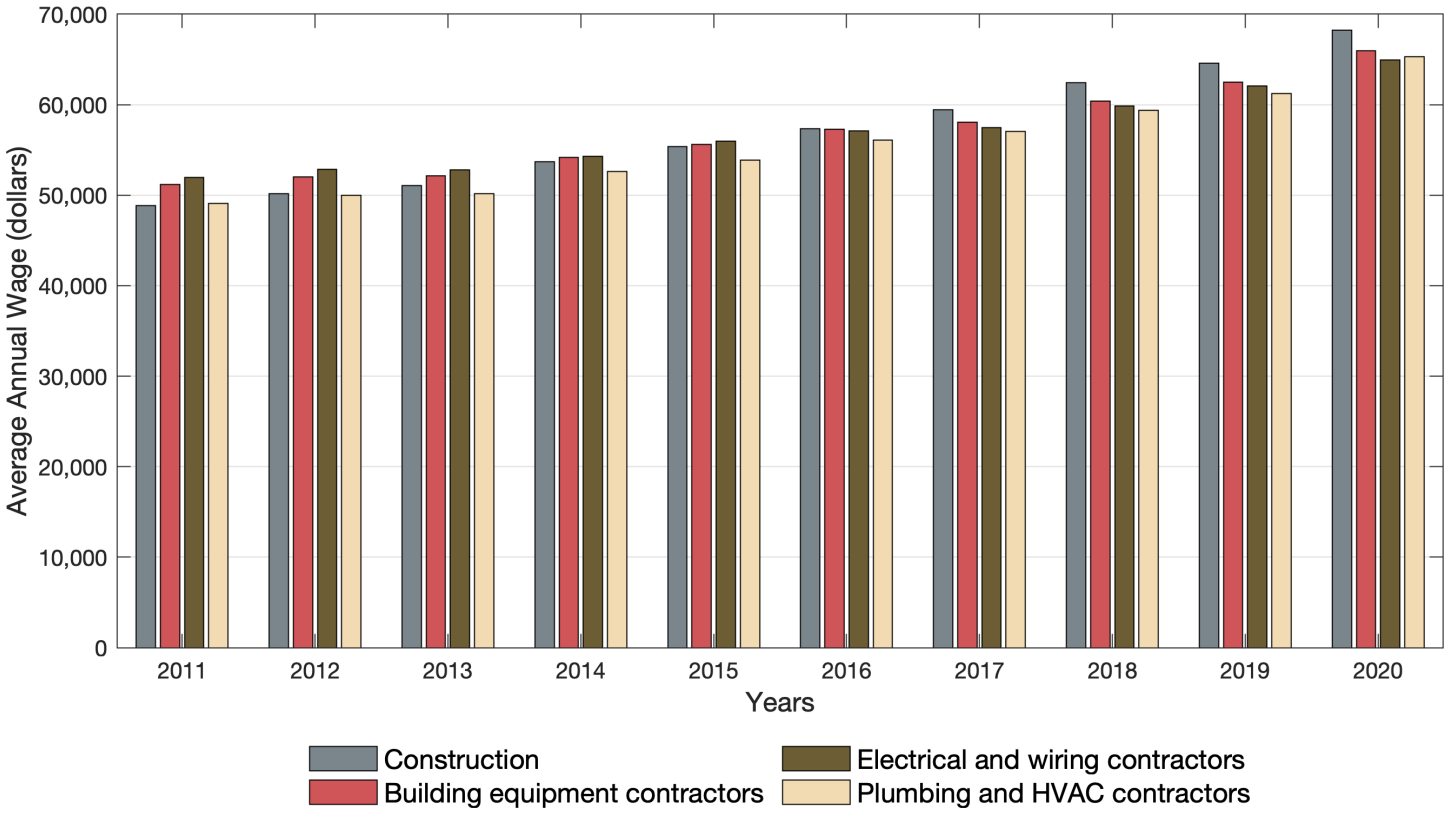
Construction industry average annual wages range in 2020 ranged from $55,924 for building finishing contractors to $132,312 in the land subdivision industry. The median annual wage was $65,938, the average annual wage for building equipment (MEP) contractors.

The average annual wage for building equipment contractors (MEP) was higher than that for the construction sector overall in Colorado from 2011-2015, and the reverse has been true from 2016-2020. This trend for the construction sector, building equipment contractors (MEP), electrical and wiring contractors, and plumbing and HVAC contractors is shown together in Figure 18. Construction wages have been growing at an average rate of 4% per year from 2011-2020, while building equipment contractor wages have been growing at an average rate of 3% per year from 2011-2020.

Of the three construction subsectors, specialty trade contractors receive the lowest average annual wage. In 2020, the average annual wage within building construction was highest at $81,092 per year, followed by heavy and civil engineering construction at $79,545 per year, and specialty trade contractors have an average annual wage of $61,802 per year. Within specialty trades, average annual wages for building equipment contractors (MEP) have consistently been the highest of the four specialty trade industry groups, however the average annual wage for all other construction industry groups has been higher than building equipment contractor (MEP) annual wage every year since 2013. In 2020, the construction industry group with the highest average annual wage is land subdivision construction, $132,312 per year.

Three mechanical, electrical, and plumbing (MEP) occupations were above the median annual wages for construction occupations and trades in 2020, $51,970 per year, and just below the average wage for construction occupation and trades, $57,095.

Figure 18: Average annual wage 2011-2020 for construction overall, building equipment contractors (MEP), electrical and wiring contractors, and plumbing and HVAC contractors. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



AVERAGE ANNUAL WAGES (CONT'D)

These MEP occupations are:

- Plumbers, pipefitters, and steamfitters ($56,457)
- Electricians ($56,304)
- Heating, air conditioning, and refrigeration mechanics and installers ($55,650)

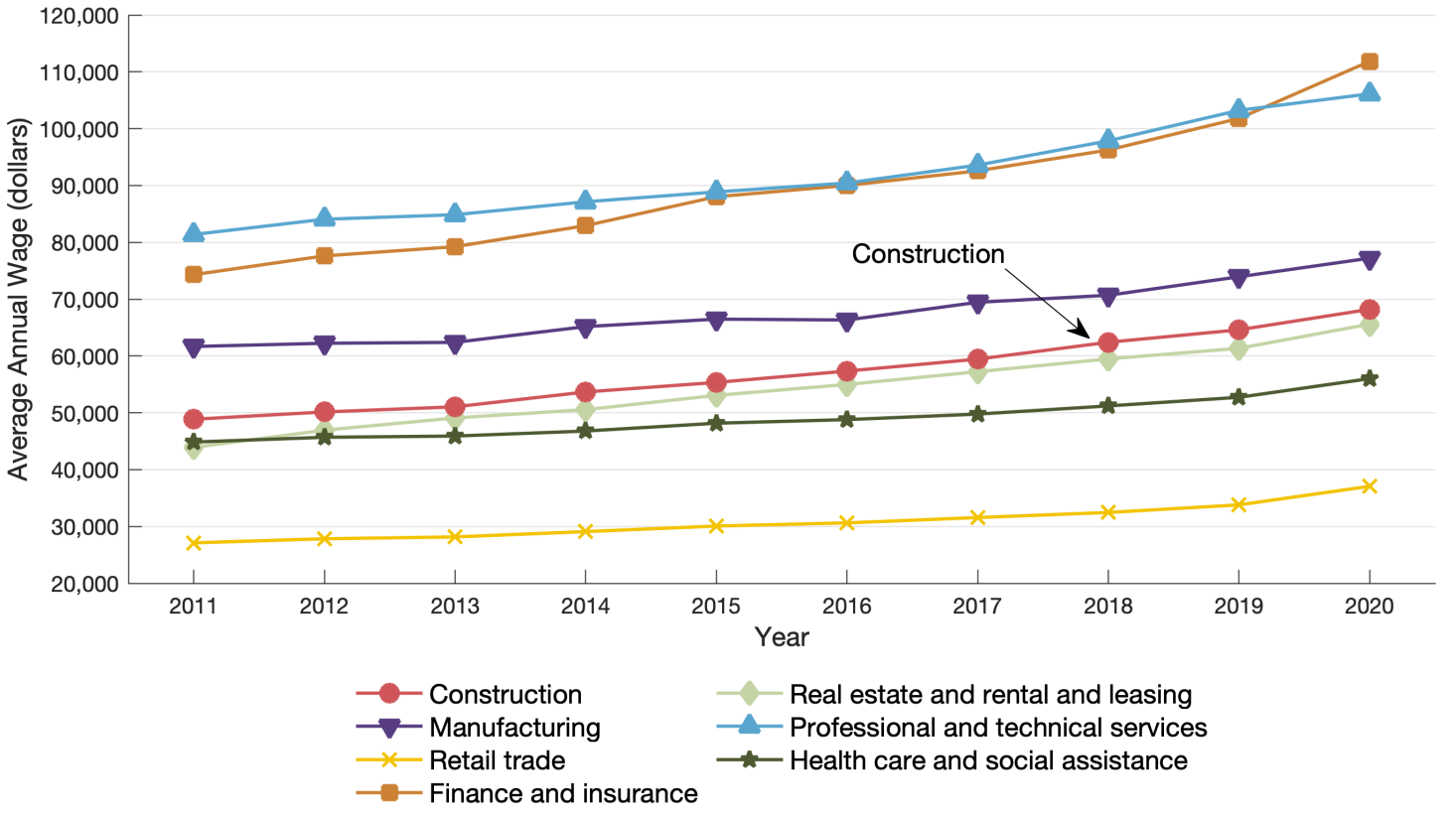
The construction occupations and trades with the highest average wages were construction managers ($107,002), elevator installers and repairers ($91,846), supervisors of construction and extraction workers ($75,190), and boilermakers ($75,037). The occupations and trades with lowest average annual wages were construction helpers: painter helpers, electrician helpers, roofer helpers, and carpenter helpers earned between $30,537 (painter helpers) to $34,232 (carpenter helpers).

In 2020, the average annual wage in the construction sector ranked fourth among selected comparison sectors, as shown in Figure 19, and tenth among all 20 economic sectors in Colorado. Comparison sectors with a higher average annual wage in 2020 are finance and insurance ($111,845), professional and technical services ($106,124), and manufacturing ($77,207). Construction with average annual wages of $68,209 in 2020 is just above that for real estate and rental and leasing, $65,597 annually.

Among comparison sectors, construction ranks third over 2011-2020 in terms of average year-over-year growth in wages, at 4%. Higher over this period are finance and insurance (5%) and real estate and rental and leasing (5%). In the last five years, from 2015-2020, construction also has had an average year-over-year growth of 4% in wages, which ranks fourth among comparison sectors but only just behind finance and insurance (4%), real estate and rental and leasing (4%), and retail trade (4%).

For many of the comparison sectors, as well as for construction, the increase in wages from 2019-2020 is the largest year-over-year percent increase between 2011-2020. This was true for construction (6% growth, an increase of $3,606), retail trade (10% growth, an increase of $3,269), finance and insurance (10%, an increase of $10,045), real estate and rental and leasing (7%, an increase of $4,253), and health care and social assistance (6%, an increase of $3,282).

Figure 19: Average annual wage 2011-2020 for construction overall, building equipment contractors (MEP), electrical and wiring contractors, and plumbing and HVAC contractors. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



CONSTRUCTION PAYROLL

Specialty trades payroll in 2020 totaled $7.1 billion, which makes up 59% of the construction sector's total $11.9 billion payroll. Building equipment contractor (MEP) payroll totaled $3.4 billion in 2020, which alone comprises 29% of the total construction sector payroll and 48% of the specialty trades subsector payroll.

The breakdown of construction payroll by industry group is shown in Figure 20. Building equipment contractor (MEP) payroll is the largest industry group by payroll, a factor of more than two greater than the next largest industry group by payroll. The next largest industry groups by total payroll are nonresidential building construction ($1.4 billion), building foundation and exterior contractors ($1.4 billion), and residential building construction ($1.4 billion).

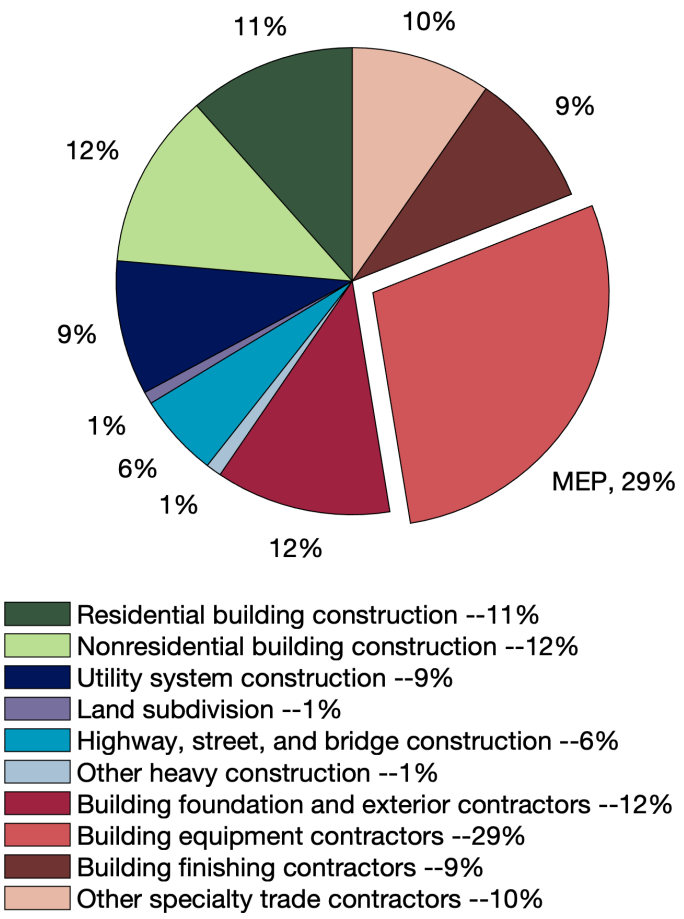
Construction sector payroll has seen rapid growth, an average of 9% year-over-year growth from 2011-2020 and 8% year-over-year growth from 2015-2020. Building equipment contractor (MEP) payroll growth has also been high, averaging 8% average year-over-year growth from 2011-2020 and 7% average year-over-year growth from 2015-2020.

From 2019-2020, Colorado's construction sector payroll grew by 3%, a drop from the 7% growth 2018-2019 and a third of the 9% average year-over-year payroll growth 2011-2020.

Like the construction sector overall, each of construction's three subsectors saw a lower payroll growth 2019-2020 than in 2018-2019 and the year-over-year average 2011-2020: building construction averaged 10% payroll growth year-over-year 2011-2020, but grew only 4% 2019-2020. Heavy and civil engineering construction averaged 8% year-over-year growth 2011-2020 but had negative growth (-1%) 2019-2020, despite seeing substantial positive payroll growth for land subdivision (16% growth 2019-2020) and highway, street, and bridge construction (11% growth 2019-2020). Specialty trade averaged 9% year-over-year payroll growth, but saw only 4% growth from 2019-2020.

Of Colorado's ten construction industry groups, three saw a higher year-over-year payroll growth 2019-2020 than the average year-over-year growth from 2011-2020 (residential building construction, land subdivision construction, and highway, street, and bridge construction), four saw a positive year-over-year payroll growth 2019-2020 but lower than the average 2011-2020 (nonresidential building construction, building foundation and exterior contractors, building equipment contractors (MEP), and other specialty trade contractors), and three saw negative year-over-year payroll growth 2019-2020 lower than the average 2011-2020 (utility system construction, other heavy construction, and building finishing contractors).

Figure 20: Percentage of total payroll in each construction industry group, 2020. Industries are ordered by NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



Within building equipment contractors (MEP), both electrical and wiring contractors and plumbing and HVAC contractors have seen similar growth in payroll 2011-2020, shown in Figure 21. Each contributes roughly equally to building equipment contractor (MEP) payroll each year. In 2020, electrical and wiring contractor payroll totaled just below $1.6 billion, 46% of building equipment contractor (MEP)

CONSTRUCTION PAYROLL (CONTINUED)

payroll and 13% of the construction sector's total payroll. Plumbing and HVAC contractor payroll also totaled just above $1.6 billion, 48% of all building equipment contractor (MEP) payroll and 14% of total construction payroll.

Within electrical and wiring contractor payroll, residential contractor payroll totaled $539 million while nonresidential contractor payroll totaled $1.0 billion; within plumbing and HVAC, residential contractor payroll totaled $820 million while nonresidential contractor payroll totaled $827 billion.

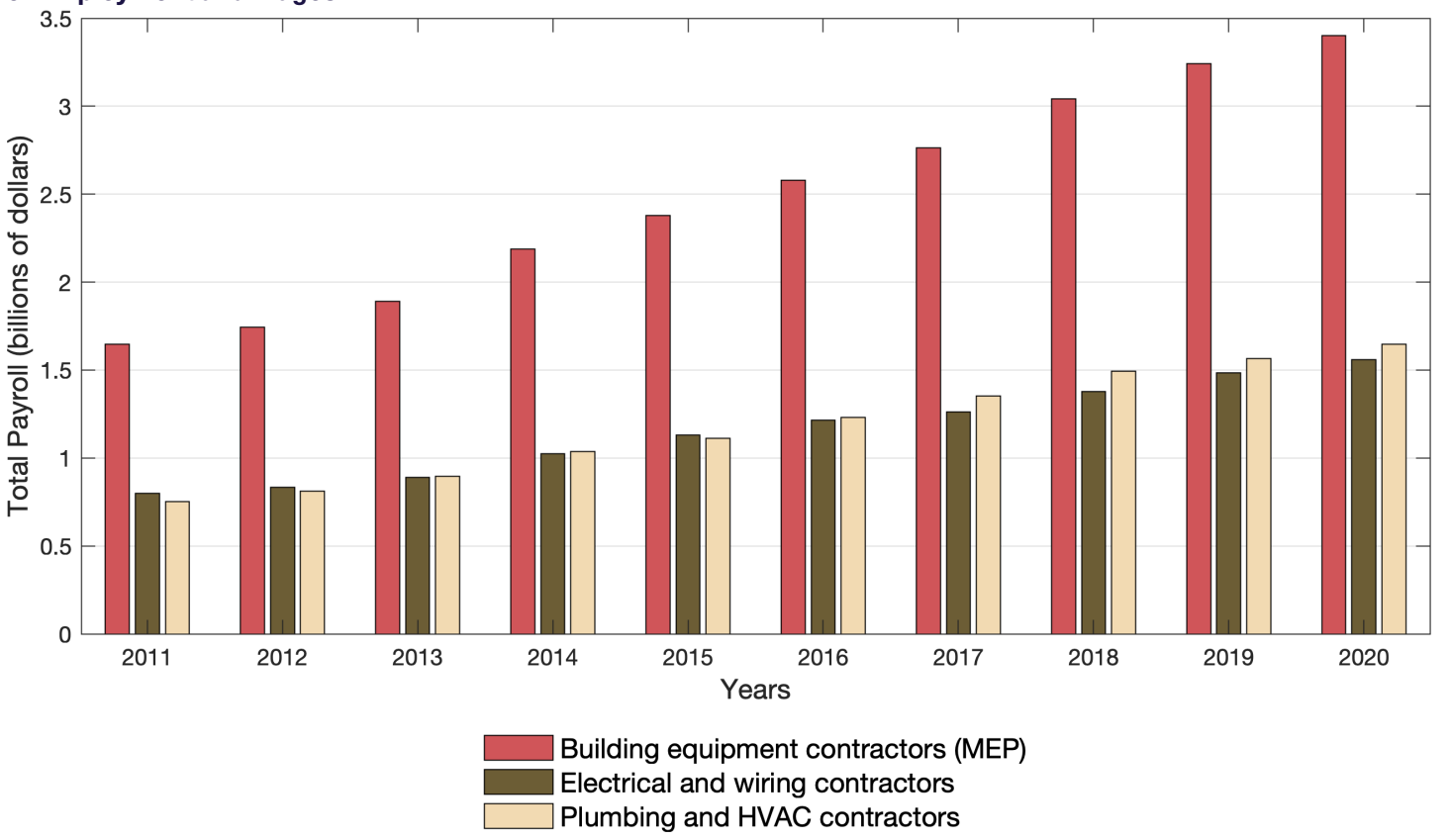
Similar to many of the construction industries, Similar to many of the construction industries, electrical and wiring contractor payroll, plumbing and HVAC payroll, and all four groups of residential and nonresidential electrical contractors in electrical and wiring or plumbing and HVAC had lower year-over-year payroll growth 2019-2020 than the average year-over-year payroll growth 2011-2020.

Electrical and wiring contractors in total had a 5% payroll growth 2019-2020, compared to a 9% average year-over-year payroll growth 2011-2020. Residential electrical and wiring contractors saw 7% payroll growth 2019-2020 compared to a 9% year-over-year average 2011-2020, while nonresidential electrical and wiring contractors saw 4% payroll growth 2019-2020 compared to a 7% year-over-year average 2011-2020.

Plumbing and HVAC contractors in total had a 5% payroll growth in 2019-2020, compared to a 9% year-over-year average 2011-2020. Within plumbing and HVAC, residential contractors saw a 6% payroll growth 2019-2020 compared to 11% year-over-year average 2011-2020, and non-residential contractors saw a 4% growth 2019-2020 compared to 8% year-over-year average 2011-2020.

In 2020, the total payroll across all 20 economic sectors in Colorado totaled $147 billion, 8% of which comes from the construction sector. The percentage of total industry payroll across sectors is shown in Figure 22. Construction's $11.9 billion payroll in 2020 ranks fourth across all 20 economic sectors. The only sectors with a larger payroll in 2020 were professional and

Figure 21: Total payroll (in billions of dollars) 2011-2020 in building equipment contractors (MEP), electrical and wiring contractors, and plumbing and HVAC contractors. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



CONSTRUCTION PAYROLL (CONT'D)

technical services ($25.4 billion, 17% of total), healthcare and social assistance ($16.7 billion, 11% of total), and finance and insurance ($12.7 billion, 9% of total).

Among comparison sectors, construction has had the largest average year-over-year payroll growth from 2011-2020 and 2015-2020, with 9% average growth per year 2011-2020 and 8% average growth year-over-year 2015-2020. The next sectors in terms of average year-over-year payroll growth are real estate and rental and leasing and professional and technical services, each having 7% average year-over-year growth 2011-2020 and 2015-2020. The historical trends for comparison sector payroll are shown in Figure 23.

From 2019-2020, construction growth comparisons are quite different compared to historical trends. The sector with the largest year-over-year payroll growth 2019-2020 was finance and insurance, with 10% growth ($12.7 billion in 2020). The sector with the next largest year-over-year payroll growth was retail trade, with 5% ($9.7 billion in 2020). Construction ranks fifth among comparison sectors in terms of 2019-2020 payroll growth, with a 3% increase ($11.9 billion in 2020).

Figure 22: Percentage of total industry payroll with comparison sectors highlighted, 2020. Sectors are ordered by NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

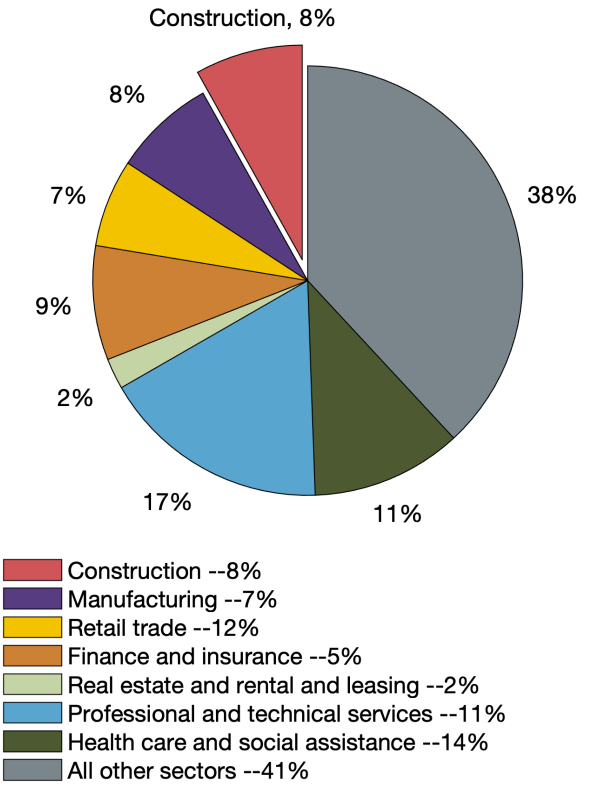
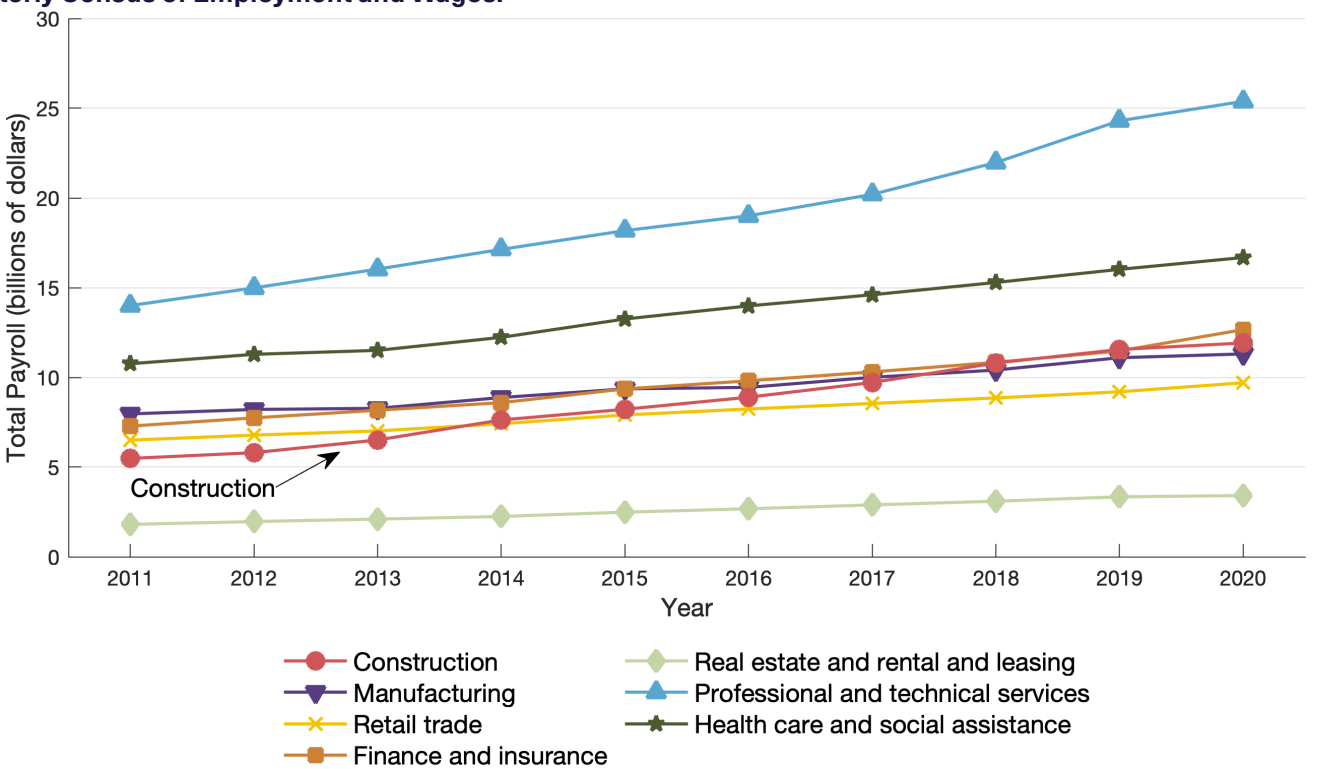


Figure 23: Total payroll (billions of dollars) for comparison sectors, 2011-2020. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



EARNINGS BY EDUCATIONAL ATTAINMENT, GENDER, AND ETHNICITY

In 2020, the average annual wages in Colorado and across all private industries was $67,431, and $64,247 nationwide across all private industries. In Colorado, the average construction employee in Colorado earned $68,209 and the average building equipment (MEP) contractor earned $65,938 in 2020. Nationwide, the average construction employee earned $67,357 and the average building equipment contractor earned $67,300 in 2020.

These averages across all industries and within the construction sector are just above the average earnings nationwide for an earner of an Associate's degree ($50,894) and just below the average earnings nationwide for a Bachelors degree holder ($76,216).

Nationwide, across all industries, the average earnings for women were $51,401, and men $73,364. For ethnicities, nationwide across all industries, the highest average earning group is Asian ($78,450 average), followed by white workers ($64,007 average), Black workers ($49,905), and Hispanic workers ($44,584). Therefore the average construction sector employee in Colorado earns more than the nationwide average pay for women, white employees, Black employees, and Hispanic employees working in any industry.

STATE, LOCAL, AND PRIVATE INDUSTRY WAGES

The previous sections focus on private industry employment and wage data. Here, employment and wage data for state government, local government, and private industry are compared. Data are available for all years 2011-2020 except local government data in 2013 and 2016.

On average, 98% of construction employees been employed in the private sector 2011-2020. The number of employees in the private sector have been increasing each year 2011-2019, but decreased by 2% from 2019-2020 (4,150 jobs lost). Local government employment also decreased 2019-2020 by 15% (15 jobs lost), but state employment increased by 4% (108 new employees).

Comparing average annual wages, state or local government employees have earned more than private sector employees each year 2011-2020.

State employees had the highest wages in all years except 2017, 2019, and 2020 when local government employees had the highest wages. In 2020, the average annual wage for local government construction employees was $71,500, followed by private employees ($68,209), and state employees ($65,602). For both local government and private employees this represents an increase in wages from 2019 (3% and 6% respectively), and for state government employees a decrease from 2019 (-2%).

Weighting the annual pay and weekly pay by the number of employees in each sector results in an overall average annual pay of $68,165 and average weekly wage of $1,311 for construction employees in Colorado.

UNION AFFILIATION

Union affiliation data are available for the construction industry at a nationwide level, as well as for Colorado across all industries.

Nationwide, construction employees have a higher union affiliation than the all industry average: 13% of construction employees are union members and 14% represented by unions on average 2011-2020. Union representation includes all union members as well as those whose job is covered by a union or similar employee association agreement. On average, 11% of employees nationwide have been union members and 12% represented by unions over this period.

Across all industries, union affiliation in Colorado has historically been lower than nationwide union affiliation 2011-2020. On average, 9% of Colorado employees have been union members and 10% represented by unions over the years 2011-2020.

From 2019-2020, union affiliation has decreased.

Nationwide, union membership among construction employees has decreased 6% (-62,000) and representation decreased 7% (-83,000), to 13% membership and 14% representation among construction employees in 2020. This compares to a 6% decrease in nationwide construction employment from 2019-2020.

In Colorado and across all industries, union membership decreased 23% (-55,000) and union representation decreased 22% (-57,000), to 7% union membership and 8% union representation in 2020. This compares to a 6% decrease in total employment (-161,000) across all industries in Colorado and 7% decrease in total employment across all industries nationwide from 2019-2020.

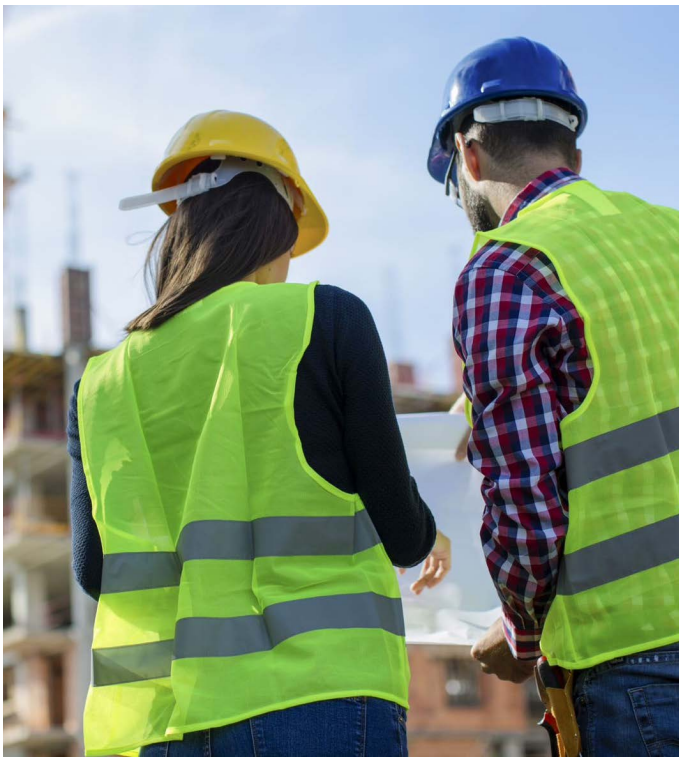
Nationwide across all industries, union membership decreased by 2% (-321,000, to 11% membership) and union representation decreased 3% (-444,000, to 12% representation). These reductions are a much smaller percentage change than the nationwide decrease in employees across all industries, a 7% decrease from 2019-2020 (-9.5 million employees).

Nationwide within the construction sector, union membership decreased 6% (-62,000) to 13% membership in 2020 and union affiliation decreased 7% (-83,000) to 13% affiliation in 2020, which is a similar change to the 6% decrease in all employment 2019-2020 (-523,000 jobs).

SECTION #4
INDUSTRY EDUCATION AND EMPLOYMENT OPPORTUNITIES

In the next decade, Colorado's construction industry employment is projected to grow by 26% and specialty trade contractor employment is projected to grow by 28%. Meanwhile the 2020 unemployment percentage in Colorado in 2020 of 7.3% was more than double the unemployment percentage in 2019 of 2.7%.

Projected growth in Colorado's construction industry, as well as the current unemployment rates, represent a future employment opportunity, and this section describes these trends and education programs currently available in Colorado to train future employees.



DATA COLLECTION AND ANALYSIS METHODOLOGY

- Employment projections for industries and occupations are sourced from Colorado Department of Labor and Employment, Labor Market Information Gateway. Long term employment projections are given for 2020-2030 and short term projections are given for 2021-2023. Data presented are for construction industry codes and construction occupation codes, excluding mining and extraction and including construction management, welders, cutters, solderers, and brazers, and heating, air conditioning, and refrigeration mechanics and installers.
- Unemployment statistics are sourced from the U.S. Bureau of Labor Statistic, Local Area Unemployment Statistics and the U.S. Census, Current Population Survey.
- Construction and construction-related education programs are identified by program codes sourced from the Colorado Department of Higher Education, Degrees and Certificates Offered. All results were verified to ensure the programs are active as of fall 2021.
- All data were sourced in November-December 2021.

PROJECTED FUTURE EMPLOYMENT

From 2020-2030, employment in Colorado's construction sector is forecast to grow by 26%, an average of 2.3% growth per year, according to long-term estimates from Colorado's Department of Labor and Employment.

Long term employment projections are shown in Table 4. Short term estimates for 2021-2023 show a similar outlook: 2.1% employment growth per year expected for the construction sector, 1.9% growth per year for building construction, 3.0% growth per year for heavy and civil engineering construction, and 2.0% growth per year for specialty trades.

Specialty trade contractor employment has the largest long-term growth projections of the three construction subsectors, with a projection of 31,667 jobs added across the state corresponding to a total growth of 28% over ten years. This compares to building construction employment, expected to grow 23% in the next decade and heavy and civil engineering construction, expected to grow 22% in total.

These short-term and long-term rates are below the historic employment trends for 2011-2020: 5% year-over-year average employment growth for construction overall, 6% for the building construction sector, 3% for the heavy and civil engineering construction sector, and 4% for specialty trades. The future projections are also well above the recent 2019-2020 employment trends, however: -2% employment growth in the construction industry overall from 2019-2020, -2% growth in building construction, -5% growth in heavy and civil engineering construction, and -2% growth in specialty trades employment.

Construction trades in Colorado are expected to grow between 10-32% in employment between 2020-2030. In terms of absolute employment growth expected between 2020-2030, the top five construction trades are:

- Construction laborers (6,021 jobs, 21% growth)
- Electricians (4,468 jobs, 27% growth)
- Supervisors of construction and extraction workers (4,299 jobs, 24% growth)
- Carpenters (4,258 jobs, 21% growth)
- Plumbers, pipefitters, and steamfitters (3,441 jobs, 31% growth).

Table 4: Projected future construction industry employment needs, 2020-2030. Data sourced from the Colorado Department of Labor and Employment.

NAICS	INDUSTRY	2020 EMPLOYMENT, ESTIMATED[1]	2030 PROJECTED EMPLOYMENT	TOTAL EMPLOYMENT CHANGE, 2020-2030	TOTAL PERCENT CHANGE	ANNUAL AVERAGE PERCENT CHANGE
23	**Construction**	**174,710**	**219,916**	**45,206**	**26%**	**2.3%**
236	Construction of Buildings	34,635	42,660	8,025	23%	2.1%
237	Heavy and Civil Engineering Construction	25,397	30,911	5,514	22%	2.0%
238	Specialty Trade Contractors	114,678	146,345	31,667	28%	2.5%

Notes:

[1] 2020 employment numbers in this table are estimates from the Colorado Department of Labor and Employment, and do not necessarily match data from the U.S. Bureau of Labor Statistics data presented elsewhere.

PROJECTED FUTURE EMPLOYMENT (CONT'D)

Other mechanical, electrical, and plumbing occupations that are within the top fifteen construction crafts in terms of projected total employment growth between 2020 and 2030 are construction managers (6th, 2,800 jobs and 17% growth), heating, air conditioning, and refrigeration mechanics and installers (8th, 2,427 jobs and 31% growth); welders, cutters, solderers, and brazers (12th, 839 jobs and 17% growth); and sheet metal workers (14th, 585 jobs and 25% growth).

In terms of the total percent growth expected 2020-2030, and excluding mining and extraction, the top construction occupations are:

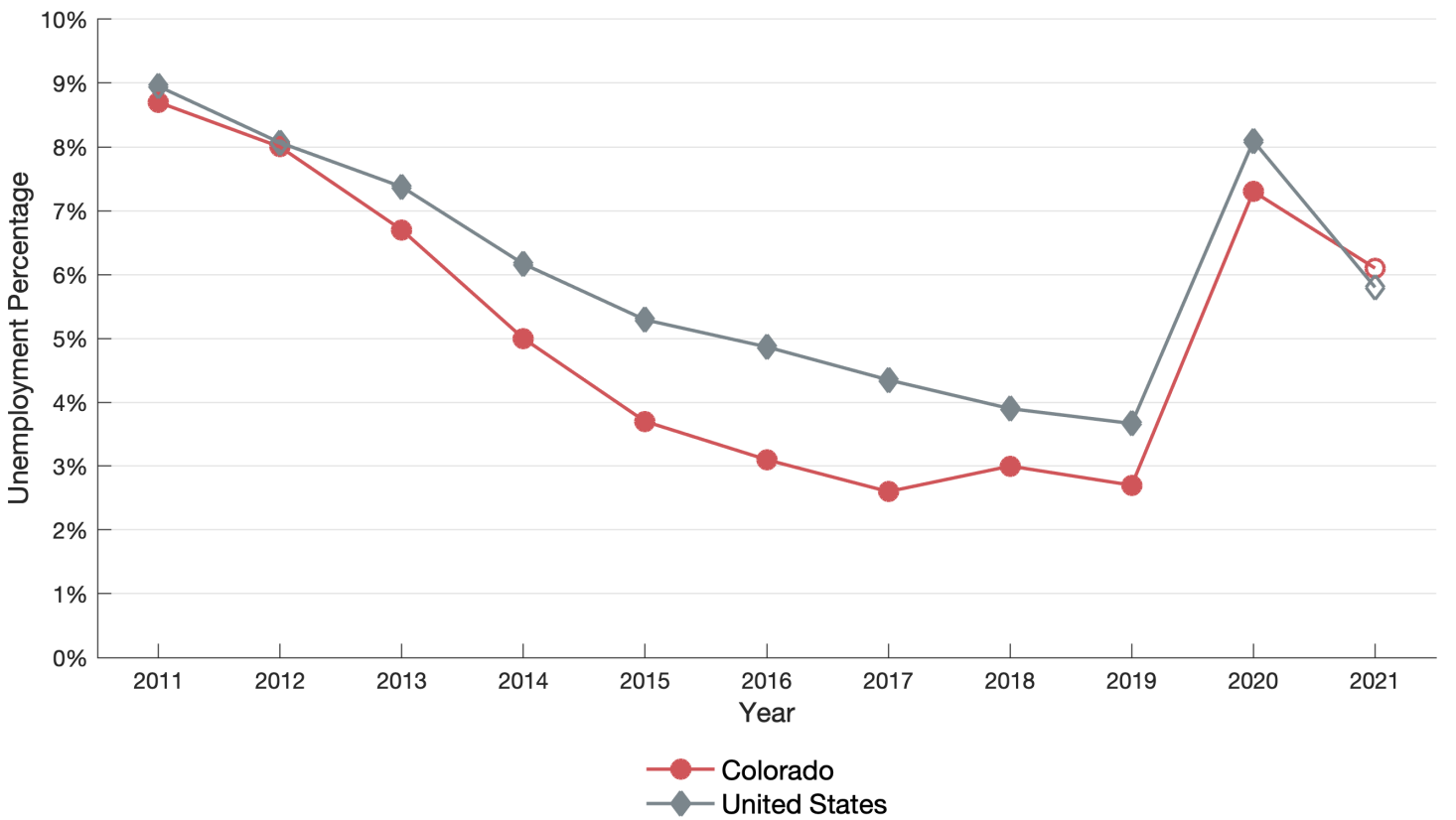
- Tile and marble setters (317 jobs, 32% growth)
- Plumbers, pipefitters, and steamfitters (3,441 jobs, 31% growth)
- Heating, air conditioning, and refrigeration mechanics and installers (2,427 jobs, 30% growth)
- Helpers – pipelayers, plumbers, pipefitters, and steamfitters (75 jobs, 29% growth)
- Roofers (1,078 jobs, 29% growth)

UNEMPLOYMENT

In 2019, Colorado's 2.7% overall unemployment percentage across the statewide workforce was the 6th lowest unemployment percentage of all states. From 2019-2020, unemployment in Colorado rose to 7.3%, 25th lowest across all states.

From 2011-2020, unemployment in Colorado has been lower than the national average, as shown in Figure 24. Partial year data for 2021 indicate decreasing unemployment rates, however Colorado is slightly above the nationwide average in 2021: 6.1% of the labor force was unemployed in Colorado on average in the first three quarters of 2021, compared to 5.8% of the labor force across the United States.

Figure 24: Unemployment percentages in Colorado and the United States, across entire workforce. Data for 2021 are Q1-Q3 only. Sources: U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics and U.S. Bureau of Labor Statistics, Labor Force Statistics.



CONSTRUCTION EDUCATIONAL PROGRAMS

Across Colorado, there are 36 education institutions that offer construction-related education programs, as identified by construction-related instructional program codes. The list here emphasizes mechanical, electrical, and plumbing programs. The community colleges and trade schools listed offer associate degrees, certificates, and training programs in a variety of construction crafts to learn trades including electricians, plumbers, and HVAC installers and maintainers at entry level and more advanced skill levels. Four year colleges and universities offer longer courses of study in construction management and civil, environmental, mechanical, or electrical engineering which may lead to careers in construction and site project management.

The construction-related education programs offered by these schools are listed in Tables 5 and 6. The tables are divided by geographic region: Table 5 includes programs outside the Denver area, and Table 6 includes programs in the Denver area. Figures 25 and 26 are maps of programs included in Tables 5 and 6, respectively.

In addition to these programs, the Mechanical Contractors Association also offers several mechanical, electrical, and plumbing/HVAC apprenticeships throughout the state.

The programs in the following tables are programs listed under the education program areas below:

- Architecture and Architectural Technology
- Engineering, including Civil Engineering, Construction Engineering, Mechanical Engineering, Electrical Engineering, Environmental Engineering, and General Engineering
- Engineering Technology, including Construction Technology, Civil Engineering Technology, Architectural Technology, Energy Technology, and Drafting/ Computer Aided Design
- Construction Trades, including Electrical, Plumbing, Water Supply, Building Finishing, Building Management, Masonry, and Carpentry
- Mechanics and Repair Technology, including maintenance and repair for electrical systems, refrigeration and HVAC, energy systems, heavy equipment, and precision equipment
- Precision production, including boilermaking, precision metalworking, and woodworking
- Construction management

Figure 25: Map of construction and construction-related education programs in Colorado. Map source: GISGeography.com.

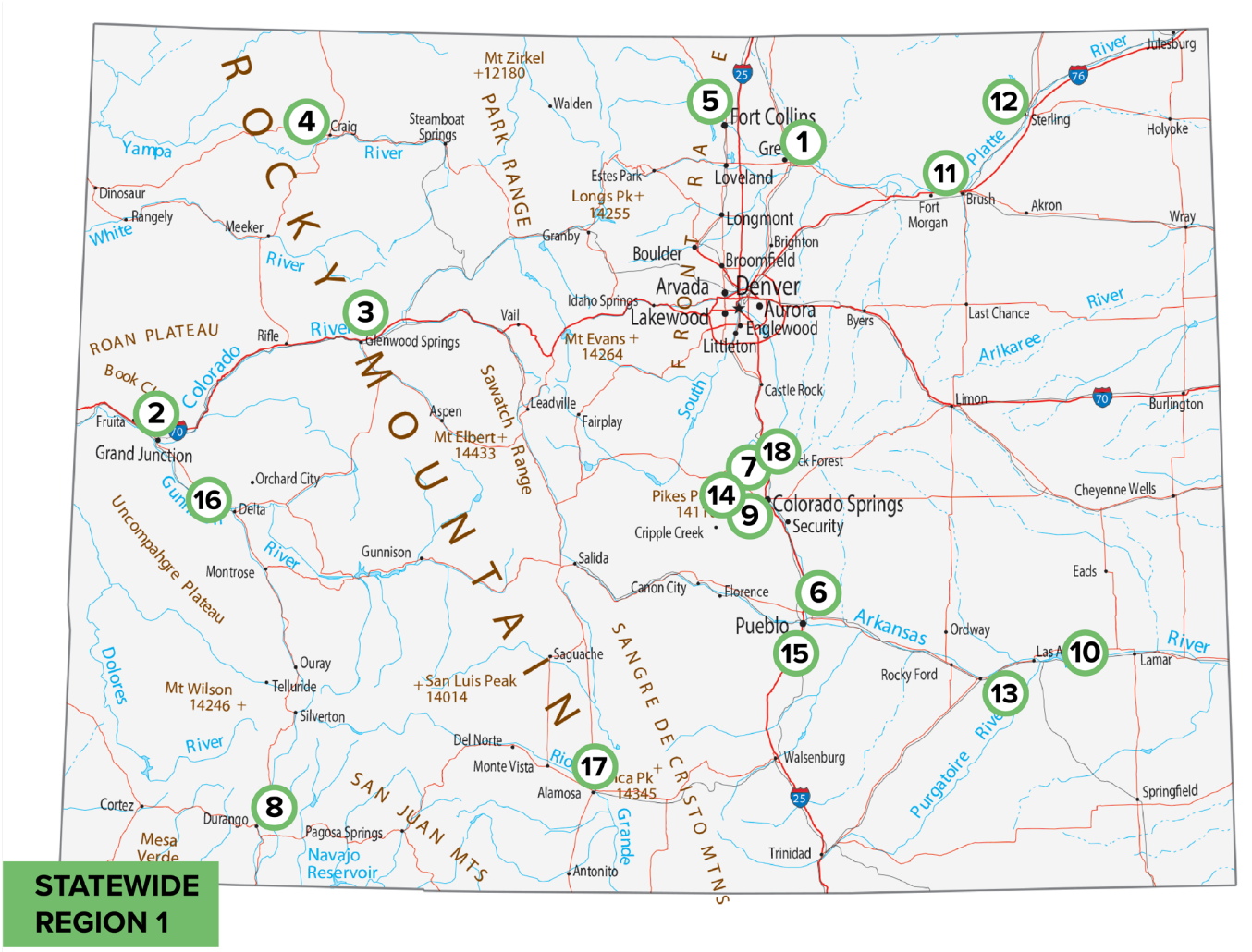


Table 5: Construction and construction-related education programs outside of Denver metro area, shown in Figure 25. Sources: Colorado Department of Higher Education, Degrees and Certificates Offered and institution catalogs.

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
1	Aims Community College	Public	Welding, Welding Technology/Technician	Certificate, Associate
			Carpentry	Certificate
			Building/Construction Site Management	Certificate, Associate
			Electrician	Certificate
			Engineering Technology	Certificate, Associate
			Metal Fabrication, Cutting and Gouging	Certificate

Table 5 (continued): Construction and construction-related education programs outside of Denver metro area, shown in Figure 25. Sources: Colorado Department of Higher Education, Degrees and Certificates Offered and institution catalogs.

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
2	Colorado Mesa University	Public	Construction Management	Bachelors
			Basic Welder	Certificate
			Computer-Aided Manufacturing/ Computer-Aided Design	Certificate
			Construction Electrical	Certificate, Associate
			Construction Technology	Associate
			Electric Line Worker	Certificate, Associate
			Energy Management/Landman	Certificate
			Land Surveying	Certificate, Associate
3	Colorado Mountain College	Public	Applied Engineering Technician	Associate
			Electrical Industrial Instrumentation Technician	Certificate
			Heating, Ventilation, and Air Conditioning	Certificate
			Energy Technology	Certificate
			Process Technology	Associate
			Welding	Certificate
4	Colorado Northwestern Community College	Public	Civil Engineering Technology	Certificate, Associate
			Energy and Facilities Management Technology	Associate
			Industrial Electrician	Associate
5	Colorado State University	Public	Civil Engineering	Bachelors, Masters, Doctorate
			Construction Management	Bachelors, Masters
6	Colorado State University - Pueblo	Public	Civil Engineering Technology	Bachelors
			Construction Management	Certificate, Bachelors
			Construction Estimating	Certificate
7	Colorado Technical University	Proprietary	Electrical Engineering	Bachelors, Masters
			Electrical Technology	Associate
8	Fort Lewis College	Public	Engineering	Bachelors
9	IntelliTech College (Colorado Springs and Grand Junction)	Private	Refrigeration and HVAC	Associate
			Mechanical Drafting and Mechanical Drafting CAD/CADD	Associate
10	Lamar Community College	Public	Carpentry	Certificate
			Construction Technologies	Certificate, Associate
			Construction Trades	Certificate
			Welding	Certificate, Associate
			Energy Technology	Associate
11	Morgan Community College	Public	Welding, Welding Technology	Certificate, Associate

Table 5 (continued): Construction and construction-related education programs outside of Denver metro area, shown in Figure 25. Sources: Colorado Department of Higher Education, Degrees and Certificates Offered and institution catalogs.

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
12	Northeastern Junior College	Public	Welding Fabrication/Technology	Certificate, Associate
13	Otero Junior College	Public	Welding	Certificate
14	Pikes Peak Community College	Public	Architectural & Construction Technology	Certificate, Associate
			Architectural Engineer/Construction Management	Certificate, Associate
			Building and Construction	Certificate
			Building and Construction Technology	Associate
			Carpentry	Certificate
			Computer Aided Drafting and Design	Certificate, Associate
			Energy Management Technology	Associate
			Heating, Air Conditioning and Refrigeration	Certificate, Associate
			Engineering Graphics Technology (Revit)	Certificate
			Welding, Welding Technology	Certificate, Associate
15	Pueblo Community College	Public	Construction Technologies/Technician	Certificate
			Energy Maintenance Technology	Certificate
			Engineering Technology	Certificate, Associate
			Solar Technology	Certificate, Associate
			Surveying	Certificate
			Welding, Welding Technology	Certificate, Associate
16	Technical College of the Rockies	Public	Heavy Equipment Operator	Certificate
			Technical Drafting & CAD	Certificate
17	Trinidad State Junior College	Public	Construction Technology	Certificate, Associate
			Engineering Technology	Certificate, Associate
			Electrical Line Worker/Technician	Certificate, Associate
			Welding, Welding Technology	Certificate, Associate
			Heavy Equipment Technology/Operations	Certificate, Associate
			Energy Production and Industrial Construction	Certificate, Associate
			Woodworking	Certificate, Associate
			Power Construction Supervision	Associate
18	University of Colorado Colorado Springs	Public	Electrical Engineering	Bachelors, Masters
			Engineering	Masters, Doctorate
			Mechanical Engineering	Bachelors, Masters

CONSTRUCTION EDUCATIONAL PROGRAMS (CONTINUED)

Figure 26: Inset map of construction and construction-related education programs in the Denver area. Map source: GISGeography.com.

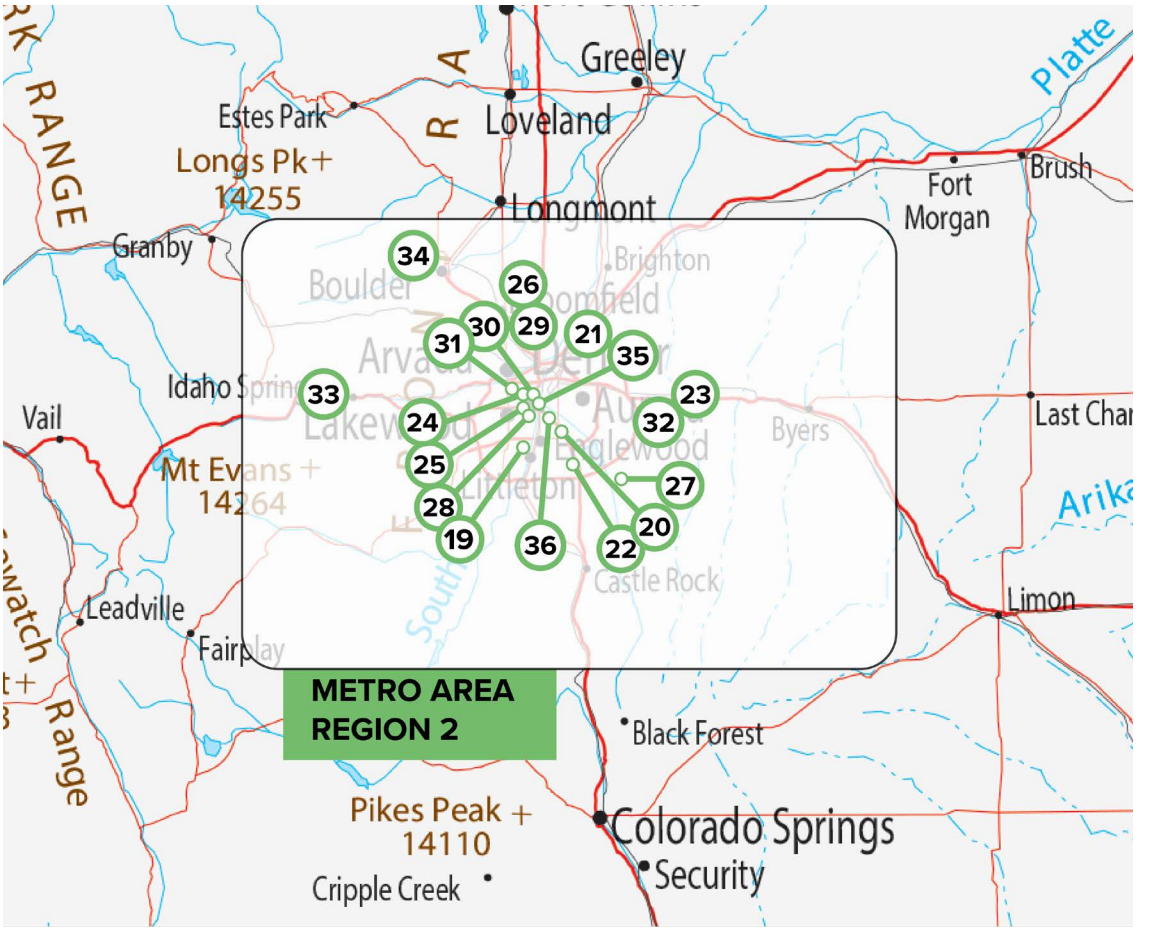


Table 6: Construction and construction-related education programs inside of Denver metro area, shown in Figure 26. Sources: Colorado Department of Higher Education, Degrees and Certificates Offered and institution catalogs.

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
19	Arapahoe Community College	Public	Architectural Engineering	Certificate, Associate
			Architectural Technology	Certificate, Associate
			Construction Estimating	Certificate
			Construction Management	Certificate, Associate
			Engineering Technologies	Certificate, Associate
			Advanced 3D Printing and 3D Scanning	Certificate
			Energy Technology	Certificate
			Engineering Graphics Technologies	Certificate, Associate
20	Aspen University	Proprietary	Alternative Energy	Bachelors
21	Colorado School of Mines	Public	Civil & Environmental Engineering	Masters, Doctorate
			Civil Engineering	Bachelors
			Engineering and Technology Management	Masters
22	Columbia College	Private	Pre-Engineering	Associate

Table 6 (continued): Construction and construction-related education programs inside of Denver metro area, shown in Figure 26. Sources: Colorado Department of Higher Education, Degrees and Certificates Offered and institution catalogs.

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
23	Community College of Aurora	Public	Construction Estimating	Certificate
			Energy Technology	Certificate
24	Community College of Denver	Public	Architectural Studies/Technologies	Certificate, Associate
			Building Crafts	Certificate
			Building Technology	Certificate
			CAD and Drafting	Certificate, Associate
			Engineering Graphics Technologies	Certificate, Associate
			Welding and Welding Technology	Certificate, Associate
			Residential Energy Analyst	Certificate
			Sustainable Design	Certificate
25	Construction Industry Training Council (CITC)		Carpentry	Apprenticeship
			Electrical	Apprenticeship
			Masonry	Apprenticeship
			Pipefitting	Apprenticeship
			Plumbing	Apprenticeship
			Sheet Metal	Apprenticeship
26	DeVry University	Proprietary	Electronics Engineering Technology	Bachelors, Associate
27	ECPI University	Proprietary	Electronics Engineering Technology	Bachelors, Associate
			Mechanical Engineering Technology	Bachelors, Associate
28	Emily Griffith Technical College	Public	Carpenter	Apprenticeship, Certificate
			Electrical Line Worker	Apprenticeship, Certificate
			Inside Electrician	Apprenticeship, Certificate
			Operating Engineer	Apprenticeship, Certificate
			Pipe Fitter	Apprenticeship, Certificate
			Plumber	Apprenticeship, Certificate
			Building Trades Technology	Certificate
			Welding	Certificate
			Construction Trades	Certificate
			Drafting/ CAD	Certificate
			Refrigeration and HVAC Technician	Certificate

Table 6 (continued): Construction and construction-related education programs inside of Denver metro area, shown in Figure 26. Sources: Colorado Department of Higher Education, Degrees and Certificates Offered and institution catalogs.

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
29	Front Range Community College	Public	Architectural & Construction Technology	Certificate, Associate
			Drafting, Architectural and CAD	Certificate, Associate
			Architectural and Building Science	Associate
			Building Construction Management	Associate
			Clean Energy Technology	Certificate, Associate
			Heating, Ventilation, Air Conditioning, and Refrigeration	Certificate, Associate
			Machining, Precision, Computer Aided, and Manual	Certificate
			Construction Fundamentals, Essentials	Certificate
			Electrical Fundamentals	Certificate
			Welding, Welding Technology	Certificate, Associate
			Plumbing Fundamentals	Certificate
			Engineering Graphics Technologies	Certificate
			Building Science and Sustainable Design	Certificate
			Manufacturing and Energy Technology	Certificate, Associate
			Power Technology	Associate
30	Metropolitan State University of Denver	Public	Civil Engineering Technology	Bachelors
			Construction Project Management	Bachelors
31	Norwich University	Private	Civil Engineering	Bachelors, Masters
			Mechanical Engineering	Bachelors
32	Pickens Technical College	Public	Carpentry	Certificate
			Drafting/Computer Aided Drafting	Certificate
			Electrician	Certificate
			Energy Technology	Certificate
			HVAC, HVAC Technology	Certificate
			Welding	Certificate

Table 6 (continued): Construction and construction-related education programs inside of Denver metro area, shown in Figure 26

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
33	Red Rocks Community College	Public	Electrical/Electrician	Certificate, Associate
			Renewable Energy Technology/PV Design	Certificate, Associate
			Instrumentation and Control Systems Technology/Technician	Certificate, Associate
			Applied Science (Architectural)	Associate
			Building Efficiency	Certificate
			Building Maintenance	Certificate, Associate
			Carpentry/Woodworking	Certificate, Associate
			Construction Technology	Certificate, Associate
			Energy, Energy Auditing	Certificate
			Engineering Graphics Technology	Certificate, Associate
			HVAC	Certificate, Associate
			Construction Management	Certificate
			Plumbing	Certificate, Associate
			Welding & Fabrication	Certificate, Associate
34	University of Colorado Boulder	Public	Civil Engineering	Bachelors, Masters, Doctorate
35	University of Colorado Denver	Public	Architecture	Bachelors, Masters, Doctorate
			Civil Engineering	Bachelors, Masters, Doctorate
			Construction Engineering and Management	Bachelors, Certificate
			Construction Management	Bachelors, Minor
36	University of Denver	Private	Construction Management	Bachelors, Masters
			Real Estate and Construction Management	Certificate, Bachelors, Masters
			Technology Management	Certificate, Masters

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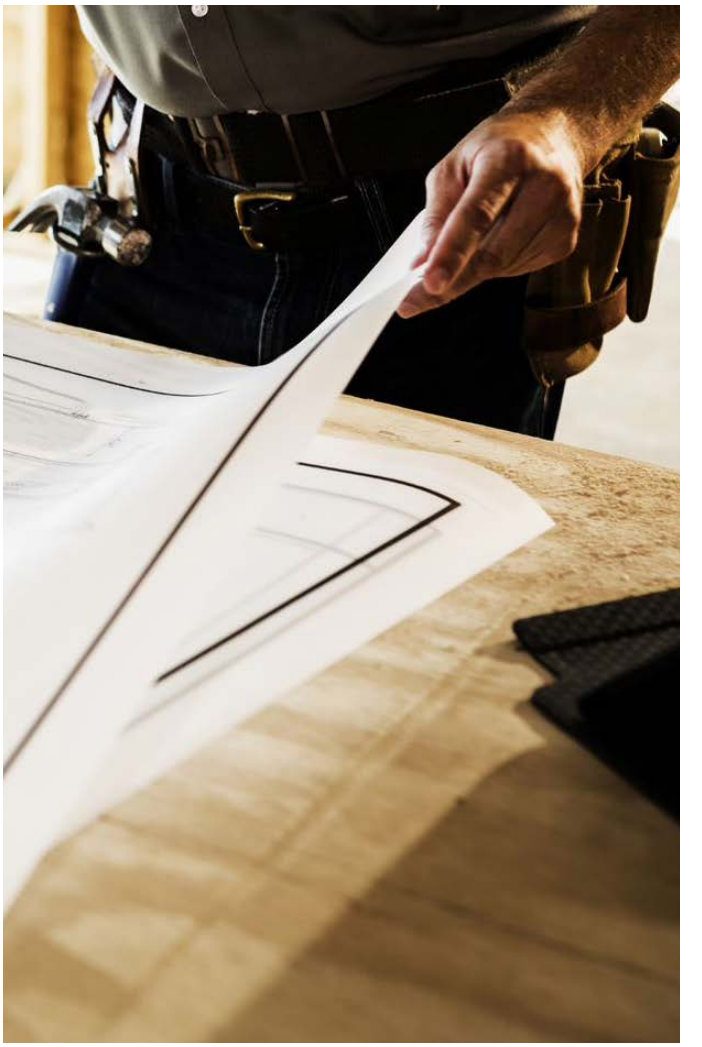

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