

**2024 REPORT**  
**ECONOMIC IMPACTS OF THE  
CONSTRUCTION INDUSTRY  
ON THE STATE OF COLORADO**



**PREPARED BY**



Construction Engineering & Management  
UNIVERSITY OF COLORADO DENVER



# GREETINGS

January 2024

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 **2023 Report of the Economic Impacts of the Construction Industry on the State of Colorado.**

In this year's report, we delve into the resilience and growth of the construction industry amidst the backdrop of the 2020 COVID-19 pandemic. By evaluating economic indicators, industry size, job counts, wages, and employment prospects, we shed light on the sector's significant contributions to the state's economy. Notably, despite the unparalleled economic upheavals of the pandemic, the construction sector has not only maintained its strength but has also exhibited remarkable recovery and growth. The forecast is promising, with opportunities set to expand even further in the coming years.

As you will see from the report, Colorado's construction industry, or sector, contributed \$26 billion to the state's GDP in 2022. For every \$1 billion added to Colorado's construction sector in 2022, the state saw a return of \$2.2 billion in total output across all the industries; household earnings across all industries amounted to \$801 million, and the construction sector supported over 13,250 jobs. ***In other words, support for construction spending is an excellent investment choice that benefits all of Colorado.***

In 2020, the Western States College of Construction (WSCC) marked its official launch, heralding a new era

in construction education. It was a momentous year that saw the birth of the first professional institution of its kind in the nation. This pioneering step was further solidified in late 2021 when the American Council for Construction Education (ACCE) granted WSCC accreditation, recognizing its unique contribution to the field. Since then, WSCC has solidified its position as a pioneering educational institution in the nation, offering a professional degree program specifically tailored for the skilled trades. This unique program not only equips students with essential skills and certifications but also ensures they graduate without debt, benefiting from hands-on, salaried learning experiences. As WSCC continues to evolve, it is playing a crucial role in preparing our industry for the anticipated labor demands. Its contribution to fostering labor readiness cannot be overstated. For more information about WSCC and its transformative impact on the construction industry, we encourage you to visit [www.westernstatescollege.org](http://www.westernstatescollege.org).

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 12% and specialty trade contractor employment is expected to grow by 11%. 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.

Sincerely,

# TABLE OF CONTENTS

<b>GREETINGS</b> .....	<b>1</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>3</b>
<b>INTRODUCTION</b> .....	<b>5</b>
<b>SECTION #1 ECONOMIC INDICATORS</b> .....	<b>7</b>
CONTRIBUTION OF CONSTRUCTION TO STATE GDP .....	8
ECONOMIC MULTIPLIER EFFECTS OF CONSTRUCTION .....	12
RETAIL SALES DATA.....	14
<b>SECTION #2 COLORADO CONSTRUCTION ESTABLISHMENTS</b> .....	<b>16</b>
NUMBER OF ESTABLISHMENTS .....	17
ESTABLISHMENT SIZE .....	21
<b>SECTION #3 CONSTRUCTION EMPLOYMENT &amp; WAGES</b> .....	<b>23</b>
NUMBER OF EMPLOYEES .....	24
AVERAGE ANNUAL WAGES.....	36
CONSTRUCTION PAYROLL .....	40
EARNINGS BY EDUCATIONAL ATTAINMENT, GENDER, AND ETHNICITY .....	45
UNION AFFILIATION .....	47
<b>SECTION #4 INDUSTRY EDUCATION AND EMPLOYMENT OPPORTUNITIES</b> .....	<b>50</b>
.....	50
PROJECTED FUTURE EMPLOYMENT.....	51
UNEMPLOYMENT .....	55
CONSTRUCTION EDUCATIONAL PROGRAMS.....	56
<b>REFERENCES</b> .....	<b>71</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>72</b>

# EXECUTIVE SUMMARY

This report introduces the economic impact of the construction sector in Colorado with a focus on the sector in 2022, trends between 2011-2022, and changes from 2021-2022. 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



**\$801**

**Million**

in household earnings  
in all industries



**\$1.2**

**Billion**

Of added value  
across all industries



**13,250**

**Jobs**

in all industries

## In 2022, Colorado's construction sector had:

**\$26 BILLION** contribution to the state GDP ranks 1st in terms of average year-over-year GDP growth from 2011-2022 among all 20 economic sectors in Colorado, increasing from 3.6% of the state GDP in 2011 to 5% in 2022.

**\$75,547** average annual wage

Among Colorado's 20 economic sectors, construction ranks 11th in terms of average annual wages, 5th in number of employees, 4th in sector payroll, and 2nd in number of establishments.

**22,389** private construction establishments

67% 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.

**183,088** 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 9% are non-Hispanic and Black, Asian, Indigenous, or multiracial.

## **12%** employment growth expected by 2032

Colorado's Department of Labor and Employment projects 1.1% growth per year for the construction sector overall, and ten-year total employment growth of 11% for the specialty trades subsector, 16% for the building construction subsector, and 7% for the heavy and civil engineering subsector.

## **38** 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.

## **6%** Growth in GDP

Construction is one of the few sectors with a constant growth in GDP each year, with nearly \$1.5 billion GDP growth from 2021-2022.

## **3%** growth in number of establishments

Each of the construction sectors' three subsectors saw an increase in number of establishments from 2021-2022, led by 393 new specialty trade establishments.

## **1.6%** annual growth in electricians

The electrician sector is projected to grow at 1.6%, with 22,865 jobs by the year 2032. This represents an addition of 3,288 jobs over 2022-2032.

## **1.0%** annual growth in plumbers, pipefitters, and steamfitters

The Plumbers, Pipefitters, and Steamfitters are projected to grow by 1% annually with 11,042 jobs by the year 2032. This represents an addition of 1,052 jobs over 2022-2032.

## **1.4%** annual growth in heating, air conditioning, and refrigeration mechanics and installers

The Heating, Air Conditioning, and Refrigeration Mechanics and Installers are projected to grow by 1.4% annually with 11,140 jobs by the year 2032. This represents an addition of 1,456 jobs over 2022-2032.

## **5,825** more constructions jobs

Comparing 2022 to 2021, Colorado's construction sector had 3% more employees in 2022.

## **3%** unemployment percentage

The unemployment rate in both Colorado and the U.S. experienced a sharp rise in 2020 due to the pandemic, but by 2022, both showed significant recovery, with Colorado consistently maintaining a rate below the national average. In 2022, the unemployment was at 3%, lower than that of 2021 at 5%.

## **8%** increase in employment for women in the construction sector

The number of women in Colorado's construction sector increased showing +2,716 additional jobs for female.

## **2%** increase in employment for Asian employees in construction

the construction sector in Colorado witnessed notable growth in workforce diversity, with the Black employee segment growing by 9%, followed by Asians and American Indians or Alaska Natives each at 7%, illustrating a positive trend in diversifying the industry's workforce.

# 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 2022. Whenever feasible, the report emphasizes the observed changes between 2021 and 2022, particularly highlighting the industry's recovery in the aftermath 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.

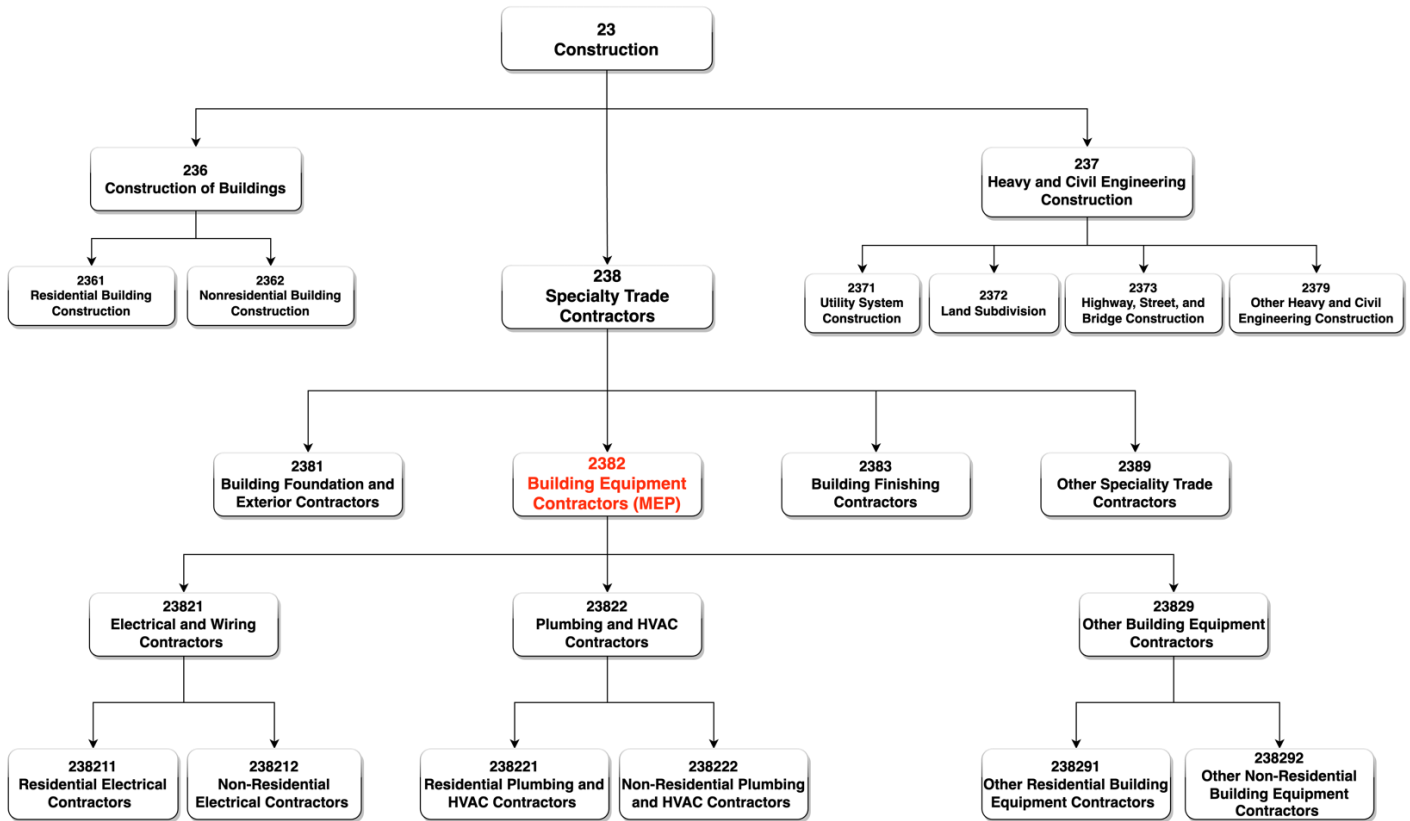
**Section 4** includes future projections and educational opportunities for construction, which includes a list of the education programs in Colorado that offer construction and construction-related degrees and apprenticeships.



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 2022 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 \$26 billion to Colorado's GDP in 2022, a 6.1% positive growth from 2021. Among Colorado's 20 economic sectors, construction has seen the largest growth in terms of percent contribution to state GDP over the last decade (+1.7%) and ranks first in terms of average per-year GDP growth 2011-2022 (9%).

Economic multipliers that include household spending indicate that every \$1 billion added to the construction sector delivers \$2.2 billion in output, \$801 million in earnings, 13,250 jobs, and \$1.2 billion of added value across all industries.



### DATA COLLECTION AND ANALYSIS METHODOLOGY

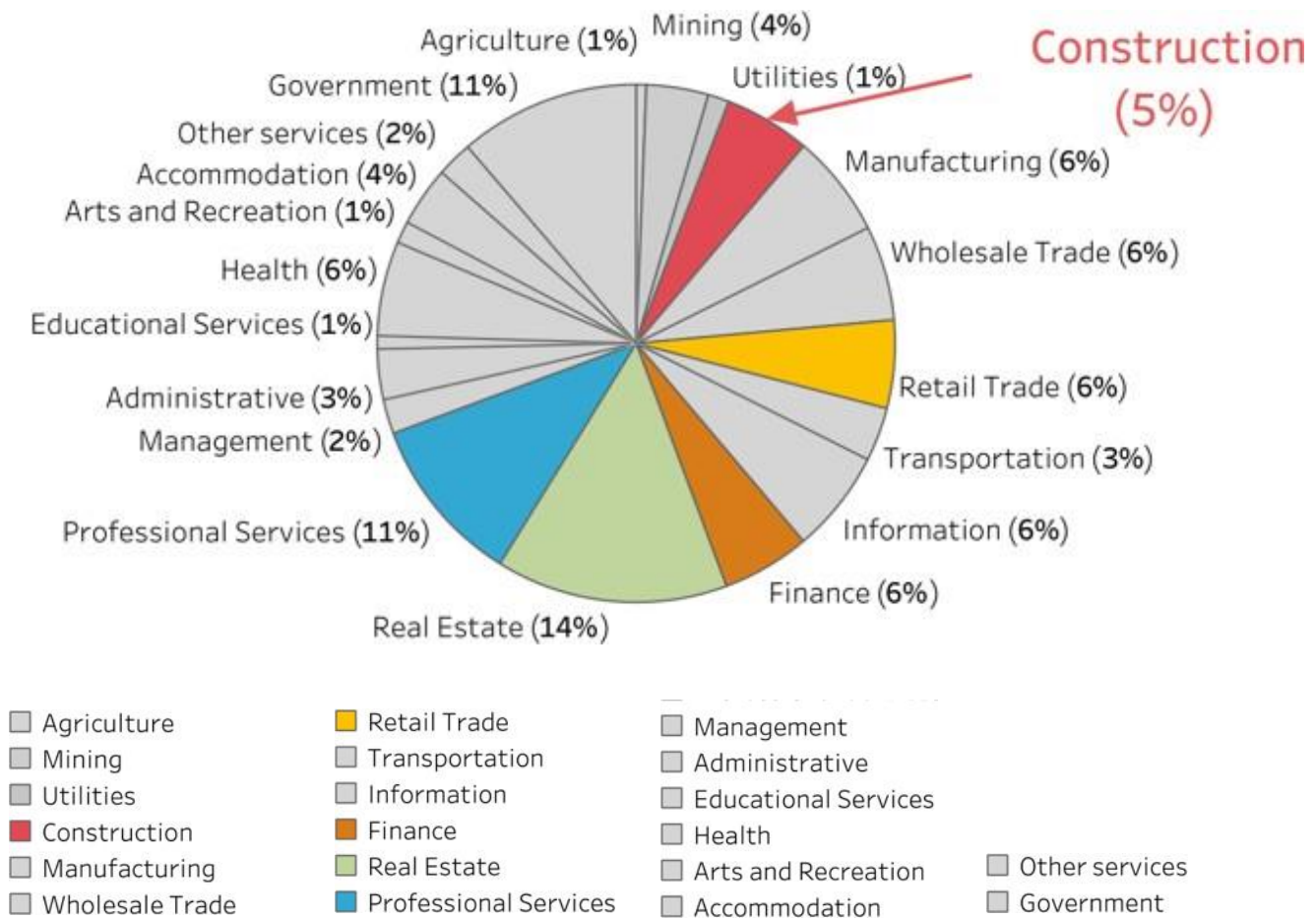
- Sector contribution to state GDP data were collected from the U.S. Bureau of Economic Analysis, Regional Product Division, Gross Domestic Product by State reports for years 2011-2022.
- Economic multipliers were calculated by the Bureau of Economic Analysis, Regional Product Division, and Regional Input/Output Modeling System (RIMS II). Data in this report are based on 2012 Input/Output benchmark data and 2021 regional data for Colorado, released in 2023.
- Data on new housing construction permits were obtained from the U.S. Census, Building Permit Survey for 2021-2022.
- Retail Sales data for construction were obtained from the Colorado Department of Revenue Office of Research and Analysis, Retail Sales Reports.
- Data were retrieved in August-September 2023.

# CONTRIBUTION OF CONSTRUCTION TO STATE GDP

Construction contributed \$26 billion to Colorado's GDP (5%) in 2022, ranking 10th among Colorado's 20 economic sectors, and 1st in terms of average per-year GDP growth 2011-2022 (9%).

The percent contribution by sector to state GDP in 2022 is shown in Figure 2. Sectors with larger percentage contribution to state GDP were real estate, rental, and leasing (14%); government and government enterprises (11%); manufacturing (6%); information; professional, scientific, and technical (11%); finance and insurance (6%); and health care and social assistance (6%), wholesale trade (6%), retail trade (6%), and information (6%).

Figure 2: Percentage contribution to Colorado GDP by sector in 2022 (not adjusted for inflation). Sectors are ordered by 2022 NAICS code. Source: U.S. Bureau of Economic Analysis, Regional Product Division, Gross Domestic Product by State.



## CONTRIBUTION OF CONSTRUCTION TO STATE GDP (CNT'D)

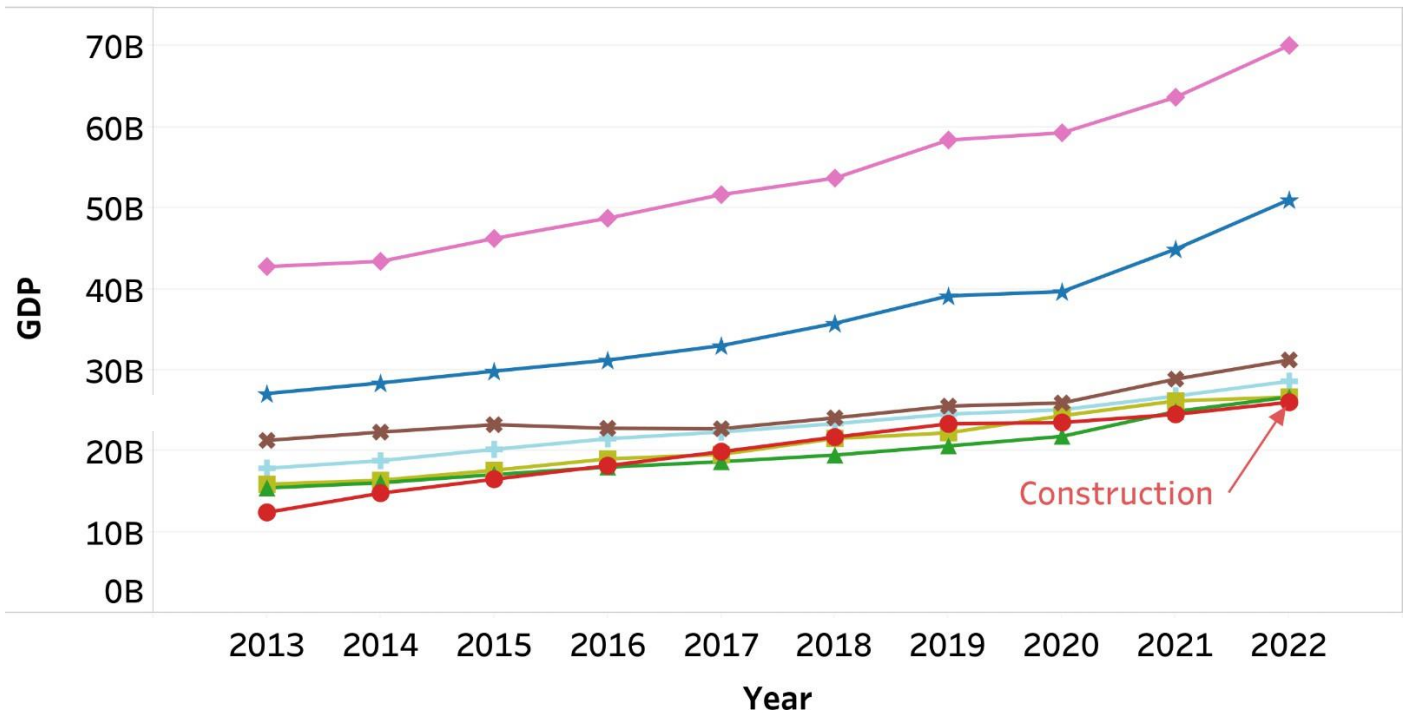
Construction is a strong sector in Colorado with steady growth over the last decade. Construction's contribution to state GDP has increased significantly since 2013 and has increased each year between 2013 and 2022 in terms of dollar amount; however, its percent contribution to state GDP is slightly declined from 6% to 5.4% of Colorado's total GDP. The trend of contributions to state GDP for selected comparison sectors is shown in Figure 3.

Contribution of selected comparison sectors to Colorado GDP 2013-2022 is shown in Figure 3. The construction sector, represented by the green line, has demonstrated a stable contribution throughout the period, hovering consistently around the 10B to 20B dollar, and reached its peak at 26B in 2022. This places the construction sector in the middle tier among the represented sectors. The manufacturing sector, denoted by the pink line, has shown a significant increase, leading the pack with contributions escalating from just above 40B in 2010 to almost 70B by 2022. In contrast, sectors like retail

trade, finance and insurance, and health care have displayed relatively parallel trajectories, maintaining their contributions without major fluctuations. The stability of the construction sector, amidst the dynamic shifts of other sectors, underscores its consistent role in Colorado's economic landscape.

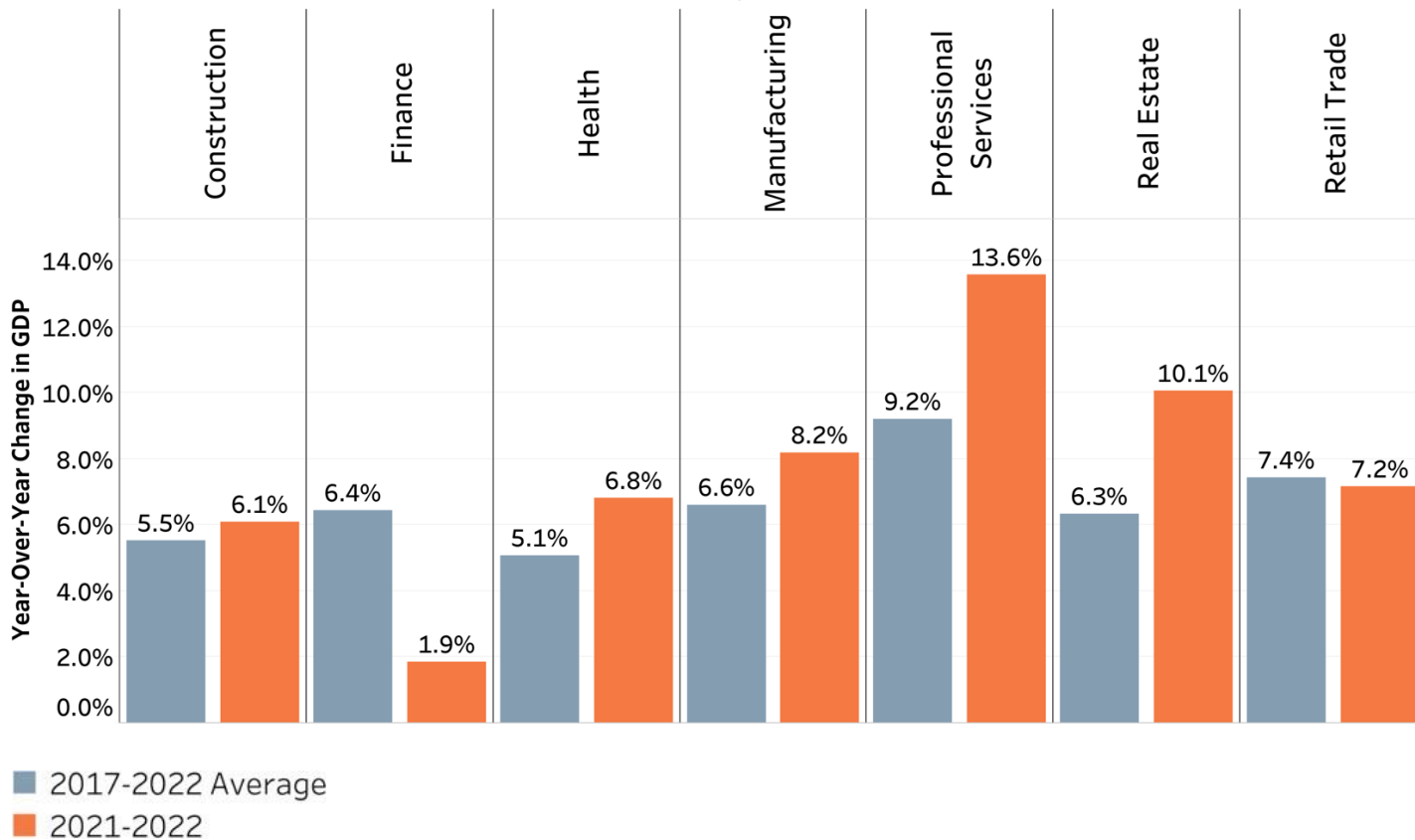
Growth rates for selected comparison sectors based on year-over-year GDP is shown in Figure 4. The "Professional, scientific, and technical services" sector experienced the highest year-over-year growth at 13.6% in 2021-2022, surpassing its 2017-2022 average of 9.2%. Meanwhile, the construction sector witnessed a rise from its five-year average of 5.5% to 6.1% in the recent year. The "Real estate and rental and leasing" sector also showed an impressive boost from 6.3% on average to 10.1% in 2021-2022. The data underscores the dynamic shifts across sectors, highlighting the robust growth in professional services and real estate sectors in particular.

Figure 3: Colorado GDP 2011-2022 for selected comparison sectors. Source: U.S. Bureau of Economic Analysis, Regional Product Division, Gross Domestic Product by State.



- Construction
- Manufacturing
- Retail trade
- Finance and insurance
- Real estate and rental and leasing
- Professional, scientific, and technical services
- Health care and social assistance

Figure 4: Growth rates for selected comparison sectors based on year-over-year GDP, comparing average year-over-year GDP growth 2017-2022 (grey) and year-over-year change from 2021-2022. 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 2021 regional data for Colorado, released in Spring 2023. Type II multipliers account for inter-industry effects and household spending. Additionally, building permits are a critical indicator of economic health, as they reflect both the confidence of builders in the construction sector and the demand for new housing and commercial spaces. The increase in permits to 48,839 units in 2022 shows a robust construction activity in Colorado, which in turn drives employment, stimulates supplier industries, and fuels consumer spending. This surge in construction underscores the growth in household spending, which is a component factored into the RIMS Type II multipliers, thereby affirming the interconnectedness of the construction industry with wider economic vibrancy. However, these multipliers do not take into account the effects of changes in state and local government policies, which can also significantly influence the economic impact of the industry.

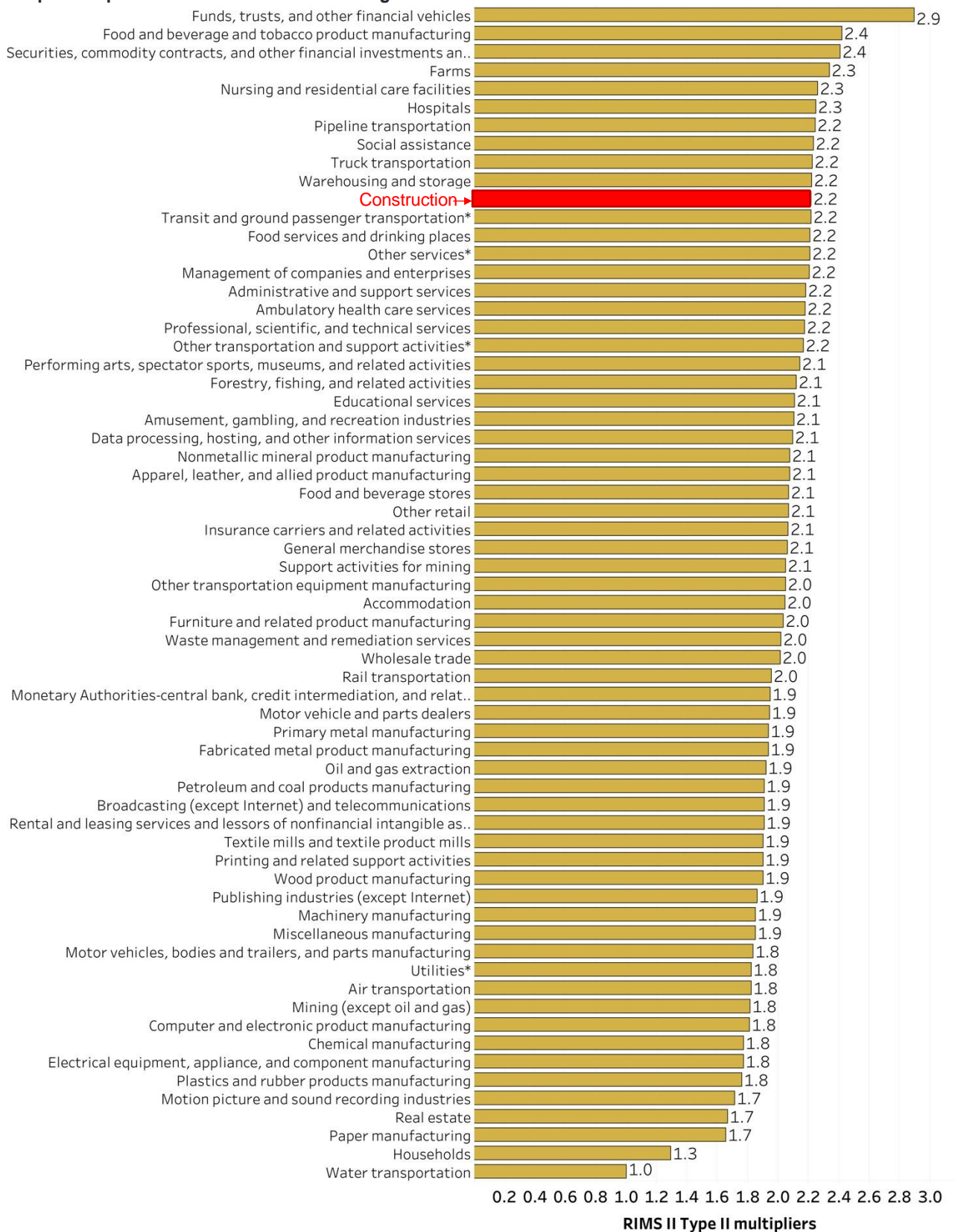
**According to RIMS II Type II multipliers from 2021, every \$1 billion dollars added to Colorado's construction sector produces \$2.2 billion in output, \$801 million in household earnings, 13,250 jobs, and \$1.2 billion of added value across all of Colorado's industries.**

RIMS multipliers are calculated for 64 industry groups and sectors that correspond to the 20 economic sectors in the NAICS classification, as shown in Figure 5.

According to the type II multipliers, in terms of output, construction's \$2.2 billion output for a \$1 billion investment ranks 11th out of the 64 industry areas in Colorado. Industries that rank higher for an equivalent economic stimulus are funds, trusts, and other financial vehicles (\$2.9 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); hospitals (\$2.3 billion), pipeline transportation (\$2.2 billion); social assistance (\$2.2 billion); truck transportation (\$2.2 billion); and warehousing and storage (\$2.2 billion).

Among the 64 industry areas, construction ranks 11<sup>th</sup> in terms of household earnings, 20<sup>th</sup> in terms of employment, and 22<sup>nd</sup> in terms of value added.

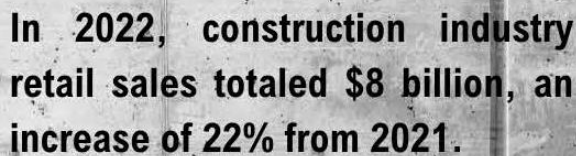
**Figure 5: RIMS (Regional Input/Output Modeling System) Type II multipliers, calculated by the Bureau of Economic Analysis using 2012 Input/ Output benchmark data and 2021 regional data for Colorado.**



## RETAIL SALES DATA

Retail sales in Colorado across all selected industries among 20 NAICS sectors, including construction, from 2016 to 2022 are shown in Figure 6.

The construction sector has shown a consistent growth trajectory from 2016 to 2022. Starting at \$4.7 billion in 2016, there has been a steady increase year-over-year, with a peak in 2021 at \$8 billion in 2022. This steady upward trend could be attributed to various factors, such as increased infrastructure spending, housing demand, or potentially stimulus measures in response to economic conditions.

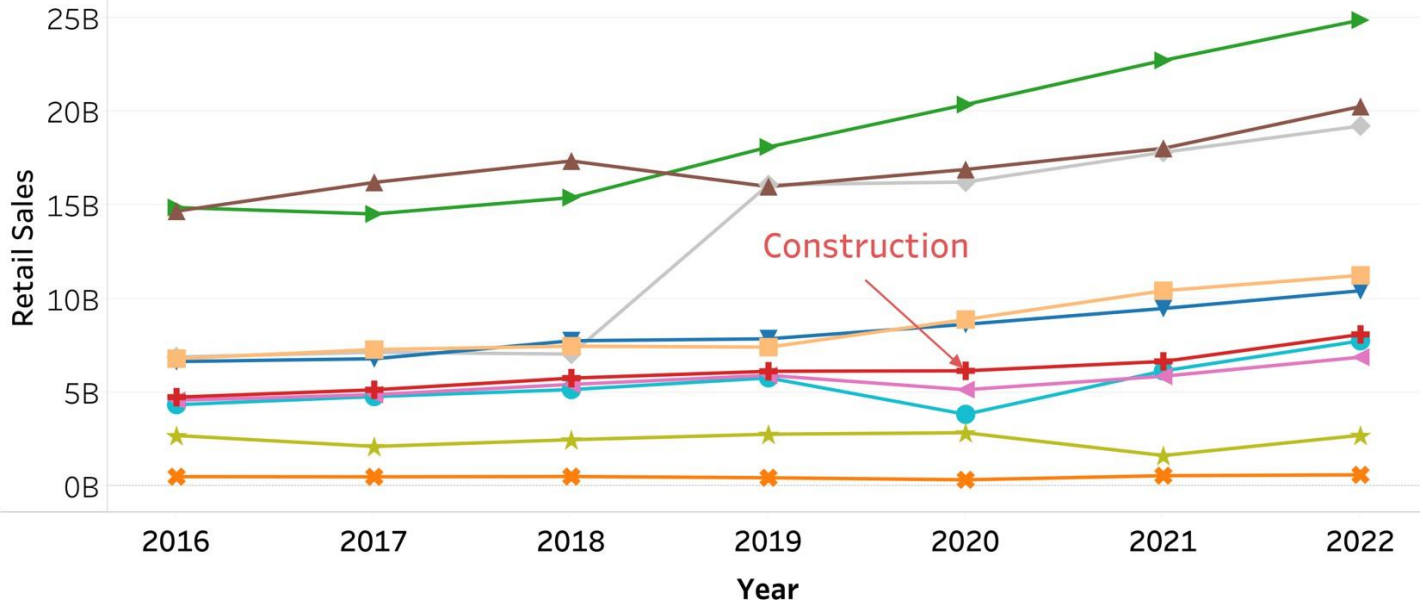


**In 2022, construction industry retail sales totaled \$8 billion, an increase of 22% from 2021.**

The Health Care and Social Assistance sector, for instance, has shown an extraordinary increase, especially from 2019 onwards, jumping from \$7 billion to a remarkable \$19.2 billion by 2022. This might be reflective of increased health spending and the expansion of social assistance programs, possibly influenced by the global health situation during those years. The Manufacturing sector also exhibits strong growth, standing at \$14.7 billion in 2016 and reaching \$20.3 billion by 2022. This sector's performance, especially in the face of global disruptions to supply chains, indicates resilience and possible advancements in manufacturing technology or shifts in production patterns. In contrast, industries such as Educational Services show a more modest growth. This could suggest a shift in consumer behavior, policy impacts, or evolving market dynamics different from those affecting the construction industry.



Figure 6: Colorado retail sales by industry, 2016-2022. Source: Colorado Department of Revenue Office of Research and Analysis, Retail Sales Data.



- Construction
- Manufacturing
- Wholesale Trade
- Building Material and Garden Equipment and Supplies Dealers
- Finance and Insurance
- Real Estate and Rental and Leasing
- Professional, Scientific, and Technical Services
- Educational Services
- Health Care and Social Assistance
- Accommodation

## SECTION #2

# COLORADO CONSTRUCTION ESTABLISHMENTS

As of 2022, there were 903,816 private construction establishments in the United States, and Colorado's 22,389 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 of private construction establishments (67%) are in the specialty trade subsector, followed by building construction at 28%. Heavy and civil engineering establishments make up 5%, while 25% are dedicated to MEP (Mechanical, Electrical, and Plumbing) operations.

## 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 employment size within Colorado were obtained from the U.S. Census, 2021 County Business Patterns report.
- All data were retrieved in August-October 2023.

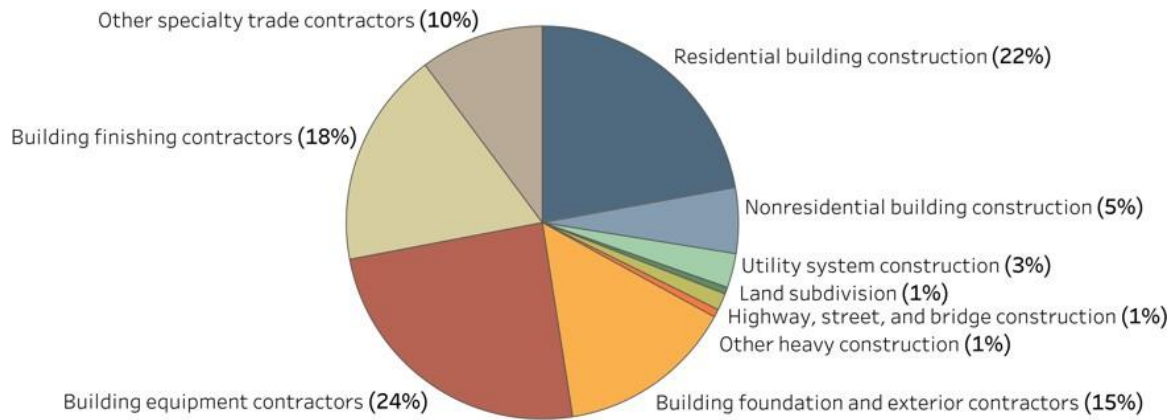
## NUMBER OF ESTABLISHMENTS

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 22,389 establishments in 2022. The percentage of establishments in each construction industry group are shown in Figure 7. Specialty trade contractor establishments (includes building foundation and exterior contractors, building equipment contractors, building finishing contractors, and other specialty trade contractors) are the majority of establishments, at 15,053 or 67% of all construction establishments. By construction industry group, the largest share of establishments is the 5,496-building equipment (MEP) contractor establishments (25% of all establishments), followed by residential building construction (4,973 establishments, 22% of all establishments), building finishing contractors (3,996 establishments, 18% of all establishments), and building foundation and exterior contractors (3,275 establishments, 15% of all establishments).

Within the building equipment (MEP) industry group, shown in Figure 8, there has consistently been a larger share of plumbing and HVAC contractor establishments than electrical and wiring contractor establishments. Year-over-year growth rates 2021-2022 show growth in both areas: Electrical and wiring establishments grew 3.64% and Plumbing and HVAC establishments grew 2.26%, nearly the same growth rate as previous years.

Historical trends for the number of establishments in the construction sector and comparison sectors are shown in Figure 9. The number of construction establishments (22,389 in 2022) ranks second among Colorado's private sector establishments and represents nearly 10% of all private establishments (241,934). The largest number of establishments in 2022 is the 53,268 establishments in the professional, scientific, and technical services sector.

Figure 7: Percentage of establishments in each of Colorado’s construction industry group, 2022. Industry groups are ordered by NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



- Residential building construction
- Nonresidential building construction
- Utility system construction
- Land subdivision
- Highway, street, and bridge construction
- Other heavy construction
- Building foundation and exterior contractors
- Building equipment contractors
- Building finishing contractors
- Other specialty trade contractors

**Figure 8: Number of establishments 2011-2022 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.**

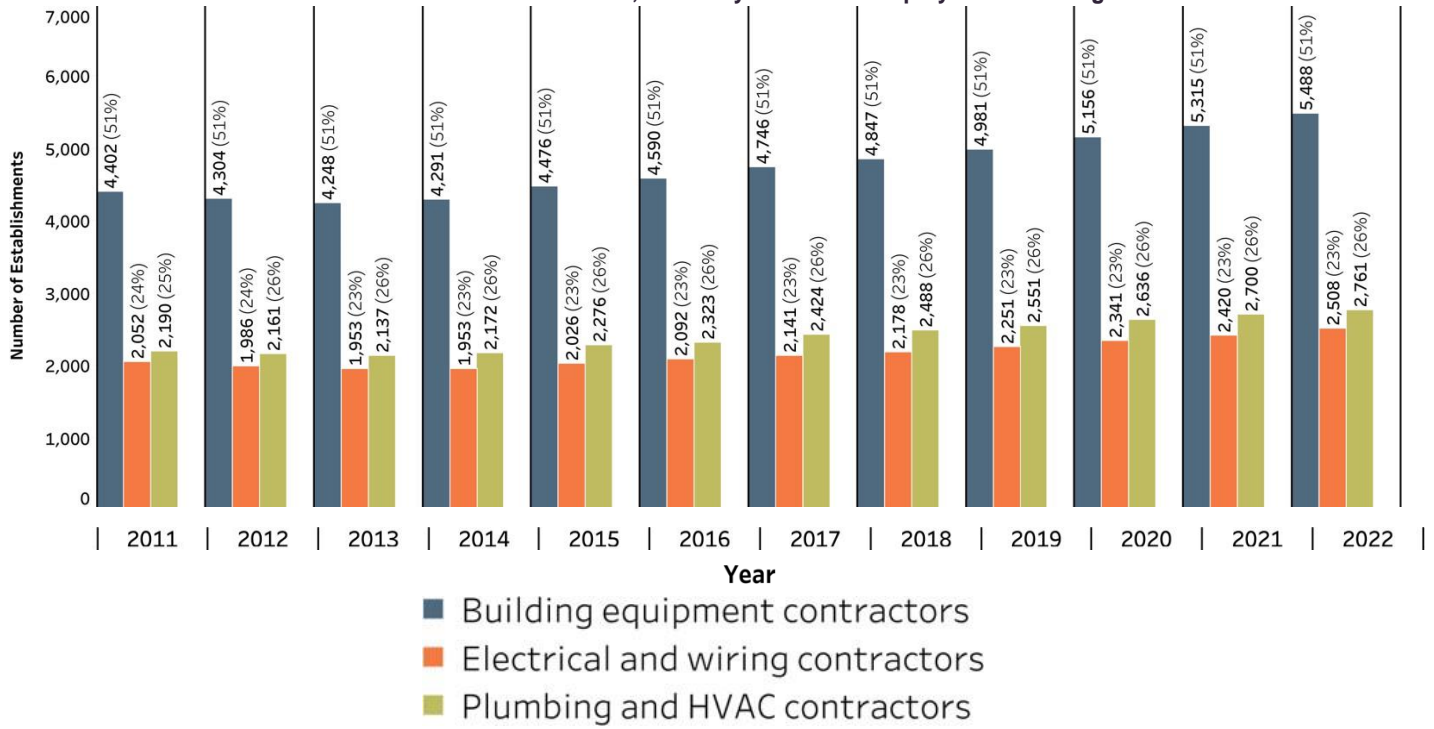
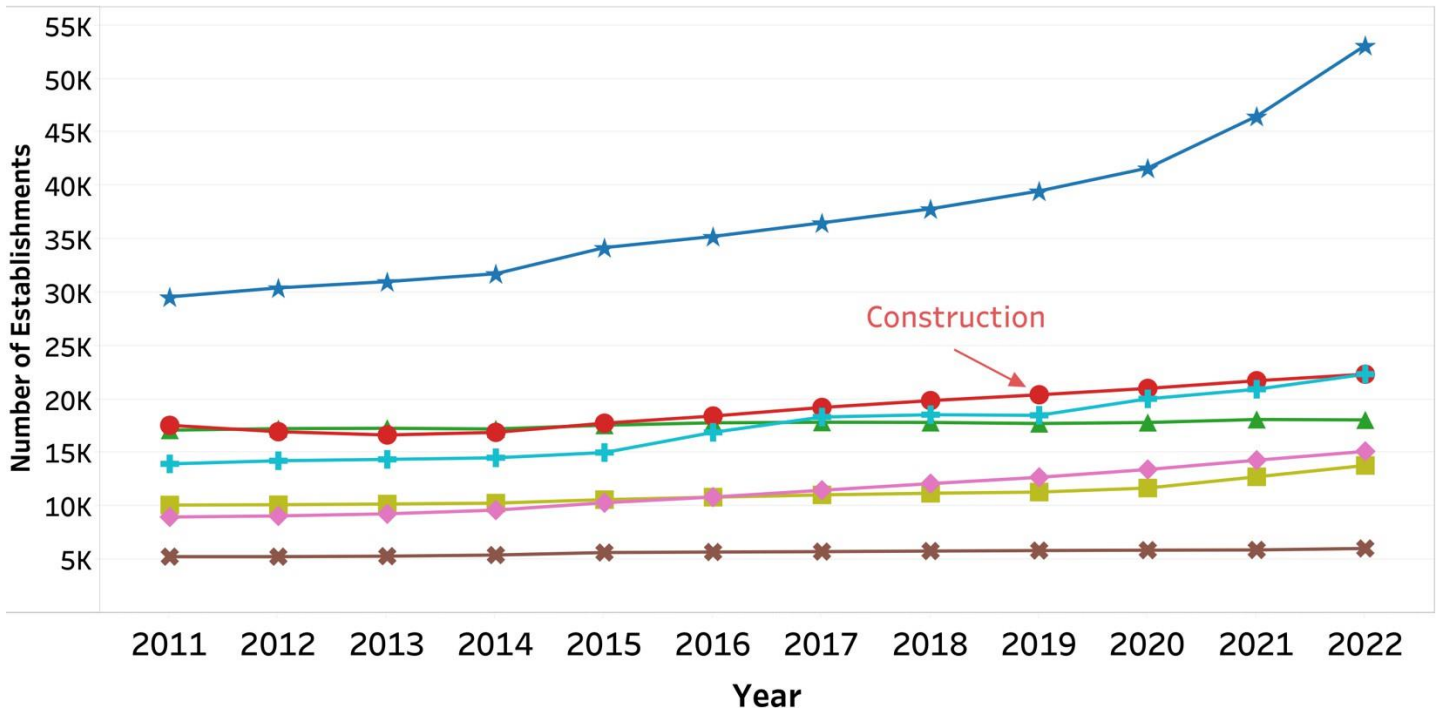


Figure 9: Number of establishments 2011-2022 for selected comparison industries. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



- Professional, scientific, and technical services \*
- Health care and social assistance
- Construction
- Retail trade
- Real estate and rental and leasing
- Finance and insurance
- Manufacturing

\* Activities performed in professional, scientific, and technical services include legal advice and representation; accounting, bookkeeping, and payroll services; architectural, engineering, and specialized design services; computer services; consulting services; research services; advertising services; photographic services; translation and interpretation services; veterinary services; and other professional, scientific, and technical services.

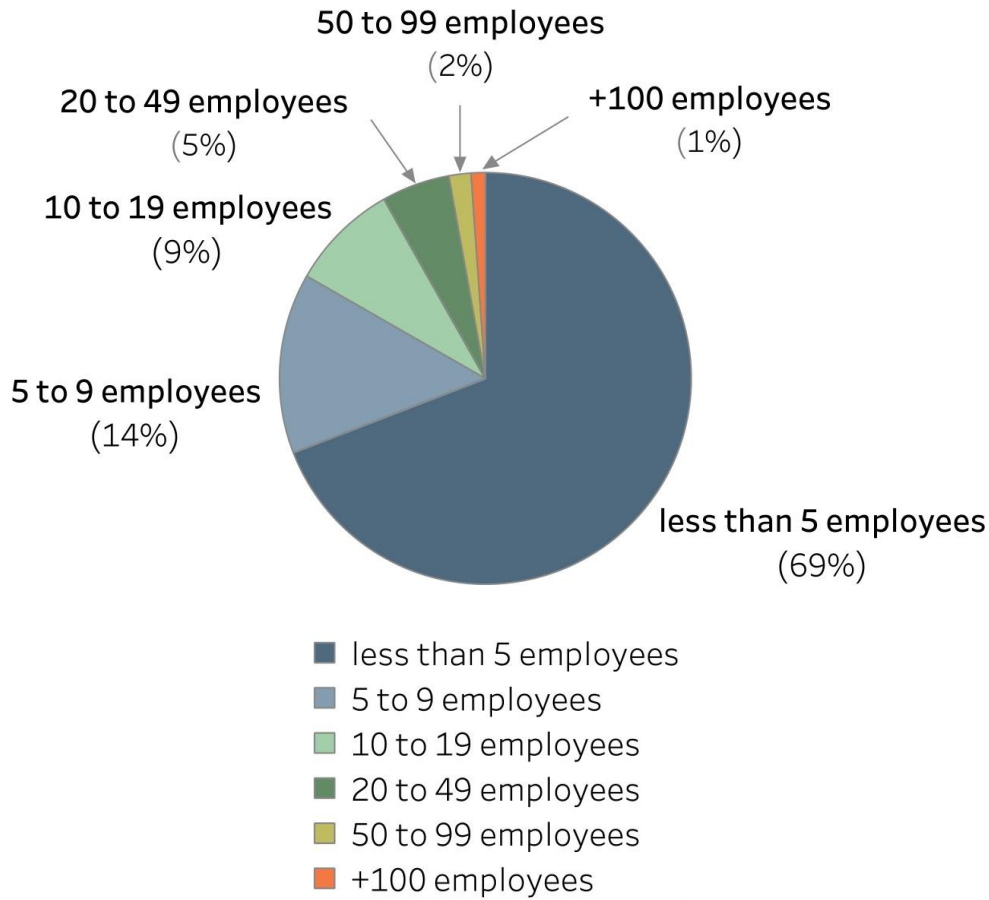


# ESTABLISHMENT SIZE

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 2021 is shown in Figure 10.

Figure 10: Percentage of construction establishments by number of employees, 2021. Source: U.S. Census, 2021 County Business Patterns report (CB2100CBP).

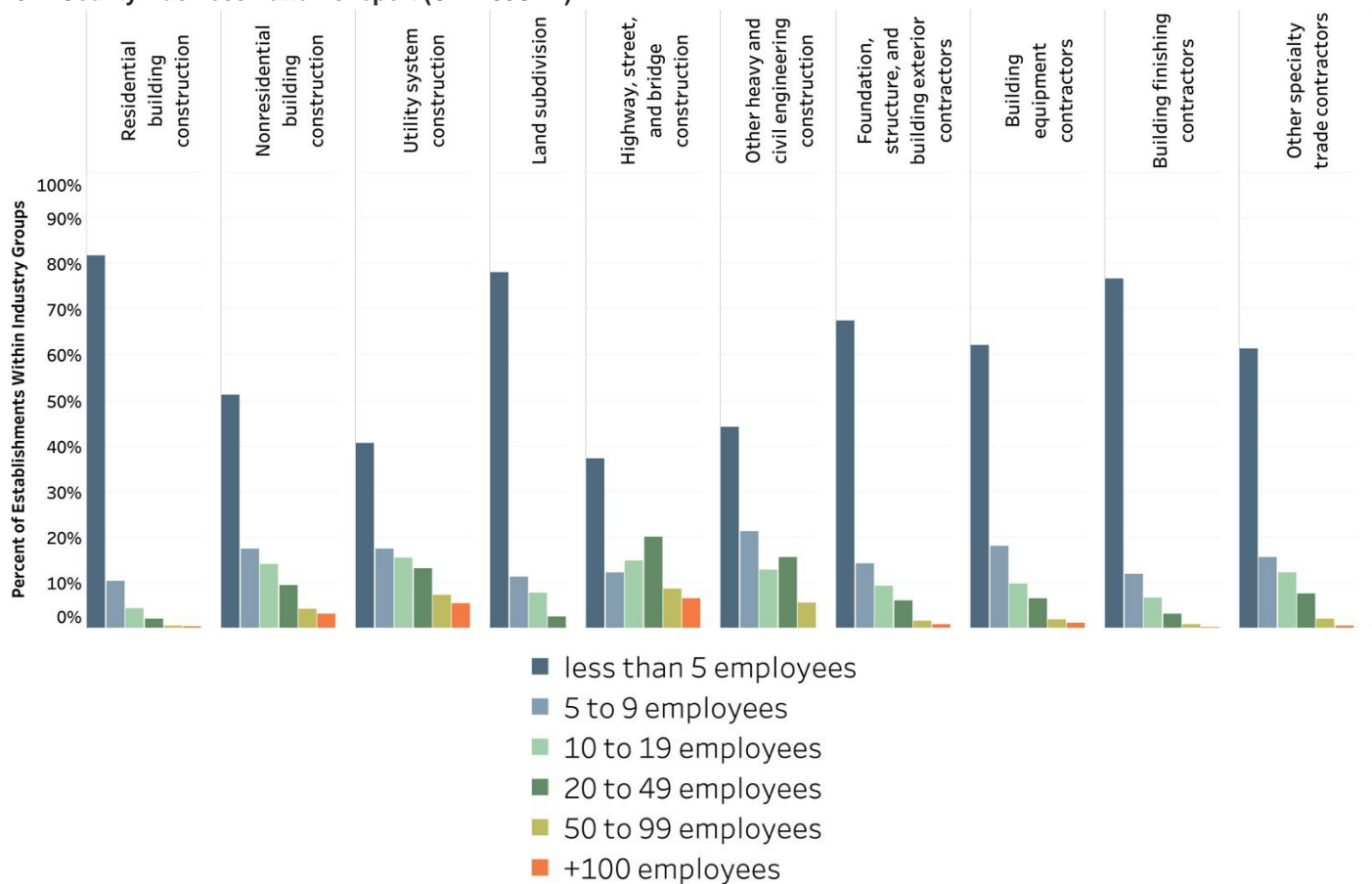


# ESTABLISHMENT SIZE (CONT'D)

For the ten construction industry groups, the distribution of number of employees per establishment is shown in Figure 11. By number of establishments with fewer than 5 employees, building equipment (MEP) contractor establishments rank second (2,995 establishments), behind residential building contractor establishments (4,002 establishments). By percentage of establishments with fewer than 5 employees, building equipment contractor establishments rank fifth (62%), behind residential building construction (82%); land subdivision

(78%); building finishing contractors (77%); building foundation and exterior contractors (68%). The building equipment (MEP) contractor industry group also has the largest number of establishments with 100+ employees, 62 establishments. These large establishments are only 1% of all building equipment (MEP) establishments. Industries with a larger fraction of establishments with 100+ employees are utility system construction (6%) and highway, street, and bridge construction (7%).

Figure 11: Percent of construction establishments within industry groups in 2021 by number of employees. Source: U.S. Census, 2021 County Business Patterns report (CB2100CBP).





# SECTION #3

## CONSTRUCTION EMPLOYMENT & WAGES

Colorado's private construction sector employed 183,088 people in 2022, 8% of Colorado's private employment across all industries.

**By employment, specialty trade contractors dominate the construction sector: 65% percent of construction employees (119,803 out of 183,088) are specialty trade contractors, and specialty trade comprises 60% of the construction sector's \$13.8 billion annual payroll.**

Building equipment (MEP) contractors are 47% of all specialty trade contractors and are 30% of all Construction workers. In Colorado, the average annual wages across all construction workers were \$75,574 in 2022, with construction industry average annual wages ranging from \$62,895 annually for building finishing contractors to \$159,215 for land subdivision industry workers. The average annual wage for building equipment (MEP) contractors of \$72,089 is below the construction sector average, but above both the average and median annual wage for construction occupations and trades in 2022, \$64,090 and \$54,540, respectively.

Annual wages for construction occupations ranged from \$38,160 for painter helpers to \$110,160 for construction managers. The building equipment (MEP) contractors in Colorado demonstrated a strong wage position among construction trades, underscoring their pivotal role in the industry. 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. This shows that Colorado's construction industry has a more diverse workforce compared to national construction averages, with higher representation of minority groups and fewer white employees.



### 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, soldiers, brazes, 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 2022; 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 July-October 2023.

# NUMBER OF EMPLOYEES

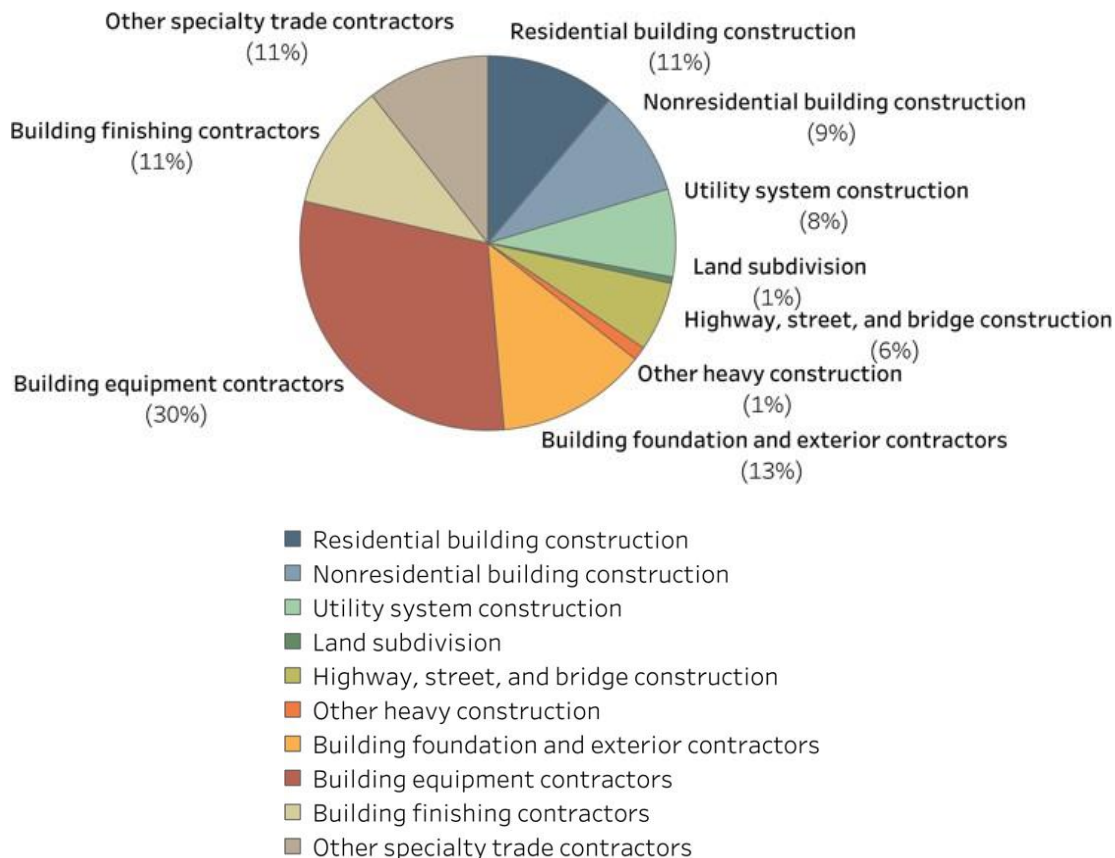
In 2022, there were 183,088 people employed in Colorado’s construction sector. This represents the highest number of employees in the construction sector over the last two decades: employment over the period 2001-2022 was lowest in 2011 (112,242 employees) and highest in 2022 (183,088). This record employment underscores the robust growth and resilience of the industry.

**Construction sector employment grew an average of 5% year-over-year from 2012-2022. 2022 employment in construction was 3% higher than in 2021, an additional 5,825 jobs.**

Among the ten industry groups in the construction sector, building equipment contractors (MEP) represent the largest share of employees: 55,787 or 30% of all construction workers in 2022. The percentage of employees in each industry group are

shown in Figure 12. The next largest industries by employment are all within specialty trades: building foundation and exterior contractors (13% or 24,190 employees), building finishing contractors (11% or 20,183 employees), and other specialty trade contractors (11% or 19,642 employees). By employment numbers, specialty trades in Colorado (includes building foundation and exterior contractors, building equipment contractors, building finishing contractors, and other specialty trade contractors) are 65% of all construction employees (119,803), building construction (includes residential building construction and nonresidential building construction) 21% of construction employees (37,846), and heavy and civil engineering construction (includes utility system construction, land subdivision, highway, street and bridges construction, and other heavy construction) 14% of construction employees (25,440).

Figure 12: Percentage of employees by construction industry groups, 2022. Industry groups are ordered by 2022 NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

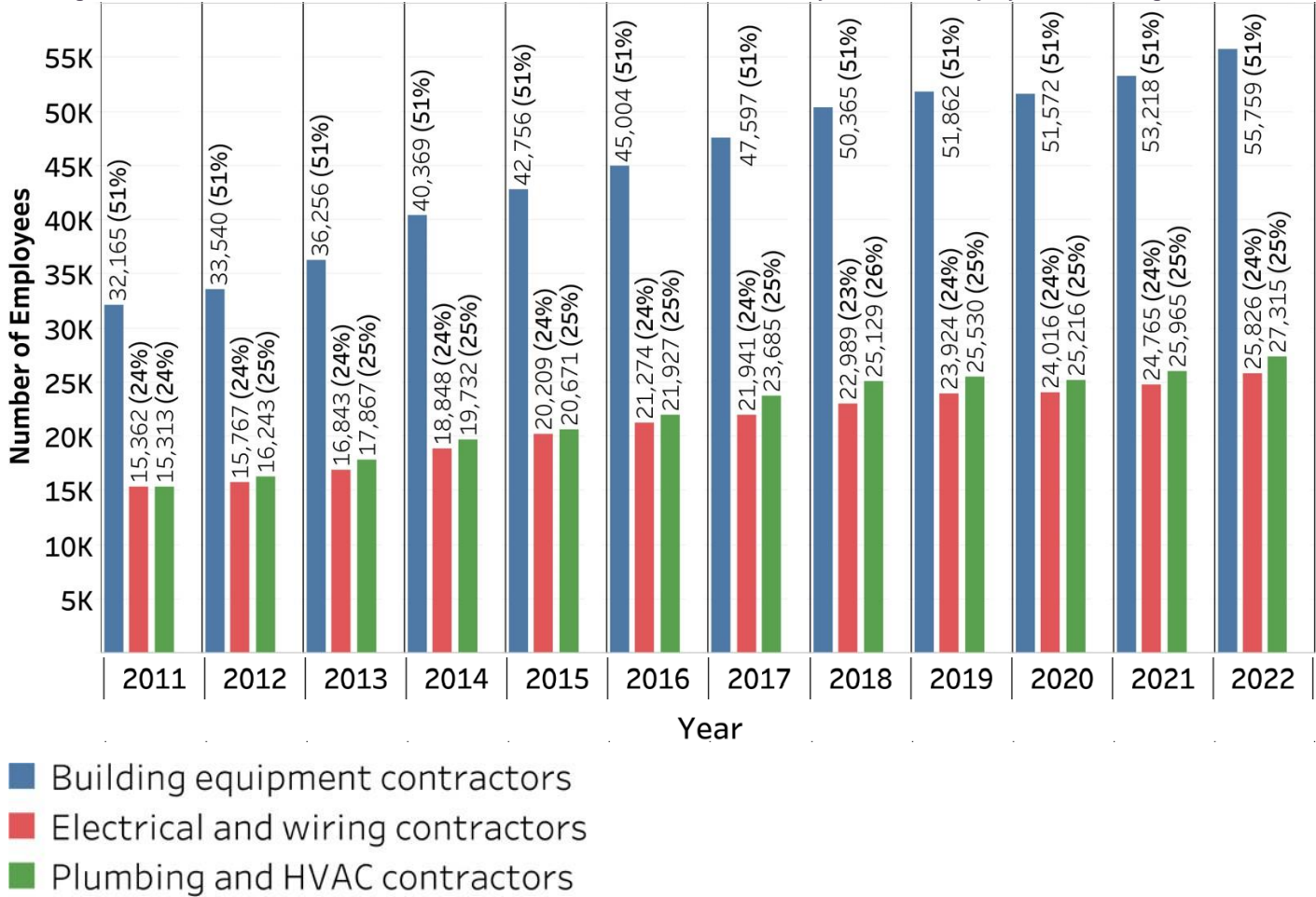


Building equipment contractor (MEP) employment has grown 73% since 2011, following a similar trend to the industry overall. As shown in Figure 13, building equipment contractor (MEP) employment was lowest in the last decade in 2011 (32,165 employees), highest in 2022 (55,797 employees).

Nine out of ten subsectors in construction all had positive growth rate including: other heavy and civil engineering construction (+22%, +376 jobs), land subdivision (+17%, +143 jobs), residential building construction (+6%, +1,126 jobs), nonresidential building construction (+5%, +838 jobs), building foundation and exterior contractors (+4%, +2569 jobs), utility system construction (+3%, +366 jobs), other specialty trade contractors (+1%, +258 jobs), building foundation and exterior contractors (+1%, +229 jobs), building finishing contractors (+0.5%, +95 jobs). However, the only subsector with negative growth was highway, street, and bridge construction (-2%, -176 jobs).

**Building equipment contractor (MEP) employment raised by 5% from 2021 to 2022. MEP employment in 2022 was 55,759 employees, with an additional 2,541 jobs than in 2021.**

Figure 13: Number of employees 2011-2022 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)

In terms of overall growth from 2011 to 2022, building equipment contractor (MEP) employment ranks second compared to all construction industry groups with 73% growth, behind only residential building construction (115% growth over the same period). In the last five years (2017-2022), the overall growth for building equipment contractor (MEP) employment ranks fourth among construction industries with 17% growth, behind land subdivision (104%), residential building construction (26%), and utility system construction (20%). This contrasts to the 12% overall employment growth in the construction sector overall from 2017-2022.

Within the building equipment contractor (MEP) industry group, Figure 13 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 2011-2022 and 3% per year from 2017-2022. The average year-over-year growth for plumbing and HVAC contractors was slightly higher: 5% per year from 2011-2022 and 4% per year from 2017-2022. From 2019 to 2020, electrical and wiring contractor employment raised

by 4%, plumbing and HVAC contractor employment raised by 5%.

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 to 2021, nonresidential plumbing and HVAC employment began to decline, by 2% on average each year, but residential plumbing and HVAC contractor employment and residential electrical and wiring contractor employment continued to increase, each by 4-5%, while non-residential plumbing and HVAC contractor employment had only 1% growth during the same time period and experienced a negative growth at -2% at 2020-2021. However, in 2022 residential plumbing and HVAC contractor employment showed a 3% growth compared to its last year.

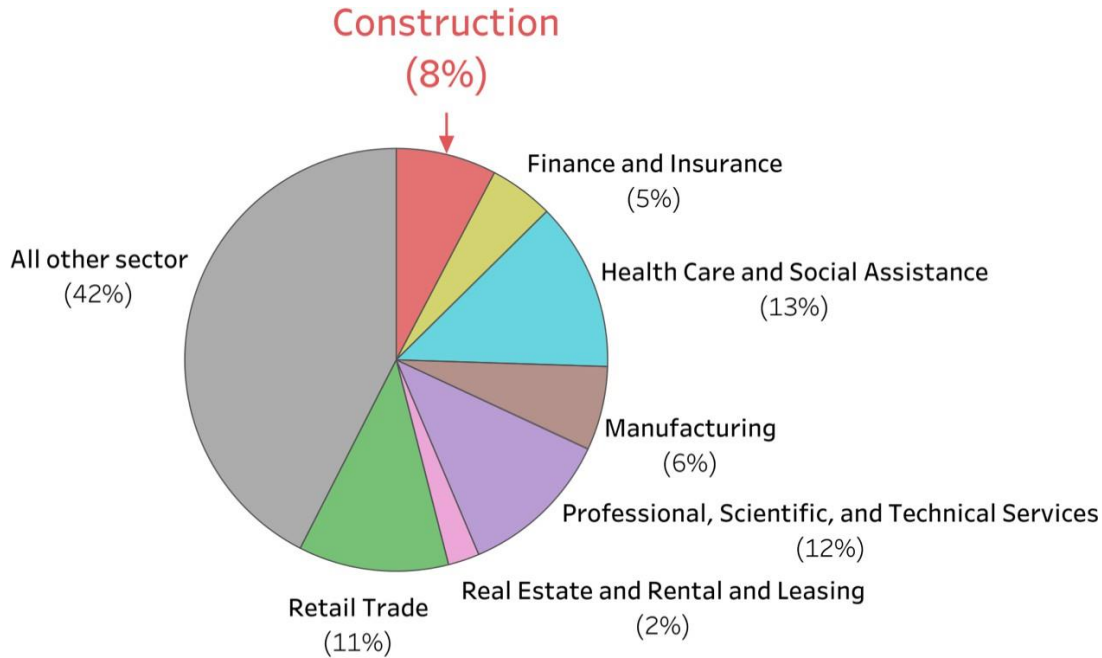
From 2021-2022, all four groups experienced job growth. Within the electrical and wiring contractor sector, residential contractors observed a 6% increase in jobs (+624 jobs), and non-residential contractors experienced a growth of 3% (+446 jobs). In the plumbing and HVAC contractor sector, residential contractors experienced a 2% rise (+367 jobs), and non-residential contractors set a record of 9% rise (+1004 jobs).

# NUMBER OF EMPLOYEES (CONT'D)

Construction employed 8% of all Colorado workers in private industry in 2022, ranking fourth among selected comparison sectors, shown in Figure 14, and fifth among all 20 economic sectors. The sectors with a higher percentage of employees in the state

were health care and social assistance (13%), professional and technical services (12%), accommodation and food services (12%), and retail trade (11%).

Figure 14: Percentage of employees in Colorado's private sectors, 2022, with comparison sectors highlighted. Sectors are ordered by NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



- Construction
- Finance and Insurance
- Health Care and Social Assistance
- Manufacturing
- Professional, Scientific, and Technical Services
- Real Estate and Rental and Leasing
- Retail Trade
- All other sector

# CONSTRUCTION EMPLOYEE DEMOGRAPHICS

Nearly half (45%) of Colorado’s construction workers are between the ages of 35-54, about a third (28%) between the ages of 22-34, and another 23% are over the age of 55.

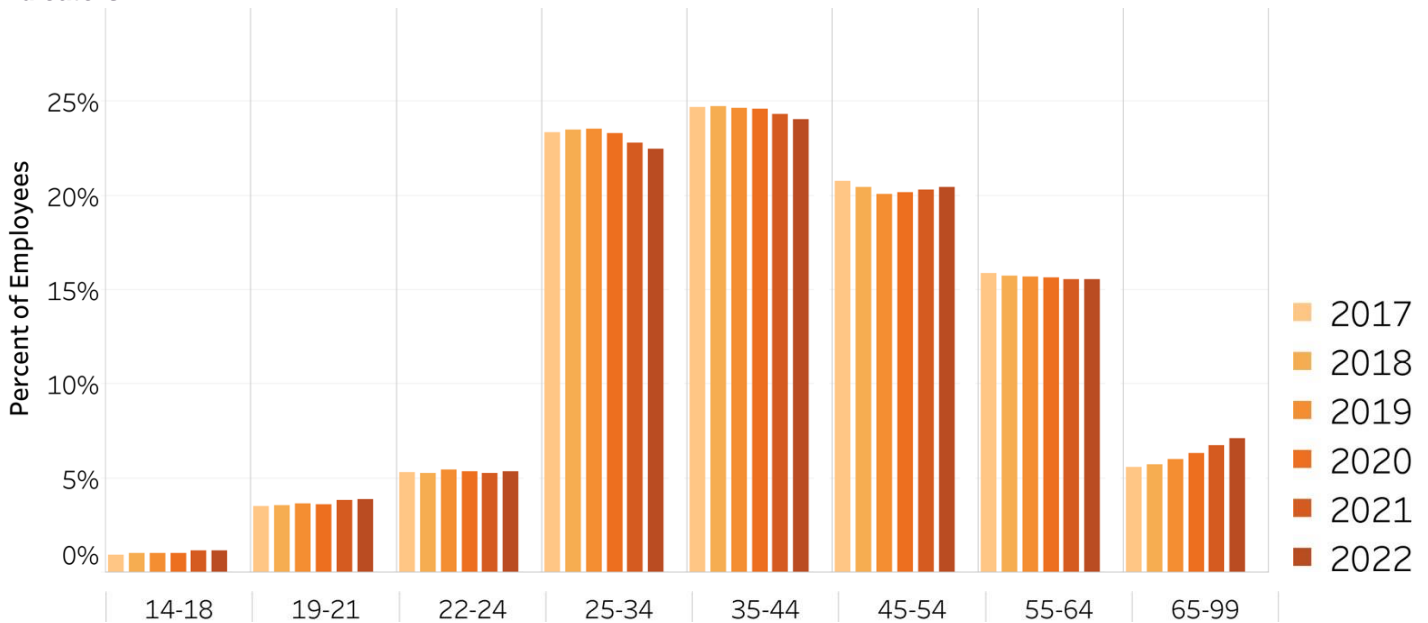
Figure 15 shows the proportion of construction workers in each of eight age groups from 2017-2022. As the number of employees in the sector overall increased each year 2017-2019, each age group in Figure 15 also saw an increase in the total number of employees, though the proportions of the population 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, 25-34, and 65-99. Age groups with a decreasing percent of all construction employees are workers: age, 35-44, 45-54, and 55-64. However, the construction sector experienced a drop in number of employees in 2020, similar to other sectors. From 2020-2022, the construction sector; however, maintained its consistent growth. During this time period, age groups with an increasing percent of all construction employees are ages 14-18, 19-21, 45-54, and 65-99; while age groups: 25-34 and 35-44 experienced a decline in percent of all construction employees.

**From 2021-2022, the number of Colorado’s private construction employees increased by 3%. The proportion of employees aged 14-18, 19-21, 22-24, 55-64 almost remained constant, whereas the percent of employees aged 25-34, and 35-44 followed a declining trend, and employees aged 45-54, and 65-99 showed an increasing trend.**

A weighted average of employee age can be calculated using the average age within each of the eight age groups shown in Figure 15. The average employee age using this weighting gives an average age for construction employees at 43 years for specialty trade contractors, and 42 years for building equipment (MEP) in 2022.

For construction employees overall and specialty trade contractors, the average age has risen 1% between 2017-2022, less than half a percent in 2020-2021, and almost 1% in 2021-2022. The average age of building equipment contractors in 2017 was the same as the average age in 2022, and this industry group saw nearly one percent increase in average age from 2021-2022.

**Figure 15: Age distribution of construction employees in Colorado, 2017-2022. 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 2021-2022. Data for 2022 are also shown in Figure 16.

For Colorado's construction sector overall, the fraction of workers who are women has been increasing since 2017, as shown in Figure 17, however the distribution has changed very little: in 2017, 82% of the construction employees were male and 18% female. In 2022, 80% of construction employees were male and 20% female.

**Women made up 19% of Colorado construction employees in 2022, 20% of nationwide construction employees, and 17% of Colorado building equipment (MEP) employees.**

**Both the number of women and men employees increased each year from 2017-2022. From 2021-2022 the total number of employees in the sector increased; followed by the increase in both male and female employment.**

Table 2: Employee gender in 2022 and percent change in number of employees 2021-2022 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
<i>Percent of employees, 2022</i>					
Male	54%	52%	80%	81%	83%
Female	46%	48%	20%	19%	17%
<i>Percent change in number of employees, 2021-2022</i>					
Male	+6%	+4%	+3%	+2%	+3%
Female	+7%	+5%	+8%	+6%	+7%

Figure 16: Gender of employees in all industries (Colorado and U.S.), construction (Colorado and U.S.), and Colorado's building equipment contractor (MEP) industry, 2022. Source: U.S. Census, Quarterly Workforce Indicators.

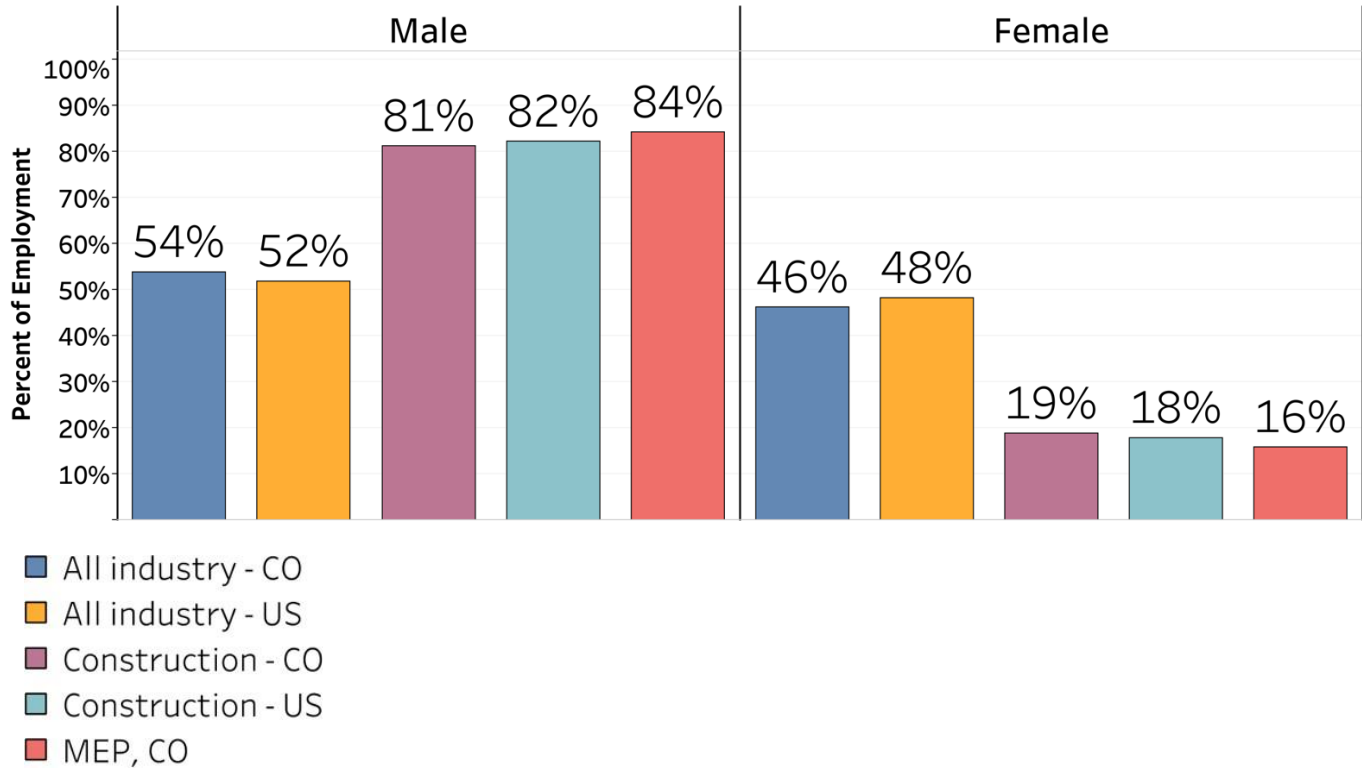
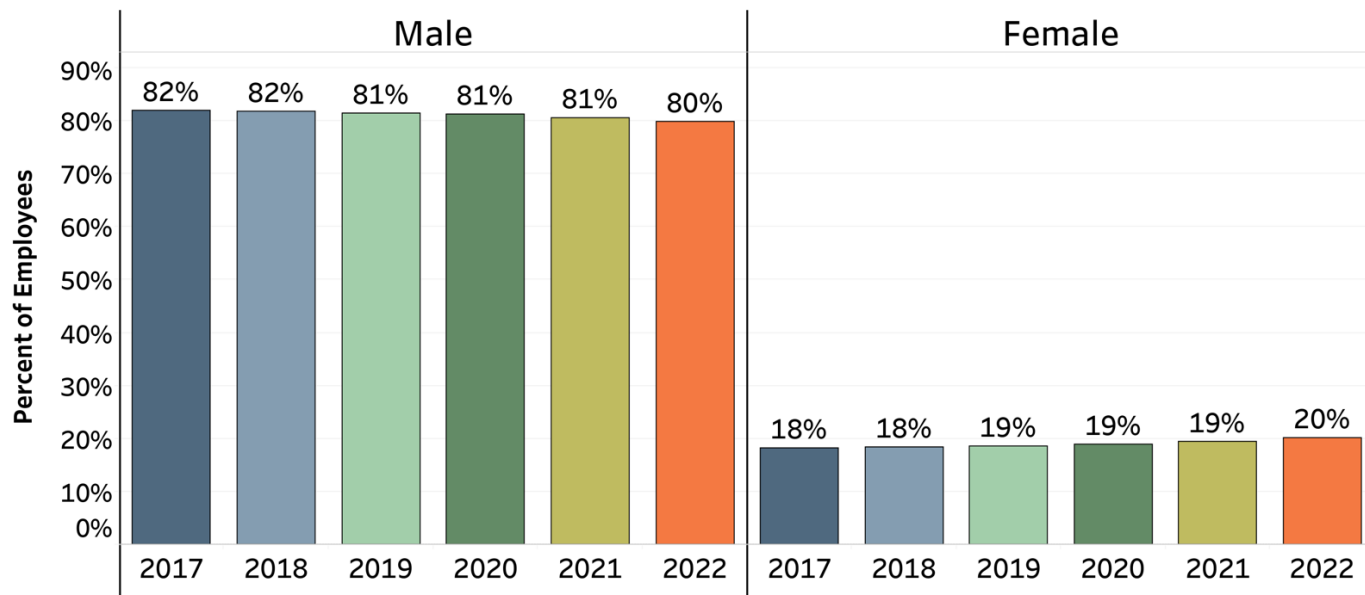




Figure 17: Gender of employees in Colorado's construction industry, 2017-2022. Source: U.S. Census, Quarterly Workforce Indicators.



- 2017
- 2018
- 2019
- 2020
- 2021
- 2022

# CONSTRUCTION EMPLOYEE DEMOGRAPHICS (CONT'D)

Comparing the racial and ethnicity distribution of Colorado's employees in all industries to that nationally in 2022, 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 18. 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 (86% and 19%, respectively) than nationwide employees (76% and 17% respectively). In construction, Colorado employees are correspondingly a higher percentage white (91%) compared to nationwide (87%), 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 2022 and percent change in number of employees 2021-2022 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
<i>Percent of employees, 2022</i>					
White	86%	76%	91%	87%	91%
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%	2%
Native Hawaiian or Other Pacific Islander	<1%	<1%	<1%	<1%	<1%
Two or more	3%	2%	2%	2%	2%
<i>Percent change in number of employees, 2021-2022</i>					
White	+5%	+3%	+3%	<1%	+3%
Hispanic	+4%	+5%	+2%	+2%	+1%
Black	+11%	+6%	+9%	+3%	+7%
American Indian or Alaska Native	+8%	+7%	+7%	+2%	+5%
Asian	+8%	+6%	+7%	+4%	+7%
Native Hawaiian or Other Pacific Islander	+10%	+8%	+4%	+3%	+2%
Two or more	+9%	+7%	+6%	+3%	+6%

## **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 19. From 2017-2022, 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. The percent growth of employment in Colorado for all industries in 2021-2022 of racial or ethnic groups was highest for Black or African American employees (11%), followed by Native Hawaiian or Pacific Islander employees (10%), employees with two or more races or ethnicities (9%), Asian employees (8%), American Indian or Alaska Native employees (8%), and white employees (5%). The percent growth of employment in Construction sector in Colorado was highest for Black or African American employees (9%), followed by Asian employees (7%), American Indian or Alaska Native employees (7%), employees with two or more races or ethnicities (6%), Native Hawaiian or Pacific Islander employees (4%), and white employees (3%). In Colorado, the year-over-year percent employment for each ethnic or racial group is lower than that compared to all industries. Compared to the 2021-2022 nationwide construction employees, the highest growth was for Asian employees (4%), followed by black African American (3%), Native Hawaiian or Pacific Islander employees (3%), and employees with two or more races or ethnicities (3%), American Indian or Alaska native (2%), and white employees (< 1%).

Figure 18: 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, 2022. An asterisk (\*) indicates data are from Q1-Q3 only. Source: U.S. Census, Quarterly Workforce Indicators.

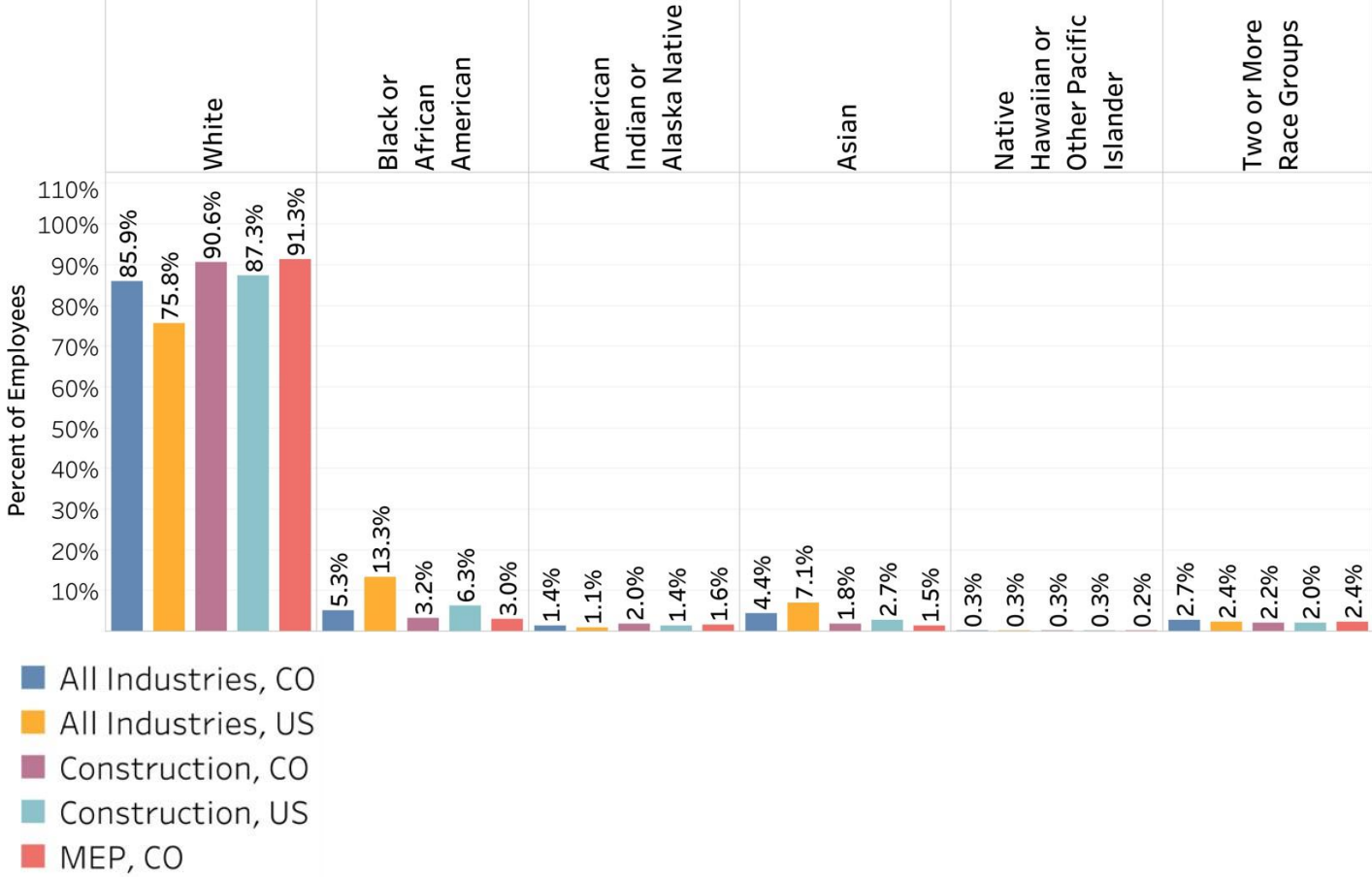
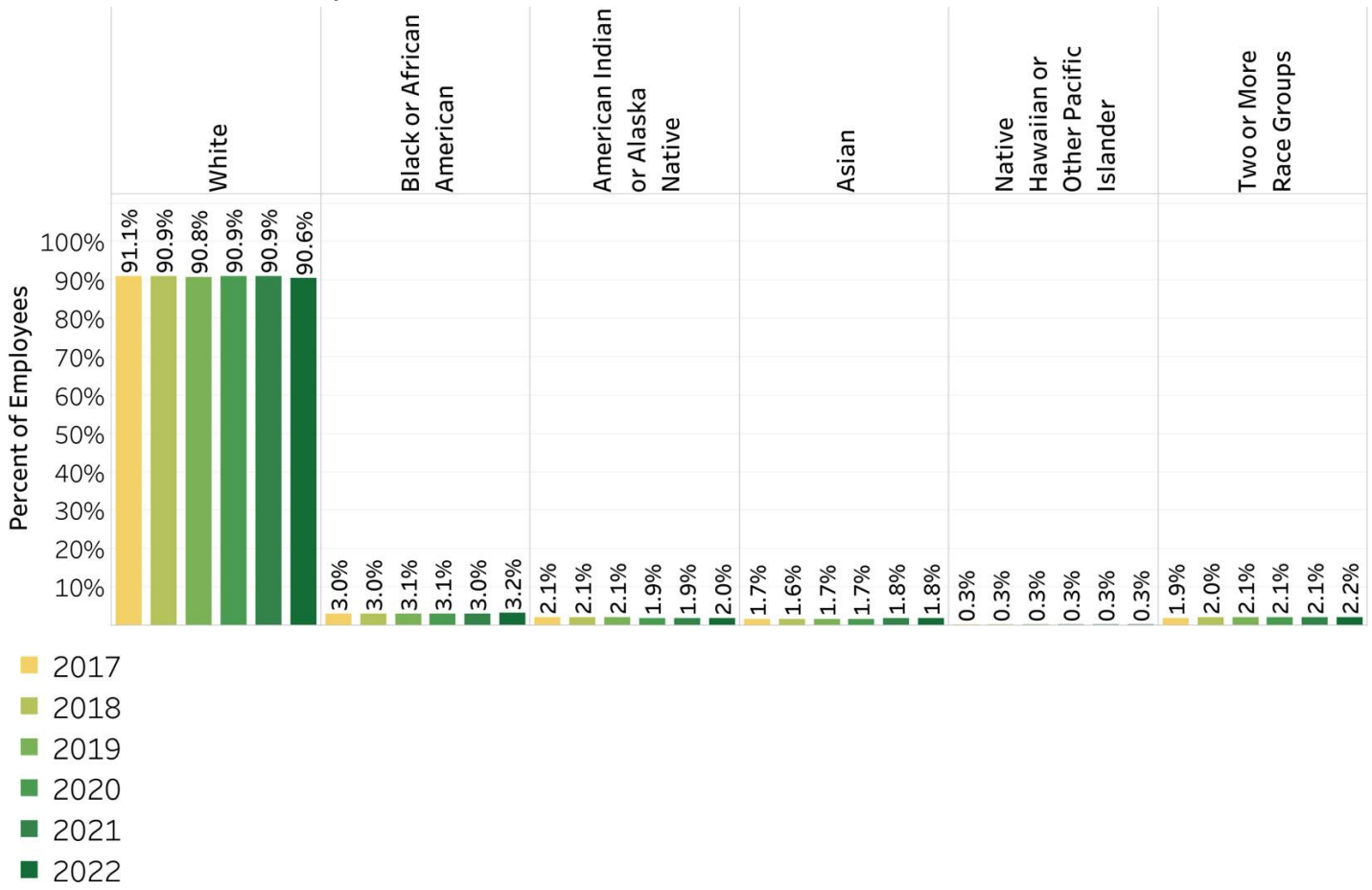


Figure 19: Race or ethnicity of employees in Colorado’s construction industry, 2017-2022. \*2022 data are from Q1-Q3 only.  
 Source: U.S. Census, Quarterly Workforce Indicators.



## AVERAGE ANNUAL WAGES

As of 2022, the average annual wage for construction workers in Colorado was \$75,547 per year, and the average annual wage for building equipment contractors (MEP) in Colorado was \$72,089 per year.

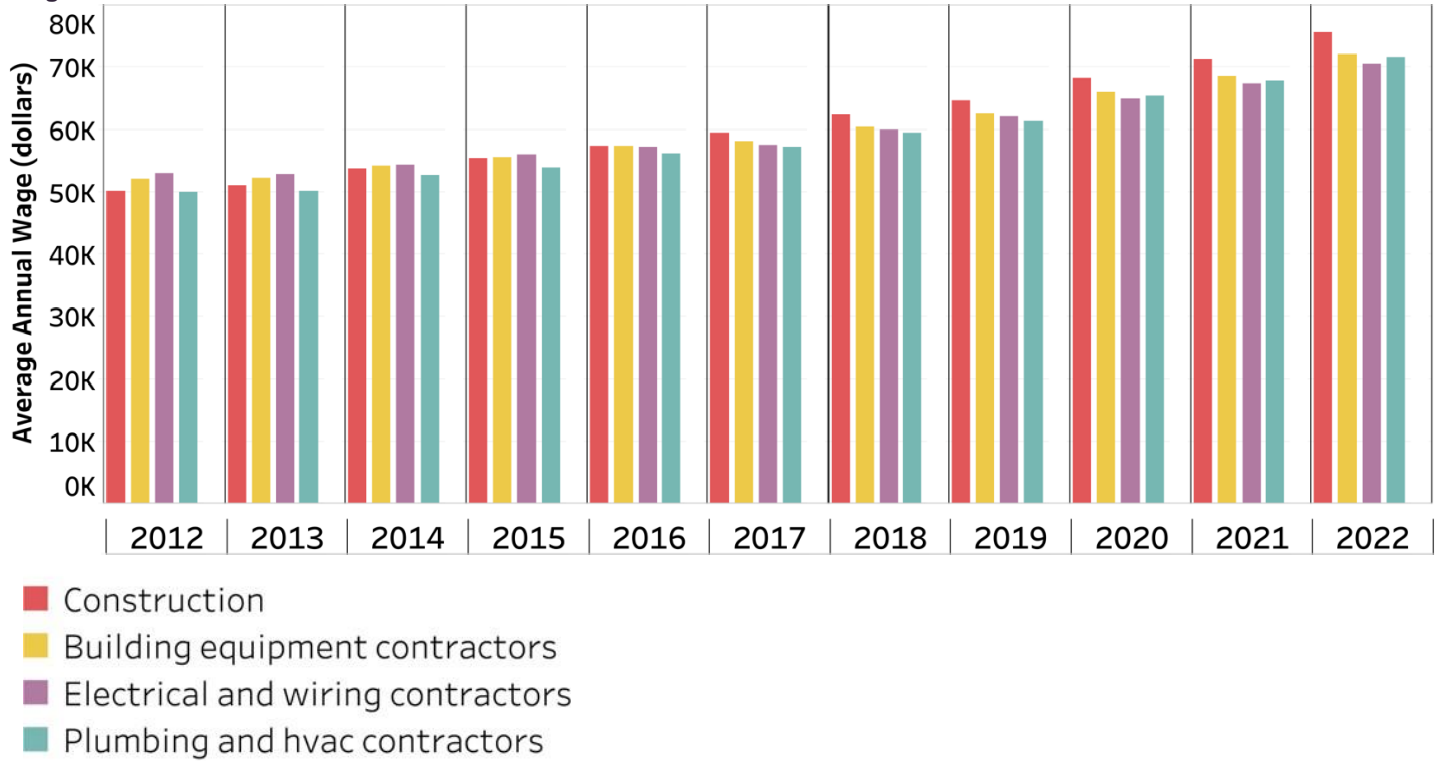
Construction industry average annual wages in 2022 ranged from \$62,895 for building finishing contractors to \$159,215 in the land subdivision industry. The average annual wage of all construction sectors was \$64,090, and the median annual wage of all construction sectors was \$54,540.

The average annual wage for building equipment contractors (MEP) was higher than that for the construction sector overall in Colorado from 2012-2015, and the reverse has been true from 2016-2022. This trend for the construction sector, building equipment contractors (MEP), electrical and wiring contractors, and plumbing and HVAC

contractors is shown together in Figure 20. Construction wages have been growing at an average rate of 4% per year from 2012-2022, while building equipment contractor wages have been growing at an average rate of 3% per year from 2012-2022.

Of the three construction subsectors, specialty trade contractors receive the lowest average annual wage. In 2022, the average annual wage within building construction was highest at \$91,505 per year, followed by heavy and civil engineering construction at \$87,483 per year, and specialty trade contractors have an average annual wage of \$68,013 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 2022, the construction industry group with the highest average annual wage is land subdivision construction, \$159,215 per year.

Figure 20: Average annual wage 2012-2022 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 (\$61,750)
- Electricians (\$59,280)
- Heating, air conditioning, and refrigeration mechanics and installers (\$59,370).

The construction occupations and trades with the highest average wages were construction managers (\$111,000), elevator installers and repairers (\$99,610), supervisors of construction and extraction workers (\$78,110). The occupations and trades with lowest average annual wages were construction helpers: painter helpers, electrician helpers, roofer helpers, and carpenter helpers earned between \$36,490 (painter helpers) to \$45,910 (carpenter helpers).

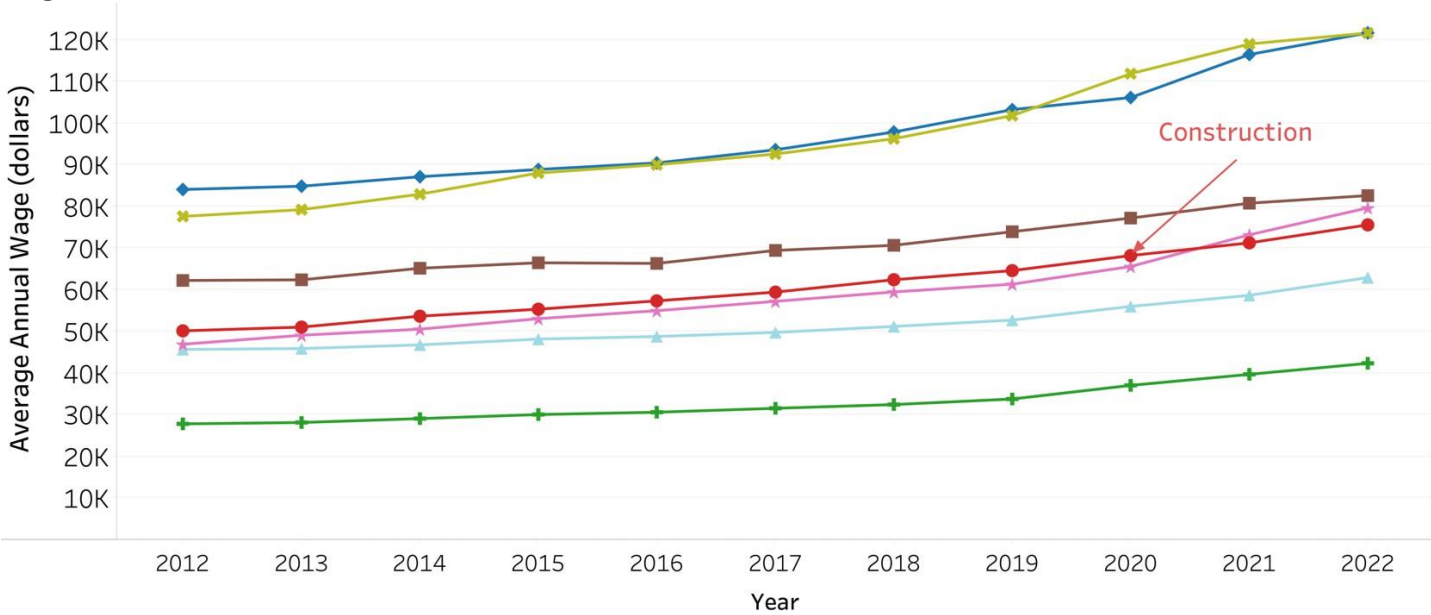
In 2022, the average annual wage in the construction sector ranked fifth among selected comparison sectors, as shown in Figure 21, and eleventh among all 20 economic sectors in Colorado. Comparison sectors with a higher average annual wage in 2022 are professional and technical services (\$121,635), finance and insurance (\$121,618), professional and technical services (\$106,124), manufacturing (\$82,609), and real estate, rental, and leasing (\$79,655). Construction with average annual wages of \$75,574 in 2022 is just below that for real estate and rental and leasing for the last two years.

Among comparison sectors, average year-over-year growth in wages over 2012-2022 are Real estate, rental, and leasing (4.9%), Professional, scientific, and technical services (4.3%), Retail trade (4.4%), Finance and insurance (4.2%), Construction (3.9%), Health care and social assistance (3.2%), and Manufacturing (3.2%). In the last five years, from 2017-2022, construction also has had an average year-over-year growth of 4.5% in wages, which ranks fourth among comparison sectors but only just behind real estate and rental and leasing (7.2%), retail trade (5.7%), and finance and insurance (5.2%).

For the construction sector, the increase in wages from 2021-2022 is the largest year-over-year percent increase between 2012-2022. This was true for construction (6% growth, an increase of \$4,324), retail trade (7% growth, an increase of \$2,646), finance and insurance (2%, an increase of \$2,635), real estate and rental and leasing (9%, an increase of \$6,458), and health care and social assistance (7%, an increase of \$4,273).



Figure 21: Average annual wage 2012-2022 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
- Manufacturing
- Retail trade
- Finance and insurance
- Real estate and rental and leasing
- Professional, scientific, and technical services
- Health care and social assistance

## CONSTRUCTION PAYROLL

Specialty trades payroll in 2022 totaled \$8.1 billion, which makes up 59% of the construction sector's total \$13.8 billion payroll. Building equipment contractor (MEP) payroll totaled \$4 billion in 2022, which alone comprises 29% of the total construction sector payroll and nearly 49.4% of the specialty trades subsector payroll.

The breakdown of construction payroll by industry group is shown in Figure 22. 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 residential building construction (\$1.8 billion), nonresidential building construction (\$1.7 billion), building foundation and exterior contractors (\$1.5 billion).

Construction sector payroll has seen rapid growth, an average of 9% year-over-year growth from 2012-2022 and 8% year-over-year growth from 2017-2022. Building equipment contractor (MEP) payroll growth has also been high, averaging 9% year-over-year growth from 2012-2022 and 8% year-over-year growth from 2017-2022.

**From 2021-2022, Colorado's construction sector payroll grew by 10%, almost three times greater than that of year 2020 (3%), and almost two times greater than that of year 2021 (6%).**

Like the construction sector overall, each of construction's three subsectors saw a higher payroll growth in 2021-2022 than that of 2019-2020, 2020-2021, and the average year-over-year 2011-2022: building construction averaged 10% payroll growth year-over-year and grew only 13% 2021-2022. Heavy and civil engineering construction averaged 7% year-over-year growth 2011-2022 and grew 7% 2021-2022. Specialty trade averaged 9% year-over-year payroll growth, same as its growth in 2021-2022.

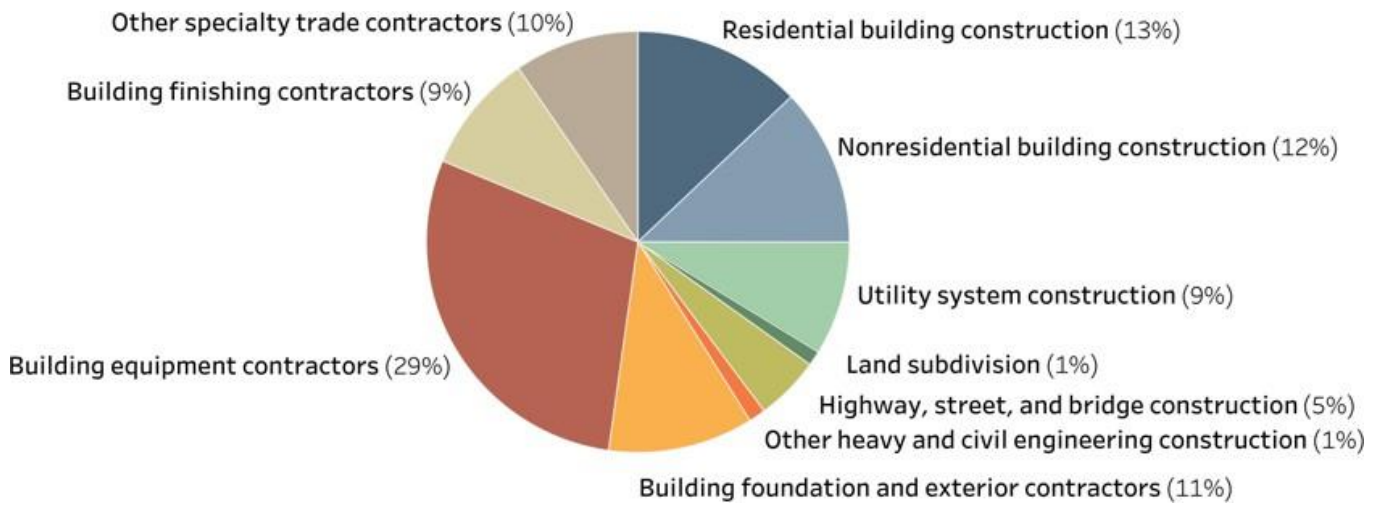
Of Colorado's ten construction industry groups, five saw a higher year-over-year payroll growth 2021-2022 than the average year-over-year growth from 2011-2022 (land subdivision construction, other heavy and civil engineering construction, and building equipment contractors, utility system construction, and nonresidential building construction), three saw a positive year-over-year payroll growth 2021-2022 but lower than the average 2011-2022 (highway, street, and bridge construction, foundation, structure, and building exterior contractors, and other specialty trade contractors), while other two had almost the same year-over-year payroll growth 2021-2022 than the

average year-over-year growth from 2011-2022 (residential building construction, and building finishing contractors).

Within building equipment contractors (MEP), both electrical and wiring contractors and plumbing and HVAC contractors have seen similar growth in payroll 2012-2022, shown in Figure 23. Each contributes roughly equally to building equipment contractor (MEP) payroll each year. In 2022, electrical and wiring contractor payroll totaled just below \$1.8 billion, 45% of building equipment contractor (MEP) payroll and 13% of the construction sector's total payroll. Plumbing and HVAC contractor payroll also totaled \$2 billion, 50% of all building equipment contractor (MEP) payroll and 14.5% of total construction payroll.

Within electrical and wiring contractor payroll, residential contractor payroll totaled \$696 million while nonresidential contractor payroll totaled \$1.1 billion; within plumbing and HVAC, residential contractor payroll totaled \$1 billion while nonresidential contractor payroll totaled \$948 million.

Figure 22: Percentage of total payroll in each construction industry group, 2022. Industries are ordered by NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



- Residential building construction
- Nonresidential building construction
- Utility system construction
- Land subdivision
- Highway, street, and bridge construction
- Other heavy and civil engineering construction
- Building foundation and exterior contractors
- Building equipment contractors
- Building finishing contractors
- Other specialty trade contractors

## CONSTRUCTION PAYROLL (CONT'D)

Similar to many of the construction industries, electrical and wiring contractor payroll, plumbing and HVAC payroll, and two nonresidential groups in electrical and wiring or plumbing and HVAC and residential electrical contractors had higher year-over-year payroll growth 2021-2022 than the average year-over-year payroll growth 2011-2022.

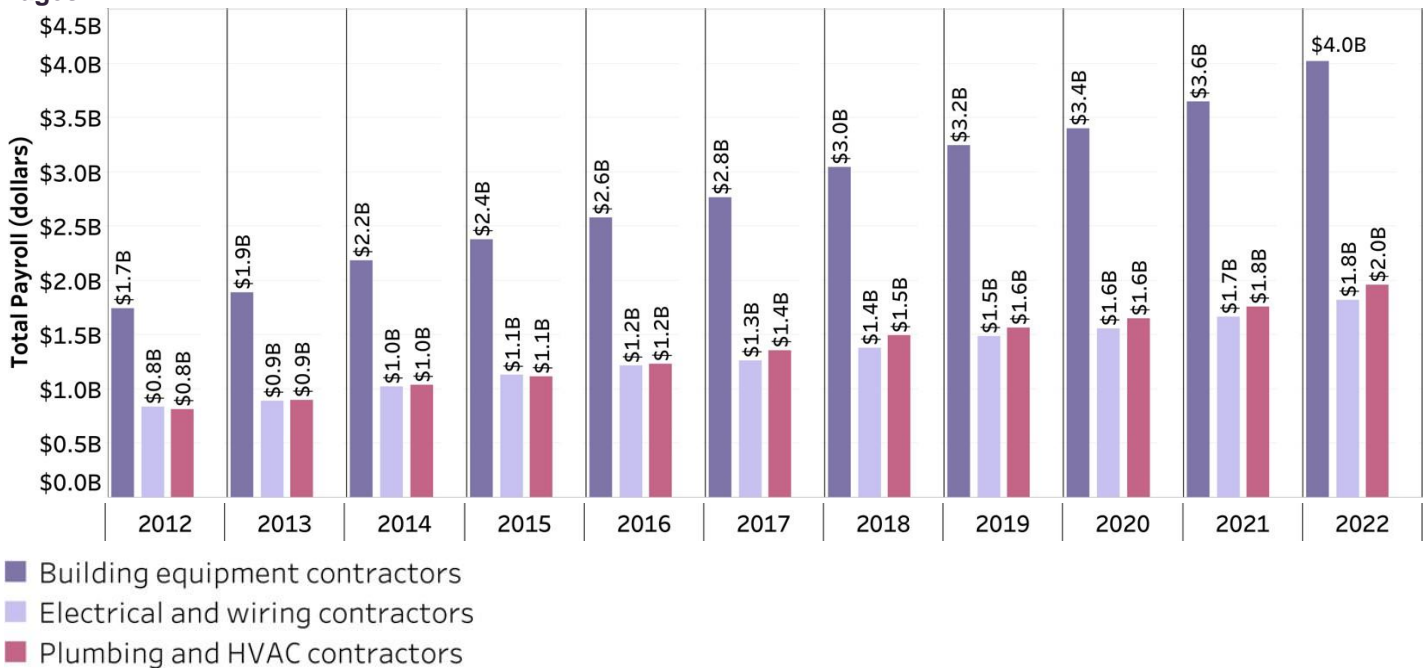
Electrical and wiring contractors in total had a 9% payroll growth 2021-2022, compared to 8% average year-over-year payroll growth 2011-2022. Residential electrical and wiring contractors saw 11% payroll growth 2021-2022 compared to a 10% year-over-year average 2011-2022, while nonresidential electrical and wiring contractors saw 8% payroll growth 2021-2022 compared to a 7% year-over-year average 2011-2022.

Plumbing and HVAC contractors in total had a 11% payroll growth in 2021-2022, compared to a 9%

year-over-year average 2011-2022. Within plumbing and HVAC, residential contractors saw a 10% payroll growth 2021-2022 compared to 11% year-over-year average 2011-2022, and non-residential contractors saw a 12% growth 2021-2022 compared to 8% year-over-year average 2011-2022.

In 2022, the total payroll across all 20 economic sectors in Colorado totaled \$180 billion, 8% of which comes from the construction sector. The percentage of total industry payroll across sectors is shown in Figure 24. Construction's \$13.8 billion payroll in 2022 ranks fourth across all 20 economic sectors. The only sectors with larger payrolls in 2022 were professional and technical services (\$33.9 billion, 18.5% of total), healthcare and social assistance (\$19.4 billion, 10.6% of total), and finance and insurance (\$14.2 billion, 7.8% of total).

**Figure 23: Total payroll (in billions of dollars) 2012-2022 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)

Among comparison sectors, construction is one out of the three sectors with largest average year-over-year payroll growth from 2012-2022 and 2017-2022, with 9% average growth per year 2012-2022 and 8% average growth year-over-year 2017-2022. 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 9% average year-over-year growth 2012-2022 and 2017-2022. The historical trends for comparison sector payroll are shown in Figure 25.

**From 2021-2022, construction year-over-year payroll growth (10%) becomes consistent with its historical trend; despite its significant drop (nearly one-third compared to its average year-over-year growth 2012-2022) in 2019-2020 (3%). The sector with the largest year-over-year payroll growth 2021-2022 were professional, scientific, and technical services (14%), and real estate and rental and leasing (13%). Construction ranks third among comparison sectors in terms of 2021-2022 payroll growth, with a 10% increase (\$13.8 billion in 2022).**

Figure 24: Percentage of total industry payroll with comparison sectors highlighted, 2022. Sectors are ordered by NAICS code. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

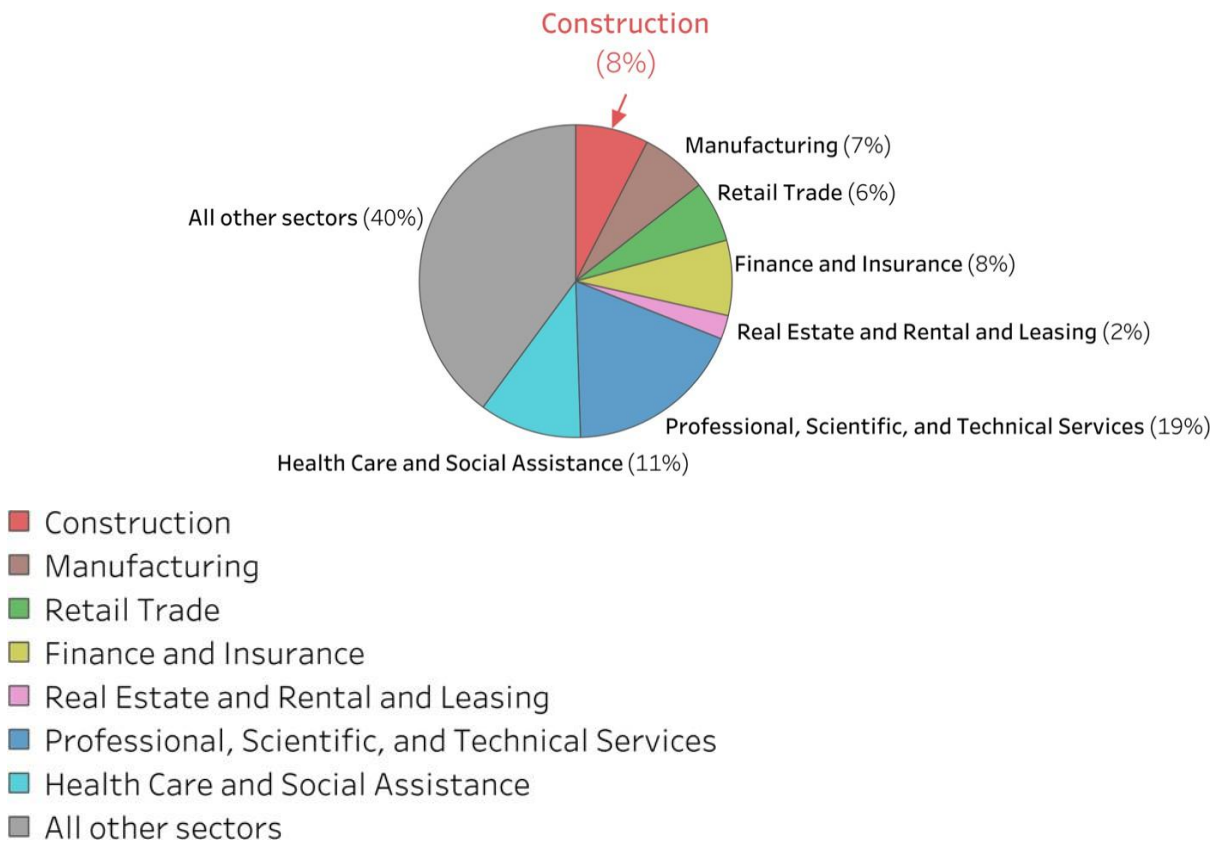
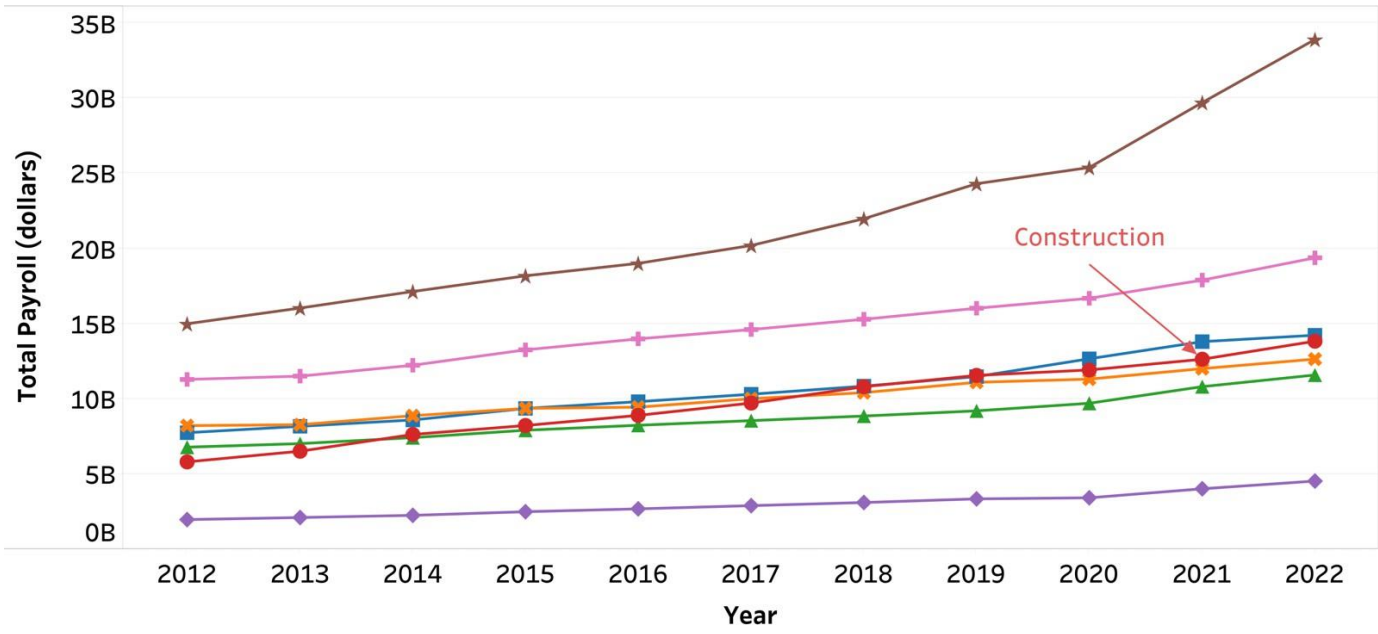


Figure 25: Total payroll (billions of dollars) for comparison sectors, 2012-2022. Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.



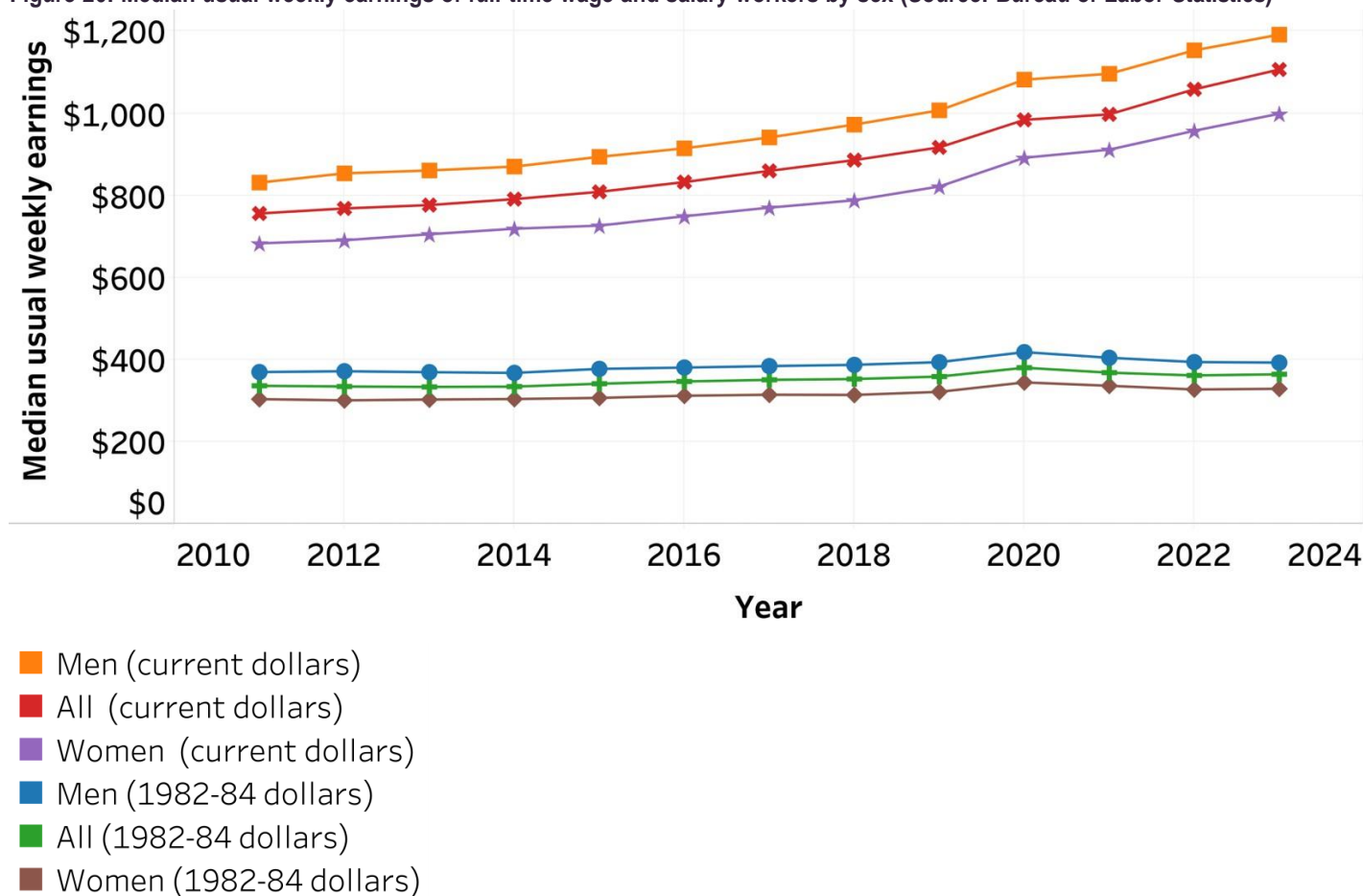
- Construction
- Manufacturing
- Retail Trade
- Finance and Insurance
- Real Estate and Rental and Leasing
- Professional, Scientific, and Technical Services
- Health Care and Social Assistance

## EARNINGS BY EDUCATIONAL ATTAINMENT, GENDER, AND ETHNICITY

In 2022, the average annual wages in Colorado and across all private industries was \$75,574, and \$73,445 nationwide across all private industries. In Colorado, the average building equipment (MEP) contractor earned \$72,089 in 2022. Nationwide, the average building equipment contractor earned \$73,124 in 2022. The average earnings nationwide for an earner of an associate degree (\$52,260) below the nationwide and Colorado average earnings for construction employees and across all industries. The average earnings nationwide for an

earner of a bachelor's degree holder is \$74,464. The earnings for both men and women in current dollars have experienced a consistent increase, signifying potential wage growth across industries, as shown in Figure 26. The earnings trajectory for men has consistently surpassed that of women, with the wage gap remaining relatively stable throughout the period. In 2020, there's a discernible acceleration in the current dollar earnings for both men and women, followed by a drop in Q4 2020, and continued to rise afterwards.

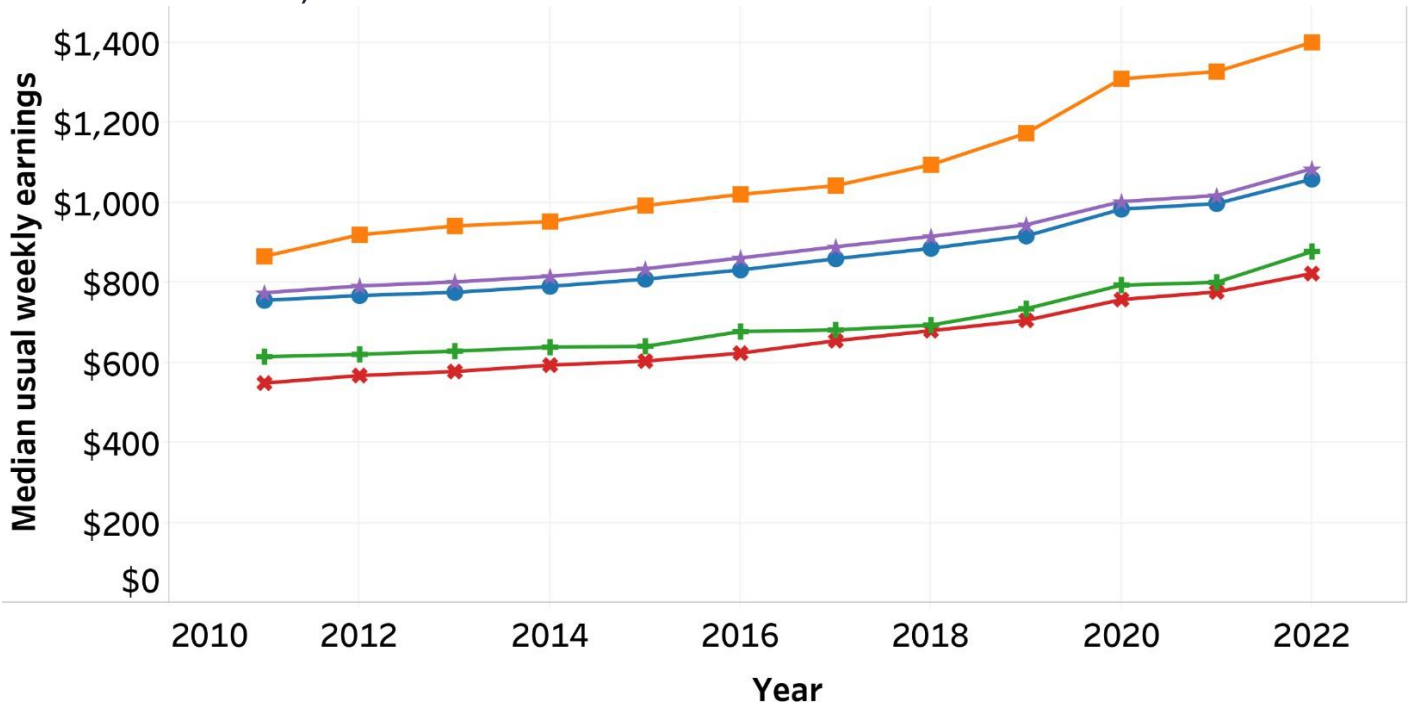
Figure 26: Median usual weekly earnings of full-time wage and salary workers by sex (Source: Bureau of Labor Statistics)



Median usual weekly earnings of full-time wage and salary workers by race and Hispanic or Latino ethnicity is shown in Figure 27. Asian workers consistently lead in earnings, showing a steady increase from just below \$1,200 in 2016 to approaching \$1,600 by 2020. White workers follow, with earnings starting slightly above \$900 and seeing a moderate rise to around \$1,100. Black or African American workers' earnings begin near \$700, with

a slight uptick reaching approximately \$800 by 2020. Hispanic or Latino workers, however, display the most restrained growth, starting just above \$600 and, despite some fluctuations, remain under \$700 by 2020.

Figure 27: Median usual weekly earnings of full-time wage and salary workers by race and Hispanic or Latino ethnicity (Source: Bureau of Labor Statistics)



- Asian
- White
- All
- Black or African American
- Hispanic or Latino

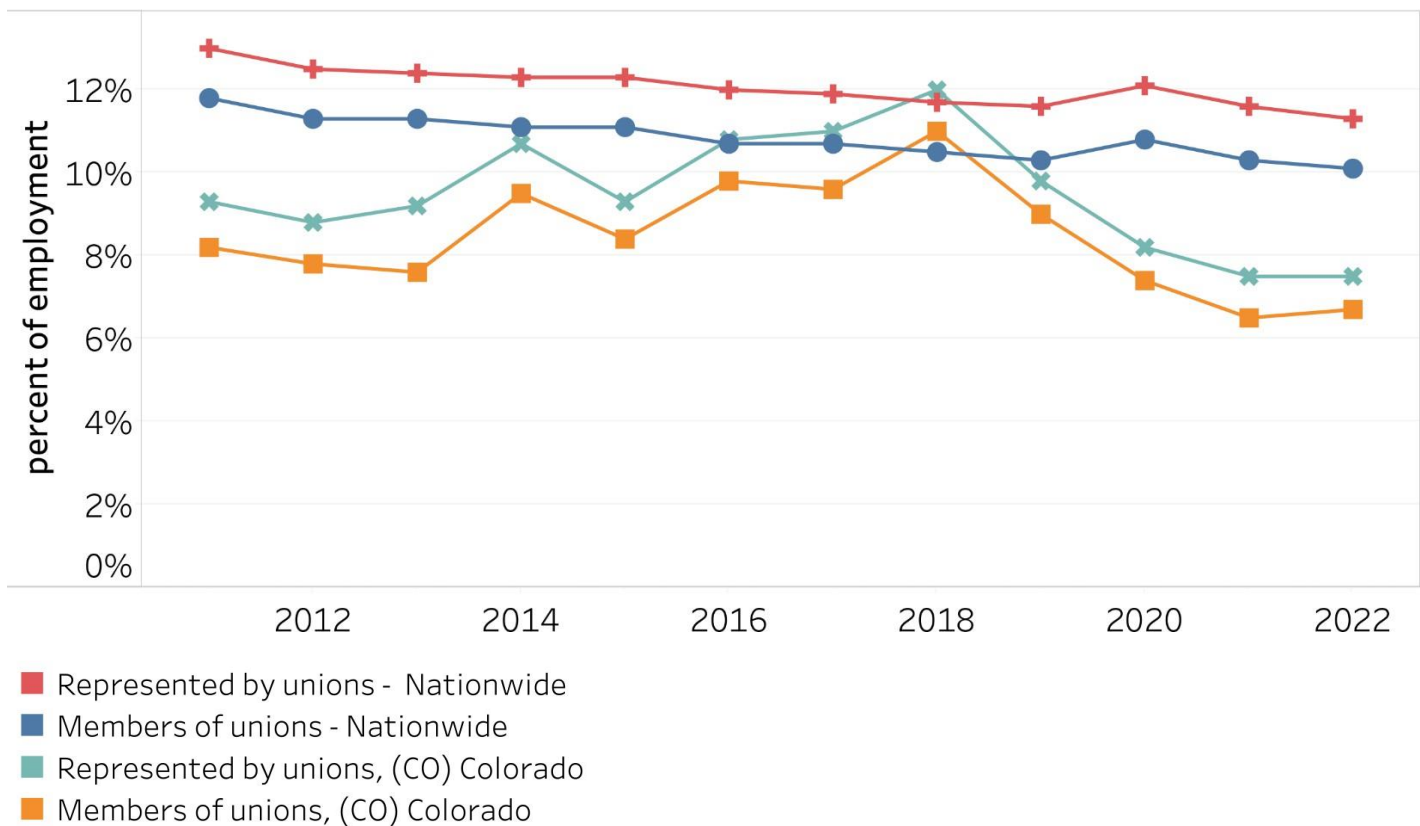


# UNION AFFILIATION

Union affiliation data are available for the construction industry at a nationwide level, as well as for Colorado across all industries. Union affiliation from 2011 to 2022, comparing nationwide statistics to Colorado, are shown in Figure 28. Nationwide, there has been a relatively stable trend in union membership, hovering around 10%, while the percentage of workers represented by unions slightly surpasses this, nearing 12%. However, in the state of Colorado, union

membership and representation have been more volatile. Starting at nearly 8% in 2011, union membership in Colorado dips to around 6% by 2022. Meanwhile, workers represented by unions in Colorado have witnessed a decline from over 9% in 2011 to approximately 7.5% in 2022, with a notable drop around 2016. Comparatively, Colorado's union affiliation remains consistently below the national average over the 11-year period.

Figure 28: Union affiliation from 2011 to 2022, comparing nationwide statistics to Colorado (Source: Bureau of Labor Statistics).



Union affiliation of employed wage and salary workers in Construction and all Sectors (nationwide) and in Colorado, 2021-2022 are shown in Table 4. Construction - Nationwide: In 2021, out of 8,157,000 workers in the construction sector

nationwide, 1,024,000 (12.6%) were members of unions and 1,112,000 (13.6%) were represented by unions. By 2022, although the total employed in the sector decreased to 8,671,000, the number of union members dropped slightly to 1,019,000, accounting

for 11.7% of the total employed. Those represented by unions in this sector also saw a modest decrease to 12.4% (1,076,000). All sectors - Nationwide: Across all sectors nationwide, out of 115,767,000 workers in 2021, 7,030,000 (6.1%) were union members, and 8,055,000 (7%) were represented by unions. By 2022, the total employed rose to 120,356,000, with union members comprising 6%

(7,223,000) and 6.8% (8,167,000) being represented by unions. Colorado Statewide: the total employed in 2021 was 2,538,000, with 165,000 (6.5%) being union members and 192,000 (7.5%) represented by unions. By 2022, the total employment increased to 2,672,000. Union membership saw a rise to 178,000 (6.7%), and those represented by unions increased to 201,000 (7.5%).

**Table 4: Union affiliation of employed wage and salary workers in Construction and all Sectors (nationwide) and in Colorado, 2021-2022 annual averages [Numbers in thousands] (Source: Bureau of Labor Statistics)**

Sector/State	2021					2022				
	Total employed	Members of unions		Represented by unions		Total employed	Members of unions		Represented by unions	
		Total	Percent of employed	Total	Percent of employed		Total	Percent of employed	Total	Percent of employed
<b>Construction - Nationwide</b>	8,157	1,024	12.6	1112	13.6	8,671	1,019	11.7	1076	12.4
<b>All sectors- Nationwide</b>	115,767	7,030	6.1	8,055	7	120,356	7,223	6	8,167	6.8
<b>Colorado</b>	2,538	165	6.5	192	7.5	2,672	178	6.7	201	7.5

Median weekly earnings of full-time wage and salary workers by union affiliation and selected characteristics, 2021-2022 are shown in Table 5. For the overall workforce aged 16 and over, there was a visible increase in median weekly earnings from 2021 to 2022, with the total rising from \$998 to \$1,059. Union members consistently earned more than their non-union counterparts, earning \$1,169 in 2021 and seeing an increase to \$1,216 in 2022. Interestingly, those represented by unions, although earning less than union members, still outpaced non-members, with earnings of \$1,158 in 2021 and \$1,203 in 2022. Non-members earned the least, with earnings of \$975 in 2021 and a slight rise to \$1,029 in 2022. Breaking it down by gender, men overall earned more than women in both years. In 2021,

men's earnings ranged from \$1,097 to \$1,154 and saw an increase in 2022, ranging from \$1,273 to \$1,137. Women, on the other hand, earned between \$912 and \$958 in 2021, with a growth to a range of \$1,146 to \$932 in 2022. Within age groups, those between 55 to 64 years consistently earned the most across both genders and years. In 2021, this age group earned between \$1,352 (total) to \$1,154 (non-members), and in 2022, they earned from \$1,225 (total) to \$1,144 (non-members). The youngest demographic (16 to 24 years) understandably earned the least, given their probable entry-level positions and limited work experience. Their earnings ranged from \$623 in 2021 to \$691 in 2022.

**Table 5: Median weekly earnings of full-time wage and salary workers by union affiliation and selected characteristics, 2021-2022 annual averages (Source: Bureau of Labor Statistics)**

Characteristics	2021				2022			
	Total	Members of union	Represented by union	Non-members	Total	Members of union	Represented by union	Non-members
<b>Total, 16 years and over</b>	\$998	\$1,169	\$1,158	\$975	\$1,059	\$1,216	\$1,203	\$1,029
16 to 24 years	623	757	744	617	691	795	798	685
25 years and over	1,057	1,192	1,180	1,030	1,123	1,242	1,233	1,100
25 to 34 years	931	1,049	1,038	916	992	1,115	1,104	979
35 to 44 years	1,131	1,264	1,252	1,107	1,181	1,329	1,320	1,161
45 to 54 years	1,154	1,266	1,257	1,136	1,194	1,350	1,327	1,167
55 to 64 years	1,132	1,224	1,224	1,111	1,154	1,225	1,223	1,144
65 years and over	994	1,083	1,093	980	1,031	1,157	1,179	1,010
<b>Men, 16 years and over</b>	1,097	1,227	1,217	1,069	1,154	1,273	1,266	1,137
16 to 24 years	650	771	750	640	713	801	805	707
25 years and over	1,160	1,253	1,245	1,146	1,219	1,314	1,305	1,201
25 to 34 years	972	1,105	1,093	959	1,040	1,147	1,144	1,023
35 to 44 years	1,241	1,363	1,354	1,221	1,297	1,409	1,397	1,270
45 to 54 years	1,295	1,339	1,337	1,281	1,336	1,405	1,378	1,324
55 to 64 years	1,256	1,268	1,265	1,254	1,294	1,303	1,301	1,293
65 years and over	1,129	1,148	1,150	1,124	1,196	1,234	1,264	1,179
<b>Women, 16 years and over</b>	912	1,104	1,086	884	958	1,146	1,135	932
16 to 24 years	605	745	739	599	656	778	779	649
25 years and over	954	1,126	1,115	930	1,002	1,160	1,151	979
25 to 34 years	881	1,008	1,003	862	938	1,069	1,049	923
35 to 44 years	992	1,168	1,151	967	1,065	1,202	1,192	1,036
45 to 54 years	1,012	1,180	1,162	981	1,058	1,262	1,238	1,018
55 to 64 years	976	1,157	1,164	953	1,007	1,146	1,145	987
65 years and over	867	1,012	1,016	846	874	968	973	857

**Colorado's union affiliation consistently remained below the national average from 2011 to 2022, with membership declining from nearly 8% to about 6% by 2022.**

**Nationwide, workers in the construction sector witnessed a decrease in union membership and representation between 2021 and 2022, despite a general rise in total employment.**

**Across all age groups and genders, union members consistently earned more than non-union members, with the age bracket of 55 to 64 years showing the highest earnings in both 2021 and 2022.**

# SECTION #4

## INDUSTRY EDUCATION AND EMPLOYMENT OPPORTUNITIES

In the next decade, Colorado's construction industry employment is projected to grow by 12% with employment for specialty trade contractors rising by 11%. Meanwhile, Colorado's unemployment rate has bounced back from its peak due to the pandemic, dropping to 3%.

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 2022-2032 and short-term projections are given for 2023-2024. 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 2023.
- All data were sourced in October 2023

# PROJECTED FUTURE EMPLOYMENT

From 2022-2032, employment in Colorado's construction sector is forecasted to grow by 12%, an average of 1.1% growth per year, according to long-term estimates from Colorado's Department of Labor and Employment.

Long-term employment projections, between 2022-2032, are reported by Colorado Department of Labor and Employment in Table 6. The Construction sector is expected to see an additional 21,166 jobs, a growth attributed to a 1.10% annual average percent growth. Specialty Trade Contractors has the highest increase in number of employments at 13,416 (11.21% growth rate over 10 years) while Heavy Civil Construction has the lowest increase in number of employments at 1,701 (6.7% growth rate over 10 years). It should be noted that the reported projections for the construction industry by Colorado Department of Labor and Employment for 2022-2032 (21,166 added jobs) is significantly less than the reported projections for 2020-2030 (45,206 added jobs).

In terms of short-term estimates for employment projections over 2023 - 2025, the projections by Colorado Department of Labor and Employment are shown in Table 7. The construction sector is expected to grow by 3,413 jobs over two years (2023 – 2025). Similar to long-term projections, Specialty Trade Contractors has the highest increase in number of employments at 2,857 (2.34% growth rate over 2 years) while Heavy Civil Construction has the lowest increase in number of employments at 148 (2.34% growth rate over 2 years). It should be noted that estimated employment in 2023 is higher than estimated employment in 2022 by 3,530 jobs showing 1.9% growth in the construction sector. This is slightly less growth than the projected annual growth in the previous report in 2022. However, Specialty Trade Contractors showed 2% growth for 2023 compared to 2022 as expected in the previous report.

These short-term and long-term rates are below the historic employment trends for 2011-2022: 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.

It's worth noting that projections are often updated based on the latest available data and may reflect changes in economic conditions, industry trends, and other factors affecting employment. For instance, the impact of the COVID-19 pandemic has caused many industries to reevaluate their future projections due to its significant impact on the economy and workforce. Moreover, construction industry projections could be influenced by housing market trends, commercial development rates, infrastructure spending policies, and technological innovations in building methods and materials.

In the projected growth of Colorado's construction trades for the period between 2022 and 2032, several key trends emerge, as shown in Table 8. Renewable energy is leading the way with Solar Photovoltaic Installers expecting the most significant surge in demand, forecasting an annual growth rate of 4% and culminating in a total growth of 46% over the decade. This accentuates Colorado's growing emphasis on sustainable energy. Similarly, the energy and mining sectors are also poised for considerable expansion, with Service Unit Operators in Oil, Gas, and Mining, and Derrick Operators in Oil and Gas projecting a growth of 31% and 27% respectively.

However, not all construction trades are on an upward trajectory. Occupation projections range in their 10-years growth between -45% to +46%. Occupations like "Pipelayers", Rail-Track Laying, Maintenance Equipment Operators", and "Underground Mining Machine Operators" are showing slight or no growth at 3%, 1%, and 0% over 10 years, respectively. This suggests stagnation for these specialized skills.

Other occupations have negative growth rate such as “Rock Splitters”; “Continuous Mining Machine Operators”; and “Loading and Moving Machine Operators, Underground Mining”, reported at -29%, -32%, and -47% over 10 years, respectively as shown in Table 8. These trades signify a potential decline in this trade's relevance or demand in the coming years.

Middle-tier growth is noticeable for core construction trades like “Construction Laborers” and “First-Line Supervisors of Construction Trades

and Extraction Workers”, both expecting a healthy 13% growth. This reflects a steady demand and growth in foundational construction activities. Furthermore, trades linked to infrastructure, like “Paving, Surfacing, and Tamping Equipment Operators” and “Highway Maintenance Workers”, are also predicted to grow at rates of 12% and 21% respectively, highlighting potential investments and developments in Colorado's infrastructure.

Table 6: Projected future construction industry employment needs, 2022-2032. Data sourced from the Colorado Department of Labor and Employment.

<b>NAICS INDUSTRY</b>		<b>EMPLOYMENT, ESTIMATED 2022<sup>1</sup></b>	<b>PROJECTED EMPLOYMENT 2032</b>	<b>TOTAL EMPLOYMENT CHANGE, 2022-2032</b>	<b>ANNUAL AVERAGE PERCENT CHANGE</b>	<b>TOTAL PERCENT CHANGE</b>
<b>23</b>	<b>Construction</b>	182,911	204,077	21,166	1.10%	11.57%
236	Construction of Buildings	37,841	43,890	6,049	1.49%	15.99%
237	Heavy and Civil Engineering Construction	25,371	27,072	1,701	0.65%	6.70%
238	Specialty Trade Contractors	119,699	133,115	13,416	1.07%	11.21%

Notes:

<sup>1</sup> 2022 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.

Table 7: Projected future construction industry employment needs, 2023-2025. Data sourced from the Colorado Department of Labor and Employment.

<b>NAICS INDUSTRY</b>		<b>ESTIMATED EMPLOYMENT 2023</b>	<b>PROJECTED EMPLOYMENT 2025</b>	<b>TOTAL EMPLOYMENT CHANGE, 2022-2024</b>	<b>ANNUAL PERCENT CHANGE</b>	<b>TOTAL PERCENT CHANGE</b>
<b>23</b>	<b>Construction</b>	186,441	189,854	3,413	0.91%	1.83%
236	Construction of Buildings	38,292	38,700	408	0.53%	1.07%
237	Heavy and Civil Engineering Construction	26,054	26,202	1,48	0.28%	0.57%
238	Specialty Trade Contractors	122,095	124,952	2,857	1.07%	2.34%

Table 8. Long term Occupational Projections in Colorado for 2022-2032. Data sourced from the Colorado Department of Labor and Employment.

<i>OCCUPATION</i>	<i>ESTIMATED EMPLOYMENT 2022</i>	<i>PROJECTED EMPLOYMENT 2032</i>	<i>TOTAL EMPLOYMENT CHANGE 2022-2032</i>	<i>ANNUAL AVG. PERCENT CHANGE</i>	<i>TOTAL PERCENT CHANGE</i>
Solar Photovoltaic Installers	520	757	237	4%	46%
Roustabouts, Oil and Gas	1,552	2,032	480	3%	31%
Derrick Operators, Oil and Gas	550	719	169	3%	31%
Service Unit Operators, Oil and Gas	2,435	3,035	600	2%	25%
Highway Maintenance Workers	2,742	3,309	567	2%	21%
Rotary Drill Operators, Oil and Gas	330	396	66	2%	20%
Floor Layers, Except Carpet, Wood, and Hard Tiles	774	912	138	2%	18%
Tile and Stone Setters	1,018	1,197	179	2%	18%
Electricians	19,577	22,865	3,288	2%	17%
Septic Tank Servicers and Sewer Pipe Cleaners	692	800	108	1%	16%
Structural Iron and Steel Workers	940	1,067	127	1%	14%
Insulation Workers, Floor, Ceiling, and Wall	302	342	40	1%	13%
Extraction Workers	7,346	8,317	971	1%	13%
Glaziers	1,985	2,246	261	1%	13%
Drywall and Ceiling Tile Installers	2,754	3,115	361	1%	13%
Construction Laborers	30,079	33,913	3,834	1%	13%
Other Construction and Related Workers	12,431	14,012	1,581	1%	13%
Plasterers and Stucco Masons	387	436	49	1%	13%
First-Line Supervisors of Construction Trades and Extraction Workers	21,644	24,383	2,739	1%	13%
Supervisors of Construction and Extraction Workers	21,644	24,383	2,739	1%	13%
Total, All	3,298,169	3,714,066	415,897	1%	13%
Elevator and Escalator Installers and Repairers	541	608	67	1%	12%
Construction and Extraction	169,591	190,462	20,871	1%	12%
Explosives Workers, Ordnance Handling Experts, and Blasters	187	210	23	1%	12%
Carpenters	20,904	23,460	2,556	1%	12%
Construction Trades Workers	126,457	141,911	15,454	1%	12%
Helpers, Construction Trades, All Other	258	289	31	1%	12%
Insulation Workers, Mechanical	897	1,003	106	1%	12%
Construction and Building Inspectors	4,060	4,532	472	1%	12%
Brickmasons and Blockmasons	1,018	1,133	115	1%	11%
Operating Engineers and Other Construction Equipment Operators	12,105	13,460	1,355	1%	11%
Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	260	289	29	1%	11%
Hazardous Materials Removal Workers	1,705	1,893	188	1%	11%
Earth Drillers, Except Oil and Gas	331	367	36	1%	11%
Paving, Surfacing, and Tamping Equipment Operators	1,273	1,408	135	1%	11%
Plumbers, Pipefitters, and Steamfitters	9,990	11,042	1,052	1%	11%
Floor Sanders and Finishers	262	289	27	1%	10%
Roofers	4,071	4,490	419	1%	10%
Miscellaneous Construction and Related Workers	1,140	1,251	111	1%	10%
Painters, Construction and Maintenance	7,127	7,817	690	1%	10%
Sheet Metal Workers	2,027	2,180	153	1%	8%
Helpers, Construction Trades	1,713	1,839	126	1%	7%
Helpers--Carpenters	295	316	21	1%	7%
Fence Erectors	919	978	59	1%	6%
Helpers--Electricians	250	261	11	0%	4%
Cement Masons and Concrete Finishers	5,719	5,961	242	0%	4%
Stonemasons	553	570	17	0%	3%

OCCUPATION	ESTIMATED EMPLOYMENT 2022	PROJECTED EMPLOYMENT 2032	TOTAL EMPLOYMENT CHANGE 2022-2032	ANNUAL AVG. PERCENT CHANGE	TOTAL PERCENT CHANGE
Pipelayers	1,158	1,188	30	0%	3%
Rail-Track Laying and Maintenance Equipment Operators	632	641	9	0%	1%
Underground Mining Machine Operators, All Other	103	103	0	0%	0%
Helpers--Extraction Workers	245	243	-2	0%	-1%
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	302	297	-5	0%	-2%
Excavating and Loading Machine and Dragline Operators, Surface Mining	501	394	-107	-2%	-21%
Rock Splitters, Quarry	281	199	-82	-3%	-29%
Continuous Mining Machine Operators	472	319	-153	-4%	-32%
Loading and Moving Machine Operators, Underground Mining	120	63	-57	-6%	-48%

Mechanical, Electrical, and Plumbing contractors in terms of projected total employment growth between 2022 and 2023 include:

- Solar Photovoltaic Installers (237 jobs, 45.6% growth)
- Construction Managers (3,084 jobs, 18.1% growth)
- Electricians (3,288 jobs; 16.8% growth)
- Heating, Air Conditioning, and Refrigeration Mechanics and Installers (1,456 jobs, 15% growth)
- Elevator and Escalator Installers and Repairers (67 jobs, 12.4% growth)
- Insulation Workers, Mechanical (106 jobs, 11.8% growth)
- Plumbers, Pipefitters, and Steamfitters (1,052 jobs, 10.53% growth)
- Welders, Cutters, Solderers, and Brazers (443 jobs, 8.5% growth)
- Pipelayers (30 jobs, 2.6% growth)

It's noteworthy that the number of jobs for Plumbers, Pipefitters, and Steamfitters in 2022 was reported at 9,990, marking a decrease from the 11,270 jobs estimated in 2020. This represents a decline in employment for this sector, contrary to the previously reported projection of a 3% annual growth rate. Conversely, the job count for Electricians in 2022 reached 19,577, surpassing the 2020 estimate of 16,790 jobs. This indicates a significant employment increase of 2,787 jobs, or an annual growth rate of 8.3%, substantially exceeding the 2.7% annual growth rate projected in the previous report in 2022.



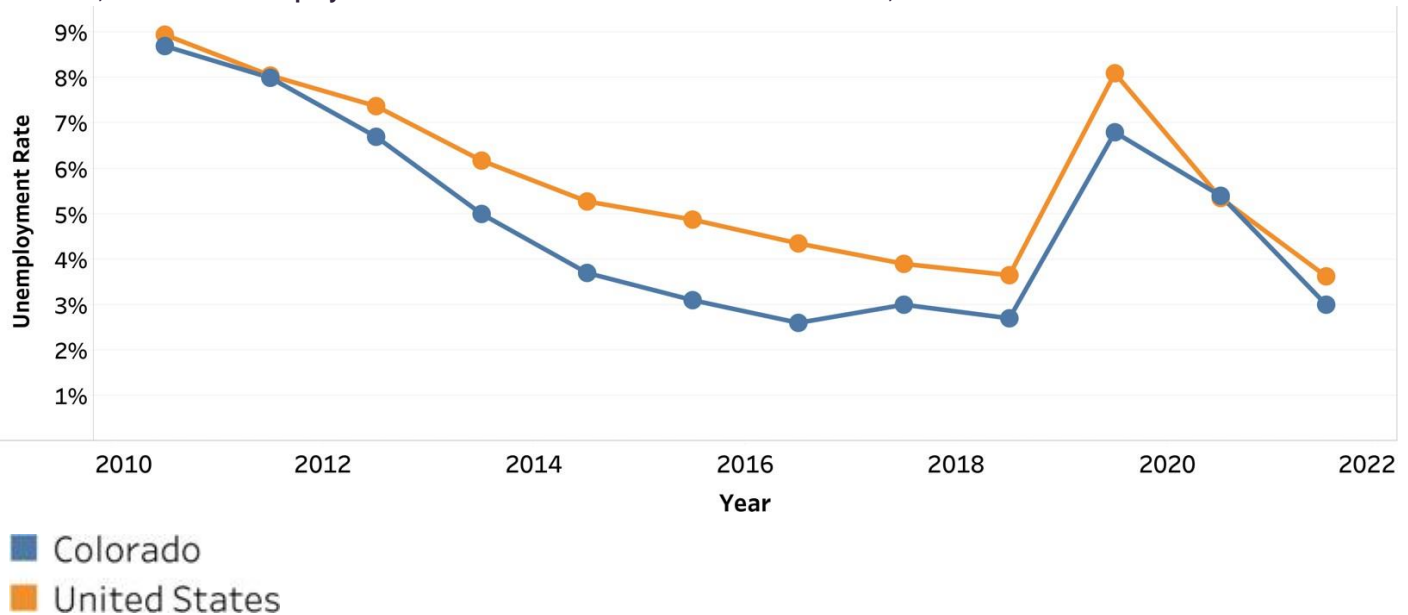
# UNEMPLOYMENT

The unemployment rate in both Colorado and the U.S. experienced a sharp rise in 2020 due to the pandemic, but by 2022, both showed significant recovery, with Colorado consistently maintaining a rate below the national average.

Both Colorado and the broader U.S. saw a consistent decline in unemployment rates from 2011, with Colorado frequently maintaining a rate slightly lower than the national average, as shown in Figure 29. This decline persisted until around 2019, after which there was a sharp spike in 2020. This surge can be attributed to the economic repercussions of

the COVID-19 pandemic, affecting employment across various sectors. Interestingly, while both Colorado and the U.S. experienced this uptick, Colorado's peak unemployment rate remained noticeably below the national average. Following this spike, the subsequent two years, 2021 and 2022, have shown a significant drop in unemployment rates for both entities, signaling a robust recovery. However, in 2022, the gap between Colorado's unemployment rate and the U.S. average narrowed considerably, indicating a convergence in economic conditions between the state and the nation.

Figure 29: Unemployment percentages in Colorado and the United States, across entire workforce. 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 38 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. Table 8 includes programs outside the Denver area, and Table 9 includes programs in the Denver area. Figures 30 and 31 are maps of programs included in Tables 8 and 9, respectively. In addition to these programs, the Mechanical Contractors Association also offers several mechanical, electrical, and plumbing/HVAC apprenticeships throughout the state.

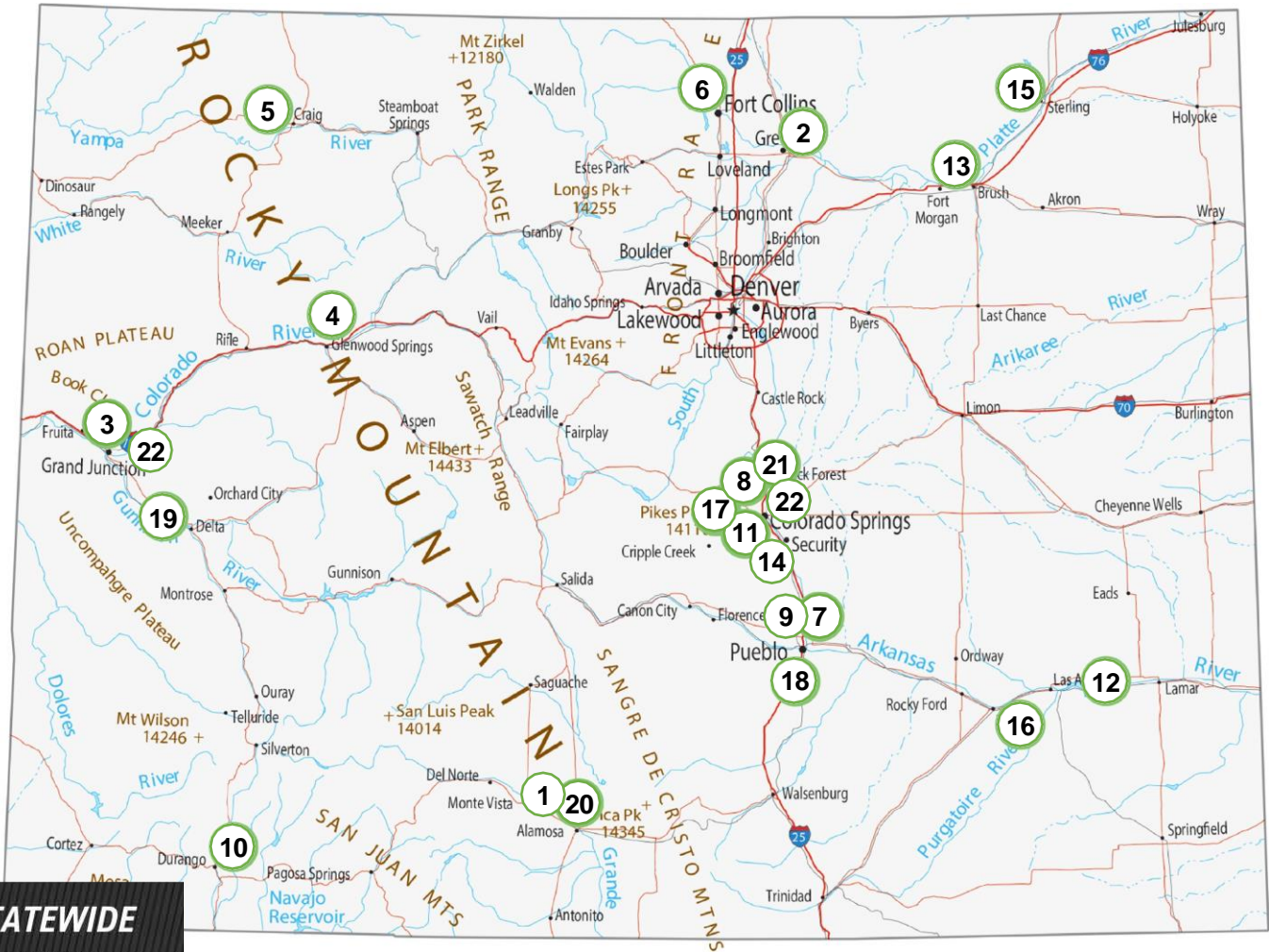
The programs in the following tables are programs listed under the education program areas below:

- 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 boiler making, precision metalworking, and woodworking.

Colorado is making significant strides in fostering a skilled workforce in construction and related fields. Institutions like Adams State University and Aims Community College offer robust programs, from Engineering at an associate level to specialized certificate courses in Carpentry, Arc Welding Processes, and Electronics Technology. Arapahoe Community College is not far behind, providing specialized courses such as Construction Estimating, Construction Management, and Mechanical Engineering. Private institutions like Aspen University Inc offer Bachelor's degrees in Alternative Energy, while Colorado Mesa University extends comprehensive programs ranging from Basic Welding to Bachelor's in Construction Management. The state's dedication to cultivating a diverse range of skills is further reflected in offerings by institutions like Colorado State University, which includes degrees in Civil Engineering, Construction Management, and various other engineering disciplines. The University of Colorado, with its campuses in Boulder, Colorado Springs, and Denver, showcases a wide array of courses, from Pre-Engineering to doctorate degrees in Civil Engineering. These educational endeavors ensure that Colorado remains at the forefront of construction technology and management, preparing its students for the challenges of tomorrow's construction landscape.

Figure 30: Map of construction and construction-related education programs in Colorado. Map source: GISGeography.com.



**STATEWIDE  
REGION 1**

Table 8. Construction and construction-related education programs outside of Denver metro area, as shown in Figure 30. Sources: Colorado Department of Higher Education, Degrees and Certificates Offered and institution catalogs.

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
1	Adams State University	Public	Engineering	Associate
2	Aims Community College	Public	Arc Welding Processes	Certificate
			Basics of Carpentry	Certificate
			Building/Construction Site Management	Associate
				Certificate
			Carpentry	Certificate
			Electronics Technology	Certificate
			Engineering Technology	Associate
			Engineering Technology: CAD/GIS	Certificate
			Metal Cutting and Gouging	Certificate

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
3	Colorado Mesa University	Public	Metal Fabrication	Certificate
			Pipe Welding	Certificate
			Welding Technician	Certificate
			Welding Technology	Associate
				Certificate
			Bachelor of Science in Construction Management	Bachelor
			Basic Welder	Certificate
			Computer-Aided Manufacturing/Computer-Aided Design	Certificate
			Construction Electrical	Associate
				Certificate
			Construction Technology	Associate
			Electric Line Worker	Associate
			Electric Lineworker	Certificate
			Electronics Technician	Certificate
			Energy Management/Landman	Certificate
			HVAC: HVAC Fundamentals	Certificate
Land Surveying	Associate			
	Certificate			
			Mechanical Engineering Technology	Associate
				Bachelor
4	Colorado Mountain College	Public	Basic Welding and Cutting	Certificate
			Heating, Ventilation, and Air Conditioning, AP	Certificate
			Pipe Welding	Certificate
			Process Technology	Associate
				Certificate
			Renewable Energy Technology	Certificate
5	Colorado Northwestern Community College	Public	Welding	Certificate
			CIVIL ENGINEERING TECHNOLOGY	Associate
				Certificate
			INDUSTRIAL ELECTRICIAN	Associate
			PROCESS TECHNOLOGY	Associate
6	Colorado State University	Public		Certificate
			Civil Engineering	Bachelor
				Doctorate
				Masters

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
7	Colorado State University - Pueblo	Public	Construction Management	Bachelor
				Masters
			Electrical Engineering	Bachelor
				Doctorate
				Masters
			Engineering	Masters
			Engineering Science	Bachelor
			Environmental Engineering	Bachelor
			Mechanical Engineering	Bachelor
				Doctorate
				Masters
			Pre Civil Engineering	Bachelor
			Advanced Construction Manager Certificate	Certificate
			Civil Engineering	Bachelor
Civil Engineering Technology	Bachelor			
8	Colorado Technical University	Private	Construction Management	Bachelor
			Construction Manager Certificate	Certificate
			Construction Procurement	Certificate
			Construction Project Manager	Certificate
			Construction Safety, Law and Management	Certificate
			Estimating and Planning Construction Costs Certificate	Certificate
			Master of Engineering Management	Masters
			Surveying and Modeling	Certificate
			Electrical Engineering	Bachelor
				Masters
9	Embry Riddle Aeronautical University	Private	Electronics Technology	Associate
			Engineering	Bachelor
			Engineering Management	Masters
10	Fort Lewis College	Public	Engineering Technology	Bachelor
			Engineering	Bachelor
11	ITT Technical Institute	Private	Computer and Electronics Engineering Technology-AAS	Associate
			Construction Management-BS	Bachelor
			Electrical Engineering and Communications Technology-BS	Bachelor
			Electrical Engineering Technology-AAS	Associate

<b>KEY</b>	<b>INSTITUTION NAME</b>	<b>TYPE</b>	<b>PROGRAM NAME</b>	<b>PROGRAM TYPE</b>
12	Lamar Community College	Public	Carpentry	Certificate
			CONSTRUCTION TECHNOLOGIES	Associate
				Certificate
			Energy Technology	Associate
			Fabrication Welding	Associate
			Renewable Energy Technologies	Associate
			Welding Intermediate Cer	Certificate
			Welding, Advanced Certificate	Certificate
13	Morgan Community College	Public	Welding, Basic Certificate	Certificate
			Aluminum Welding	Certificate
			Basic Welding	Certificate
			CONSTRUCTION TECHNOLOGY	Associate
				Certificate
			Industrial Electrical	Certificate
			Industrial Electrical/Mechanical Maintenance Degree	AAS Associate
			Welding & Fabrication	Certificate
14	National American University	Private	Welding Technology	Associate
			Computer Aided Design/Architectural	Associate
			Construction Management	Associate
15	Northeastern Junior College	Public		Bachelor
			Industrial Electricity Certificate	Certificate
			Welding Fabricator	Certificate
			Welding Technologies	Associate
				Certificate
16	Otero College	Public	Welding Technology AAS	Associate
			Advanced Welding Pipe	Certificate
			Basic Carpentry	Certificate
			Structural Welding	Certificate
			Welding Fundamentals I Certificate	Certificate
			Welding Fundamentals II	Certificate
			Welding Production	Certificate
17	Pikes Peak State College	Public	Architectural & Construction Technology	Certificate
			ARCHITECTURAL ENGINEER/CONSTRUCTION MANAGEMENT	Associate
				Certificate

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
			Architecture & Construction Technology	Associate
			Architecture & Construction Technology-Architecture AAS	Associate
			Architecture Professional	Certificate
			Basic CAD	Certificate
			Build & Constr Tech Carpentry	Associate
			Build & Constr Tech Electrical	Associate
			Build & Constr Tech Plumbing	Associate
			Build & Constr Tech- Carpentry Adv. Applications Cert	Certificate
			Build & Constr Tech- Carpentry Fundamentals Certificate	Certificate
			Building and Construction Advanced Applications	Certificate
			Building and Construction Fundamentals	Certificate
			Building and Construction Technology	Associate
			CAD - HVAC Emphasis	Associate
			Computer Aided Design (CAD)	Certificate
			Computer Aided Drafting/Design	Associate
			COMPUTER AIDED DRAFTING/DESIGN (CAD)	Certificate
			Computer Aided Drafting/R & A	Associate
			Electrical Adv. Applications	Certificate
			Electrical Fundamentals	Certificate
			Electronics Technology	Associate
				Certificate
			ENERGY MANAGEMENT TECHNOLOGY	Associate
			Heating, Air Conditioning & Refrigeration	Associate
				Certificate
			HEATING, AIR CONDITIONING, REFRIGERATION TECHNOLOGY	Associate
				Certificate
			Mechanical Engineering	Associate
			Plumbing Adv. Applications	Certificate
			Plumbing Fundamentals	Certificate
			Welding	Associate
				Certificate
			WELDING TECHNOLOGY	Associate
				Certificate
18	Pueblo Community College	Public	AAS Welding	Associate

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
19	Technical College of the Rockies	Public	Construction Technician Basic	Certificate
			CONSTRUCTION TECHNOLOGIES	Certificate
			ENGINEERING TECHNOLOGY	Associate
				Certificate
			Introduction to HVAC Technology - DOC	Certificate
			Surveying	Certificate
			Welding Certificate	Certificate
			Welding Multi-Process	Certificate
			Welding Technology	Associate
				Certificate
20	Trinidad State College	Public	Civil Drafting	Certificate
			Heating and Air Conditioning	Certificate
			Heating/Air Conditioning Service Technician	Certificate
			Program: Heavy Equipment Operator - Crane	Certificate
20	Trinidad State College	Public	CONSTRUCTION TECHNOLOGIES	Associate
				Certificate
			Construction Technology	Associate
				Certificate
			DIESEL TECHNOLOGY-EPIC	Associate
				Certificate
			ELECTRICAL LINE WORKER	Associate
				Certificate
			ENGINEERING TECHNOLOGY	Associate
				Certificate
			ENVIRONMENTAL ENGINEERING TECHNOLOGY	Associate
			EPIC-Heavy Equipment Operations Level I	Certificate
			FINE WOODWORKING	Associate
				Certificate
			HEAVY EQUIPMENT TECHNOLOGY-EPIC	Associate
				Certificate
Power Construction Supervision ( PCS)	Associate			
Precision Machining	Certificate			
Trail Mgmt & Construction	Associate			
WELDING TECHNOLOGY-EPIC	Associate			
	Certificate			



<b>KEY</b>	<b>INSTITUTION NAME</b>	<b>TYPE</b>	<b>PROGRAM NAME</b>	<b>PROGRAM TYPE</b>
<b>21</b>	University of Colorado, Colorado Springs	Public	Welding-EPIC	Associate
				Certificate
			Electrical Engineering	Bachelor
				Masters
			Engineering	Doctorate
				Masters
			Mechanical Engineering	Bachelor
				Masters
<b>22</b>	Western States College of Construction		HVAC-R	Certificate
				Associate
			Pipefitting	Certificate
				Associate
			Plumbing	Certificate
				Associate
			Sheet metal	Certificate
				Associate

Figure 31: Inset map of construction and construction-related education programs in the Denver area. Map source: GISGeography.com.

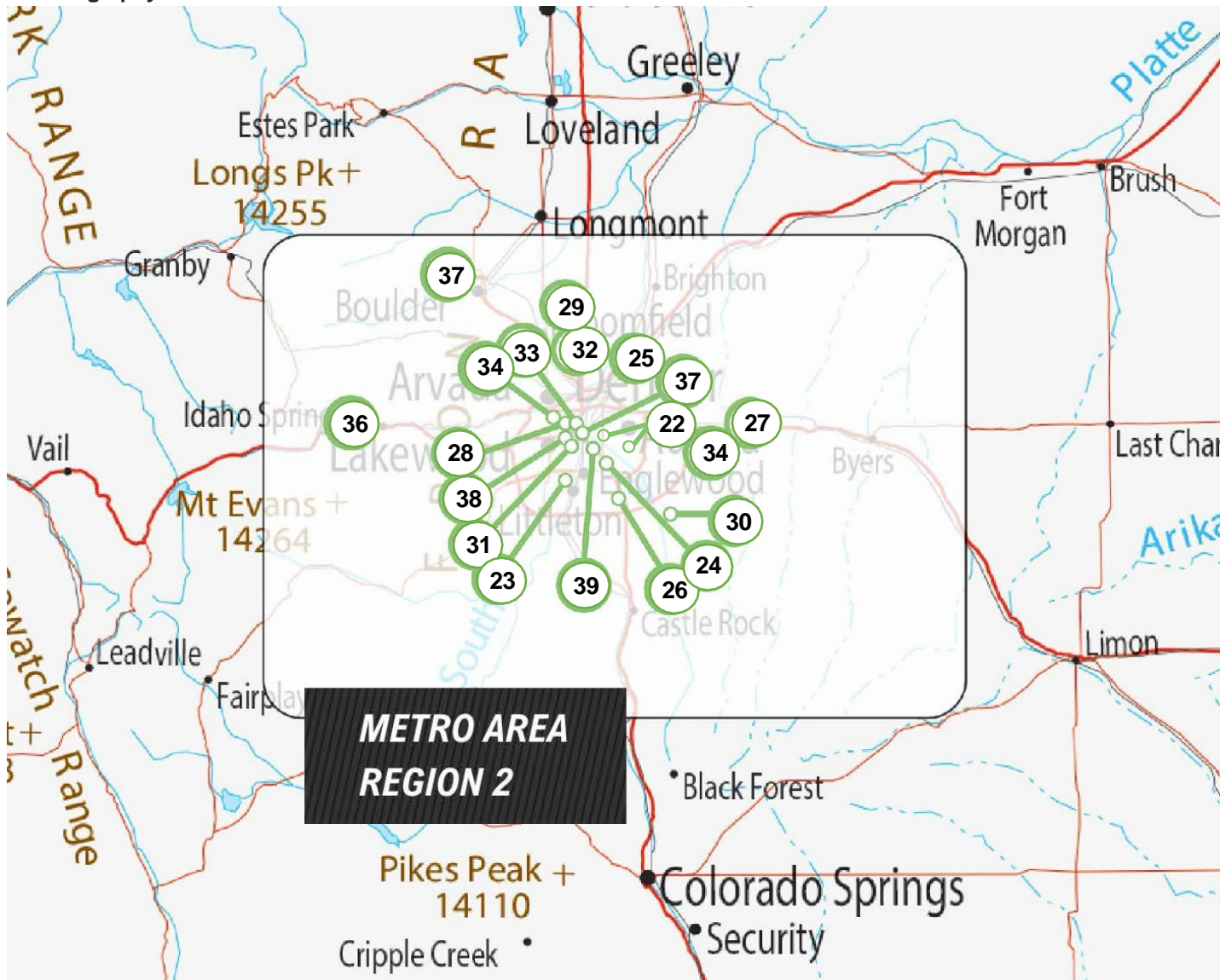


Table 9. Construction and construction-related education programs inside of Denver metro area, as shown in Figure 31. Sources: Colorado Department of Higher Education, Degrees and Certificates Offered and institution catalogs.

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
22	Western States College of Construction		HVAC-R	Certificate
				Associate
			Pipefitting	Certificate
				Associate
			Plumbing	Certificate

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
23	Arapahoe Community College	Public		Associate
			Sheet metal	Certificate
			Construction Estimating	Certificate
			Construction Management	Associate
			Construction Management Fundamentals Certificate	Certificate
			Construction Ste Supervision/Management	Associate
			ENERGY TECHNOLOGY	Certificate
			Engineering Science, General	Associate
			Engineering Technologies	Associate
				Certificate
24	Aspen University Inc	Private	Mechanical Engineering	Associate
			Bachelor of Science in Alternative Energy	Bachelor
25	Colorado School of Mines	Public	Civil & Environmental Engineering	Doctorate
			Civil & Environmental Engineering	Masters
			Civil Engineering	Bachelor
			Construction Engineering	Bachelor
			Electrical Engineering	Bachelor
				Doctorate
				Masters
			Engineering	Doctorate
				Masters
			ENGINEERING & TECHNOLOGY MANAGEMENT	Masters
			Environmental Engineering	Bachelor
			Environmental Engineering Science	Doctorate
				Masters
			Mechanical Engineering	Bachelor
				Doctorate
	Masters			
26	Columbia College, Denver Campus	Private	Renewable Energy, Utility Integration, and Smart-Grid Certificate Technology	Certificate
			Underground Construction and Tunnel Engineering	Certificate
			Underground Construction and Tunneling	Doctorate
				Masters
			Pre-Engineering	Associate

<b>KEY</b>	<b>INSTITUTION NAME</b>	<b>TYPE</b>	<b>PROGRAM NAME</b>	<b>PROGRAM TYPE</b>
27	Community College of Aurora	Public	Construction Estimating	Certificate
			ENERGY TECHNOLOGY	Certificate
28	Community College of Denver	Public	Advanced Building Crafts	Certificate
			Arch. Tech: Digital Design	Associate
			Arch. Tech: Sustainable Design	Associate
			Architectural Technologies	Associate
				Certificate
			Basic Building Crafts	Certificate
			Computer Aided Design and Drafting/Mechanical Designer Basic	Certificate
			Computer Aided Design and Drafting/Mechanical Designer Intermediate	Certificate
			FABRICATION WELDER	Associate
				Certificate
			RESIDENTIAL ENERGY ANALYST CERTIFICATE	Certificate
			Sustainable Design	Certificate
			Welding Technology/Welder	Associate
Welding/Fabrication Welder	Certificate			
29	DeVry University	Private	Electronics & Computer Technology	Associate
			Electronics Engineering Technology	Bachelor
30	ECPI University	Private	Electronics Engineering Technology	Associate
				Bachelor
			Mechanical Engineering Technology	Associate
			Bachelor	
31	Emily Griffith Technical College	Public	Apprenticeship Bricklayer	Certificate
			Apprenticeship Carpenter	Certificate
			Apprenticeship Carpet & Tile	Certificate
			Apprenticeship Electrical Line Worker	Certificate
			Apprenticeship Inside Electrician	Certificate
			Apprenticeship Ironworker	Certificate
			Apprenticeship Operating Engineer	Certificate
			Apprenticeship Painter	Certificate
			Apprenticeship Pipe Fitter	Certificate
			Apprenticeship Plumber	Certificate
			Apprenticeship Plumber/Pipe Fitter	Certificate
Apprenticeship Residential Elect	Certificate			

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
32	Front Range Community College	Public	Apprenticeship Sheet Metal Worker	Certificate
			Building Trades Technology	Certificate
			COMBINATION WELDING	Certificate
			CONSTRUCTION APPRENTICE RELATED	Certificate
			Construction Essentials	Certificate
			CONSTRUCTION TRADES	Certificate
			Architectural & Construction Technology	Associate
				Certificate
			Architectural and Building Science	Associate
			Automotive Heating and Air Conditioning	Certificate
			Basic CAD	Certificate
			Building Construction Management	Associate
			Building Science and Sustainable Design	Certificate
			Civil Engineering	Associate
			Clean Energy Technology	Associate
				Certificate
			Computer Aided Drafting/Design (CAD)	Associate
				Certificate
			Computer-Aided Drafting/Design	Associate
			Construction Essentials	Certificate
			Electrical Fundamentals	Certificate
			Electronics Engineering Technology AAS	Associate
			Engineering, General	Associate
			Heating and Air Conditioning	Certificate
			Heating, Ventilation, & Air Conditioning	Certificate
			Heating, Ventilation, and Air Conditioning	Associate
				Certificate
Heating, Ventilation & Air Cond	Associate			
HVAC/R Fundamentals	Certificate			
Mechanical Engineering	Associate			
Metal Fabrication	Certificate			
Pipe Welding (CER)	Certificate			
Plumbing Fundamentals	Certificate			
Precision Machining Technology	Certificate			
PRECISION/COMPUTER AIDED MACHINING	Certificate			

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
33	Metropolitan State University of Denver	Public	Residential Air Cond & Heating	Certificate
			WELDING TECHNOLOGY	Associate
				Certificate
			Civil Engineering Technology	Bachelor
			Construction Project Management	Bachelor
			Electrical Engineering Technology	Bachelor
				Certificate
			Environmental Engineering	Bachelor
34	Norwich University	Private	Mechanical Engineering Technology	Bachelor
			Civil Engineering	Bachelor
				Masters
			Electrical & Computer Engineering	Bachelor
35	Pickens Technical College	Public	Mechanical Engineering	Bachelor
			Carpentry	Certificate
			Computer Aided Drafting	Certificate
			Electronics Technician	Certificate
			Energy Technology	Certificate
			HVAC, HRAC technology	Certificate
36	Red Rocks Community College	Public	Welding	Certificate
			Advanced Construction Electrician-ACE	Certificate
			Associate of Applied Science Emphasis in Architectural	Associate
			Carpentry	Associate
				Certificate
			CONSTRUCTION TECHNOLOGY	Associate
				Certificate
			Energy Auditing	Certificate
			Engineering and Computer Science	Certificate
			HVAC	Associate
				Certificate
			PLUMBING	Associate
				Certificate
			Post-Degree Specialization in Advanced Construction Electrician-PDACE	Certificate
Precision Machining	Associate			
	Certificate			

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
37	University of Colorado Boulder	Public	PROCESS TECHNOLOGY	Associate
				Certificate
			RENEWABLE ENERGY TECHNOLOGY	Associate
				Certificate
			Residential Construction Electrician-RCE	Certificate
			WELDING	Associate
				Certificate
			Welding & Fabrication	Associate
			Woodturner	Certificate
			Woodworking	Associate
				Certificate
			Woodworking Artisan	Certificate
			Woodworking Fundamentals	Certificate
			Woodworking Intensive	Certificate
			WOODWORKING, GENERAL	Associate
				Certificate
			Civil Engineering	Bachelor
				Doctorate
				Masters
			Electrical & Computer Engineering	Bachelor
			Electrical Engineering	Bachelor
				Doctorate
				Masters
			Engineering	Masters
			Engineering, General	Bachelor
			Environmental Engineering	Bachelor
				Doctorate
	Masters			
in Civil Engineering	Masters			
in Electrical Engineering	Masters			
in Environmental Engineering	Masters			
in Mechanical Engineering	Masters			
Integrated Design Engineering	Bachelor			
Mechanical Engineering	Bachelor			
	Doctorate			

<b>KEY</b>	<b>INSTITUTION NAME</b>	<b>TYPE</b>	<b>PROGRAM NAME</b>	<b>PROGRAM TYPE</b>
38	University of Colorado Denver	Public		Masters
			Pre-Engineering	Bachelor
			Architecture	Bachelor
				Masters
			Civil Engineering	Bachelor
				Doctorate
				Masters
			Construction Engineering and Management	Bachelor
			Construction Management	Bachelor
			Electrical Engineering	Bachelor
				Masters
			Engineering	Masters
			Engineering and Applied Sciences	Doctorate
			Mechanical Engineering	Bachelor
39	University of Denver	Private	Pre-Engineering	Bachelor
			Construction Management	Bachelor
				Masters
			Electrical & Computer Engineer	Doctorate
			Electrical Engineering	Bachelor
				Masters
			Engineering	Bachelor
				Doctorate
				Masters
			Mechanical Engineering	Bachelor
	Doctorate			
	Masters			



## REFERENCES

Colorado Department of Labor and Employment, Labor Market Information Gateway. Accessed November 2023 from <https://www.colmigateway.com>

Colorado Department of Higher Education, Degrees and Certificates Offered. Accessed November 2023 from <https://highered.colorado.gov/Data/Degrees.aspx>

Colorado Department of Revenue Office of Research and Analysis, Retail Sales Reports. Accessed November 2023 from <https://cdor.colorado.gov/retail-sales-reports>

U.S. Bureau of Economic Analysis, Regional Product Division, Regional Input-Output Modeling System (RIMS II).

U.S. Bureau of Economic Analysis, Regional Product Division, Gross Domestic Product by State. Accessed November 2023 from <https://www.bea.gov/data/gdp/gdp-state>

U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages. Accessed November 2023 from <https://www.bls.gov/cew/>

U.S. Bureau of Labor Statistics, Occupational Employment and Wage Statistics Program. Accessed November 2023 from <https://www.bls.gov/oes/>

U.S. Bureau of Labor Statistics, Labor Force Statistics. Accessed November 2023 from <https://www.bls.gov/webapps/legacy/cpslutab3.htm>

U.S. Bureau of Labor Statistics, Local

Area Unemployment Statistics. Accessed November 2023 from <https://www.bls.gov/lau/>



U.S. Census, Building Permit Survey. Accessed November 2023 from <https://www.census.gov/construction/bps/stateannual.html>

U.S. Census, 2019 County Business Patterns report. Accessed November 2023 from <https://www.census.gov/programs-surveys/cbp.html>

U.S. Census, Current Population Survey. Accessed November 2023 from <https://www.census.gov/programs-surveys/cps.html>

U.S. Census, Quarterly Workforce Indicators. Accessed November 2023 from <https://ledextract.ces.census.gov/static/data.html>

# ***ACKNOWLEDGEMENTS***

This report was developed and written by Shahryar Monghasemi and Moatassem Abdallah, PhD at the College of Engineering Design, and Computing, University of Colorado Denver.



495 Uinta Way  
Suite 495  
Denver, Colorado 80230  
303.937.3900 | Office  
303.936.8723 | Fax  
[www.rmcneca.org](http://www.rmcneca.org)



1391 Speer Blvd, Suite 450  
Denver, Colorado 80204  
303.757.3956 | Office  
303.757.4313 | Fax  
[www.rmmca.org](http://www.rmmca.org)



1114 West 7th Avenue,  
Suite 250  
Denver, Colorado 80204  
303.832.4224 | Office  
303.832.5116 | Fax  
[www.smacnacolorado.org](http://www.smacnacolorado.org)