

2020 REPORT

ECONOMIC IMPACTS OF THE CONSTRUCTION INDUSTRY ON THE STATE OF COLORADO



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Prepared by:

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GREETINGS

January 2020

On behalf of the Rocky Mountain Chapter of the National Electrical Contractors Association (NECA), Rocky Mountain Mechanical Contractors Association (RMMCA) and the Sheet Metal and Air Conditioning Contractors National Association, Colorado Chapter (SMACNA) it is a pleasure to present Economic Impacts of the Construction Industry on the State of Colorado.

The 2020 report examines impact based on the size of the industry, number of jobs, wages and employment opportunities as well as Colorado economic indicators. In short, the impact of the construction industry on Colorado is far-reaching and the state of our industry is strong.

According to the report, construction contributed \$21.2 billion to the Colorado economy in 2018 representing 5.7% of all industries. Perhaps even more impressive, every \$1 billion added to the construction industry delivers \$2.2 billion in output to all industries.

The good news doesn't stop with overall economic impact. Consider job growth. Currently, construction jobs in Colorado total 175,000. According to the report, it is estimated in Colorado there will be more than 50,000 new jobs in construction by 2028 bringing projected employment totals to more than 225,000. Of the 50,000 new jobs projected by the report, 31,870 are in specialty trades (subcontractors). In addition to new jobs, projected retirements over the same time period could account for another 40,000 new jobs in construction and 25,600 in specialty trades.

While the news about the future of the construction industry is good, it is not without challenges. Our top priority is recruitment. Finding the talent to match job growth is critical to the future of our industry and the economy of our state. Make no mistake our industry is heavily focused on better outreach to recruit tomorrow's talent.

The MEP Alliance - NECA, RMMCA, SMACNA and our partners - are working on multiple strategies to enhance recruitment. In fact, we currently spend \$8 million annually on apprenticeship training programs across Colorado. These programs are the crown jewel of our efforts. Our apprenticeship training programs are offered tuition-free and require only a small personal investment in tools

and books to enroll. More than 90% of apprenticeship graduates find jobs and achieve an average starting salary of \$75,000.

We invite you to learn more about our industry and our associations. We will be happy to serve as a resource for your questions or business needs. On behalf of our three associations and Boards of Directors, we look forward to working with you in the community and partnering to help shape Colorado and its economy.

Again, on behalf of our partners, thank you for taking the time to review this report outlining the economic impact of the Construction Industry on the State of Colorado.

Sincerely,



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EXECUTIVE SUMMARY

↑ \$2.2B | \$804M | 👤 15,729 | \$1.2B

Every one billion dollars added to Colorado's construction industry produces \$2.2 billion in output, \$804 million in household earnings, 15,729 jobs, and \$1.2 billion of added value across all of Colorado's industries.

↑ 29% 50,051 Construction
31,870 Specialty trades

Between 2018 and 2028, the number of construction jobs in Colorado is expected to grow by 29% or 50,051 new jobs. This corresponds to an average of 2.6% new jobs per year. Of these, 31,870 jobs are expected to be in specialty trades.

\$21.2B

Construction contributed a total of \$21.2 billion to Colorado's state economy in 2018. This economic impact represents 6% of all Colorado industries.

67%

There are 19,884 construction establishments in Colorado as of 2018. 67% of these establishments are specialty trade establishments and 24% of all construction establishments are mechanical, electrical, and plumbing establishments.

90%

Colorado's construction industry is dominated by small establishments: 92% of all construction establishments have fewer than 20 employees, and 90% of all mechanical, electrical, and plumbing establishments have fewer than 20 employees.

\$10.8B | 8%

Colorado's construction industry employed 173,096 people on average in 2018, 8% of all employees in the state. Construction payroll totaled \$10.8 billion in 2018, 8% of total payroll for all private industries in the state.

\$3B

The mechanical, electrical, and plumbing sector within the construction industry employed 50,365 people in private industry in 2018, 2% of all employees in the state. The total payroll for this sector totaled \$3 billion in 2018, 2% of all industries in Colorado.

INTRODUCTION

Construction is an impactful segment of Colorado's industry landscape. This report is based on the most recent annual data available, which is from 2018. Throughout, the focus of this report is on the building equipment contractor, also referred to as the mechanical, electrical, and plumbing (MEP) industry subsector. This report is organized in four sections, each addressing a key area of the construction industry's significance to the state of Colorado.

1. Economic Impacts of the construction industry in Colorado: the calculated impacts of the construction industry on Colorado's economic prosperity.
2. Overview of the construction industry in Colorado: a descriptive summary of the number, location, and size of construction establishments in Colorado.
3. Employment and Wages in Colorado's construction industry: data describing the number of employees and typical wages within the industry.
4. Education Opportunities for construction trades in Colorado: information on the projected future demand for construction employees, and the resources currently available to train future employees.

Construction contributed \$21.2 billion to Colorado's GDP in 2018. While this ranks seventh among all industries in the state, construction also ranks third in terms of change in contribution to state GDP, with a nearly 24% increase in contribution compared to 2009 (indexed to 2009 values).

Every one billion dollars added to Colorado's construction industry produces \$2.2 billion in output, \$804 million in household earnings, 15,729 jobs, and \$1.2 billion of added value across all of Colorado's industries (Section 1).

Colorado's construction industry employed 173,096 people in 2018, 8% of all employees working in private industry in the state. Of Colorado's construction workers, 66% were specialty trade contractors, and 29% were building equipment contractors (MEP) (Section 2).

Construction workers receive an average annual salary of approximately \$62,000, which ranks fourth among seven selected comparison industries (listed on page 12). Construction also has been growing the fastest among the same comparison industries in recent years, 4% on average each year from 2016-2018. Within construction, building equipment contractors (MEP) receive the highest wage of all specialty trade contractors, and all MEP occupations receive a higher annual wage than the average across all construction crafts (Section 3).

Since a low in 2013, the number of construction employees and establishments in Colorado has been steadily increasing each year. Future projections indicate construction employment will continue to grow by 29% in the next decade. Numerous education programs in the state offer certificates, apprenticeships, bachelor's, and advanced degrees in construction crafts. Current programs emphasize technology tools and digital design skills across construction, architecture, manufacturing, and energy, as well as basic skills for design and maintenance for electrical, mechanical, and plumbing applications (Section 4).



METHODOLOGY

Data used to prepare this report were collected from federal and state agencies. Federal agencies include the Bureau of Labor Statistics, the U.S. Census Bureau, and the Bureau of Economic Analysis. State data was collected from the Colorado Department of Revenue, Colorado Department of Labor and Employment, and the Colorado Department of Higher Education. The data sources and analysis methods used in each section are summarized at the start of the section.

The analyses in this report are organized by the 2017 North American Industry Classification System (NAICS) Codes and 2018 Standard Occupational Classification (SOC) Codes. These codes are federal standards used to ensure consistency across economic statistical data collection efforts. The Industry and Occupational codes referenced throughout this report are included in Appendices A and B, respectively, alongside their definitions.

The construction industry is divided into three primary sectors:

- Building construction
- Heavy and civil engineering construction
- Specialty trades

Mechanical, electrical, and plumbing (MEP) contractors fall within the third group of specialty trade contractors, and by NAICS code are primarily labeled as “Building Equipment Contractors.” Figure 1 illustrates the divisions of the construction industry codes covered in this report. The colors shown in Figure 1 for each construction subsector are used throughout the report. Building construction has two subsectors, heavy and

civil engineering construction has four subsectors, and specialty trades has four subsectors.

The primary focus of this report is MEP, NAICS code 2382. Within building equipment contractors (MEP), there are three groups of industries:

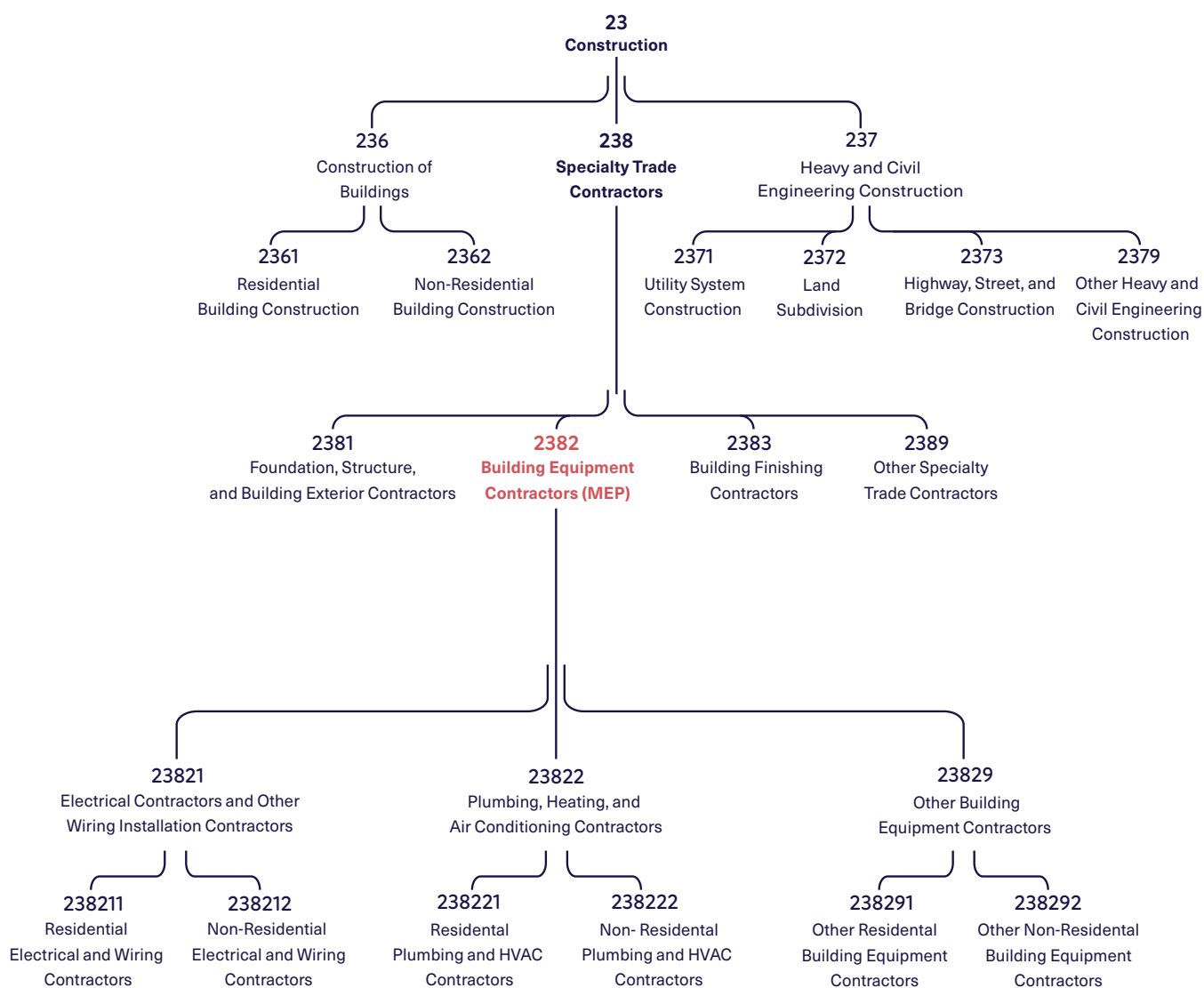
- Electrical and other wiring installation contractors (abbreviated as electrical and wiring contractors)
- Plumbing, heating, and air conditioning contractors (abbreviated as plumbing and HVAC contractors)
- Other building equipment contractors

Within each of these three groups, there are further divisions into residential and non-residential contractors. Throughout the report, data are examined for all construction sectors, focusing on building equipment contractors (MEP) as well as its constituent industries.

The construction industry is also compared to a selection of other major industries that represent the breadth of industries in Colorado. Definitions for each industry area according to the 2017 NAICS classification are included in Appendix A. The comparison industries that are referenced in this report are:

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

Figure 1: Diagram of construction industry sector organization by 2017 NAICS codes.



SECTION 1

ECONOMIC INDICATORS

The economic impact of the construction industry on Colorado is quantified in this section. The most recent data available is reported, the majority of which is available only for the construction industry overall. Construction's contribution to state GDP is one of few industries whose contribution has been increasing over the years 2009-2018.

According to economic multipliers calculated using regional data, every billion dollars added to Colorado's construction industry produces \$2.2 billion in output, \$804 million in household earnings, 15,729 jobs, and \$1.2 billion of added value across all of Colorado's industries.



METHODOLOGY

- Industry contribution to state GDP data were collected from the Bureau of Economic Analysis – GDP by industry reports for years 2009-2018. For comparing the over year percent growth in GDP across industries, values were indexed to the percent growth from 2009-2010.
- Economic multipliers were calculated by the Bureau of Economic Analysis using the Regional Input/Output Modeling System (RIMS). Multiplier data in this report are based on 2012 Input/output data and 2017 regional data for Colorado.
- Retail sales data for construction and construction-related industries were obtained from the Colorado Department of Revenue for years 2015-2018. Retail sales data are based on tax returns collected by the Department of Revenue, which are subject to change.
- All data were retrieved in December, 2019.

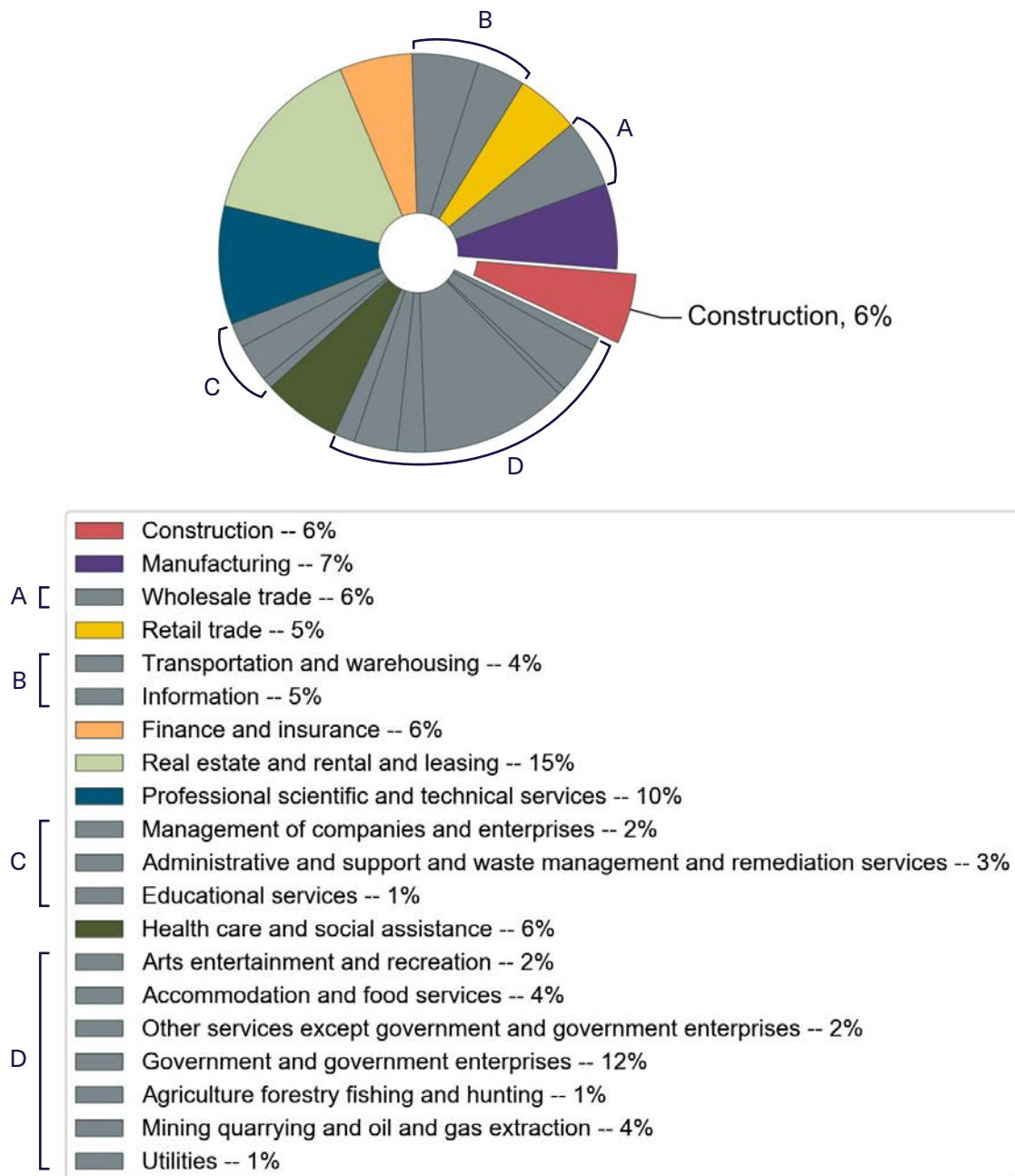
CONTRIBUTION OF CONSTRUCTION TO COLORADO'S GDP

Construction contributed \$21.2 billion (6%) to Colorado's GDP in 2018, ranking 7th among Colorado's industries.

The industries with a higher contribution to state GDP were real estate rental and leasing (15%); government and government enterprises (12%); professional, scientific, and technical services (10%); manufacturing (7%), health care and social assistance (6%) and finance and insurance (6%).

The percent contribution by industry to state GDP in 2018 is shown in Figure 2. A full table of absolute and percentage contribution by industry to state GDP is included in Appendix C.

Figure 2 : Percentage contribution to Colorado GDP by industry in 2018, with comparison industries highlighted

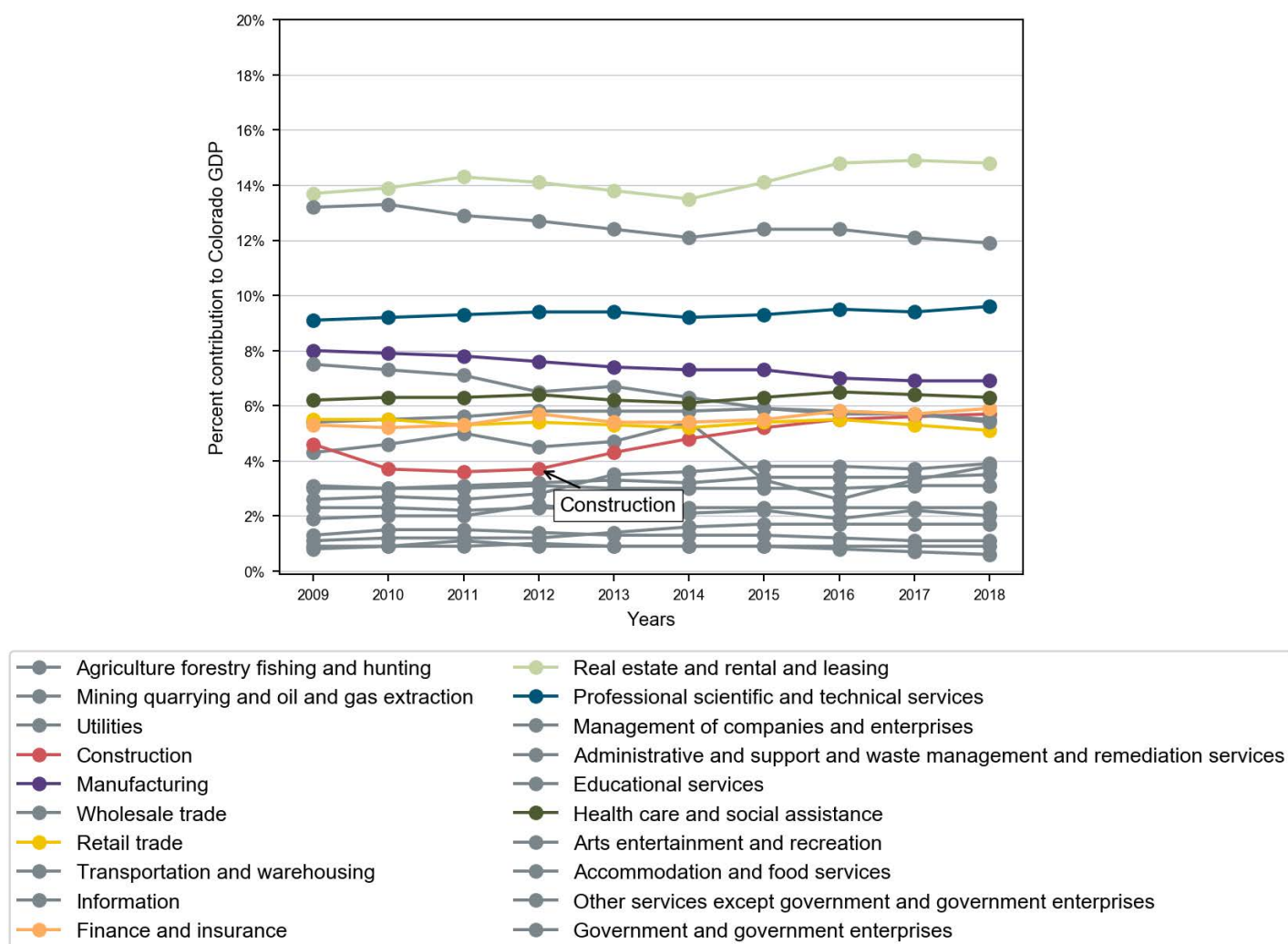


CONTRIBUTION OF CONSTRUCTION TO COLORADO'S GDP (CONTINUED)

Over 2009-2018, most industries showed a roughly constant percent contribution to Colorado's GDP, as shown in Figure 3. Only three industries have a spread, or difference between largest and smallest percent contribution to state GDP in this decade, of more than

2%: Construction (2% spread), Mining, quarrying, and oil and gas extraction (3% spread), and Information (2% spread). Of these three industries, only Construction has a positive growth.

Figure 3: Percentage contribution to Colorado GDP 2009-2018 by industry, with comparison industries highlighted

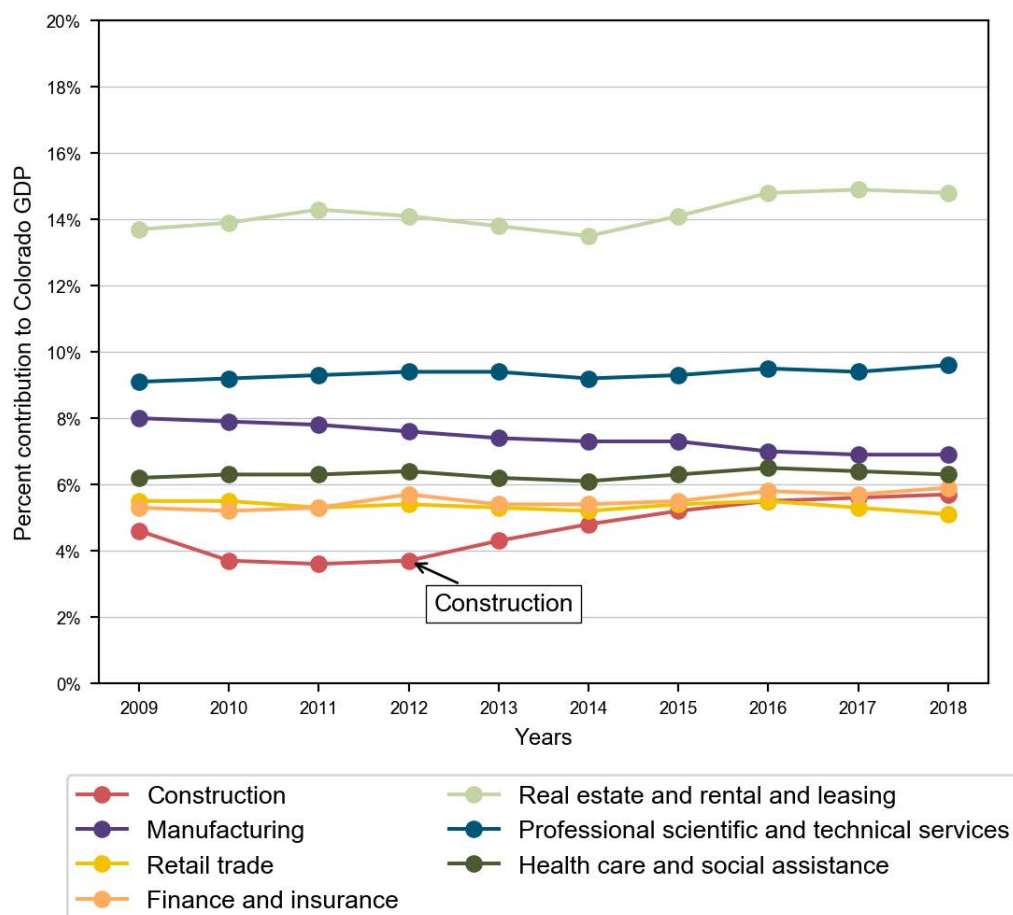




Among the selected comparison industries, shown in Figure 4, construction had the lowest percent contribution to state GDP over the years 2009-2016. However, construction's contribution to state GDP has increased significantly and represents a strong and vibrant industry sector. Since 2011, construction's percentage contribution to state GDP has been increasing, and as of 2016 has overtaken retail trade.

By comparison, in 2016, retail trade and construction had near-identical contribution to state GDP of \$18.0 billion (in current year dollars), or 6% of the state's total. In 2018, retail trade contributed \$19.1 billion to state GDP (5%) while construction contributed \$21.2 billion, or 6% of Colorado's total.

Figure 4: Percentage contribution to Colorado GDP 2009-2018 for comparison industries



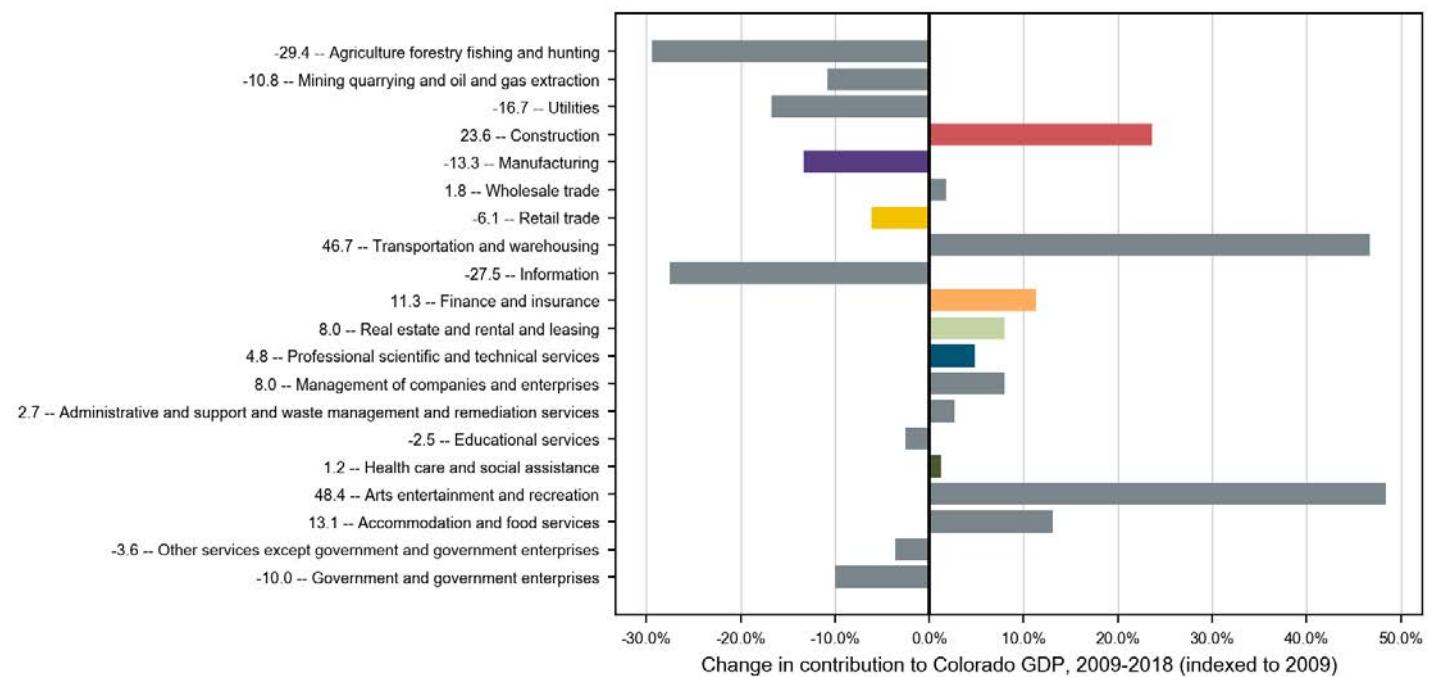


CONTRIBUTION OF CONSTRUCTION TO COLORADO'S GDP (CONTINUED)

Construction's \$21.2 billion contribution to state GDP in 2018 represents a relative (indexed) increase of 24% since 2009. This indexed change ranks third among all industries: only higher were arts, entertainment, and recreation (48%) and Transportation and warehousing (47%).

Private industry overall had 2% indexed growth over 2009-2018, and of the 21 industry sectors included in this analysis, nine had a negative indexed growth over the same period. A comparison of indexed growth rates across all industries is shown in Figure 5.

Figure 5: Change from 2009-2018 in percent contribution to Colorado GDP across industries, using values indexed to 2009

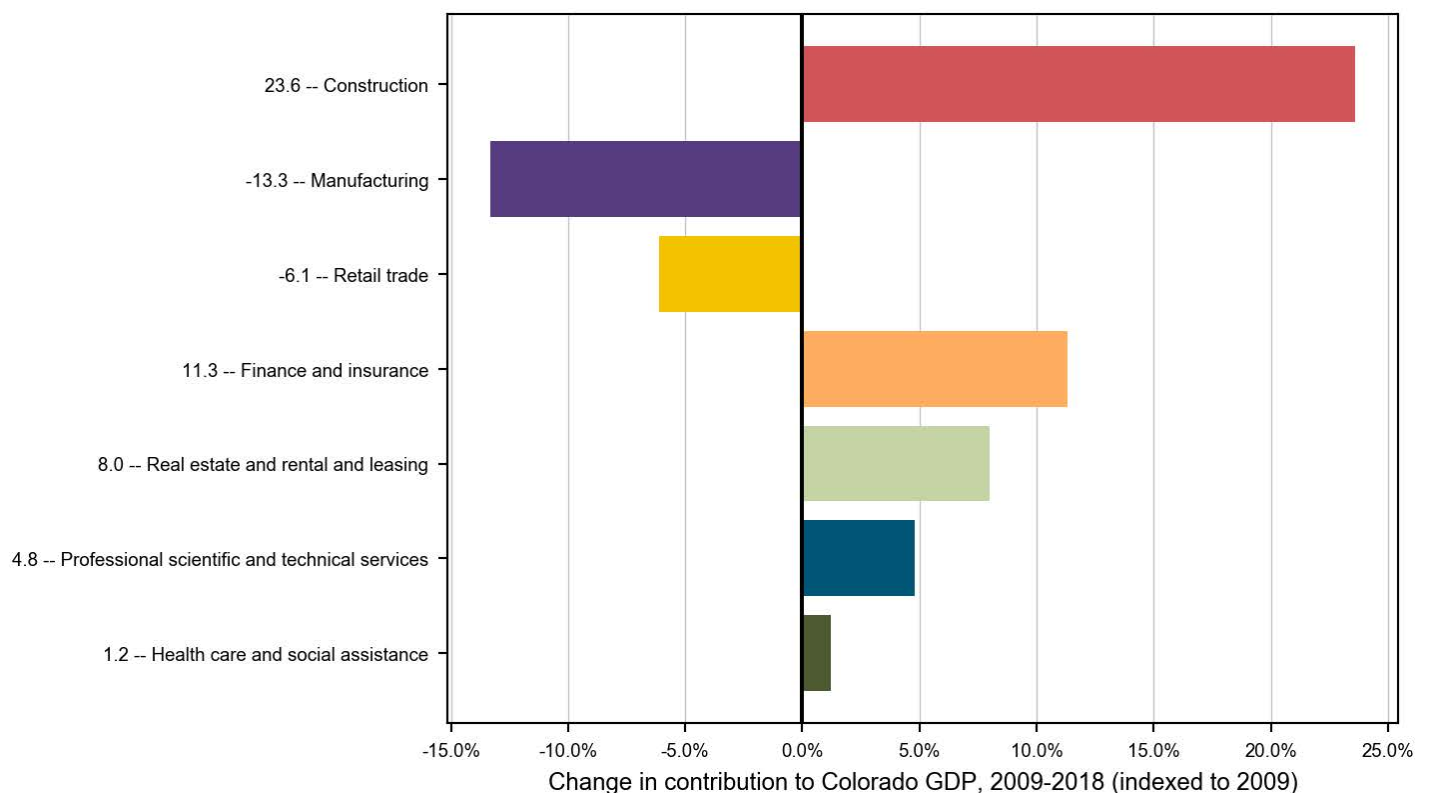




Compared to the selected comparison industries (shown in Figure 6), construction has by far the highest change in percent contribution to state GDP.

The spread ranges from construction with a 24% indexed percent contribution to GDP over year, to manufacturing, with -13%. Also negative is retail trade (-7%), consistent with its decrease in percent growth since 2016.

Figure 6: Change from 2009-2018 in percent contribution to Colorado GDP for comparison industries, using values indexed to 2009



CONTRIBUTION OF CONSTRUCTION TO COLORADO'S GDP (CONTINUED)

Figures 7 and 8 compare industries by growth, measured as the change from year to year in percent of state GDP. These values for all industries are tabulated in Appendix D. Figure 7 compares two measures: the average per year percent change in GDP for years 2012-2017, and the percent change in GDP from 2017-2018. Construction shows the largest average over-year growth (14%) over years 2012-2017 across all industries.

All industries except for agriculture, forestry, fishing, and hunting show a positive growth over 2012-2017, and only agriculture and management of companies and enterprises show negative growth from 2017-2018.

Mining, quarrying, and oil and gas extraction is the industry with the highest growth over year from 2017 to 2018 (22%). This growth is more than double the next industry, finance and insurance (10%), but mining has a low average over-year growth due to high fluctuations in annual GDP.

Figure 7: Growth rates for Colorado industries based on over-year contribution to GDP, comparing average yearly change 2012-2017 (grey) and yearly change 2017-2018 (yellow). Construction is highlighted in red.

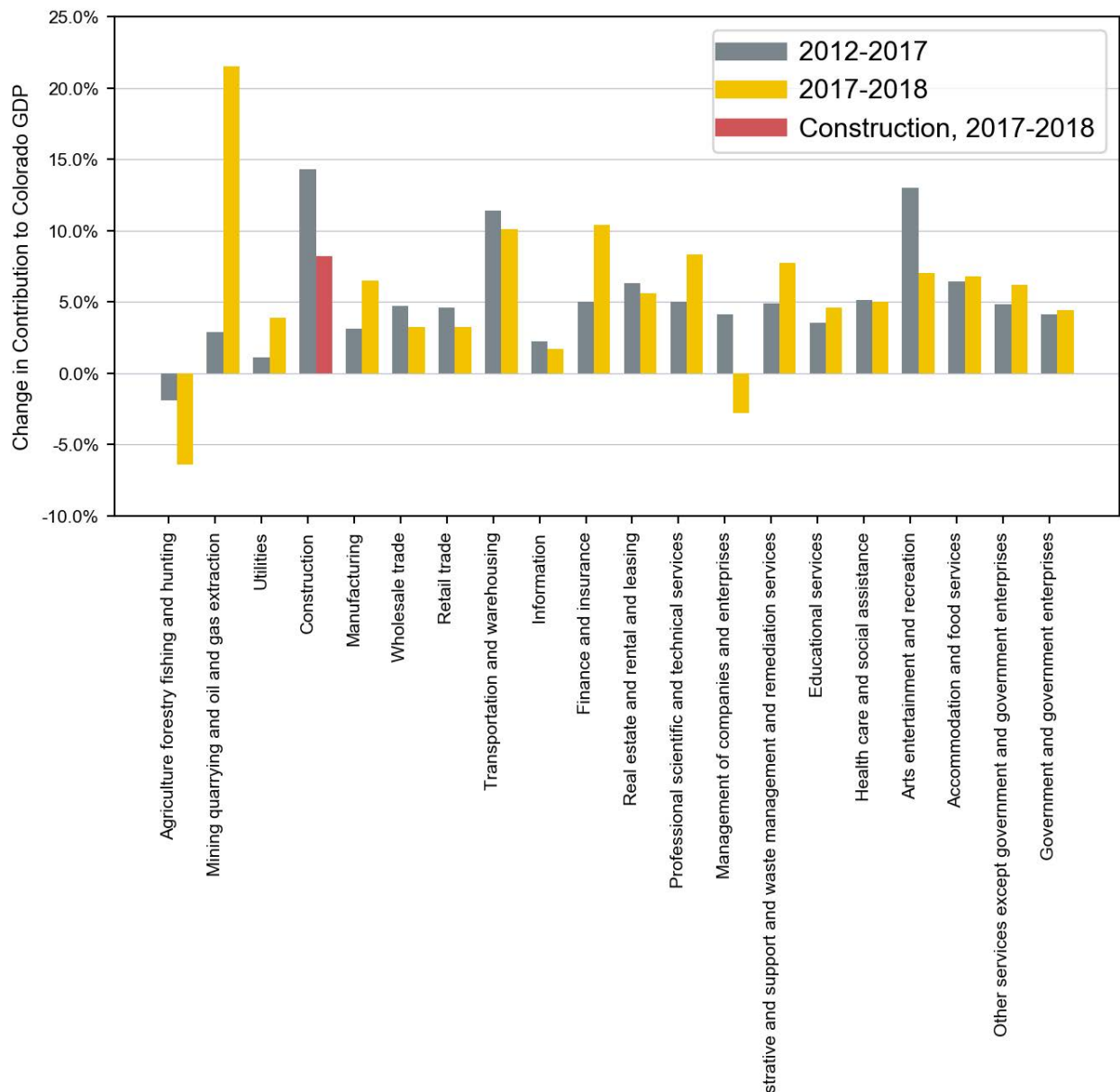
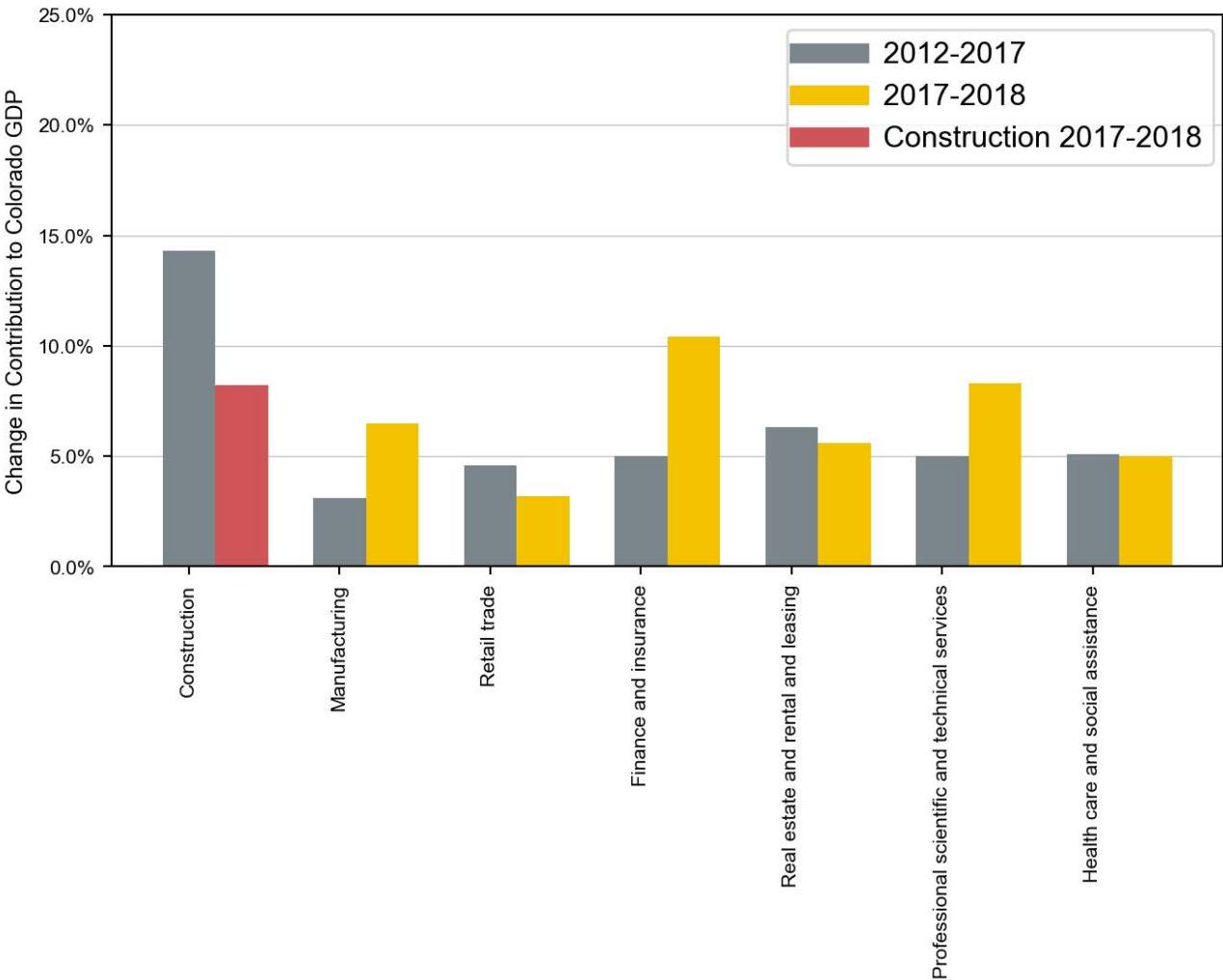




Figure 8 presents the same measures for selected industries. Of the selected comparison industries, construction is tied for second in per year growth from 2017-2018 with professional, scientific, and technical services (8%). Only higher was finance and insurance (10%).

Figure 8: Growth rates for comparison industries based on over-year contribution to GDP, comparing average yearly change 2012-2017 (grey) and yearly change 2017-2018 (yellow). Construction is highlighted in red.



ECONOMIC MULTIPLIER EFFECTS OF CONSTRUCTION

Table 1 shows the final demand multipliers for industry in Colorado. These multipliers are RIMS (Regional Input/Output Modeling System) Type II multipliers, calculated by the Bureau of Economic Analysis using 2012 Input/Output data and using 2017 regional data. These multipliers account for both inter-industry effects and household spending. They do not account for the impacts of state and local government.

In terms of output, construction ranks fifth across all industries in Colorado: industries with higher output for an equivalent stimulus were securities, commodity contracts and other financial investments and related activities (\$2.4 billion), food and beverage and tobacco product manufacturing (\$2.4 billion), hospitals (\$2.4 billion), and social assistance (\$2.2 billion). Construction ranks 7th in terms of household earnings, 6th in terms of employment, and 11th in terms of value added out of 18 industries.

According to the RIMS II multipliers, every one billion dollars added to Colorado's construction industry produces \$2.2 billion in output, \$804 million in household earnings, 15,729 jobs, and \$1.2 billion of added value across all of Colorado's industries.

Table 1: RIMS II economic multipliers for selected industries in Colorado, 2012 I/O and 2017 regional data

Industry Name	OUTPUT	EARNINGS	EMPLOYMENT	VALUE ADDED
Construction	2.229	0.8039	15.7288	1.218
Manufacturing				
Fabricated metal product manufacturing	1.9456	0.5086	10.3082	0.9191
Machinery manufacturing	1.8508	0.4335	8.1001	0.8494
Computer and electronic product manufacturing	1.808	0.5588	8.4500	1.1626
Food and beverage and tobacco product manufacturing	2.3685	0.5155	11.8996	0.9219
Retail				
Motor vehicle and parts dealers	1.939	0.6944	14.5079	1.2837
General merchandise stores	2.0481	0.6605	20.5584	1.2590
Finance and Insurance				
Monetary authorities - central bank, credit intermediation, and related services	1.9474	0.5889	10.7501	1.2498
Securities, commodity contracts, and other financial investments and related activities	2.4171	0.8665	21.8147	1.3346
Insurance carriers and related activities	2.0198	0.5372	9.9536	1.0892
Real Estate and Rental and Leasing				
Real Estate	1.6688	0.3628	10.9208	1.1431
Rental and leasing services and lessors of non-financial intangible assets	1.9058	0.4749	10.4988	1.1267
Professional and Technical Services				
Professional, scientific, and technical services	2.1775	0.8572	15.4303	1.3715
Management of companies and enterprises	2.2139	0.8353	12.7721	1.3637
Administrative and support services	2.1888	0.8382	21.5854	1.3593
Health Care and Social Assistance				
Ambulatory health care services	2.1857	0.8486	16.4012	1.3702
Hospitals	2.2420	0.7962	15.3763	1.2976
Social assistance	2.2323	0.8114	27.2575	1.2922

CONSTRUCTION-RELATED RETAIL SALES DATA IN COLORADO

In 2018, construction and construction-related retail sales in Colorado totaled \$18.1 billion. Of this, \$5.8 billion in retail sales came from all construction industries, and almost \$12.4 billion from construction-related industries. Construction retail sales data is compiled in Table 2. The construction-related industries included are listed in Appendix A, and draw from mining, manufacturing, wholesale trade, retail trade, real estate and rental and leasing, and professional, scientific, and technical services.

Retail sales for building equipment contractors (MEP) was calculated by summing the retail sales for the corresponding industry subsectors: electrical and other wiring contractors, plumbing, refrigeration, and HVAC contractors, and other building equipment contractors.

Over the years 2015-2018, building equipment contractor (MEP) retail sales averaged 30% of all construction retail sales, and 10% of all construction and construction-related retail sales.

Table 2: Colorado retail sales (in thousands of dollars) for building equipment (MEP), construction, and construction-related industry, 2015-2018

NAICS ¹	2015	2016	2017	2018
Electrical and Other Wiring Contractors	\$430,545	\$487,705	\$552,604	\$557,264
Plumbing, Refrigeration, and HVAC Contractors	\$841,913	\$851,679	\$871,291	\$938,475
Other Building Equipment Contractors	\$147,634	\$155,995	\$161,914	\$176,051
Building Equipment Contractors (MEP)²	\$1,420,092	\$1,495,379	\$1,585,809	\$1,671,790
Construction	\$4,685,822	\$4,740,526	\$5,133,647	\$5,757,963
Construction Related Industry ³	\$9,863,590	\$10,339,722	\$11,141,973	\$12,356,558
Construction and Construction-Related Industry⁴	\$14,549,412	\$15,080,248	\$16,275,620	\$18,114,521

Notes:

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

² Retail Sales Data for Building Equipment Contractors (MEP) calculated as the sum of data for NAICS codes 23821, 23822, and 23829

³ Construction Related Industry Retail Sales Defined by the following 2017 NAICS codes:

212321, 327120, 327310, 327320, 327331, 327332, 327390, 327410, 327420, 327999, 423310, 423320, 423330, 423390, 423710, 423720, 423730, 423740, 444110, 444130, 444190, 532412, 541310, 541320, 541330, 541340, 541260, 541370.

⁴ The retail sales data presented here corresponds within the same order of magnitude to the total value of construction in Colorado as presented in the 2020 Colorado Business Economic Outlook prepared by the Leeds School of Business at the University of Colorado Boulder.



SECTION 2

COLORADO CONSTRUCTION ESTABLISHMENTS

In the United States, there were 810,295 private construction establishments in 2018. Colorado's 19,884 construction establishments represent 3% of that total.

The majority (67%) of Colorado's construction establishments are specialty trade establishments, and nearly a quarter (24%) of all construction establishments are building equipment contractors (MEP) establishments.

In 2018, the 4,847 building equipment contractor (MEP) establishments were 46% of all specialty trade establishments, and 24% of all construction establishments.

This section describes the overlay of the construction industry in Colorado in terms of its number of establishments, and the typical number of employees per establishment.



METHODOLOGY

- Data used in this section were obtained from the Bureau of Labor Statistics and the U.S. Census Bureau. Data are presented for 2018, the most recent full year for which data is available, as well as a ten year retrospective from 2009-2018.
- The data on the number of establishments within each industry in Colorado was obtained from the Bureau of Labor Statistics – Quarterly Census of Employment and Wages. Data are presented as annual averages for all years in 2009-2018.
- Data on the distribution of establishment size (number of employees) was obtained from the U.S. Census Bureau's County Business Patterns report from 2017.
- All data were retrieved in December, 2019.

NUMBER OF ESTABLISHMENTS

The number of construction establishments has been increasing since a low in 2013 (16,667 establishments) at an average rate of 4% per year, reaching 19,884 establishments in 2018.

Specialty trade contractor establishments comprise the majority of construction establishments, at 13,400 or 67% of all establishments. Within specialty trades, the 4,847 building equipment contractor (MEP) establishments comprise the largest number of establishments: 46% of all specialty trade establishments, and 24% of all construction establishments. The percentage of establishments in each construction subsector are shown in Figure 9. The number of establishments for construction overall and each subsector are tabulated in Appendix E.

Figure 10 shows the greatest changes per year in number of construction establishments were due to fluctuations in specialty trade contractors, including building foundation and exterior contractors, building equipment contractors (MEP), building finishing contractors, and other building equipment contractors.

Figure 9: Percentage of establishments in each construction subsector, 2018

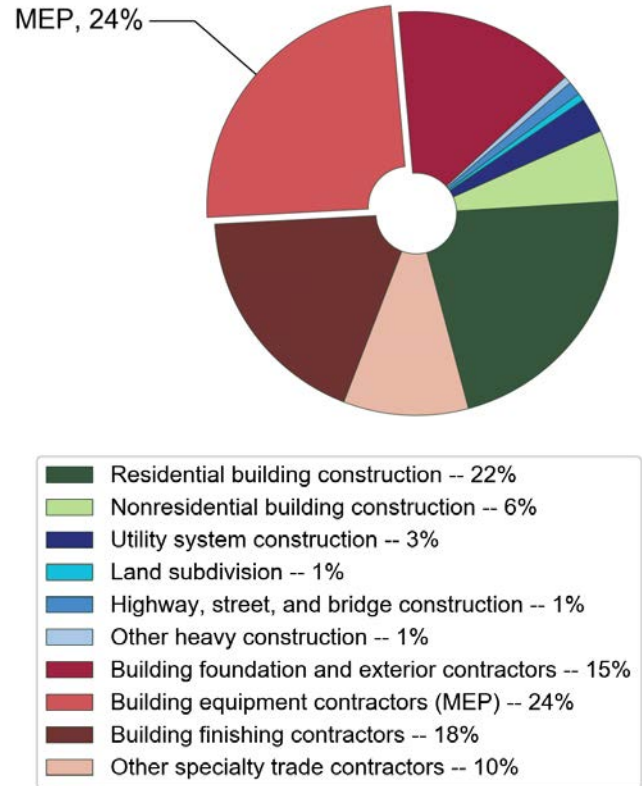
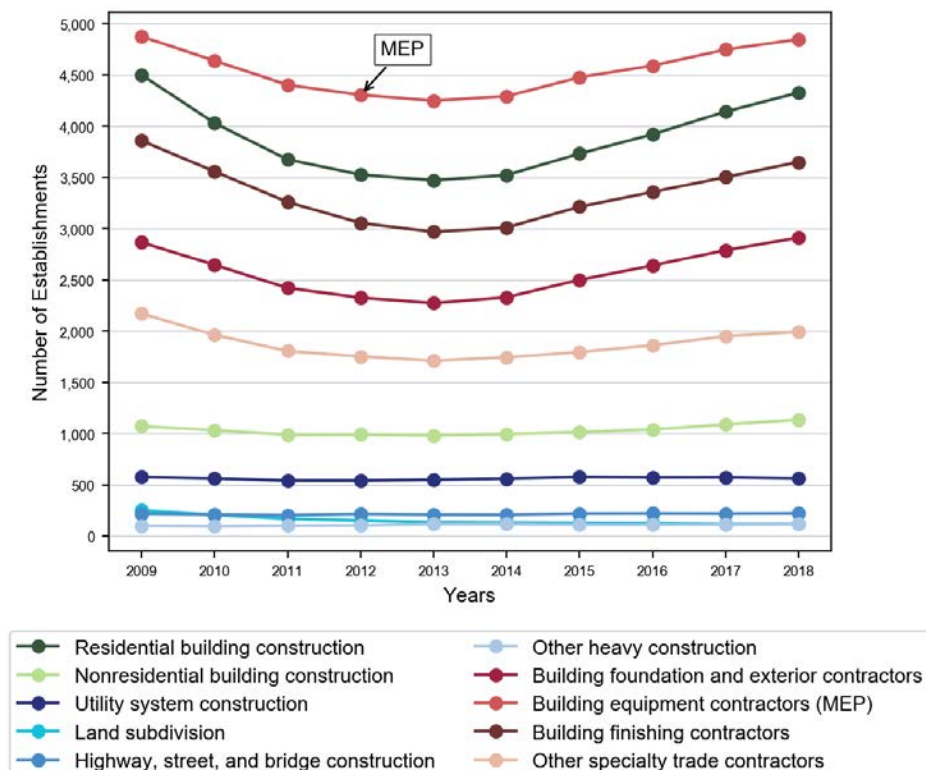


Figure 10: Number of establishments 2009-2018 across construction subsectors



NUMBER OF ESTABLISHMENTS (CONTINUED)

Comparing construction's three primary subsectors, specialty trade had the largest number of establishments in 2018: 13,400 establishments, or 67% of all construction establishments. Building construction establishments are second most numerous at 5,461 establishments, or

28% of all construction establishments. Heavy and civil engineering construction has 1,023 establishments, or 5% of all construction establishments. These values are summarized in Table 3. Note that percentages may not sum to the total listed for each sector due to rounding.

Table 3: Summary of number of establishments and percentage of total within construction subsectors, 2018

NAICS	INDUSTRY NAME	NUMBER OF ESTABLISHMENTS	PERCENT OF TOTAL
2361	Residential Building Construction	4,326	22%
2362	Non-Residential Building Construction	1,136	6%
236	Building Construction	5,461	28%
2371	Utility System Construction	563	3%
2372	Land Subdivision	119	1%
2373	Highway Street and Bridge Construction	222	1%
2379	Other Heavy and Civil Engineering Construction	119	1%
237	Heavy and Civil Engineering Construction	1,023	5%
2381	Foundation, Structure, Building Exterior Contracts	2,911	15%
2382	Building Equipment Contractors (MEP)	4,847	24%
2383	Building Finishing Contractors	3,649	18%
2389	Other Specialty Trade Contractors	1,994	10%
238	Specialty Trade Contractors	13,400	67%
23	Construction	19,884	100%

For the subsectors within the building equipment contractor (MEP) subsector, the number of establishments follows a similar trend as building equipment overall, as shown in Figure 11. The percent increase in number of establishments over each year between 2015 and 2018 is 3% for electrical and wiring contractors and 4% for plumbing and HVAC contractors. From 2017 to 2018, the number of establishments increased by 2% and 3% respectively. These values indicate the number of plumbing and HVAC establishments is growing at a slightly faster rate than electrical and wiring contractors. Both subsectors trend just below the growth rates seen for construction overall.

The percentage decrease over years 2010-2013 is -3% for electrical and wiring contractors, and -2% for plumbing and HVAC. Comparing the decreasing trend prior to 2013 to the increasing trend after 2013, we see that while the number of electrical and wiring contractor establishments decreases at a faster rate, the number of plumbing and HVAC contractor establishments increases at a faster rate.

In 2018, Colorado's 19,884 construction establishments ranked 2nd across comparison industries, as shown in Figure 12. Professional, scientific, and technical services had the largest number of establishments with 37,833.

Data for comparison industries are tabulated in Appendix K.

Figure 11: Number of establishments 2009-2018 in building equipment (MEP), electrical and wiring, and plumbing and HVAC

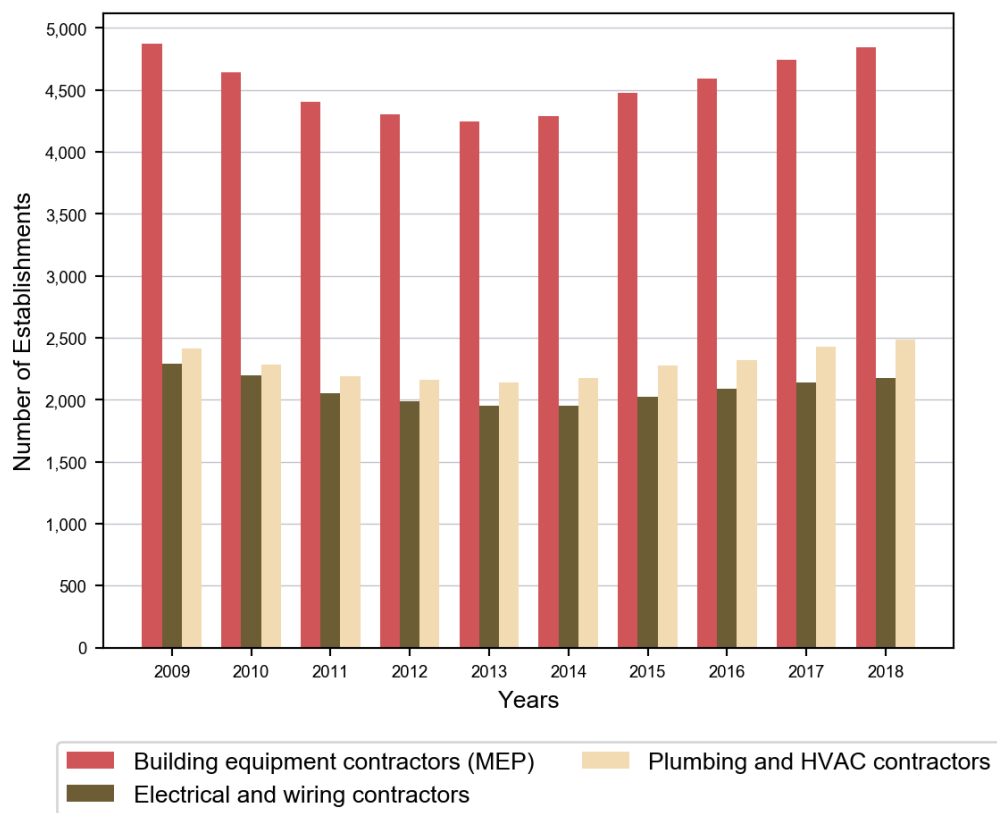
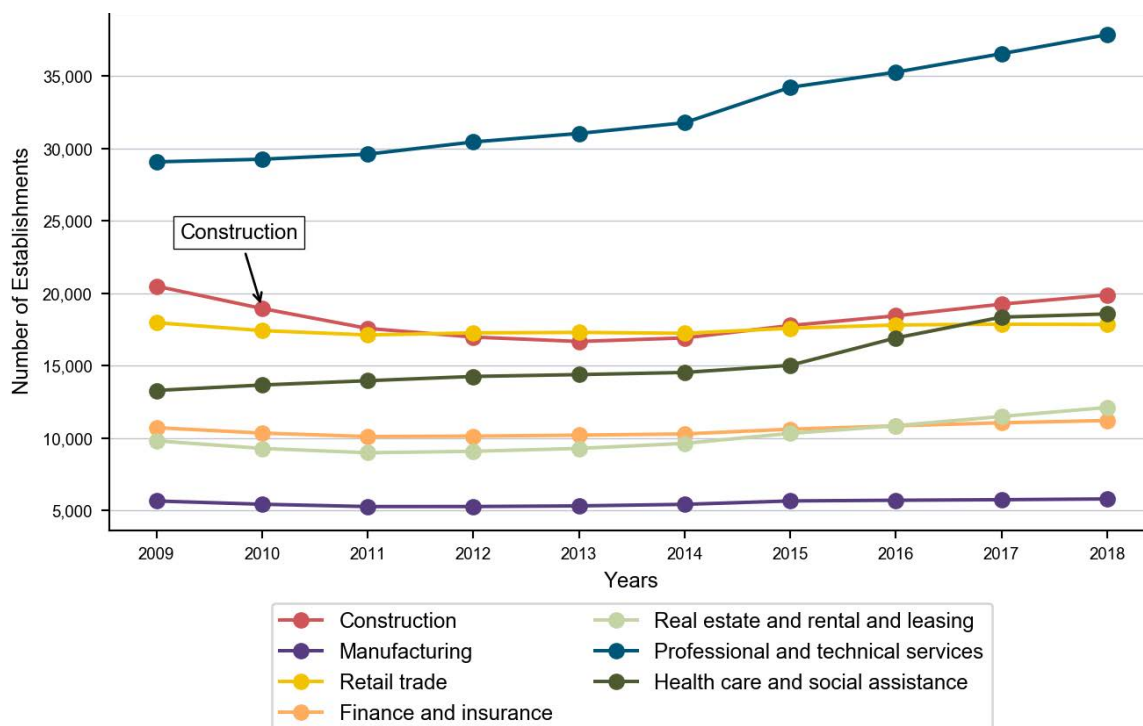


Figure 12: Number of establishments 2009-2018 across comparison industries



NUMBER OF EMPLOYEES PER ESTABLISHMENT

The construction industry is dominated by small establishments, as shown in Figure 13.

69% percent of all private construction establishments have fewer than 5 employees, and 92% of construction establishments have fewer than 20 employees.

The number of employees per establishment are tabulated for construction and construction subsectors in Appendix F. The number of employees per establishment within construction subsectors is shown in Figure 14. Of the building equipment contractor (MEP) establishments, 64% have fewer than 5 employees. The only other construction subsectors with a higher fraction of establishments with fewer than 5 employees are residential building contractors (83%), land subdivision (83%), building finishing contractors (76%), and foundation, structure, and building exterior contractors (66%).

Building equipment contractor (MEP) establishments also have the largest number of larger establishments. However, these 61 establishments with 100+ employees represent only 1% of all building equipment contractor (MEP) establishments. The sectors with the highest fraction of large establishments (having 100 or more employees) are highway, street, and bridge construction (8%), utility system construction (5%), and other heavy and civil engineering construction (4%).

Figure 13: Percentage of establishments by number of employees, 2017

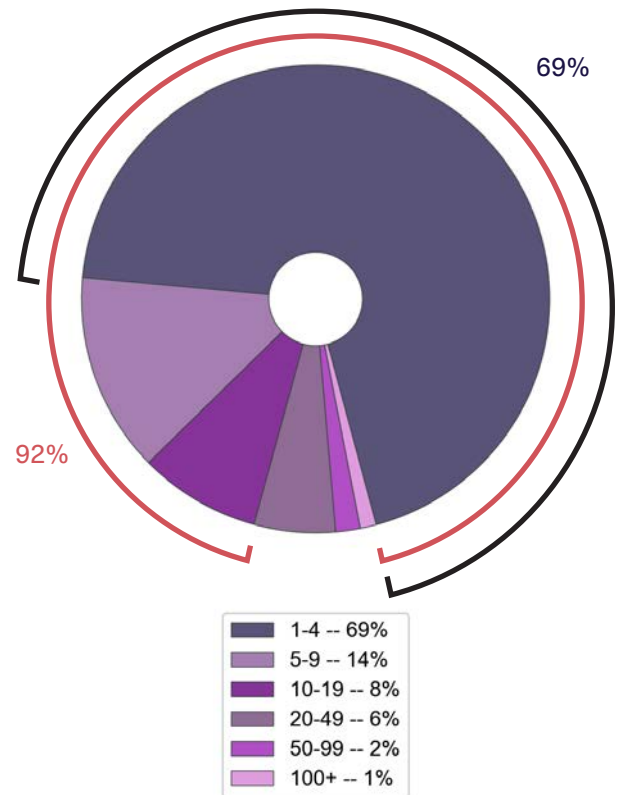
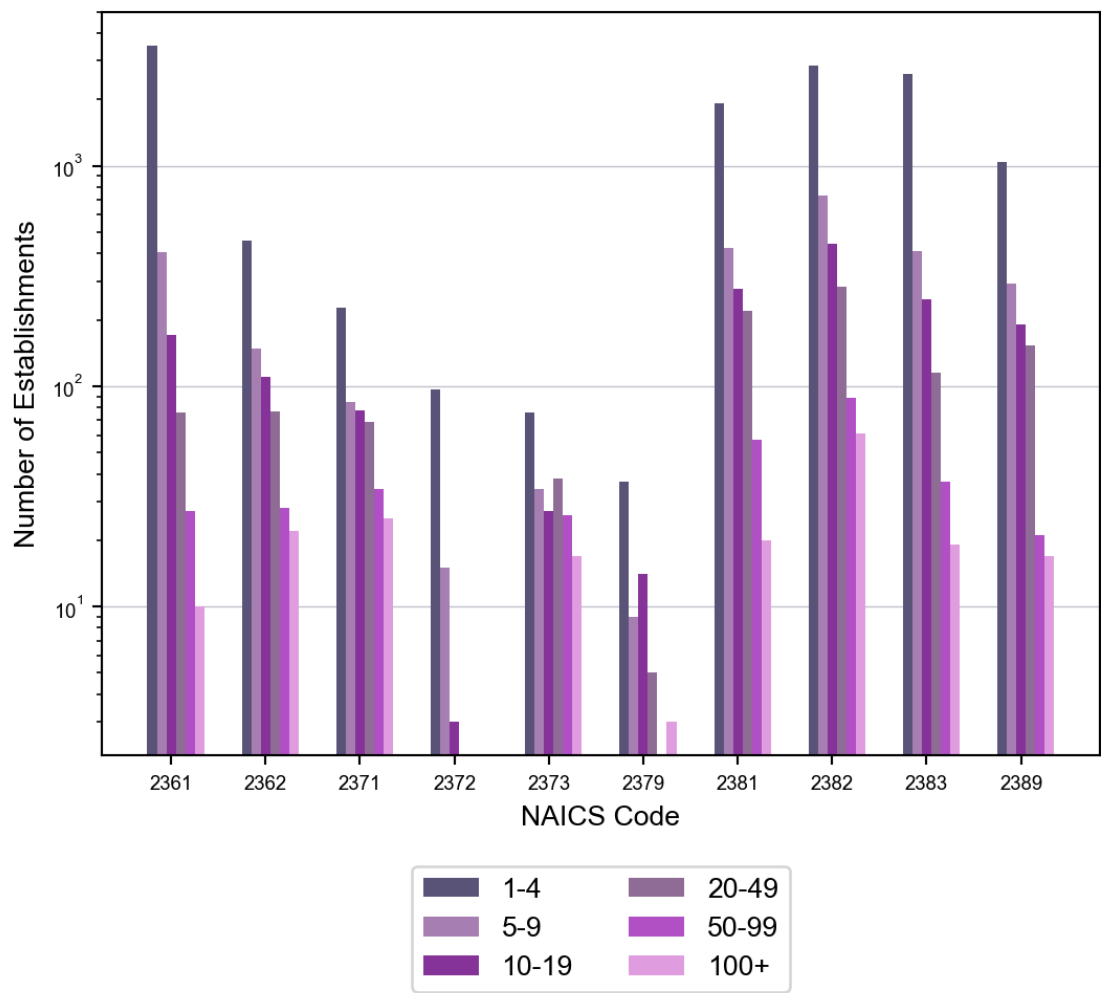


Figure 14: Number of establishments by number of employees across construction subsectors, 2017



SECTION 3

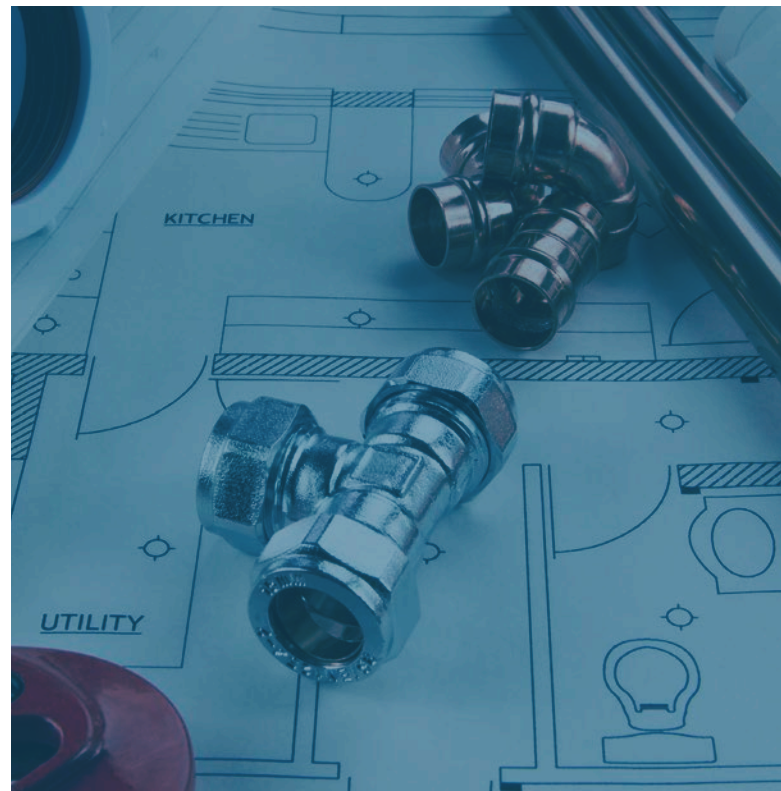
CONSTRUCTION EMPLOYMENT AND WAGES

173,096 people were employed in Colorado's private (non-government) construction industry in 2018.

Specialty trade contractors dominate the construction industry: 66% of all construction workers or 113,914 people were employed in this sector in 2018.

The average annual wage across all construction workers was \$62,414 in 2018, slightly above the average of \$60,395 for building equipment contractors (MEP). However, when looking at individual occupations, MEP occupations receive a higher annual wage than the average of all construction crafts.

Construction payroll totaled \$10.8 billion in 2018. Of this total payroll amount, 60% is from specialty trades (\$6.3 billion) and 28% overall (\$3.0 billion) is from building equipment contractors (MEP). This section describes these trends in employment and wages for construction and MEP in particular. Data used in this section are included in Appendices G-K.



METHODOLOGY

- Data for average employment, average annual wage, average weekly wage, and total payroll for construction and comparison industries were obtained from the Bureau of Labor Statistics – Quarterly Census of Employment and Wages . Data are presented for 2018, the most recent full year for which data is available, as well as a ten year retrospective from 2009-2018. Reported values are annual averages.
- Union membership data for the nationwide construction industry and all employees in Colorado were obtained from the Bureau of Labor Statistics – Union Membership Annual Technical Release
- All data were retrieved in December, 2019.

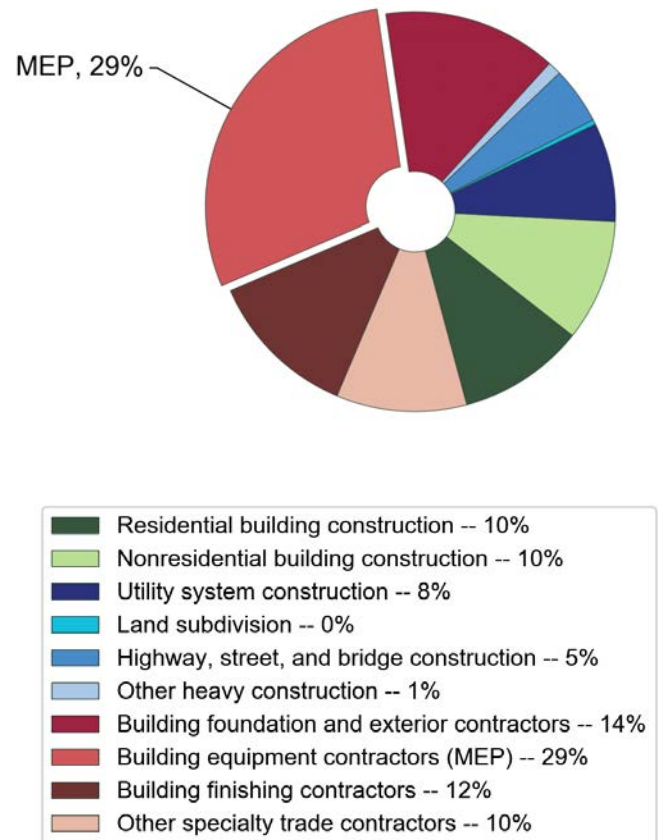
NUMBER OF EMPLOYEES

The percentage of employees in each construction subsector are shown in Figure 15.

The 50,365 building equipment contractors (MEP) were the largest construction subsector by employment. The next highest construction subsectors in terms of employment were all within specialty trades: foundation, structure, and building exterior contractors (14% or 24,259 employees), building finisher contractors (12% or 21,184 employees), and other specialty trade contractors (11% or 18,106).

By contrast, the sectors of building construction (including both residential and non-residential) and heavy and civil engineering construction (including its four subsectors) each have fewer employees than building equipment contractors (MEP), 21% and 14% respectively, of all construction employees in Colorado.

Figure 15: Percentage of employees by construction subsector, 2018



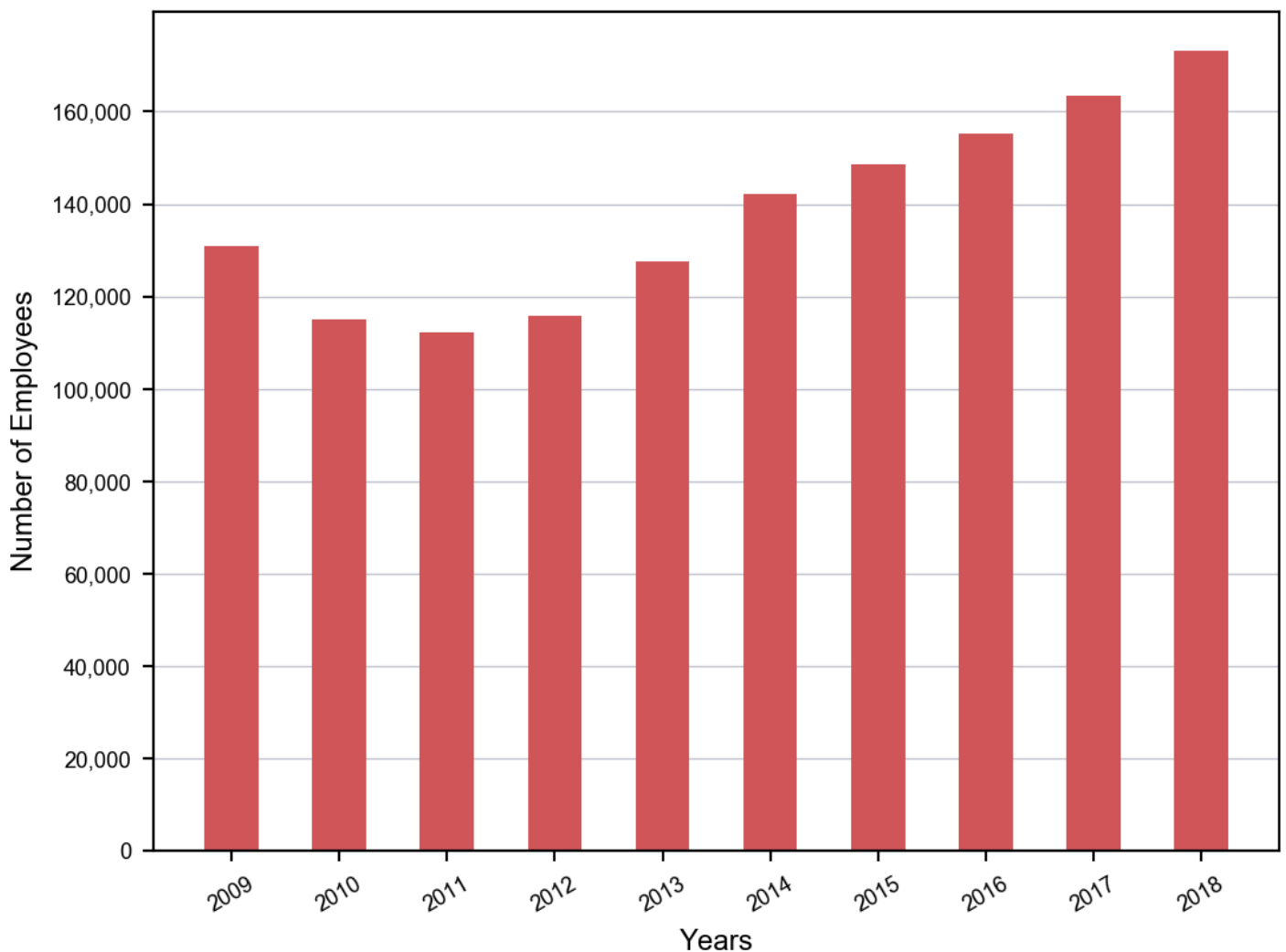
NUMBER OF EMPLOYEES (CONTINUED)

Construction employment in Colorado from 2009-2018 is shown in Figure 16. Employment in this industry has been growing since a low of 112,242 employees in 2011 to a high of 173,096 employees in 2018. For the period from

2012-2018, employment has grown an average of 6% per year, with a more recent growth rate of 5% over the last three years (2016-2018).

Data for employment in construction and its subsectors are tabulated in Appendix G.

Figure 16: Average number of employees 2009-2018 in construction



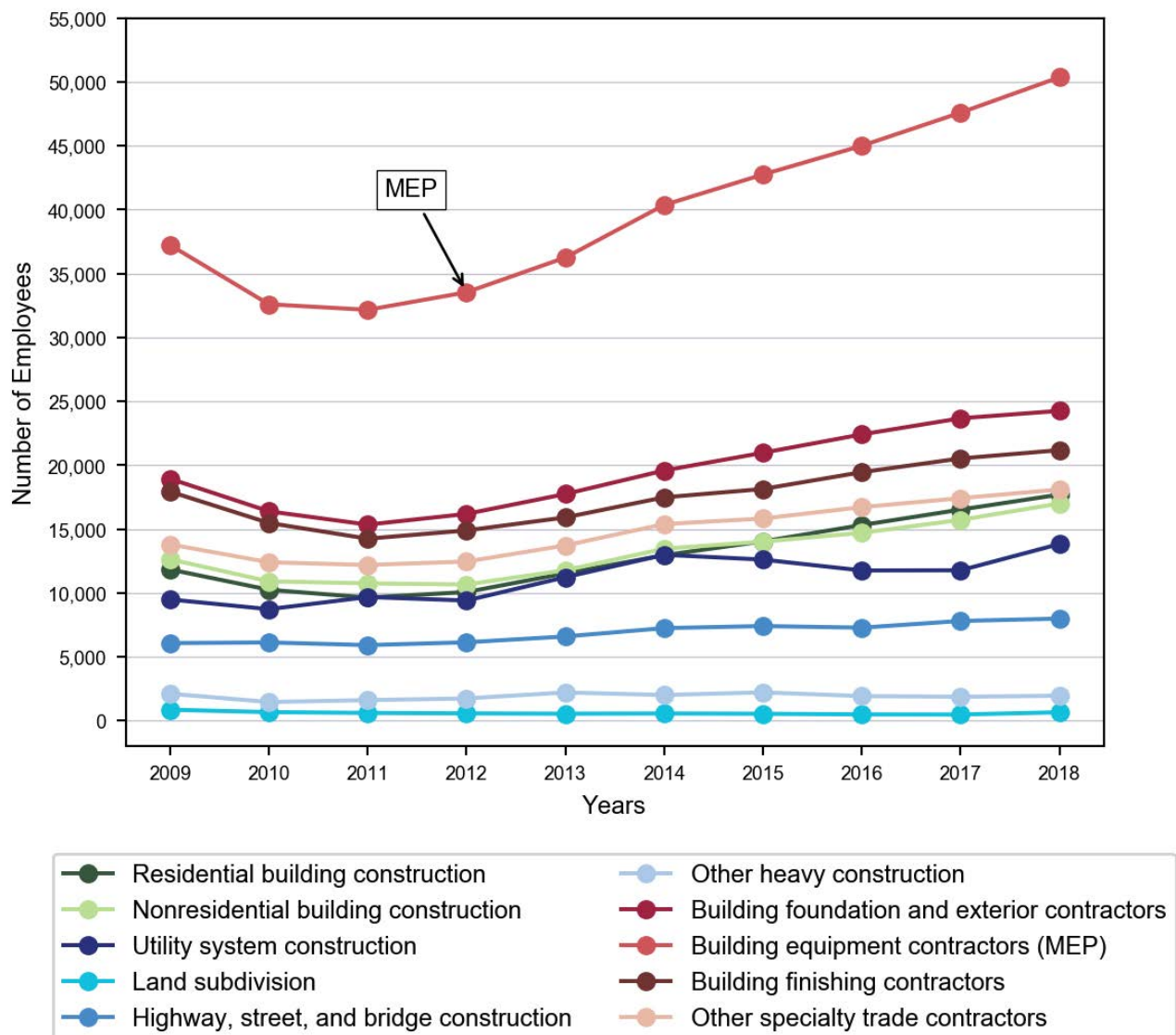
Building equipment contractor (MEP) employment in Colorado followed a similar trend as construction overall with a low in 2011 of 32,165 and a high over the years 2009-2018 in 2018 of 50,365.

Building equipment contractor (MEP) employment has seen a 57% growth in employees since 2009. Construction subsector employment is compared over the years 2009-2018 in Figure 17.

For each year in the last decade, there were at least 15,000 more building equipment contractor (MEP) employees than any other subsector. Comparing over-year growth for the last five years, MEP ranks third among all subsectors with a 39% growth over 2013-2018.

Only higher growths were seen in residential building construction (53% over 2013-2018) and non-residential building construction (44% over 2013-2018).

Figure 17: Average number of employees 2009-2018 across construction subsectors

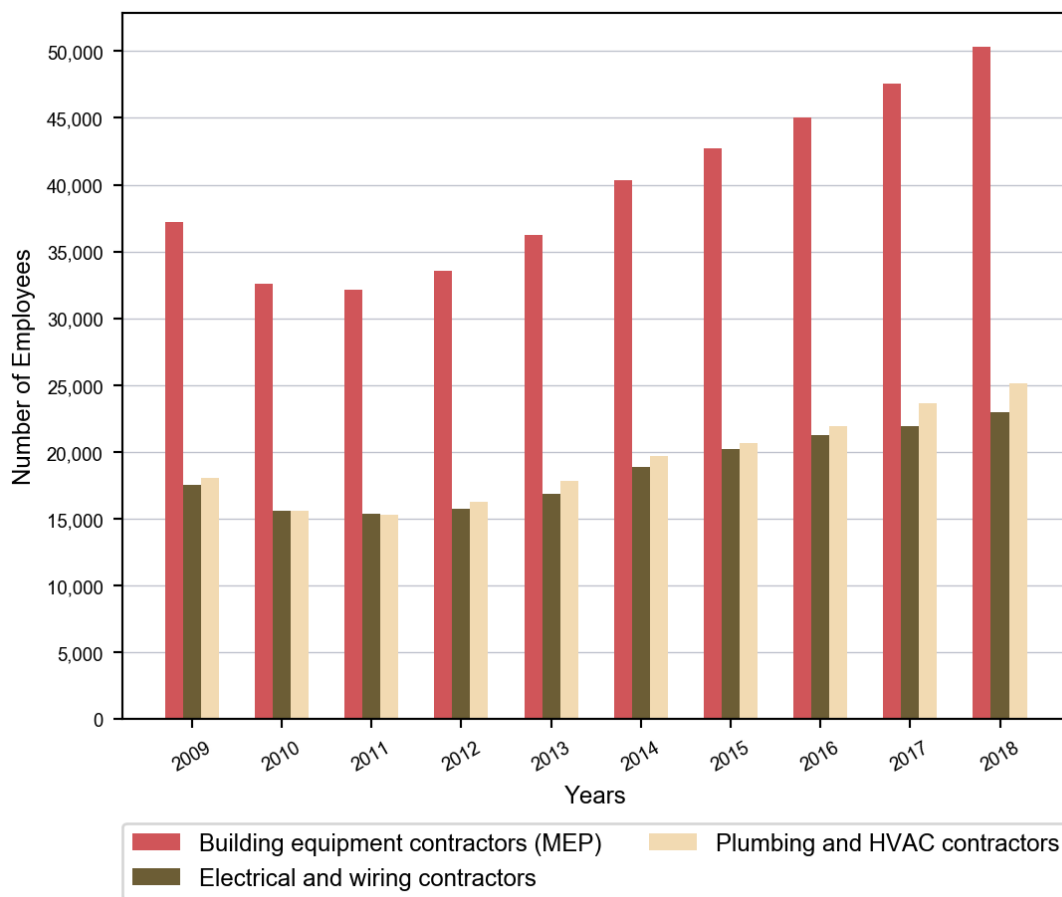


NUMBER OF EMPLOYEES (CONTINUED)

Employment growth in the building equipment contractor (MEP) subsector (Figure 18) has also been slightly higher than construction overall over the years 2012-2018 (7% growth) and 2016-2018 (6% growth). Within MEP, there were typically more employees in plumbing and HVAC than in electrical and wiring, except in 2010 where there were 58 more employees in electrical than plumbing and HVAC.

The average growth in electrical and wiring contractors is 6% over 2012-2018 and 4% over 2016-2018. The number of plumbing and HVAC employees has grown 7% over 2012-2018 and 7% over 2016-2018. The growth for the number of employees in these industries mirrors the growth in number of establishments over the same time period, where plumbing establishments saw a higher growth than electrical and wiring establishments.

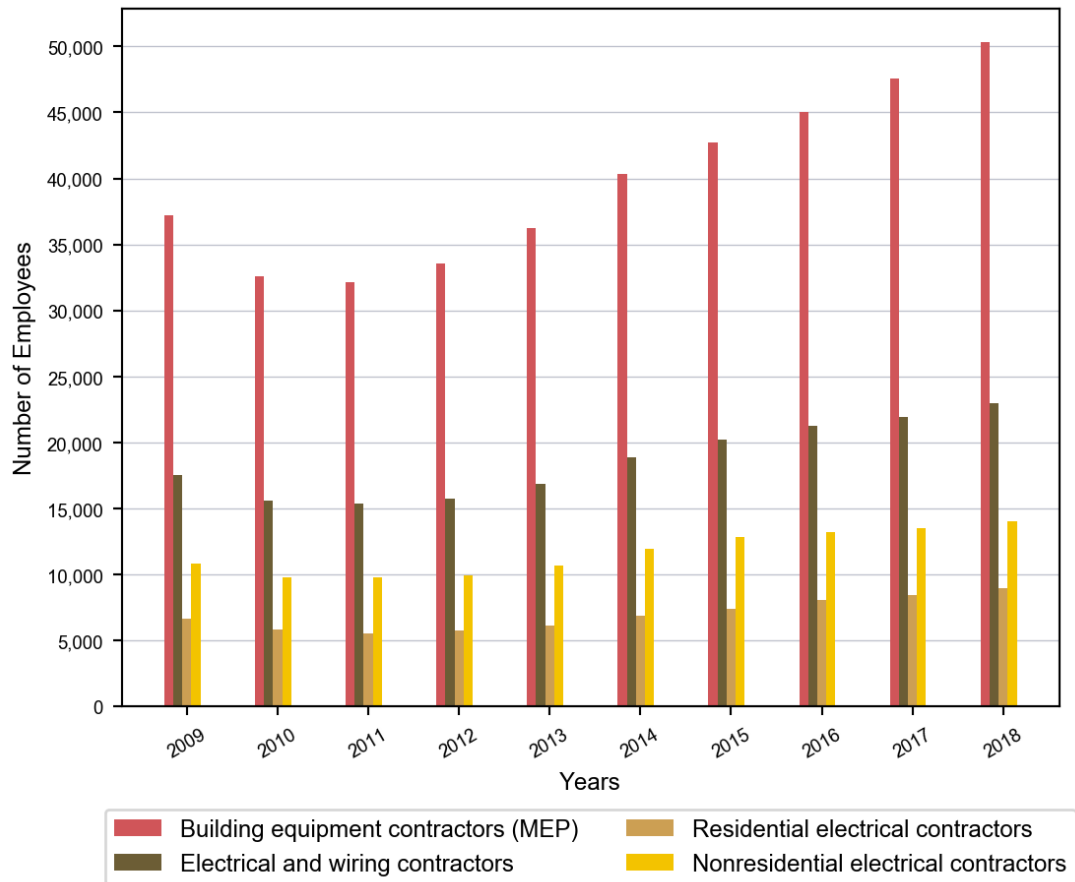
Figure 18: Number of employees 2009-2018 in building equipment (MEP), electrical and wiring, and plumbing and HVAC



Within electrical and wiring contractors (Figure 19), non-residential worker employment has been higher than residential worker employment over the years 2009-2018.

While there were fewer residential than non-residential electrical and wiring contractor employees, the residential employees has been growing at twice the rate of non-residential employees: 7% compared to 3% from 2016-2018.

Figure 19: Number of employees 2009-2018 in building equipment (MEP), comparing residential and non-residential electrical and wiring

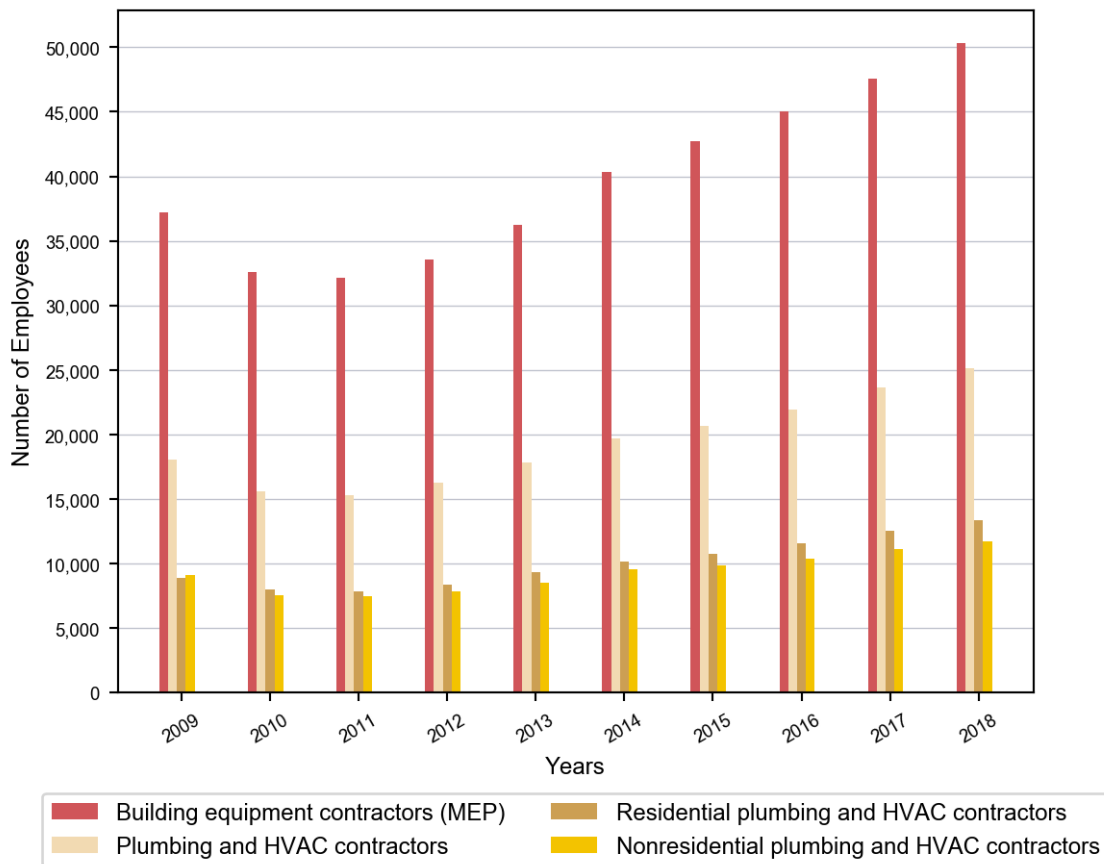


In contrast, within plumbing and HVAC (Figure 20), residential employment is typically higher than non-residential employment. The only exception is in 2009, where there were 254 more non-residential employees than residential: 1% of all plumbing and HVAC employees.

Similar to electrical and wiring employment, residential employment is growing faster in recent years. In the years 2016-2018, residential employment grew by 7% while non-residential employment grew by 6%.

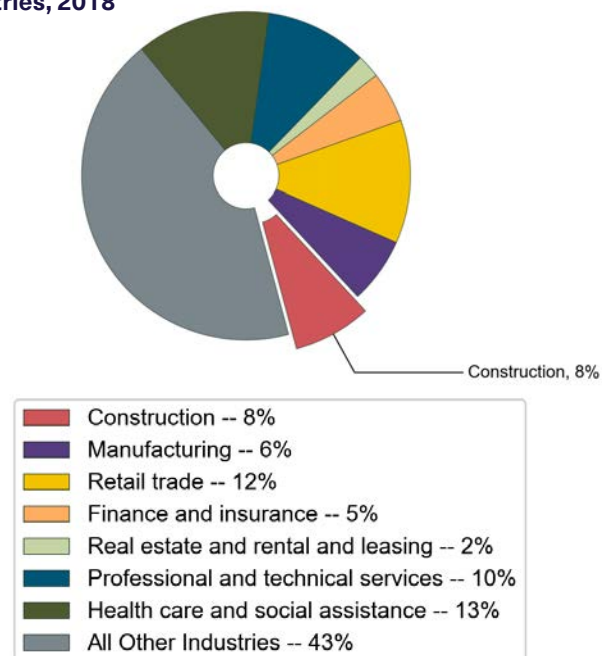
NUMBER OF EMPLOYEES (CONTINUED)

Figure 20: Number of employees 2009-2018 in building equipment (MEP), comparing residential and non-residential plumbing and HVAC



Construction employs 8% of all employees in Colorado, ranking fourth among selected comparison industries (shown in Figure 21). The industries with a higher percentage of all employees in the state were healthcare and social assistance (13%), retail trade (12%), and professional, scientific, and technical services (10%). Employment data for comparison industries are tabulated in Appendix K.

Figure 21: Average number of employees for comparison industries, 2018

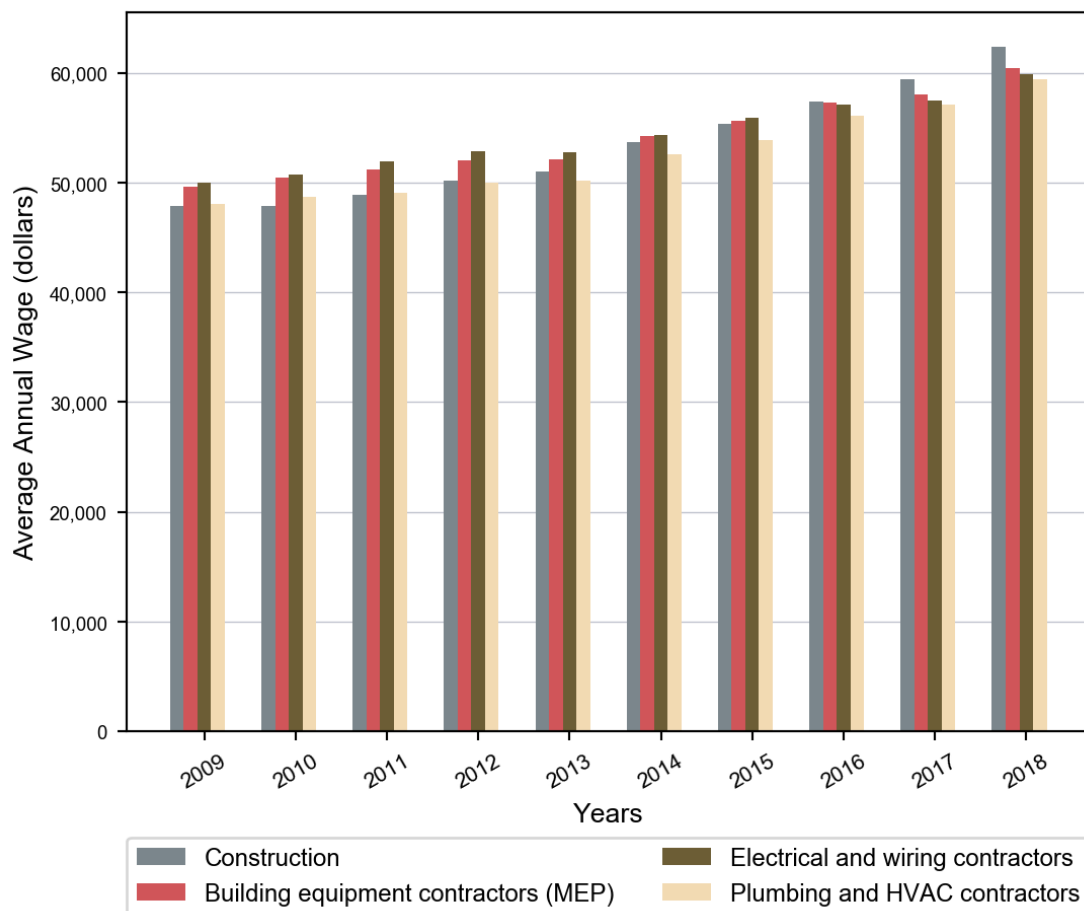


AVERAGE ANNUAL WAGE

The average annual wage for building equipment contractors (MEP) was higher than the average annual wage for construction overall from 2009-2015, as shown in Figure 22. Since 2016, construction annual wage has risen above that for building equipment contractors (MEP) and both its major subsectors, electrical and wiring contractors and plumbing and HVAC contractors. In 2018, the average wage for construction overall has risen to \$62,414 annually, 3% higher than for building equipment contractors (MEP), \$60,395.

Building equipment contractors (MEP) had the highest annual wage for all specialty trade contractors in 2018. However, all other construction subsectors had higher annual wages, led by land subdivision construction (\$116,652 annually). Detailed tables for average annual wages within construction sectors and within MEP are in Appendix H.

Figure 22: Average annual wages 2009-2018 in building equipment (MEP), electrical and wiring, and plumbing and HVAC



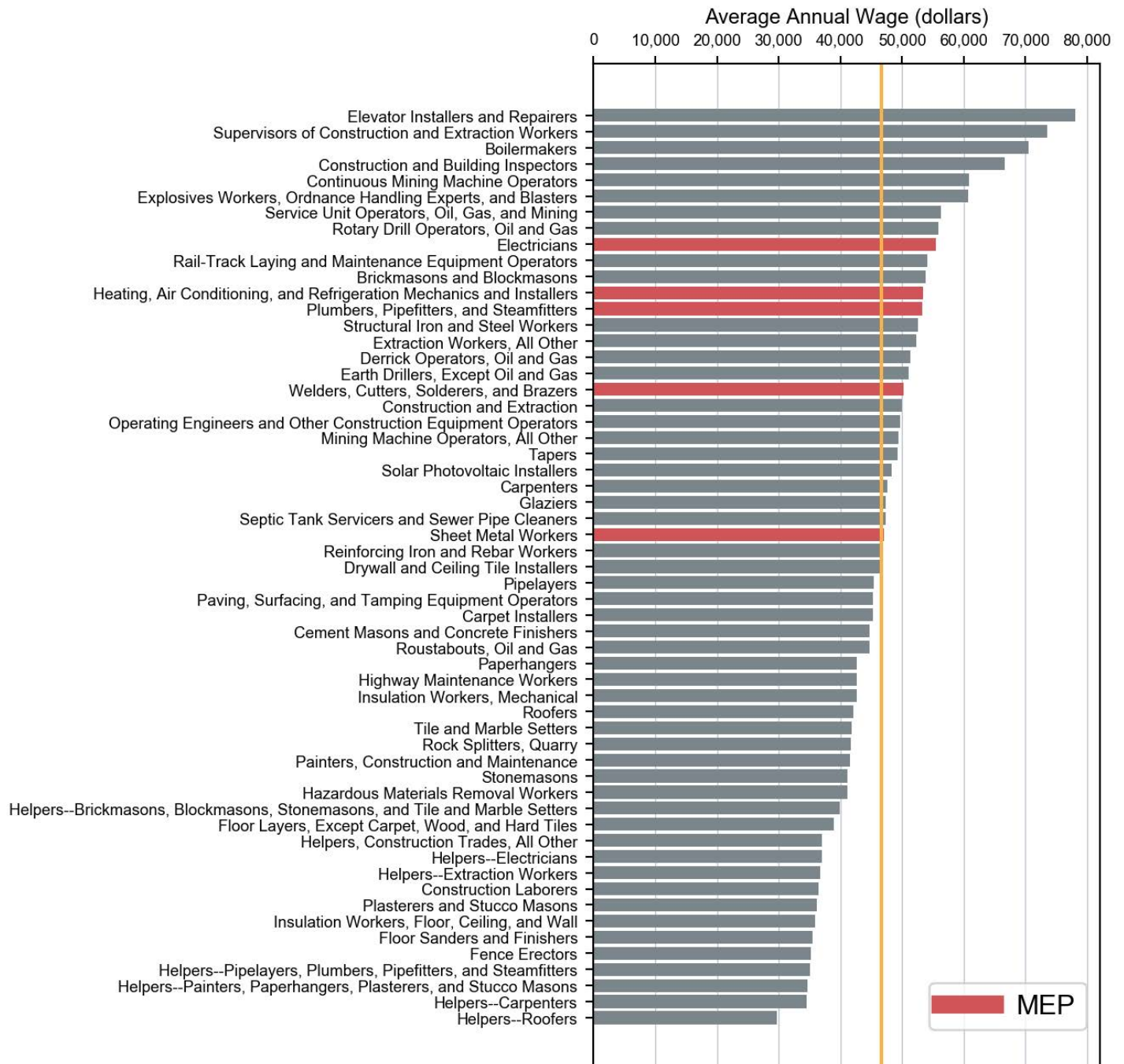
AVERAGE ANNUAL WAGE (CONTINUED)

The average annual wage across all construction crafts within Colorado was \$47,121 in 2018. The average annual wage for all crafts is shown in Figure 23.

The annual wage for five building equipment contractor (MEP) occupations were above the median annual pay across all construction crafts (\$46,708):

electricians (\$55,496), heating, air conditioning, and refrigeration mechanics and installers (\$53,456), plumbers and pipefitters (\$53,344), welders, solderers, cutters, brazers (\$50,305), and sheet metal workers (\$47,088). These occupations represent a segment of the entire building equipment contractor (MEP) industry, which had an average wage of \$60,395.

Figure 23: Average annual pay for construction crafts in Colorado, 2018



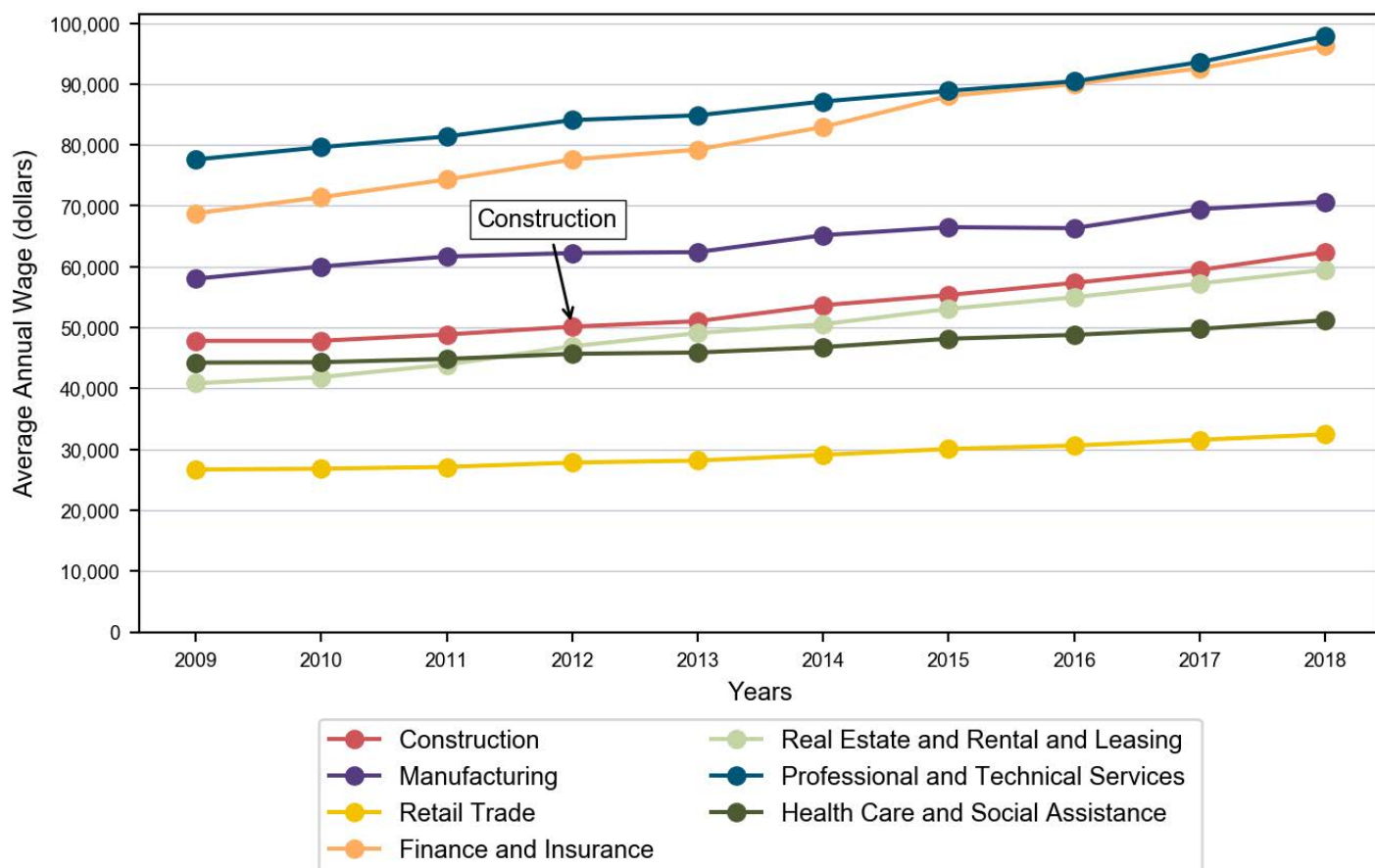
In 2018, average annual wages within construction ranked 4th among comparison industries, as shown in Figure 24. Professional and technical services had the highest average annual wages with \$97,859, next finance and insurance with \$96,246, and manufacturing with \$70,677. Construction, with average annual wages of \$62,414 in 2018, is closest to real estate and rental leasing (\$59,486).

Over 2009-2018, there are several clear groupings of industries in terms of average annual wages: two industries have trended above the others consistently (professional and technical services and finance and insurance), and one has trended below the others consistently (retail trade). The middle four industries are

construction, manufacturing, real estate and rental and leasing, and health care and social assistance.

In recent years (2016-2018), construction has shown the largest growth per year in average annual wages across all comparison industries (4%), followed by real estate and rental and leasing (4%), professional, scientific, and technical services (3%), and retail trade (3%). Within construction, the largest growth in average annual wages was seen in 2014 (5% or \$2,616 increase from 2013) and 2018 (5% or \$2,970 increase from 2017).

Figure 24: Average annual wages 2009-2018 across comparison industries

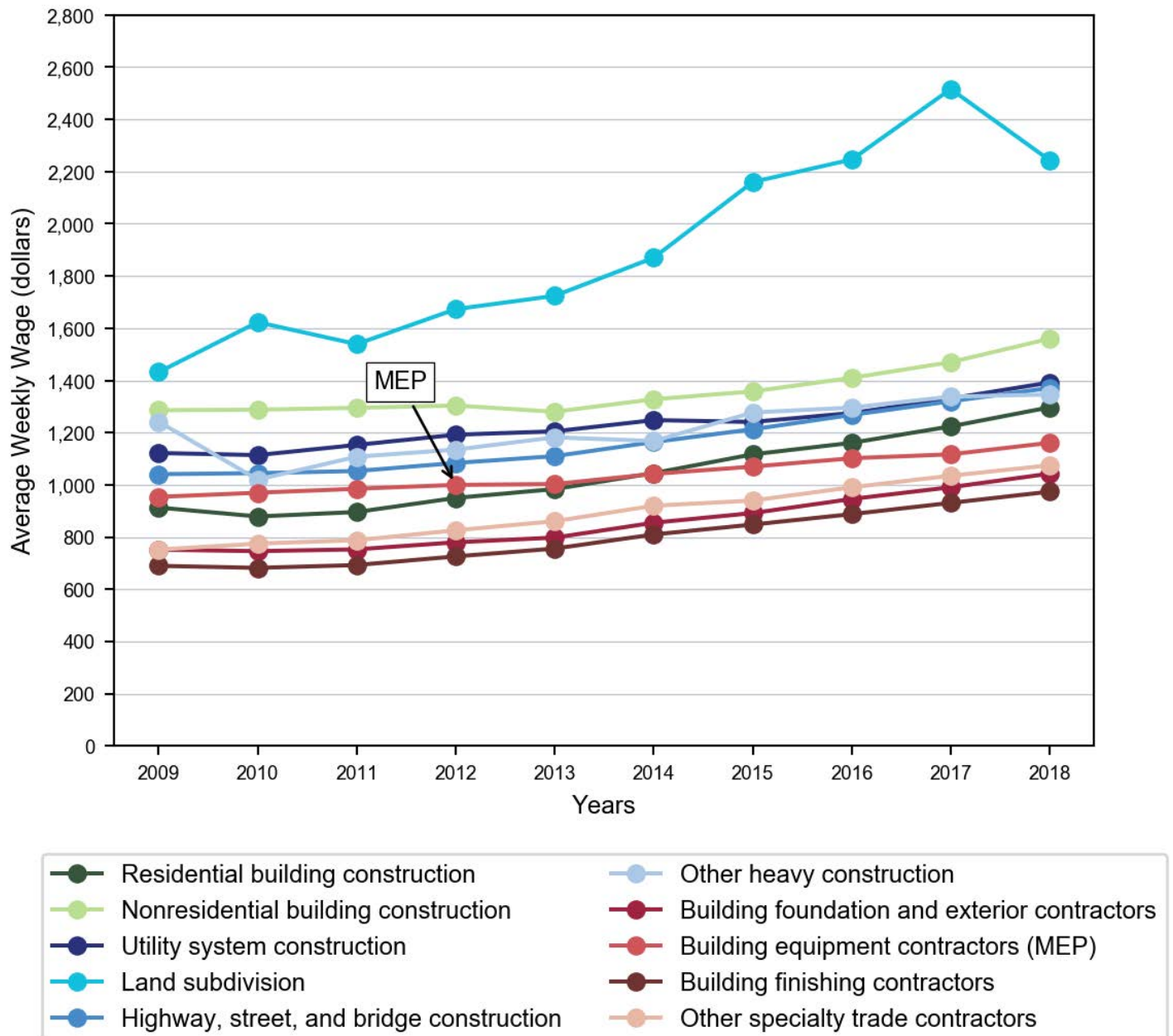


AVERAGE WEEKLY WAGE

The average weekly wage for all construction subsectors is shown in Figure 25. All heavy and civil engineering construction and building construction trades have the highest average weekly wages over 2009-2018. Land subdivision has the highest average weekly wage from 2009-2018 (\$1,903 per week) followed by non-residential building construction (\$1,358 per week).

Among specialty trades, building equipment contractors (MEP) have received the highest weekly wage from 2009-2018, averaging \$1,040 per week over this period. In 2018 MEP contractors received \$1,161 weekly on average, 7% higher than all specialty trades and 3% lower than construction overall. Detailed tables for average weekly wages of all construction sectors are included in Appendix I.

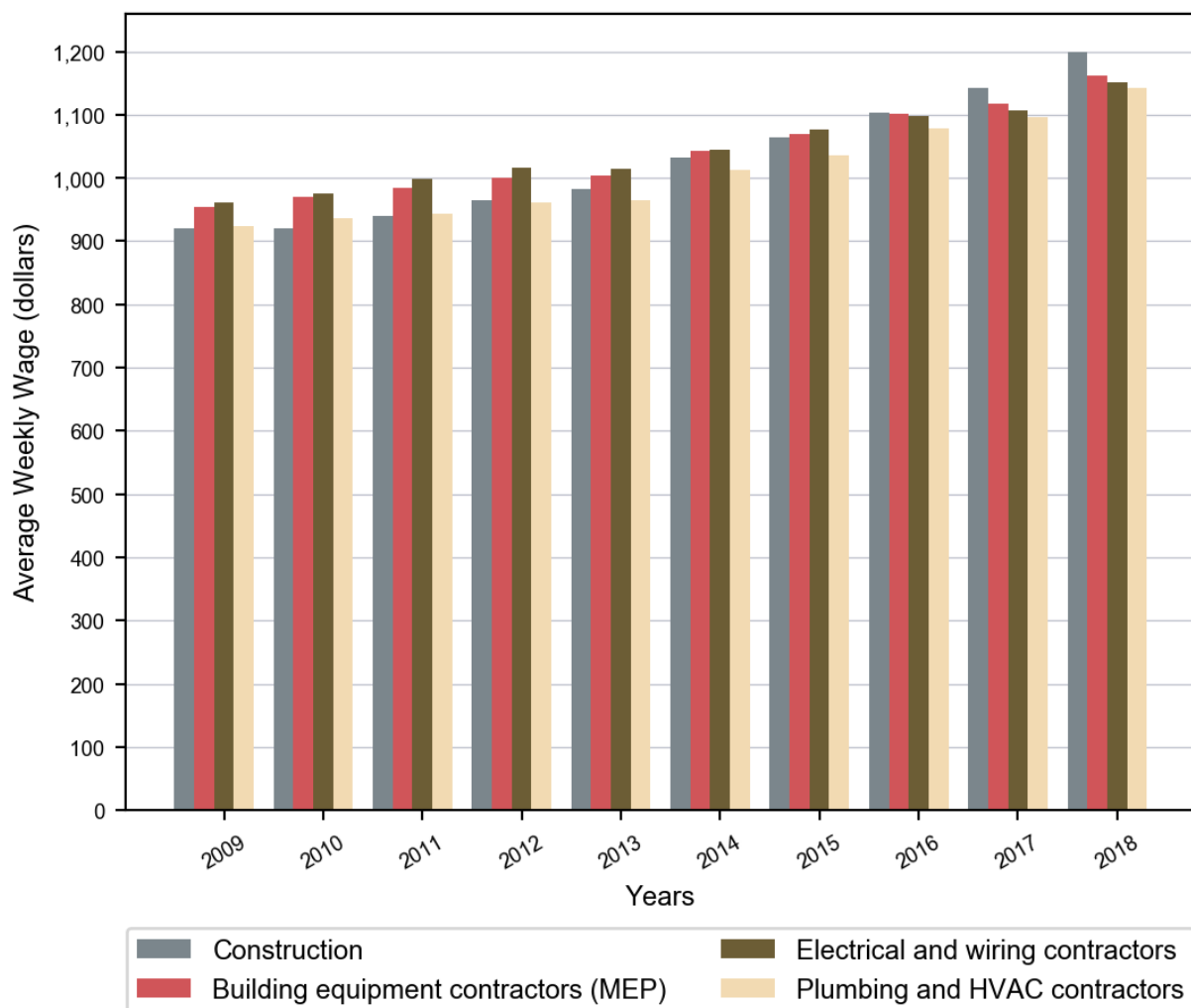
Figure 25: Average weekly wages 2009-2018 across construction subsectors



In 2018, weekly wages were \$1,161 for building equipment contractors (MEP) overall, and \$1,151 for electrical and wiring contractors, \$1,142 for plumbing and HVAC contractors, and \$1,476 for other building equipment contractors (MEP). Within building equipment contractors (MEP), the average weekly wages (in Figure 26) follow the same trends as average annual wages. For the entire period 2009-2018, other building equipment contractors have received the highest weekly wages within MEP. In 2018, other building equipment contractors received \$1,476 weekly whereas electrical and wiring contractors received \$1,151 weekly, and plumbing and HVAC contractors received \$1,142 weekly. The average weekly wage across all building equipment contractors (MEP) was \$1,161 in 2018.

From 2009-2015, the average weekly wage across all building equipment contractors (MEP) was between that for electrical contractors and plumbing/HVAC contractors. Since 2016, building equipment contractors (MEP) have overtaken both electrical and plumbing/HVAC contractor weekly wages. However, the average over year growth rate for weekly wages is steady at 2% across all building equipment contractor (MEP) subsectors from 2009-2018, and changes from 2017-2018 indicate 4% growth for both electrical and wiring contractors as well as plumbing and HVAC contractors, while other specialty trades saw less than half a percent growth in weekly wage.

Figure 26: Average weekly wages 2009-2018 in building equipment (MEP), electrical and wiring, and plumbing and HVAC



AVERAGE WEEKLY WAGE (CONTINUED)

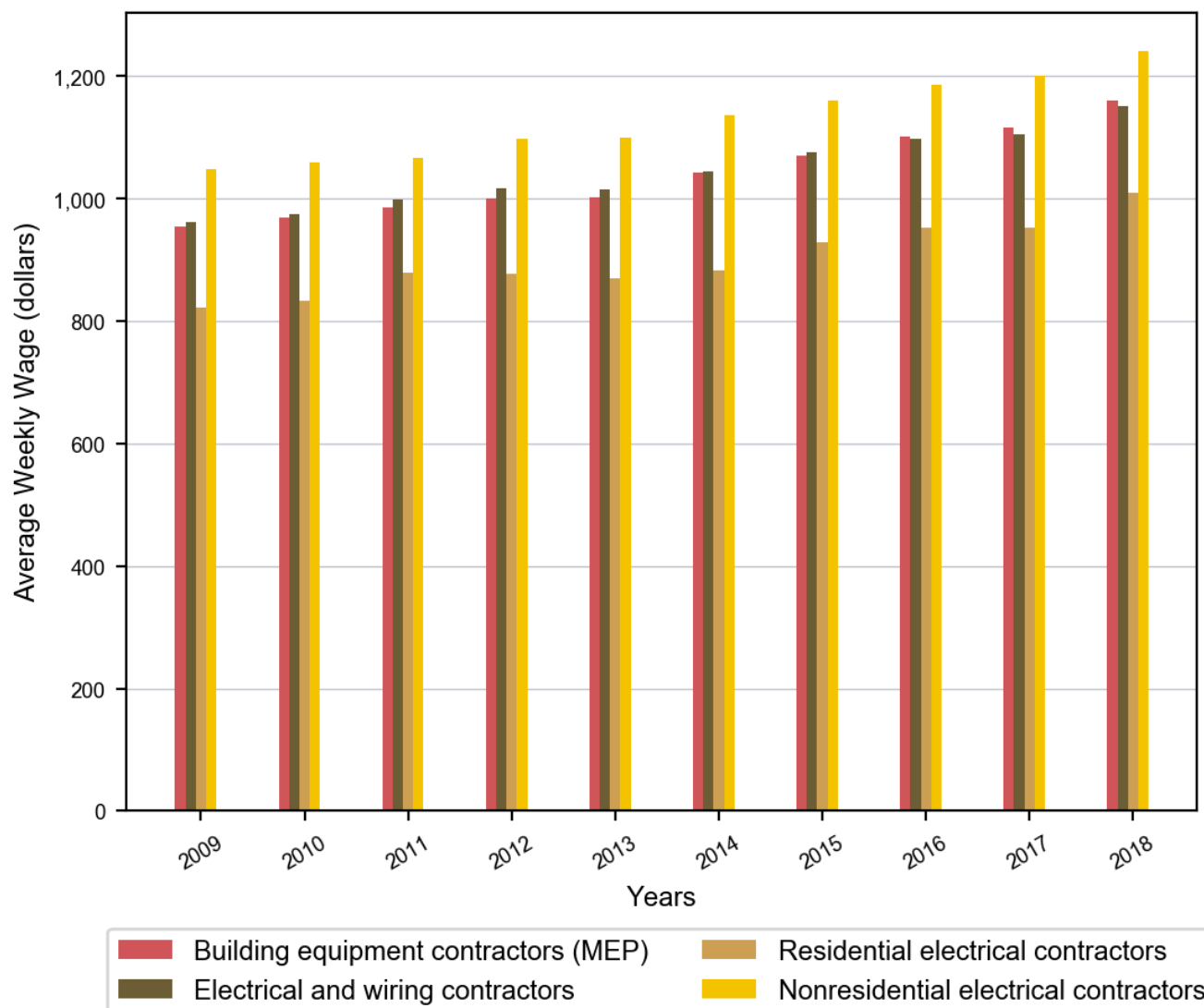
Of all electrical and wiring contractors, non-residential electrical contractors have consistently seen a higher weekly wage than residential electrical contractors.

In 2018, non-residential electrical and wiring contractors saw an average weekly wage of \$1,242, 23% above the residential electrical contractor rate of \$1,010 weekly, and 7% above building equipment contractors (MEP) overall (\$1,161 weekly).

When examining over-year growth, both residential and non-residential electrical and wiring contractors saw an

average 2% growth in weekly wages over 2009-2018. However, while non-residential electrical contractors typically see a steady growth of 1%-3% wage increases each year, residential electrical contractors have historically seen several years of slow growth, between 3% and -1% over year, punctuated by years where average wages increase by over 5%. Years with substantial growth in residential electrical contractor wage were 2011 (6% increase since 2010), 2015 (5% growth since 2014), and 2018 (6% growth since 2017).

Figure 27: Average weekly wages 2009-2018 in building equipment (MEP), comparing residential and non-residential electrical and wiring



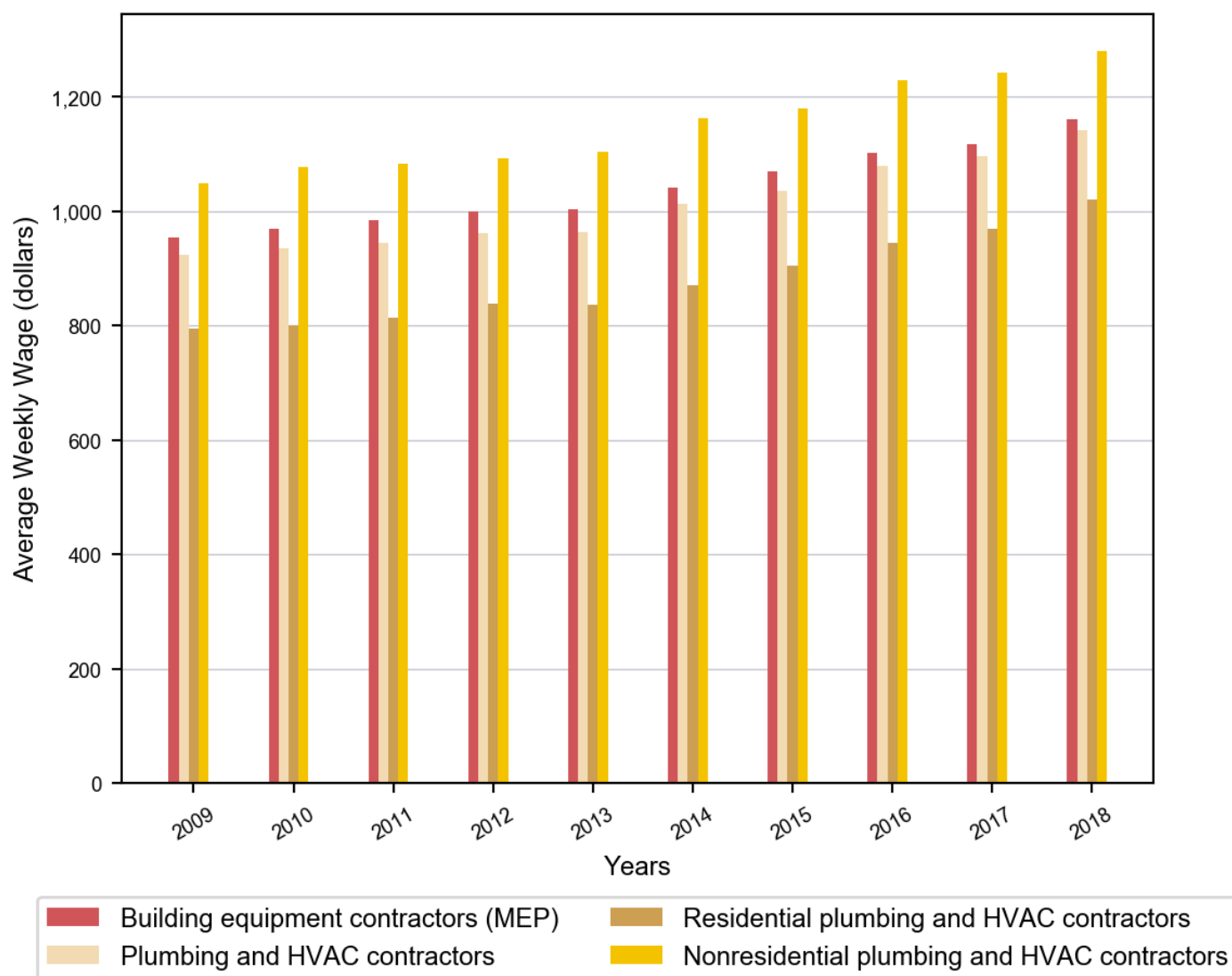
Non-residential plumbing and HVAC contractors have also received higher average weekly wages than their residential counterparts over 2009-2018. In 2018, non-residential plumbing and HVAC contractors received an average of \$1,281 weekly, 25% higher than residential plumbing and HVAC contractors (\$1,021 weekly) and 10% higher than building equipment contractors (MEP) overall (\$1,161 weekly).

Comparing growth from year to year, non-residential plumbing and HVAC contractors have averaged 3% growth in weekly wages from year to year, compared to 2% average growth over year for residential plumbing and HVAC contractors.

Both residential and non-residential workers have seen uneven years, with growth rates from slightly negative (less than half a percent negative, for 2012-2013) to 5% (for 2017-2018) for residential plumbing and HVAC wages, and near-zero (less than half a percent positive, from 2010-2011) to 5% (for 2013-2014) for non-residential plumbing and HVAC wages.

Since 2015, the growth rates for residential plumbing and HVAC weekly wages have been higher than non-residential plumbing and HVAC.

Figure 28: Average weekly wages 2009-2018 in building equipment (MEP), comparing residential and non-residential plumbing and HVAC

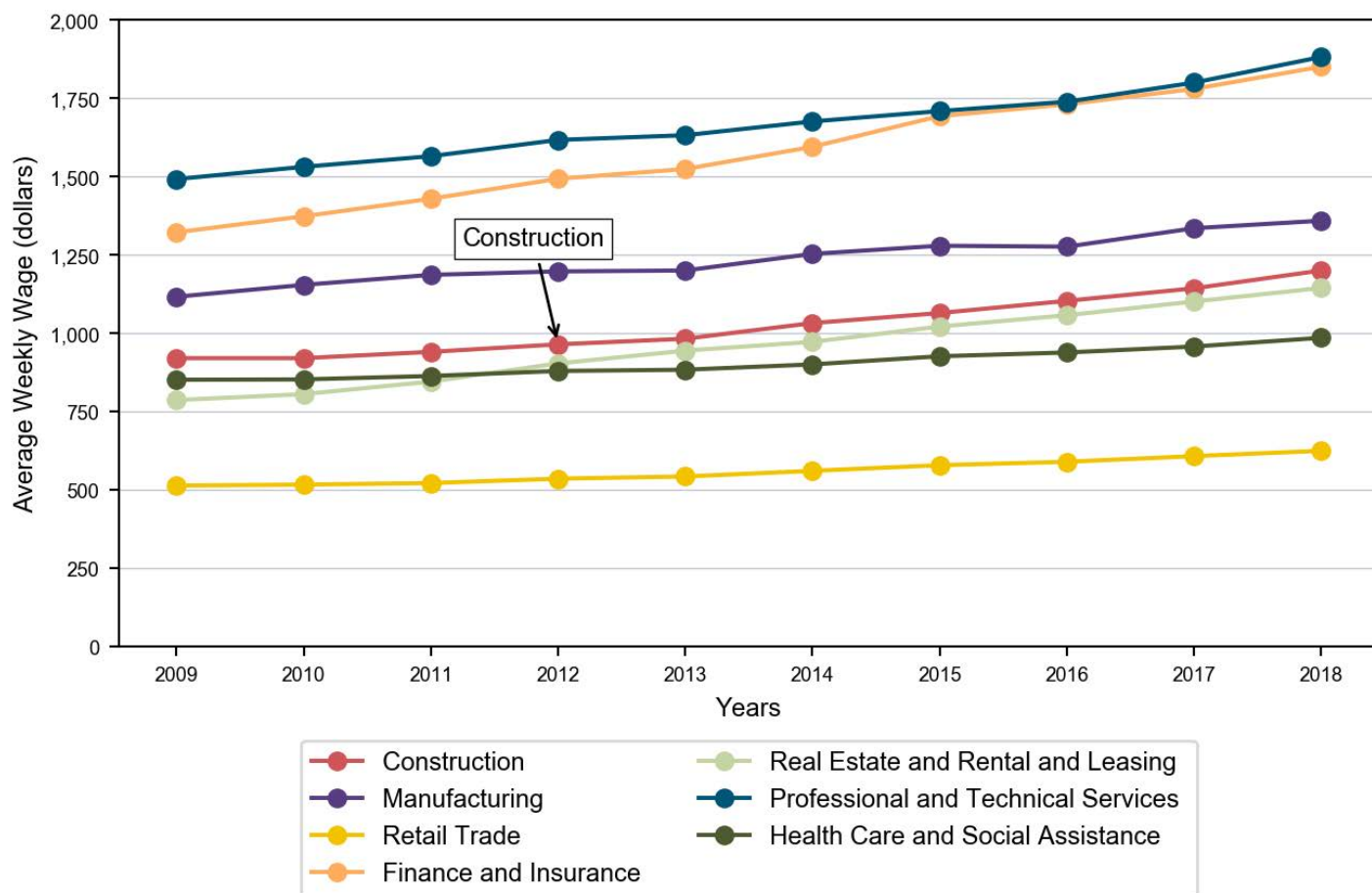


AVERAGE WEEKLY WAGE (CONTINUED)

Average weekly wages compared across Colorado industries (Figure 29) follow the same trend as average annual wages (Figure 24). As with annual wages, construction ranked fourth in wages among comparison industries.

Construction workers overall received an average weekly wage of \$1,200 in 2018, behind professional scientific, and technical services (\$1,882 weekly), Finance and insurance (\$1,851 weekly), and Manufacturing (\$1,359 weekly). Wage data for comparison industries are tabulated in Appendix K.

Figure 29: Average weekly wages 2009-2018 across comparison industries



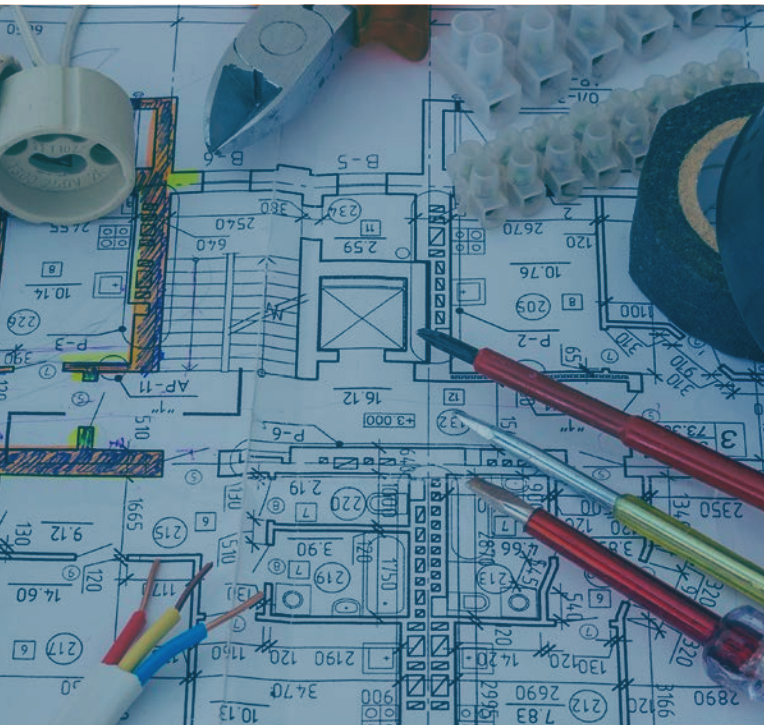
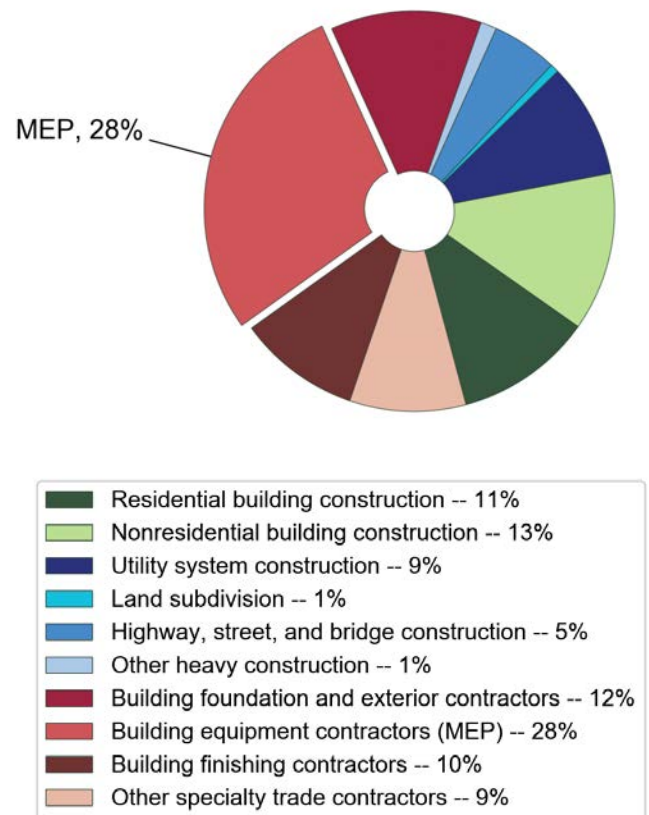
CONSTRUCTION PAYROLL

Specialty trades payroll in 2018 totaled \$6.3 billion, comprising 60% of construction's overall \$10.8 billion payroll. Building equipment contractor (MEP) payroll totaled \$3.0 billion in 2018, representing 47% of all specialty trade payroll and 28% of all construction payroll.

Although specialty trade contractors receive the lowest wages across construction's three major sectors, its payroll is the largest portion of construction payroll in Colorado due to its much larger fraction of employees. The average annual payroll for construction and its subsectors are tabulated in Appendix J.

The percentage contribution of each construction subsector in 2018 is shown in Figure 23. Behind building equipment contractor (MEP) payroll (\$3.0 billion), the next largest subsectors were all below \$2 billion in annual payroll. Non-residential building construction leads the other subsectors in annual payroll with \$1.4 billion, followed by foundation, exterior, and building exterior contractors (\$1.3 billion), residential building construction (\$1.2 billion), building finishing contractors (\$1.1 billion), and other specialty trade contractors (\$1.0 billion).

Figure 30: Percentage of total payroll in each construction subsector, 2018



CONSTRUCTION PAYROLL (CONTINUED)

Comparing the total payroll for each major construction sector, specialty trade payroll has eclipsed the sum of both building construction and heavy and civil engineering construction by more than \$1 billion each year from 2009-2018, reaching a difference of over \$2 billion in 2018.

Construction payroll was at its lowest in this time period in 2011, a total payroll of \$5.5 billion across all sectors. Building construction and specialty trade also saw a payroll minimum in 2011, while heavy and civil engineering construction payroll was at its lowest in 2010. Construction and its major sectors have all been growing steadily since 2011, averaging a 10% over-year growth from 2011-2018. Building construction has seen the largest average year to year growth in payroll, averaging a 12% growth over this seven-year span. Specialty trade saw a 10% average year to year growth in this period, followed by heavy and civil engineering construction with 8% average over-year growth in payroll.

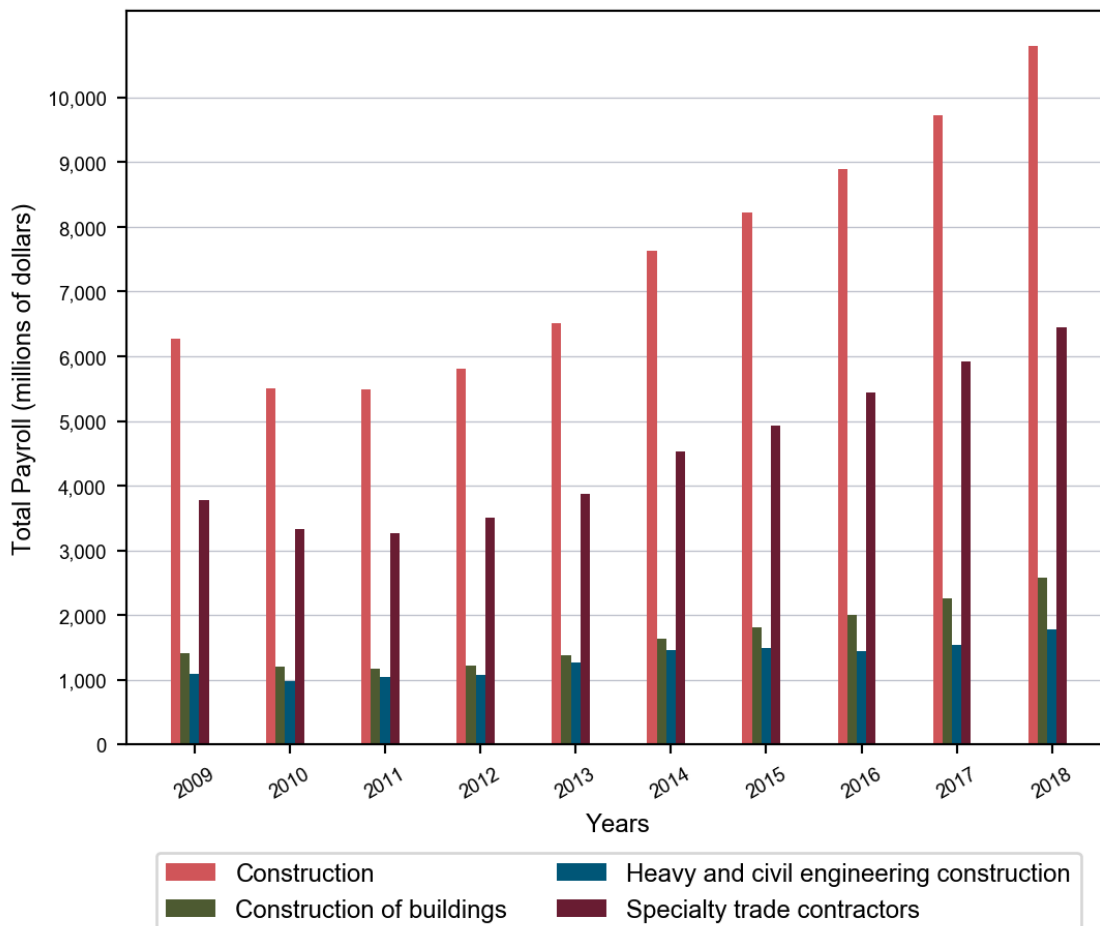
From 2017-2018, construction payroll overall grew by 11%, higher than its year to year average of 10% since 2011. This increase is driven primarily by the large payroll growth in building construction (14% from 2017-2018) and heavy and civil engineering construction (15% from 2017-2018).

Specialty trade payroll grew by 9% from 2017-2018, lower than construction's 10% year to year average, from 2011-2018.

Specialty trades and building construction trades have seen annual growth of over 9% every year since 2012.

In contrast, however, heavy and civil engineering construction payroll has seen periods of large growth (up to 17% in 2013) and periods of low, even negative, payroll growth (-3% to 2% in 2016 and 2015 respectively).

Figure 31: Total payroll (in millions) 2009-2018 across construction sectors

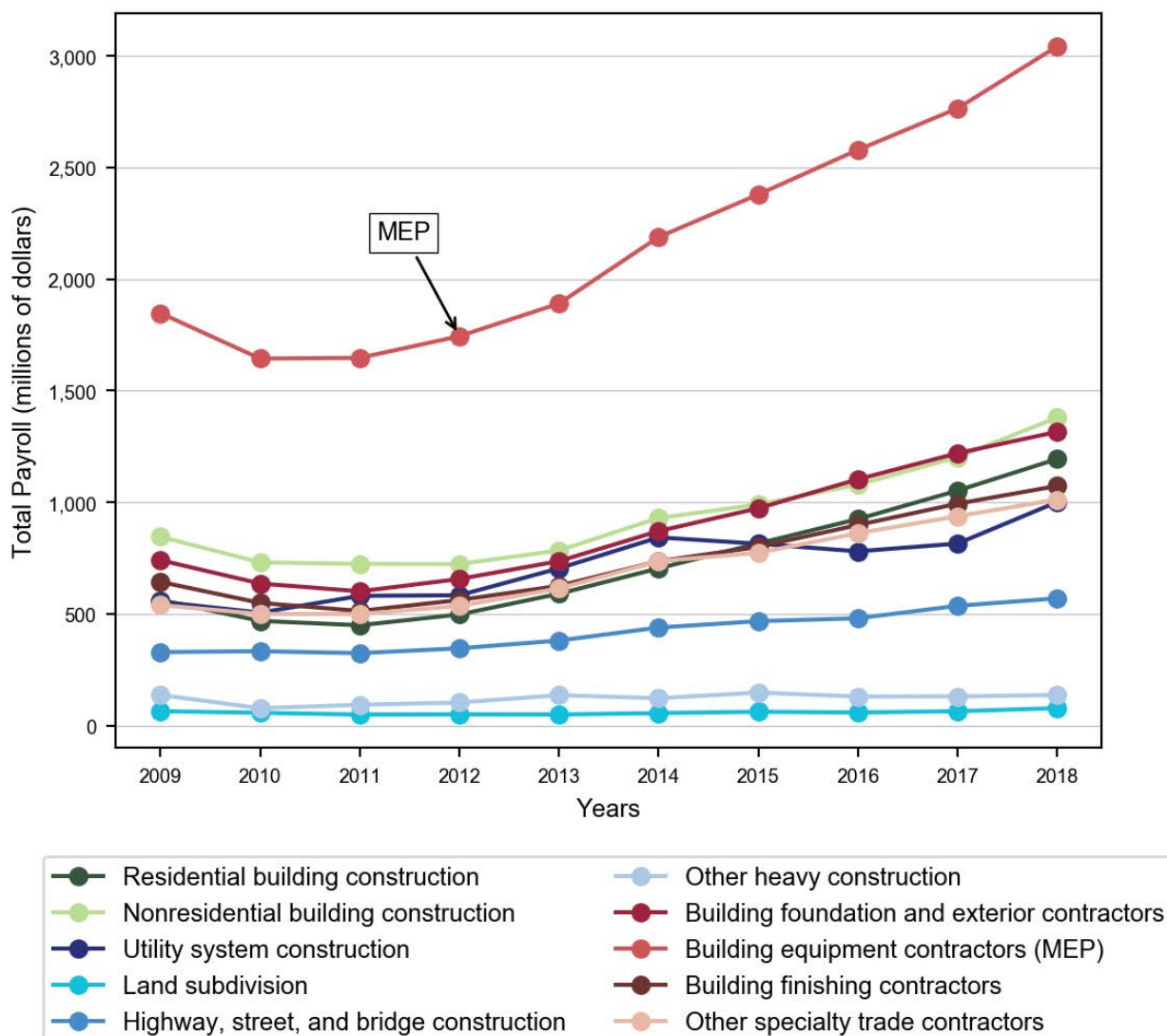


Building equipment contractors (MEP) have consistently been the highest contributor to total construction payroll in Colorado since 2009. Annual trends for construction subsectors are shown in Figure 32. Residential building construction is the construction sector with the largest payroll growth per year after the industry's low in 2011 (2012-2018). With 9% average per year payroll growth in this period, building equipment contractor (MEP) payroll ranks sixth among construction subsectors, behind residential building construction

(15%), foundation, structure, and building exterior (12%), building finishing contractors (11%), other specialty trade contractors (11%), and non-residential building construction (10%).

From 2017 to 2018, building equipment contractor (MEP) payroll growth (9%) ranks fifth among all construction subsectors, behind utility system construction (23%), land subdivision (21%), and both non-residential and residential building construction (15% and 13% respectively).

Figure 32: Total payroll (in millions) 2009-2018 across construction subsectors

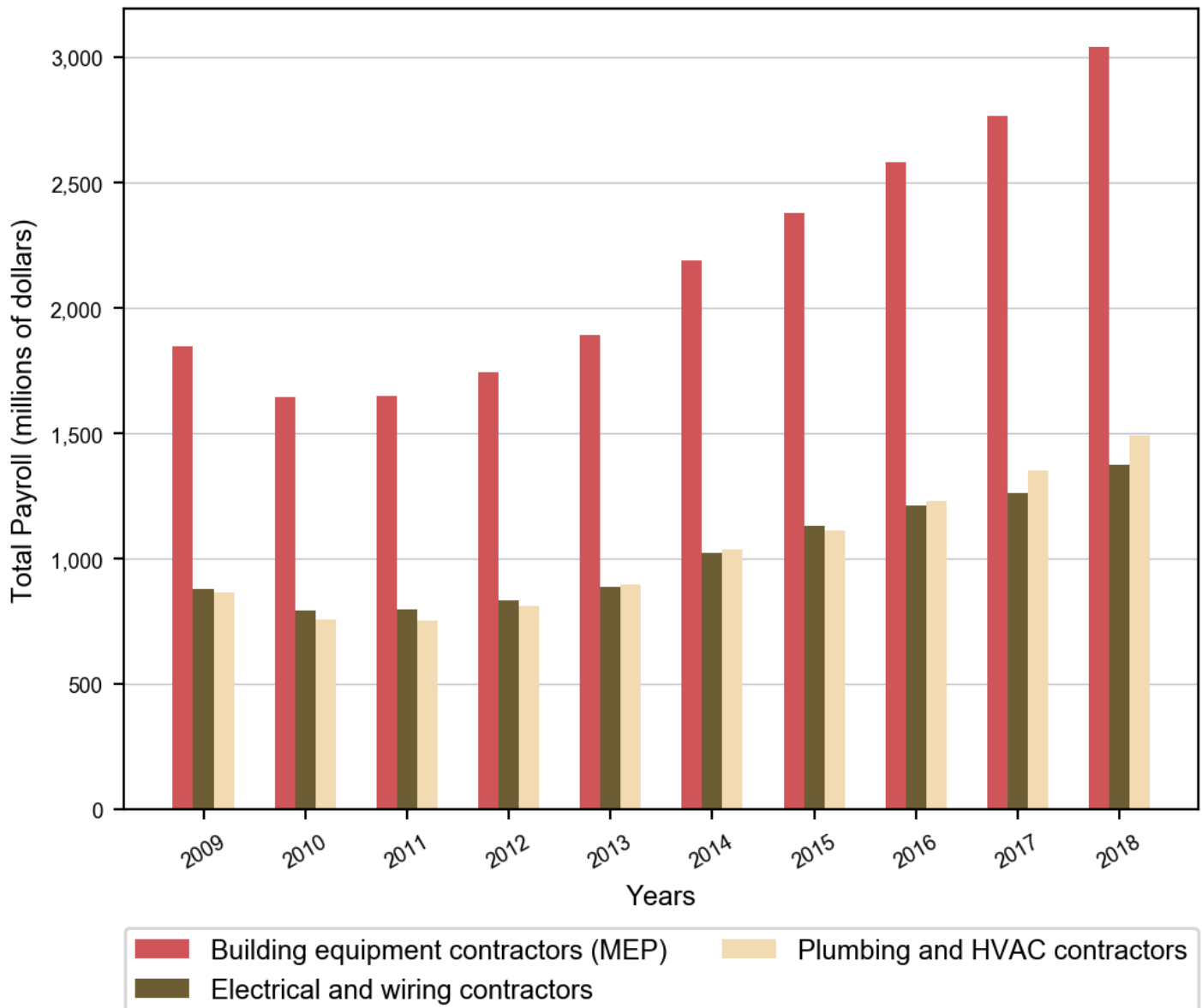


CONSTRUCTION PAYROLL (CONTINUED)

Total payroll for MEP, electrical and wiring contractors, and plumbing and HVAC is shown in Figure 26. In 2018, electrical and wiring contractor payroll totaled \$1.4 billion, and plumbing and HVAC contractor payroll totaled \$1.5 billion. The two major building equipment contractor (MEP) subsectors have similar payroll for the years 2009-2018, each contributing nearly 50% (between 45% and 49%) of total building equipment contractor (MEP) payroll.

From 2009-2014, electrical and wiring contractor payroll was above plumbing and HVAC contractor payroll. Since 2016, plumbing and HVAC contractor payroll has consistently exceeded electrical and wiring contractor payroll. Plumbing and HVAC contractor payroll has been growing faster than electrical and wiring contractor payroll for six of the last seven years, and averages 10% over 2012-2018 compared to 8% per year payroll growth for electrical and wiring contractors in the same period.

Figure 33: Total payroll (in millions) 2009-2018 in building equipment (MEP), electrical and wiring, and plumbing and HVAC

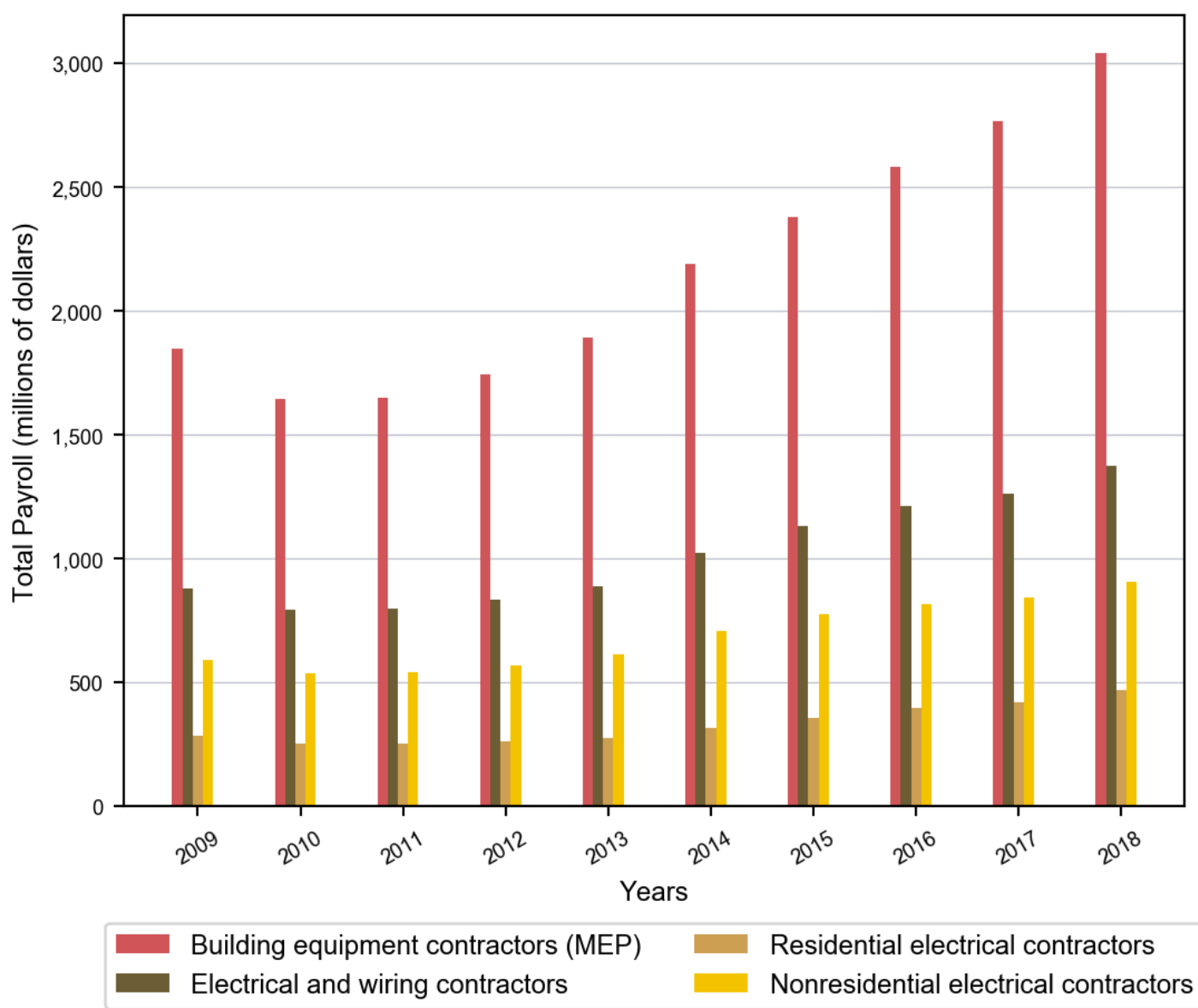


Comparing residential and non-residential electrical and wiring contractor payroll (Figure 34), non-residential payroll has historically been approximately twice that of residential contractor payroll. In 2018, non-residential electrical and wiring contractor payroll totaled \$907 million, 30% of all building equipment contractor (MEP) payroll.

Residential electrical and wiring contractor payroll totaled \$470 million, only 15% of all building equipment contractor (MEP) payroll.

Since 2012, the two groups of electrical contractors have maintained similar per year payroll growth, with residential contractor payroll averaging 9% growth, and non-residential contractor payroll averaging 10% growth.

Figure 34: Total payroll (in millions) 2009-2018 in building equipment (MEP), comparing residential and non-residential electrical and wiring



CONSTRUCTION PAYROLL (CONTINUED)

In contrast to the electrical contractor payroll, residential and non-residential contractor payroll for plumbing and HVAC contribute approximately equally to total plumbing and HVAC contractor payroll.

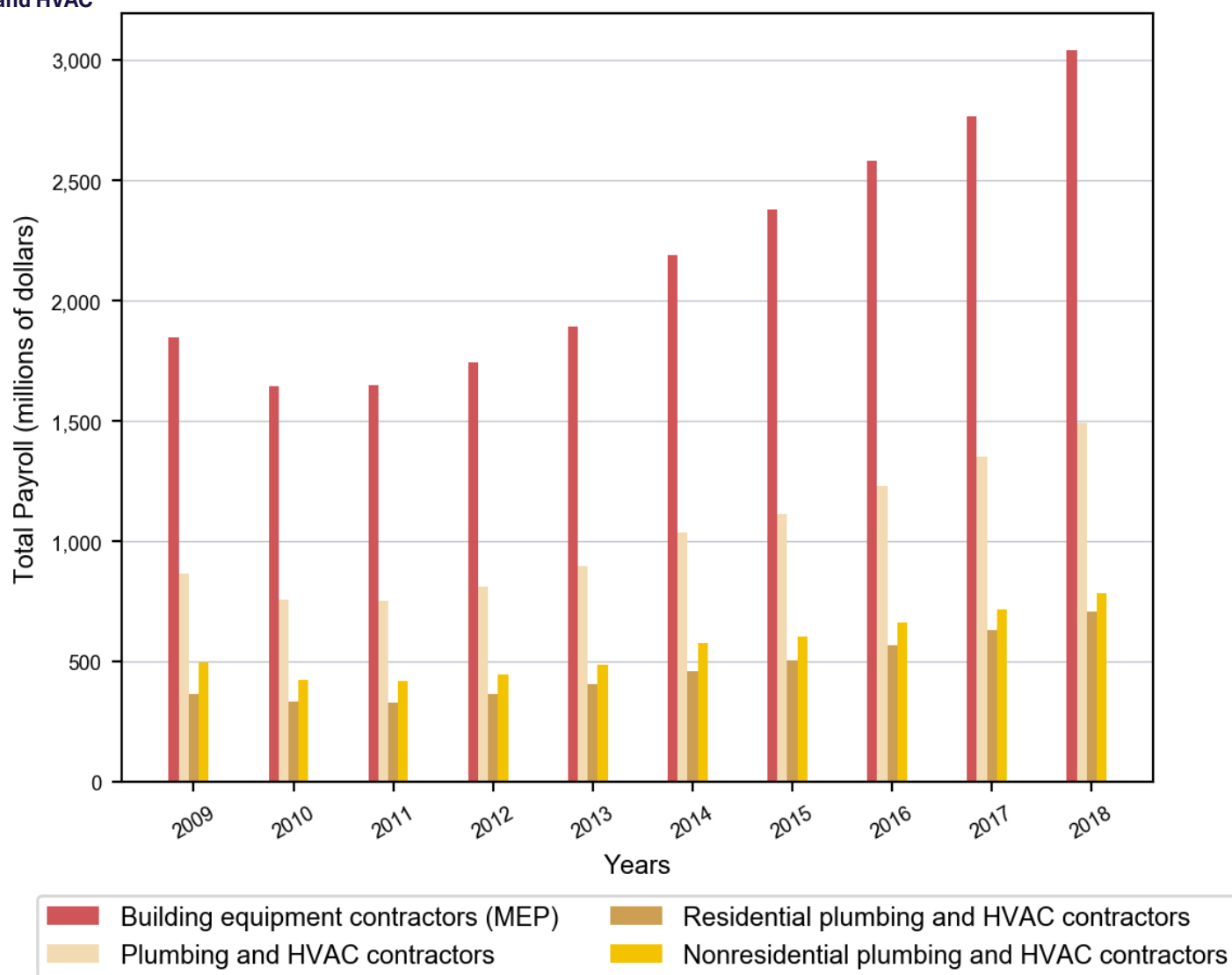
Residential and non-residential payroll are compared for plumbing and HVAC contractors in Figure 28. In 2018, non-residential plumbing and HVAC contractor payroll totaled \$783 million, 26% of all building equipment contractor (MEP) payroll. Residential plumbing and HVAC

contractor payroll totaled \$710 million, 23% of all building equipment contractor (MEP) payroll.

Over 2009-2018, non-residential contractor payroll has been consistently higher than residential contractor payroll by approximately \$100 million.

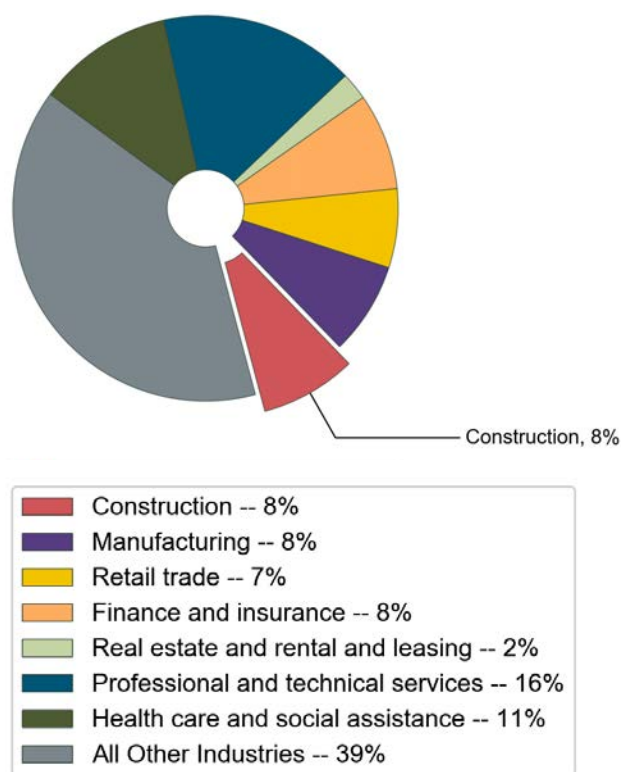
Residential plumbing and HVAC payroll has been growing over 10% each year since 2012, averaging 11% annual growth, compared to the non-residential contractor payroll which averages only 9% over the same years.

Figure 35: Total payroll (in millions) 2009-2018 in building equipment (MEP), comparing residential and non-residential plumbing and HVAC



Construction payroll in Colorado is compared to comparison industries in Figures 36 and 37. In 2018, total payroll across all Colorado industries totaled \$133.8 billion, 8% of which comes from the construction industry (Figure 36). Construction's \$10.8 billion payroll ranks fourth among comparison industries: Professional and technical services had the highest percentage of total payroll with \$22.0 billion (16%), followed by health care and social assistance (\$15.3 billion, or 11%), and finance and insurance (\$11.0 billion, or 8%).

Figure 36: Percentage of total payroll in Colorado for comparison industries, 2018



CONSTRUCTION PAYROLL (CONTINUED)

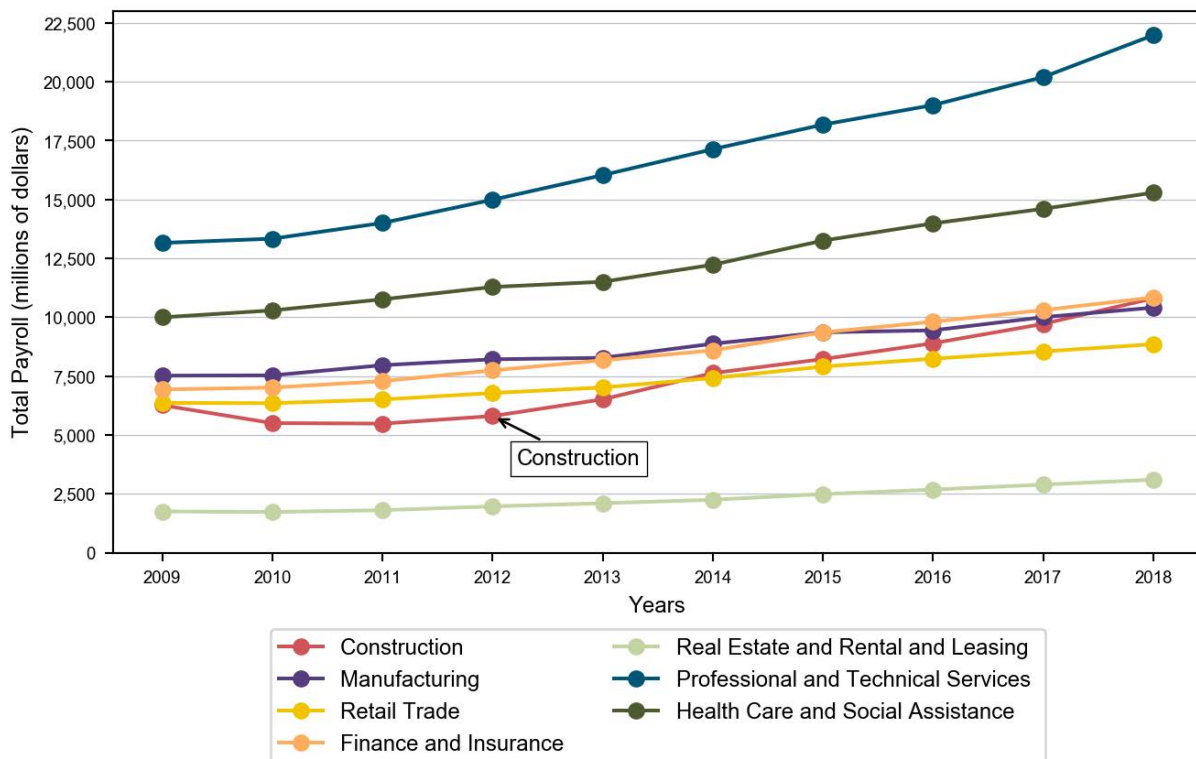
Per year trends are shown in Figure 37. Between 2009 and 2018, the professional and technical services industry has consistently had the largest total payroll of comparison industries, followed by health care and social assistance. Payroll data for comparison industries are tabulated in Appendix K.

As of 2018, the construction industry ranks 3rd in total payroll. Construction also had the largest average growth per year of all comparison industries: 7% average growth per year from 2010-2018, 10% from 2012-2018, and 11% from 2017-2018.

The next fastest growing comparison industries in terms of total payroll were real estate and rental and leasing, followed by professional and technical services.

Real estate and rental and leasing payroll has grown on average 7% per year from 2010-2018, 7% from 2012-2018, and 7% from 2017-2018. Professional, scientific, and technical services payroll has grown on average 6% per year from 2010-2018, 7% from 2012-2018, and 9% from 2017-2018.

Figure 37: Total payroll (in millions) for comparison industries, 2009-2018



STATE, LOCAL, AND PRIVATE INDUSTRY COMPARISON

The employment and wage data for years 2009-2018 are compared in Table 4 for state government, local government, and private industry. Data was available for all years except state government in 2010 and local government in 2009, 2010, 2013, and 2016.

First comparing the number of construction employees, the trend for private industry shows a minimum number of employees in 2011 (112,242) and a maximum in 2018 (173,096 employees). Years when private industry employment was low correspond to years when government employment was high: comparing years for which data was available, state government employment was highest in 2009 (3,163 employees) and lowest in 2018 (3,022 employees). Local government employment was highest in 2012 (138 employees) and lowest in 2017 (103 employees).

Comparing the annual pay for private and government industry, it is typical that state employees were paid more than private employees, and local government employees the least of the three categories. From 2009-2015, state government wages have eclipsed private industry wages by 10%-20%, and private industry wages between 7% and 40% given the available data. From 2016-2018, state government construction wages have remained at only 3-4% above private industry wages.

The average annual pay across all construction workers in Colorado is calculated in Table 4 as a weighted average: weighting the annual pay and weekly pay by the number of employees reported in each category. The result is for 2018, an average annual pay of \$62,440 and an average weekly pay of \$1,201. For the ten years in the table, the weighted average values trend just above the average for private industry.

Table 4: Employment and wages summary for public, private, and government construction industry, 2009-2018

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Number of Employees										
Private	131,003	115,110	112,242	115,754	127,604	142,134	148,604	155,148	163,473	173,096
State	3,163	-	3,072	3,068	3,075	3,056	3,039	3,047	3,059	3,022
Local	-	-	136	138	-	125	117	-	103	120
Total	134,166	115,110	115,450	118,960	130,679	145,315	151,760	158,195	166,635	176,238
Average Annual Pay										
Private	\$ 47,824	\$ 47,827	\$ 48,865	\$ 50,151	\$ 51,052	\$ 53,668	\$ 55,347	\$ 57,344	\$ 59,444	\$ 62,414
State	\$ 57,817	\$ -	\$ 56,375	\$ 56,295	\$ 58,181	\$ 60,175	\$ 61,095	\$ 59,879	\$ 61,461	\$ 64,176
Local	\$ -	\$ -	\$ 39,921	\$ 46,706	\$ -	\$ 56,492	\$ 50,465	\$ -	\$ 62,565	\$ 56,205
Average Weekly Pay										
Private	\$ 920	\$ 920	\$ 940	\$ 964	\$ 982	\$ 1,032	\$ 1,064	\$ 1,103	\$ 1,143	\$ 1,200
State	\$ 1,112	\$ -	\$ 1,084	\$ 1,083	\$ 1,119	\$ 1,157	\$ 1,175	\$ 1,152	\$ 1,182	\$ 1,234
Local	\$ -	\$ -	\$ 768	\$ 898	\$ -	\$ 1,086	\$ 970	\$ -	\$ 1,203	\$ 1,081
Average Annual Payroll (in millions)										
Private	\$ 6,265	\$ 5,505	\$ 5,485	\$ 5,805	\$ 65,414	\$ 7,628	\$ 8,225	\$ 8,897	\$ 9,718	\$ 10,804
State	\$ 183	\$ -	\$ 173	\$ 173	\$ 179	\$ 184	\$ 186	\$ 182	\$ 188	\$ 194
Local	\$ -	\$ -	\$ 5	\$ 6	\$ -	\$ 7	\$ 6	\$ -	\$ 6	\$ 7
Weighted sum: Average Annual Pay and Average Weekly Pay										
Average Annual Pay	\$ 48,060	\$ 47,827	\$ 49,054	\$ 50,305	\$ 51,220	\$ 53,807	\$ 55,458	\$ 57,393	\$ 59,483	\$ 62,440
Average Weekly Pay	\$ 925	\$ 920	\$ 944	\$ 967	\$ 985	\$ 1,035	\$ 1,066	\$ 1,104	\$ 1,144	\$ 1,201

UNION AFFILIATION

Union membership and affiliation data are available for construction at a nationwide level, as well as statewide across all industries. The number and percentage of employees who were members or represented by unions are given in Table 5.

While union affiliation in construction nationally has been decreasing over the period 2009-2018, union affiliation across all industries in Colorado has been increasing over the same period as employment continues to rise.

The number of employees in Colorado (across all industries) who are members of unions has been overall increasing. Colorado union affiliation was at a low in 2011 of 8% membership and 7% representation, reaching a high in 2018 of 12% membership and 11% representation. The most recent high in union membership in Colorado follows a most recent low of 9% membership in 2015. Steady per year increases in union membership followed.

The high percentage of employees represented by unions in 2018 similarly follows a most recent low of 10% in 2016.

Nationwide, union membership and representation among construction workers trends slightly above membership and representation for all workers in Colorado. However again the national trend for union membership in the construction industry is roughly decreasing: union membership has decreased from a high of 15% membership to a low of 13% in 2018. Union representation in the construction industry nationwide has been more constant: a high of 15% representation was seen in 2009, and the lowest values across 2009-2018 occurred at 14% in 2010, 2012, and 2018.

Table 5: Union affiliation data for Colorado and the United States, 2009-2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total number of employees in Colorado (waged and salary), in thousands	2,254	2,175	2,130	2,186	2,165	2,243	2,328	2,310	2,438	2,494	2,564
Percent of employees in Colorado who are members of unions	9%	8%	8%	9%	9%	9%	11%	9%	11%	11%	12%
Percent of employees in Colorado who are represented by unions	8%	7%	7%	8%	8%	8%	10%	8%	10%	10%	11%
Total number of employees in Colorado (waged and salary), in thousands	2,254	2,175	2,130	2,186	2,165	2,243	2,328	2,310	2,438	2,494	2,564
Total number of construction employees in Colorado (waged and salary), in thousands	162	131	115	113	116	128	142	149	155	164	172
Percent of employees in Colorado employed in construction	7%	6%	5%	5%	5%	6%	6%	6%	6%	7%	7%
Total number of construction employees in the United States (waged and Salary), in thousands	7,652	6,613	6,103	6,244	6,205	6,474	6,968	7,109	7,488	7,844	8,169
Percent of construction workers in the United States who are members of unions	16%	15%	13%	14%	13%	14%	14%	13%	14%	14%	13%
Percent of construction workers in the United States who are represented by union members	16%	15%	14%	15%	14%	15%	15%	14%	15%	15%	14%



SECTION 4

INDUSTRY EDUCATION AND EMPLOYMENT OPPORTUNITIES

Construction employment growth is expected to be 29% across the next decade, an average of 2.6% growth per year. Building equipment contractor (MEP) employment is projected to grow by up to 33% through 2028.

This section presents data that illustrates this future employment opportunity as well as current construction-related education programs in Colorado.



METHODOLOGY

- Workforce age data were sourced from the U.S. Census Quarterly Workforce Indicators, collected as part of the Longitudinal Employer-Household Dynamics (LEHD) program. This report presents data for 2009, 2012, 2015, and 2018.
- Projected future employment data were obtained for construction industries and occupations from the Colorado Department of Labor and Employment via the Colorado Labor Market Information website. Data is given as estimated and projected employment in 2018 and 2028.
- Information on construction-related education programs was primarily sourced from the Colorado Department of Higher Education, and supplemented where necessary from institution's websites. The list of construction-related education programs was generated from a list of construction-related program codes, and all programs matching those program codes were included; programs with similar foci were consolidated.
- All data were retrieved in December, 2019.

WORKFORCE AGE



Half of all construction employees in Colorado are aged 25-44, and another 40% of employees are over the age of 45.

The average age of employees within the construction industry overall, specialty trade contractors, and building equipment contractors (MEP) has been increasing over the last decade. In particular, the percentage of workers aged 45-54 has decreased by about 5% from 2009-2018, while the percentage of workers aged 55-64 has increased by about 5% over the same period.

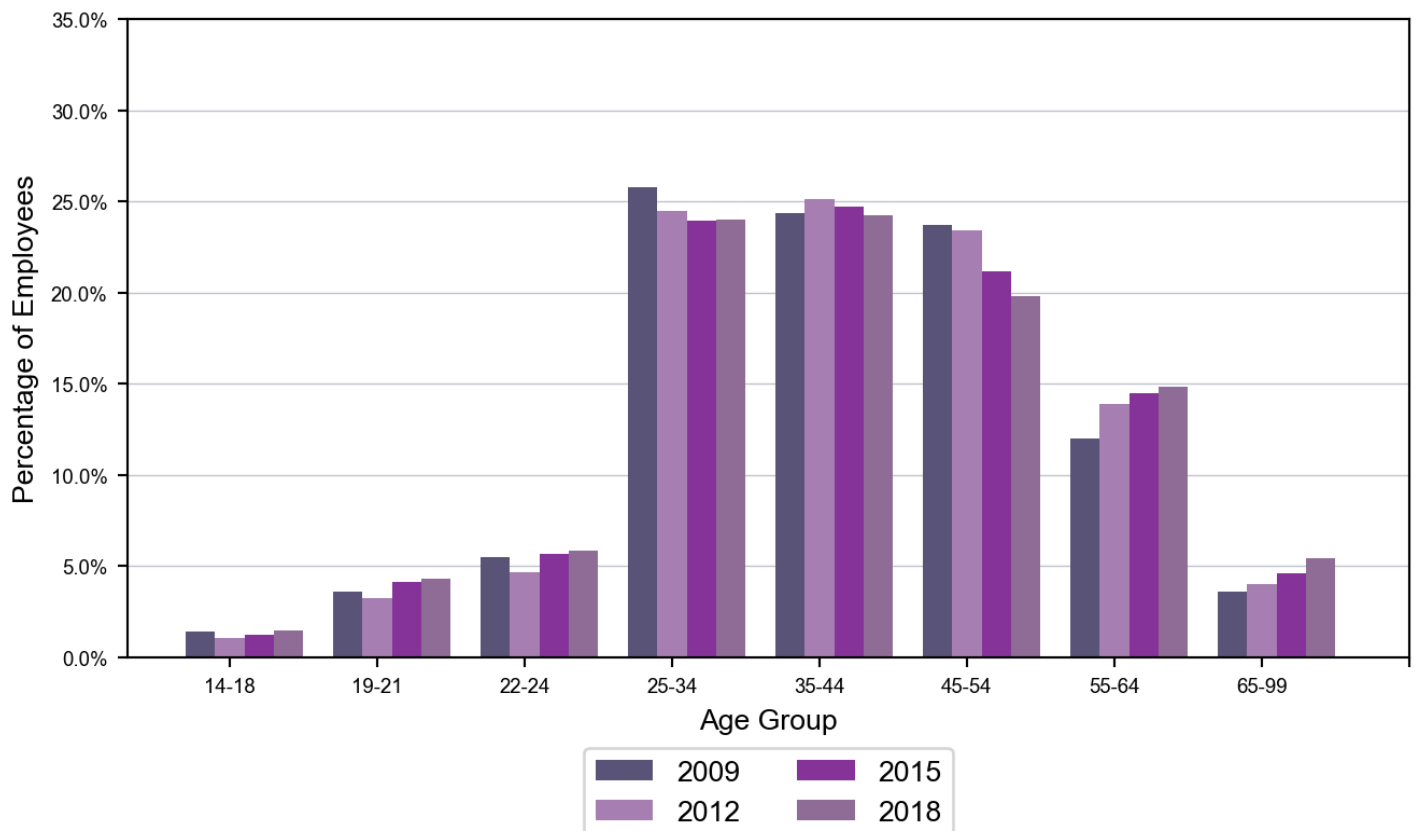
However, there are positive signs when examining the employee age distribution over this time period:

employees aged 22-24 have been steadily increasing in proportion since 2012, and the decrease in employees aged 25-34 has been slowing, especially since 2015.

The distribution of age for all construction employees in Colorado is shown in Figure 38. In 2009, workers aged 14-24 years accounted for 11% of all construction employees, 50% were aged 24-44, and the remaining 39% were aged 45 or older.

As of 2018, these percentages have shifted slightly, showing the number of employees 14-24 years old increased to 12%, aged 24-44 decreased to 49%, and aged 45-99 increased to 40%.

Figure 38: Age distribution of construction employees in Colorado, 2009-2018





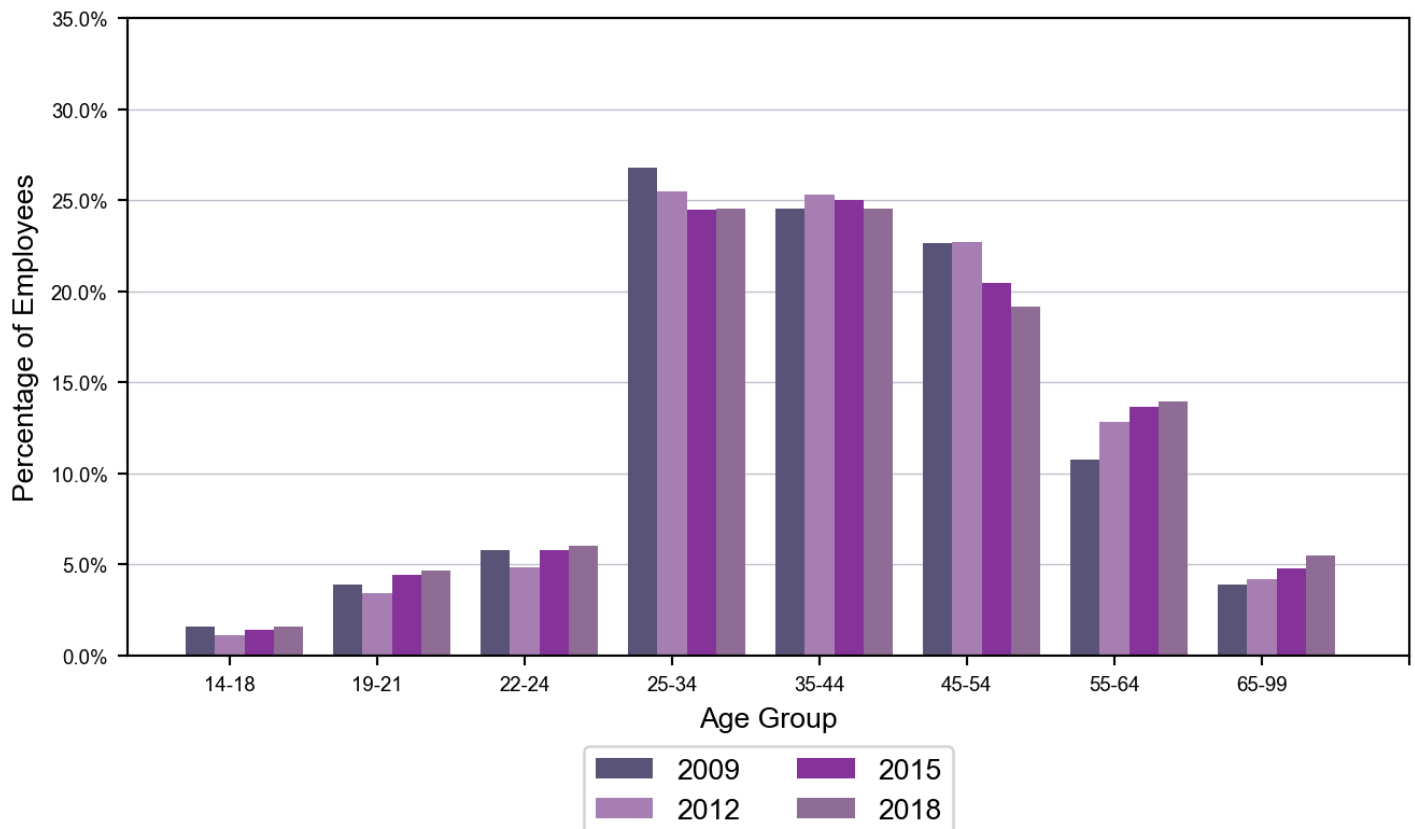
However, the average age of construction workers in Colorado has increased slightly from 41 years to 42 years over the last decade, calculated by weighting the number of employees in each age group by the average age in that group.

The age distribution for specialty trade contractors (shown in Figure 39) has followed a similar pattern as for construction overall.

The fraction of employees aged 14-24 has increased from 11% to 12% of all specialty trade contractors in the years 2009-2018.

The percent of employees aged 25-44 decreased from 51% to 49%, and the percent of employees aged 45 or older increased 37% to 39% in the same time period. Again, the weighted average age of specialty trade contractors in Colorado has increased from 41 to 42 years.

Figure 39: Age distribution of specialty trade employees in Colorado, 2009-2018

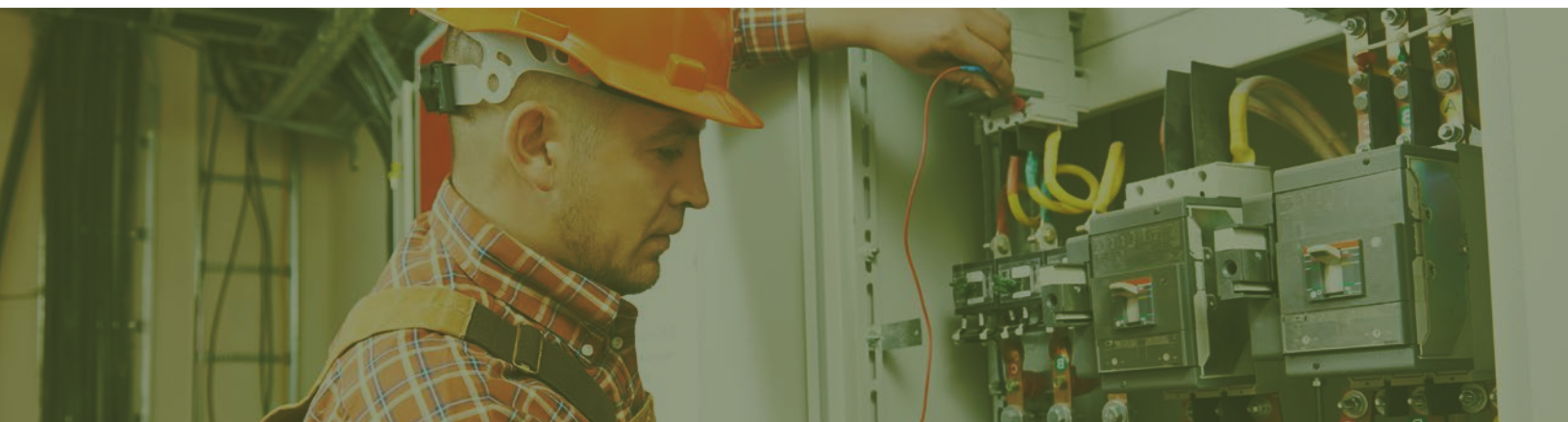
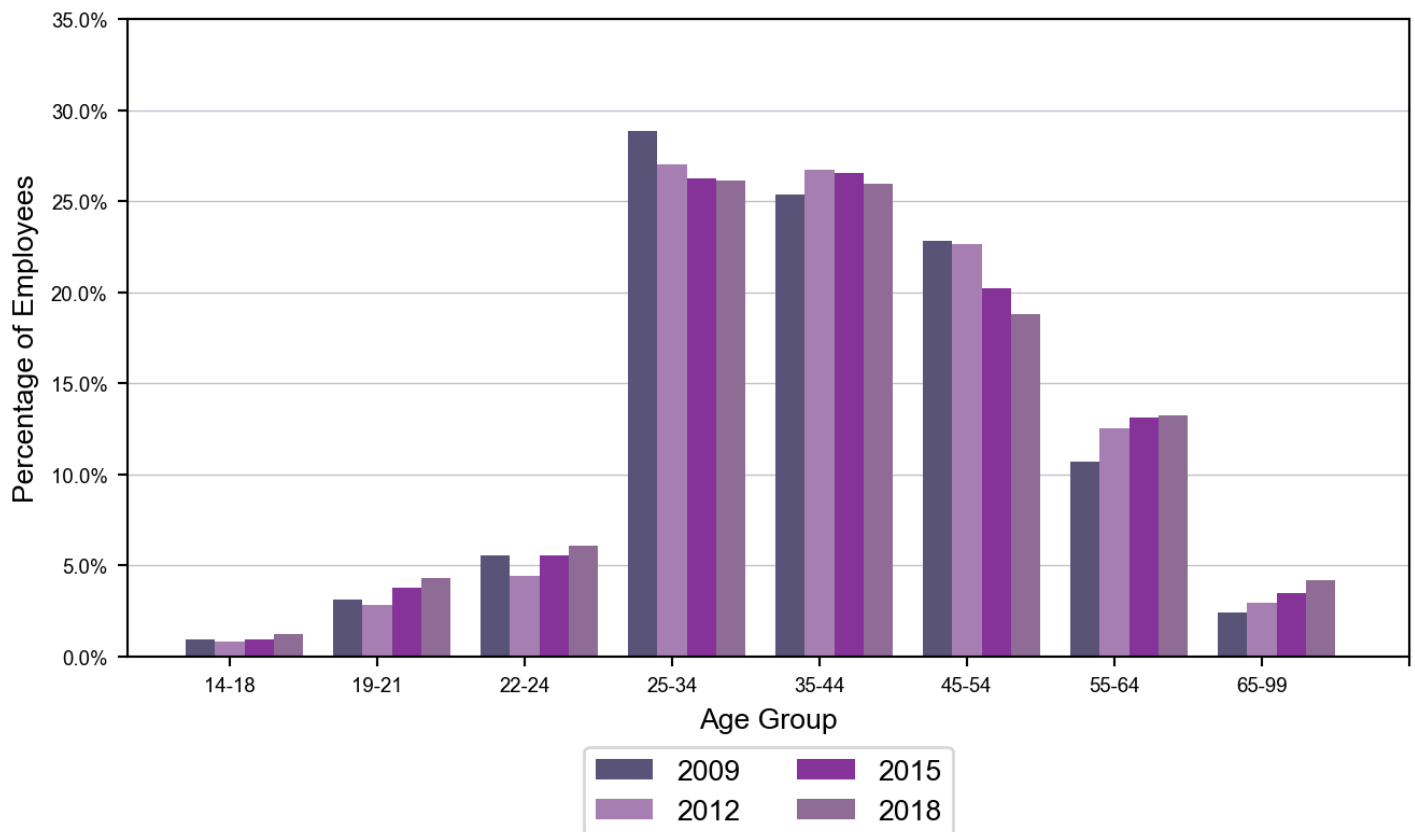


WORKFORCE AGE (CONTINUED)

Within building equipment contractors (MEP), the trend is again similar, though the percentage gain for younger workers is larger. The distribution over years for building equipment contractors (MEP) is shown in Figure 40. Workers aged 14-24 have increased in proportion from 10% to 12% over the years 2009-2018, while those aged

24-44 decreased from 54% to 52% and workers aged 45 and older stayed constant at 36% of the workforce over the same time period. However again the workforce is still aging: the weighted average age of building equipment contractors (MEP) over the last decade has increased from 40 years to 41 years.

Figure 40: Age distribution of building equipment (MEP) employees in Colorado, 2009-2018



PROJECTED FUTURE EMPLOYMENT

From 2018 to 2028, employment in Colorado's construction industry is expected to grow by 29%, an average of 2.6% growth per year. Employment growth for building equipment contractor (MEP) trades is projected to be up to 33% over the next decade.

Specialty trade contractor employment is expected to grow the most, adding 31,870 jobs across the state and increasing employment by 28% over that period. the largest percent growth is expected for building construction employment, 33% growth from 2018 to 2028 corresponding to 11,580 new jobs. Heavy and civil engineering construction is expected to add over 6,500 jobs, yielding 27% growth over the next ten years.

Data for industry employment growth is included in Table 6. Employment projections for individual construction occupations from 2018 to 2028 are in Appendix L. All construction crafts are expected to grow an average of 2% and 4% per year between 2018 and 2028, resulting in an overall change between 14% and 40%.

Five primary mechanical, electrical, and plumbing occupations are plumbers, pipefitters, and steamfitters; heating, air conditioning, and refrigeration mechanics and installers; electricians; welders, cutters, solderers, and brazers; and sheet metal workers.

Table 6: Projected future construction industry employment needs, 2018-2028

NAICS	INDUSTRY NAME	2018 EMPLOYMENT ¹	2028 ESTIMATED EMPLOYMENT	TOTAL EMPLOYMENT CHANGE 2018-2028	ANNUAL AVERAGE % CHANGE	TOTAL ANNUAL AVERAGE EMPLOYMENT CHANGE	TOTAL % CHANGE
23	Construction	173,009	223,060	50,051	2.6%	5,005	29%
236	Construction of Buildings	34,703	46,283	11,580	2.9%	1,158	33%
237	Heavy and Civil Engineering Construction	24,430	31,031	6,601	2.4%	660	27%
238	Specialty Trade Contractors	113,876	145,746	31,870	2.5%	3,187	28%

Notes

¹2018 employment numbers in this table are estimates from the Colorado Department of Labor and Employment and do not match data from the U.S. Bureau of Labor Statistics presented elsewhere.

All five of these building equipment contractor (MEP) occupations are in the top fifteen of all construction occupations in terms of absolute projected employment growth over 2018-2028:

- Electricians rank 3rd (5,185 new jobs, or 27% growth)
- Plumbers, pipefitters, and steamfitters rank 5th (3,592 new jobs, or 33% growth)
- Heating, air conditioning, and refrigeration mechanics and installers rank 7th (1,933 new jobs, or 33% growth)
- Welders, cutters, solderers, and brazers rank 12th (1,048 new jobs, or 19% growth)
- Sheet metal workers rank 13th (1,037 new jobs, or 28% growth)

The occupations with the highest percent employment growth projected over 2018-2028 are primarily oil and gas extraction workers: rotary drill operators (41%), roustabouts (37%), and extraction worker helpers (34%).

Four construction trades -- three of which are MEP trades -- also have some of the highest projected percentage growth: plumbers, pipefitters, and steamfitters (33%); heating, air conditioning, and refrigeration mechanics and installers (33%); reinforcing iron and rebar workers (30%), and pipelayers (30%). Several construction trade helpers were also in the top ten construction occupations with highest projected growth: carpenter helpers (30%); pipelayer plumber pipefitter and steamfitter helpers (37%); and roofer helpers (30%).

EARNINGS BY EDUCATIONAL ATTAINMENT



Education has consistently shown its value in the workplace. Nationwide and across all industries, average annual wages were \$55,619 in 2018. The average construction worker in Colorado earned \$62,414 annually in 2018, and the average building equipment contractor (MEP) earned \$60,395 annually. The average construction worker and building equipment contractor (MEP) in Colorado therefore earned more than the average of all individuals who have attained at least an Associate's

degree of any kind (\$48,238 average nationwide) and just less than those with at least a Bachelor's degree of any kind (\$71,155 average nationwide). The average earnings for building equipment contractors (MEP) in Colorado were also above the nationwide averages for all women, and the averages across all White, African-American, and Hispanic race and ethnicity categories. Average earnings for individuals with different levels of educational attainment are in Table 7.

Table 7: Average earnings by educational attainment level in the United States

CHARACTERISTIC	TOTAL	NOT A HIGH SCHOOL GRADUATE ¹	HIGH SCHOOL GRADUATE	SOME COLLEGE NO DEGREE	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	ADVANCED DEGREE ²
Total	55,619	27,483	38,936	39,945	48,238	71,155	120,613
Male	65,058	32,122	45,259	49,094	58,607	84,803	141,970
Female	45,136	19,490	30,103	30,301	39,079	57,551	95,606
White	56,743	27,960	40,561	41,012	49,131	73,115	120,401
African-American	42,382	25,380	31,675	35,398	43,909	54,959	95,199
Asian	71,116	25,417	34,610	38,090	47,099	72,857	138,422
Hispanic Origin (of any race)	40,613	28,021	35,105	35,584	42,413	59,364	104,664

Notes

¹Not a High School Graduate calculated by the average of Less Than 9th Grade & 9th to 12th Non-grad

²Advanced Degree calculated by average of Master's Degree, Professional Degree, and Doctorate Degree

CONSTRUCTION EDUCATION PROGRAMS

Across Colorado, there are 29 institutions that offer construction-related instructional programs as identified by the construction-related instructional program codes included in Appendix M. These program codes focus on mechanical, electrical, and plumbing programs.

The education programs offered by these schools are listed in Tables 8 and 9. The tables and corresponding figures are divided by geographical region: Figure 41 is a map of all institutions that offer construction related programs in Colorado. Table 8 lists the programs that are outside the Denver inset area. The map in Figure 42 and Table 9 show the construction related programs in the Denver area.

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

The programs in the following tables cluster in the general areas listed below.

There is an emphasis in these education programs on technology tools and digital design skills across construction, architecture, manufacturing and energy. There is also an emerging area of renewable energy technologies, including photovoltaic design.

- Architecture, Architectural Technology
- Building and Construction
- Building Technology
- Carpentry, Woodworking
- Civil Engineering
- Civil Engineering Technology
- Construction Estimating
- Construction Management
- Construction Technology
- Construction Trades (General)
- Drafting and Computer-Aided Design
- Electrician, Electrical Line Worker
- Energy Management
- Energy Technology
- Engineering Graphics Technology
- Metal Fabrication
- Plumbing and Pipefitting
- Refrigeration and HVAC
- Renewable Energy
- Surveying
- Welding



CONSTRUCTION EDUCATION PROGRAMS (CONTINUED)

Figure 41: Map of construction-related education programs in Colorado

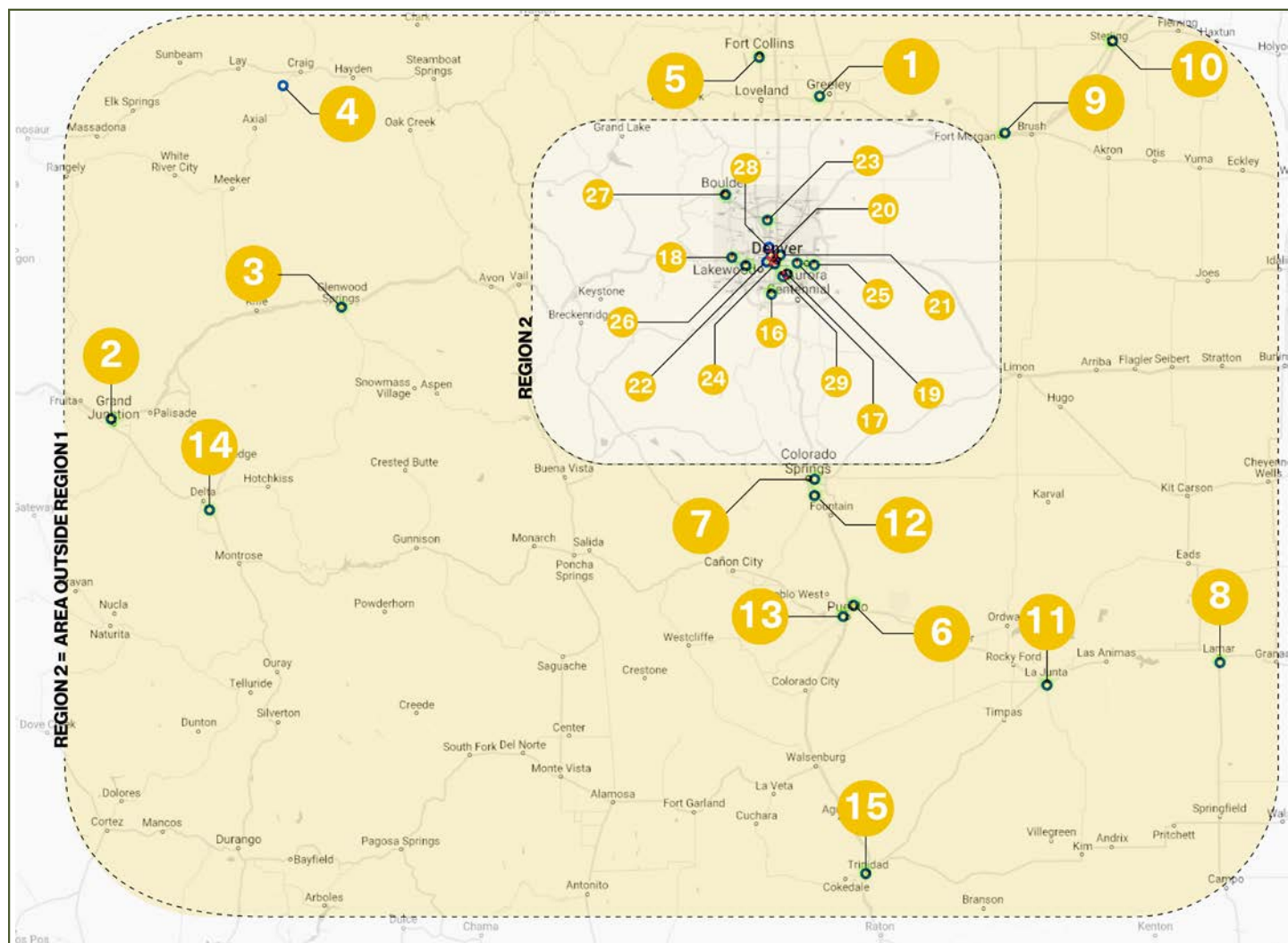


Table 8: Construction-related education programs as noted in Figure 41

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

Table 8 (Continued): Construction-related education programs as notated in Figure 41

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

CONSTRUCTION EDUCATION PROGRAMS (CONTINUED)

Table 8 (Continued): Construction-related education programs as notated in Figure 41

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

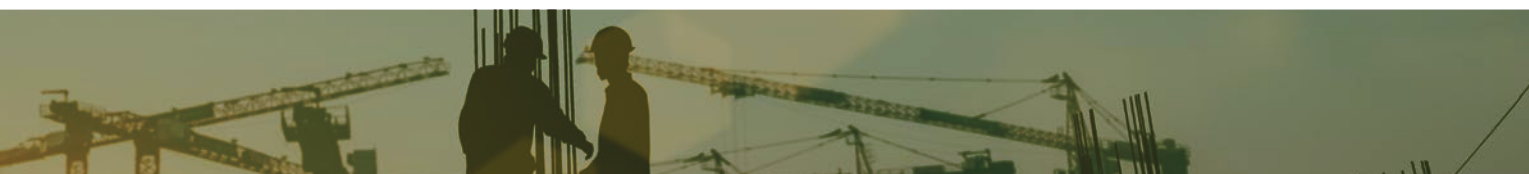


Figure 42: Inset map of construction-related education programs in Colorado

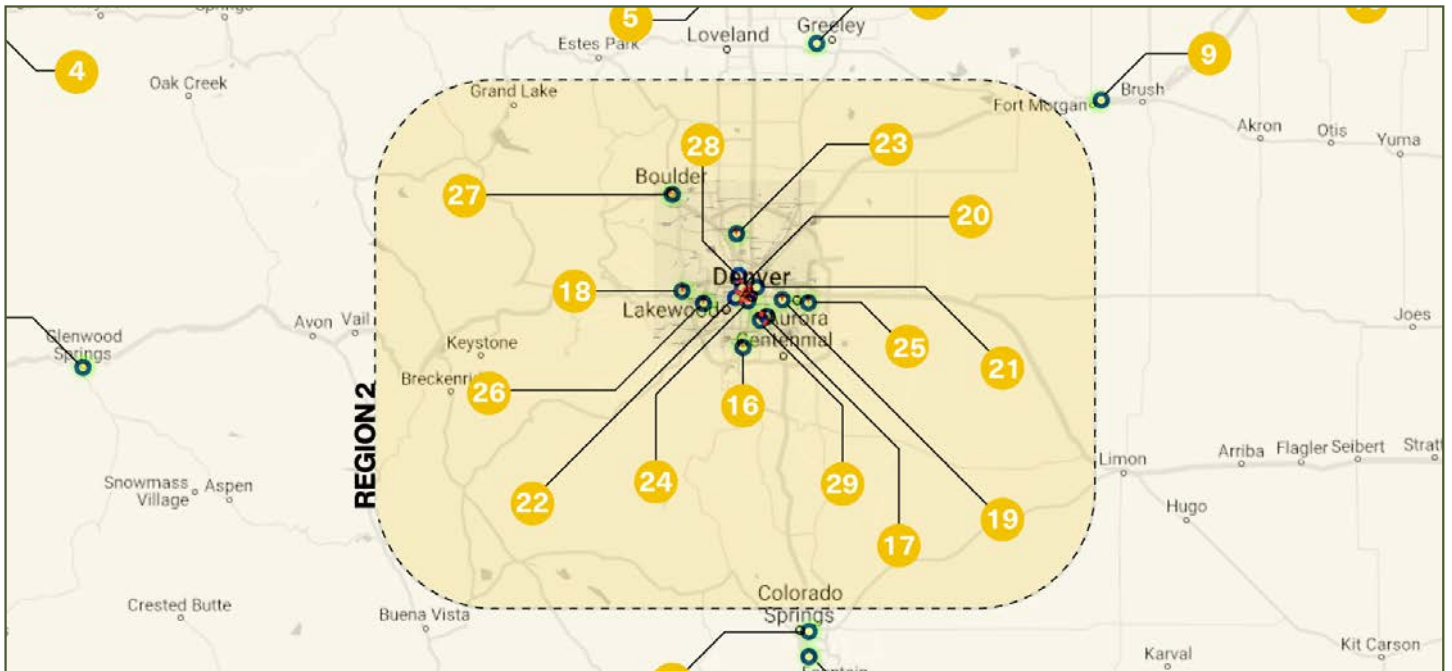


Table 9: Construction-related education programs as notated in Figure 42

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
16	Arapahoe Community College	Public	Architectural Engineering	Associate and Certificate
			Architectural Technology	Associate and Certificate
			Construction Estimating	Certificate
			Construction Management	Associate and Certificate
			Engineering Technologies	Certificate and Associate
			Advanced 3D Printing and 3D Scanning	Certificate
			Energy Technology	Certificate
			Engineering Graphics Technologies	Associate/Certificate
17	Aspen University	Private	Alternative Energy	Bachelor
18	Colorado School of Mines	Public	Civil & Environmental Engineering	Master and Doctorate
			Civil Engineering	Bachelor
			Engineering and Technology Management	Masters
19	Community College of Aurora	Public	Construction Estimating	Certificate
			Energy Technology	Certificate
20	Community College of Denver	Public	Architectural Studies/Technologies	Associate and Certificate
			Building Crafts	Certificate
			Building Technology	Certificate
			CAD and Drafting	Associate and Certificate
			Engineering Graphics Technologies	Associate and Certificate
			Welding and Welding Technology	Associate and Certificate
			Residential Energy Analyst	Certificate
			Sustainable Design	Certificate

CONSTRUCTION EDUCATION PROGRAMS (CONTINUED)

Table 9 (continued): Construction-related education programs as notated in Figure 42

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
21	Construction Industry Training Council (CITC)		Carpentry	Apprenticeship
			Electrical	Apprenticeship
			Masonry	Apprenticeship
			Pipefitting	Apprenticeship
			Plumbing	Apprenticeship
			Sheet Metal	Apprenticeship
22	Emily Griffith Technical College	Public	Carpenter	Apprenticeship/ Certificate
			Electrical Line Worker	Apprenticeship/ Certificate
			Inside Electrician	Apprenticeship/ Certificate
			Operating Engineer	Apprenticeship/ Certificate
			Pipe Fitter	Apprenticeship/ Certificate
			Plumber	Apprenticeship/ Certificate
			Building Trades Technology	Certificate
			Welding	Certificate
			Construction Trades	Certificate
			Drafting/ CAD	Certificate
			Refrigeration and HVAC Technician	Certificate
23	Front Range Community College	Public	Architectural & Construction Technology	Associate and Certificate
			Drafting, Architectural and CAD	Associate and Certificate
			Architectural and Building Science	Associate
			Building Construction Management	Associate
			Clean Energy Technology	Associate and Certificate
			Heating, Ventilation, Air Conditioning, and Refrigeration	Associate and Certificate
			Machining, Precision, Computer Aided, and Manual	Certificate
			Construction Fundamentals, Essentials	Certificate
			Electrical Fundamentals	Certificate
			Welding, Welding Technology	Associate and Certificate
			Plumbing Fundamentals	Certificate
			Engineering Graphics Technologies	Certificate
			Building Science and Sustainable Design	Certificate
			Manufacturing and Energy Technology	Certificate and Associate
			Power Technology	Associate

Table 9 (continued): Construction-related education programs as notated in Figure 42

KEY	INSTITUTION NAME	TYPE	PROGRAM NAME	PROGRAM TYPE
24	Metropolitan State University of Denver	Public	Civil Engineering Technology	Bachelor
			Construction Project Management	Bachelor
25	Pickens Technical College	Public	Carpentry	Certificate
			Drafting/Computer Aided Drafting	Certificate
			Electrician	Certificate
			Energy Technology	Certificate
			HVAC, HVAC Technology	Certificate
			Welding	Certificate
26	Red Rocks Community College	Public	Electrical/Electrician	Associate and Certificate
			Renewable Energy Technology/PV Design	Associate and Certificate
			Instrumentation and Control Systems Technology/Technician	Associate and Certificate
			Applied Science (Architectural)	Associate
			Building Efficiency	Certificate
			Building Maintenance	Certificate and Associate
			Carpentry/Woodworking	Certificate and Associate
			Construction Technology	Certificate and Associate
			Energy, Energy Auditing	Certificate
			Engineering Graphics Technology	Certificate and Associate
			HVAC	Certificate and Associate
			Construction Management	Certificate
			Plumbing	Certificate and Associate
			Welding & Fabrication	Associate and Certificate
27	University of Colorado Boulder	Public	Civil Engineering	Bachelor, Master, and Doctorate
28	University of Colorado Denver	Public	Architecture	Bachelor, Master, and Doctorate
			Civil Engineering	Bachelor, Master, and Doctorate
			Construction Engineering and Management	Bachelor, Certificate
			Construction Management	Bachelor, Minor
29	University of Denver	Private	Construction Management	Bachelor and Masters
			Real Estate and Construction Management	Certificate, Bachelor, and Master
			Technology Management	Certificate and Masters

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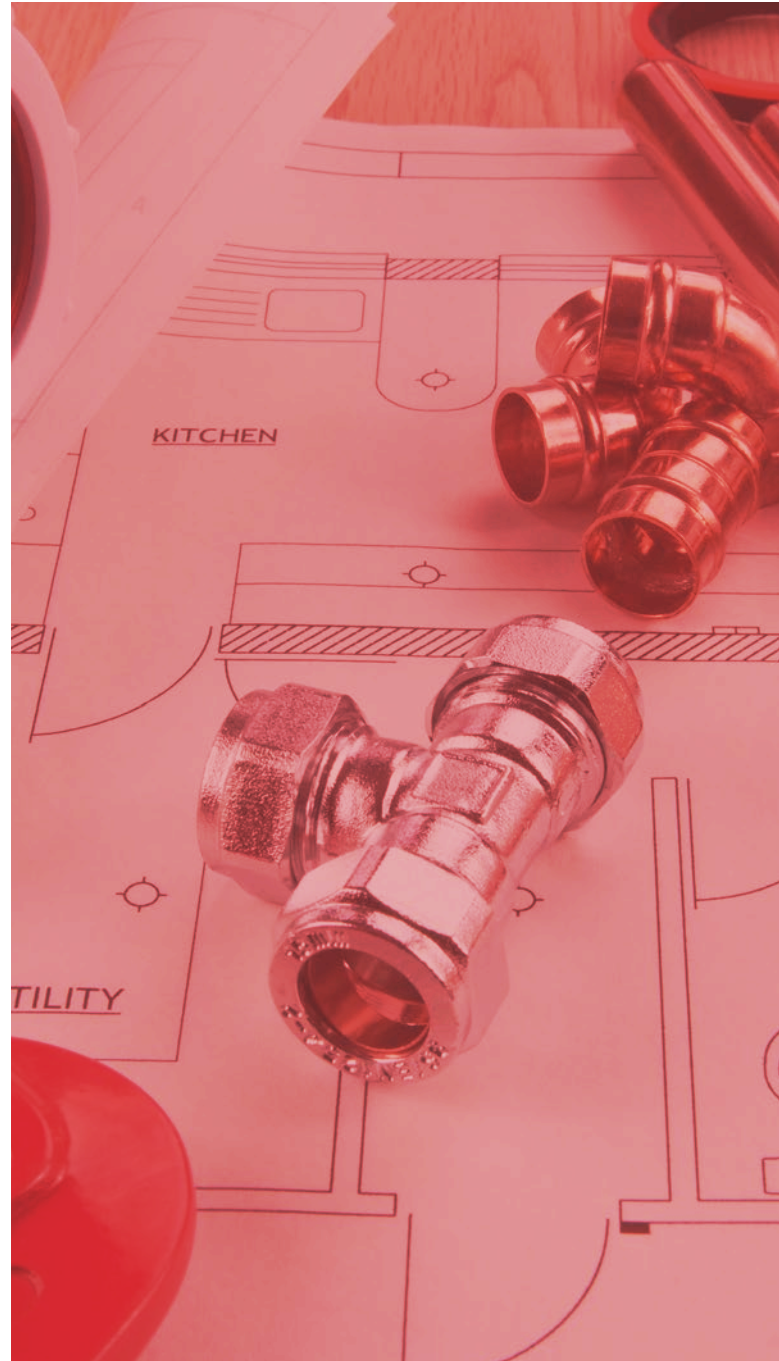
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APPENDIX A: CONSTRUCTION-RELATED INDUSTRY CODES

CONSTRUCTION INDUSTRIES

NAICS: 2017 NORTH AMERICAN INDUSTRY
CLASSIFICATION SYSTEM

NAICS	NAME
23	Construction
236	Construction of Buildings
2361	Residential Building Construction
2362	Nonresidential Building Construction
237	Heavy and Civil Engineering Construction
2371	Utility System Construction
2372	Land Subdivision
2373	Highway, Street, and Bridge Construction
2379	Other Heavy and Civil Engineering Construction
238	Specialty Trade Contractors
2381	Foundation, Structure, and Building Exterior Contractors
2382	Building equipment contractors (MEP)
2383	Building Finishing Contractors
2389	Other Specialty Trade Contractors
23821	Electrical Contractors and Other Wiring Installation Contractors
23822	Plumbing, Heating, and Air-Conditioning Contractors
23829	Other Building Equipment Contractors
238211	Residential Electrical Contractors and Other Wiring Installation Contractors
238212	Non-Residential Electrical Contractors and Other Wiring Installation Contractors
238221	Residential Plumbing, Heating, and Air-Conditioning Contractors
238222	Non-Residential Plumbing, Heating, and Air-Conditioning Contractors
238291	Other Residential Building Equipment Contractors
238292	Other Non-Residential Building Equipment Contractors

NAICS	NAME
23	<i>Construction</i>
31-33	<i>Manufacturing</i>
44-45	<i>Retail Trade</i>
52	<i>Finance and Insurance</i>
53	<i>Real Estate and Rental Leasing</i>
54	<i>Professional, Scientific, and Technical Services</i>
62	<i>Health Care and Social Assistance</i>

CONSTRUCTION-RELATED INDUSTRIES

NAICS	NAME
212321	<i>Construction Sand and Gravel Mining</i>
327120	<i>Clay Building Material and Refractories Manufacturing</i>
327310	<i>Cement Manufacturing</i>
327320	<i>Ready-Mix Concrete Manufacturing</i>
327331	<i>Concrete Block and Brick Manufacturing</i>
327332	<i>Concrete Pipe Manufacturing</i>
327390	<i>Other Concrete Product Manufacturing</i>
327410	<i>Lime Manufacturing</i>
327420	<i>Gypsum Product Manufacturing</i>
327999	<i>All Other Miscellaneous Nonmetallic Mineral Product Manufacturing</i>
423310	<i>Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers</i>
423320	<i>Brick, Stone, and Related Construction Material Merchant Wholesalers</i>
423330	<i>Roofing, Siding, and Insulation Material Merchant Wholesalers</i>

NAICS

423390	<i>Other Construction Material Merchant Wholesalers</i>
423710	<i>Hardware Merchant Wholesalers</i>
423720	<i>Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers</i>
423730	<i>Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers</i>
423740	<i>Refrigeration Equipment and Supplies Merchant Wholesalers</i>
444110	<i>Home Centers</i>
444130	<i>Hardware Stores</i>
444190	<i>Other Building Material Dealers</i>
532412	<i>Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing</i>
541310	<i>Architectural Services</i>
541320	<i>Landscape Architectural Services</i>
541330	<i>Engineering Services</i>
541340	<i>Drafting Services</i>
541360	<i>Geophysical Surveying and Mapping Services</i>
541370	<i>Surveying and Mapping (except Geophysical) Services</i>

APPENDIX B: CONSTRUCTION-RELATED OCCUPATIONS

CONSTRUCTION OCCUPATIONS

SOC: 2018 STANDARD
OCCUPATIONAL CLASSIFICATION

SOC	NAME
47-100	Supervisors of Construction and Extraction Workers
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers
47-2011	Boilermakers
47-2021	Brickmasons and Blockmasons
47-2022	Stonemasons
47-2031	Carpenters
47-2041	Carpet Installers
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles
47-2043	Floor Sanders and Finishers
47-2044	Tile and Marble Setters
47-2051	Cement Masons and Concrete Finishers
47-2061	Construction Laborers
47-2071	Paving, Surfacing, and Tamping Equipment Operators
47-2072	Pile-Driver Operators
47-2073	Operating Engineers and Other Construction Equipment Operators
47-2081	Drywall and Ceiling Tile Installers
47-2082	Tapers
47-2111	Electricians
47-2121	Glaziers
47-2131	Insulation Workers, Floor, Ceiling, and Wall

CONSTRUCTION OCCUPATIONS

SOC: 2018 STANDARD OCCUPATIONAL CLASSIFICATION

SOC	NAME
47-2132	Insulation Workers, Mechanical
47-2141	Painters, Construction and Maintenance
47-2142	Paperhangers
47-2151	Pipelayers
47-2152	Plumbers, Pipefitters, and Steamfitters
47-2161	Plasterers and Stucco Masons
47-2171	Reinforcing Iron and Rebar Workers
47-2181	Roofers
47-2211	Sheet Metal Workers
47-2221	Structural Iron and Steel Workers
47-2231	Solar Photovoltaic Installers
47-3011	Helpers—Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters
47-3012	Helpers—Carpenters
47-3013	Helpers—Electricians
47-3014	Helpers—Painters, Paperhangers, Plasterers, and Stucco Masons
47-3015	Helpers—Pipelayers, Plumbers, Pipefitters, and Steamfitters
47-3016	Helpers—Roofers
47-3019	Helpers, Construction Trades, All Other
47-4011	Construction and Building Inspectors
47-4021	Elevator Installers and Repairers
47-4031	Fence Erectors
47-4041	Hazardous Materials Removal Workers

CONSTRUCTION OCCUPATIONS

SOC: 2018 STANDARD
OCCUPATIONAL CLASSIFICATION

SOC	NAME
47-4051	Highway Maintenance Workers
47-4061	Rail-Track Laying and Maintenance Equipment Operators
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners
47-4091	Segmental Pavers
47-4099	Construction and Related Workers, All Other
47-5012	Rotary Drill Operators, Oil and Gas
47-5023	Earth Drillers, Except Oil and Gas
47-5071	Roustabouts, Oil and Gas
47-5081	Helpers—Extraction Workers
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers
51-4121	Welders, Cutters, Solderers, and Brazers

APPENDIX C: INDUSTRY CONTRIBUTION TO COLORADO GDP

ABSOLUTE AND PERCENTAGE CONTRIBUTION BY INDUSTRY TO COLORADO GDP, IN MILLIONS OF CURRENT-YEAR DOLLARS

Industry Name	2009		2010		2011		2012		2013	
	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP
PRIVATE INDUSTRIES										
Agriculture, forestry, fishing and hunting	2,041	0.8%	2,288	0.9%	2,801	1.1%	2,560	0.9%	2,663	0.9%
Mining, quarrying, and oil and gas extraction	10,666	4.3%	11,662	4.6%	13,310	5.0%	12,347	4.5%	13,642	4.7%
Utilities	3,298	1.3%	3,882	1.5%	3,979	1.5%	3,765	1.4%	3,717	1.3%
Construction	11,464	4.6%	9,331	3.7%	9,477	3.6%	10,083	3.7%	12,370	4.3%
Manufacturing	19,857	8.0%	20,171	7.9%	20,546	7.8%	20,771	7.6%	21,242	7.4%
Wholesale trade	13,471	5.4%	14,121	5.5%	14,690	5.6%	15,820	5.8%	16,710	5.8%
Retail trade	13,618	5.5%	13,978	5.5%	14,126	5.3%	14,810	5.4%	15,409	5.3%
Transportation and warehousing	6,560	2.6%	6,982	2.7%	6,925	2.6%	7,757	2.8%	9,987	3.5%
Information	18,611	7.5%	18,731	7.3%	18,739	7.1%	17,874	6.5%	19,264	6.7%
Finance and insurance	13,185	5.3%	13,152	5.2%	13,953	5.3%	15,595	5.7%	15,668	5.4%
Real estate and rental and leasing	34,162	13.7%	35,569	13.9%	37,688	14.3%	38,535	14.1%	39,849	13.8%
Professional, scientific, and technical services	22,712	9.1%	23,546	9.2%	24,483	9.3%	25,729	9.4%	27,058	9.4%
Management of companies and enterprises	4,637	1.9%	5,078	2.0%	5,347	2.0%	6,487	2.4%	5,963	2.1%
Administrative and support and waste management and remediation services	7,532	3.0%	7,753	3.0%	7,874	3.0%	8,461	3.1%	8,583	3.0%

ABSOLUTE AND PERCENTAGE CONTRIBUTION BY INDUSTRY TO COLORADO GDP, IN MILLIONS OF CURRENT-YEAR DOLLARS

2014		2015		2016		2017		2018		2009-2018
Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Percent change indexed to 2009
2,719	0.9%	2,759	0.9%	2,569	0.8%	2,301	0.7%	2,155	0.6%	-29.4%
16,592	5.4%	10,505	3.3%	8,466	2.6%	11,716	3.3%	14,232	3.8%	-10.8%
4,025	1.3%	4,051	1.3%	3,960	1.2%	3,955	1.1%	4,107	1.1%	-16.7%
14,728	4.8%	16,446	5.2%	18,065	5.5%	19,584	5.6%	21,197	5.7%	23.6%
22,294	7.3%	23,302	7.3%	22,893	7.0%	24,186	6.9%	25,751	6.9%	-13.3%
17,825	5.8%	18,753	5.9%	18,936	5.7%	19,871	5.7%	20,499	5.5%	1.8%
16,057	5.2%	17,168	5.4%	17,978	5.5%	18,523	5.3%	19,124	5.1%	-6.1%
11,151	3.6%	12,220	3.8%	12,405	3.8%	13,073	3.7%	14,394	3.9%	46.7%
19,312	6.3%	18,674	5.9%	19,025	5.8%	19,848	5.7%	20,176	5.4%	-27.5%
16,495	5.4%	17,596	5.5%	19,099	5.8%	19,874	5.7%	21,935	5.9%	11.3%
41,261	13.5%	44,876	14.1%	48,658	14.8%	52,268	14.9%	55,192	14.8%	8.0%
28,345	9.2%	29,747	9.3%	31,146	9.5%	32,866	9.4%	35,591	9.6%	4.8%
6,385	2.1%	6,884	2.2%	6,338	1.9%	7,701	2.2%	7,488	2.0%	8.0%
9,201	3.0%	9,588	3.0%	9,936	3.0%	10,739	3.1%	11,566	3.1%	2.7%

ABSOLUTE AND PERCENTAGE CONTRIBUTION BY INDUSTRY TO COLORADO GDP,
IN MILLIONS OF CURRENT-YEAR DOLLARS (CONTINUED)

	2009		2010		2011		2012		2013	
Industry Name	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP
<i>PRIVATE INDUSTRIES (CONTINUED)</i>										
Educational services	2,209	0.9%	2,407	0.9%	2,456	0.9%	2,602	1.0%	2,687	0.9%
Health care and social assistance	15,484	6.2%	16,049	6.3%	16,622	6.3%	17,374	6.4%	17,851	6.2%
Arts, entertainment, and recreation	2,818	1.1%	2,973	1.2%	3,125	1.2%	3,224	1.2%	4,126	1.4%
Accommodation and food services	7,586	3.1%	7,773	3.0%	8,212	3.1%	8,806	3.2%	9,388	3.3%
Other services (except government and government enterprises)	5,815	2.3%	5,799	2.3%	5,905	2.2%	6,238	2.3%	6,486	2.2%
Private Industry (total)	215,726	86.8%	221,241	86.7%	230,258	87.1%	238,838	87.3%	252,662	87.6%
GOVERNMENT										
Government and government enterprises	32,868	13.2%	33,899	13.3%	34,174	12.9%	34,682	12.7%	35,644	12.4%
All Industry (total)	248,594	100.0%	255,141	100.0%	264,432	100.0%	273,520	100.0%	288,305	100.0%



2014		2015		2016		2017		2018		2009-2018	
Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Absolute GDP	% of Total GDP	Percent change indexed to 2009	
2,822	0.9%	2,908	0.9%	3,067	0.9%	3,078	0.9%	3,219	0.9%	-2.5%	
18,772	6.1%	20,131	6.3%	21,469	6.5%	22,325	6.4%	23,434	6.3%	1.2%	
4,761	1.6%	5,329	1.7%	5,734	1.7%	5,846	1.7%	6,254	1.7%	48.4%	
9,673	3.2%	10,740	3.4%	11,247	3.4%	12,017	3.4%	12,836	3.5%	13.1%	
6,918	2.3%	7319	2.3%	7,610	2.3%	7,889	2.3%	8,379	2.3%	-3.6%	
269,336	87.9%	278,996	87.6%	288,599	87.6%	307,657	87.9%	327,529	88.1%	1.5%	
37,235	12.1%	39,559	12.4%	40,770	12.4%	42,347	12.1%	44,220	11.9%	-10.0%	
306,571	100.0%	318,555	100.0%	329,368	100.0%	350,004	100.0%	371,750	100.0%	0.0%	

APPENDIX D: INDUSTRY CONTRIBUTION TO COLORADO GDP, PERCENT CHANGE OVER YEAR

OVER YEAR CHANGE IN CONTRIBUTION TO COLORADO GDP, IN MILLIONS OF CURRENT-YEAR DOLLARS

Industry Name	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	Average 2012-2017	2017-2018
PRIVATE INDUSTRIES										
Agriculture, forestry, fishing and hunting	12.1%	22.4%	-8.6%	4.0%	2.1%	1.5%	-6.9%	-10.4%	-1.9%	-6.4%
Mining, quarrying, and oil and gas extraction	9.3%	14.1%	-7.2%	10.5%	21.6%	-36.7%	-19.4%	38.4%	2.9%	21.5%
Utilities	17.7%	2.5%	-5.4%	-1.3%	8.3%	0.6%	-2.2%	-0.1%	1.1%	3.9%
Construction	-18.6%	1.6%	6.4%	22.7%	19.1%	11.7%	9.8%	8.4%	14.3%	8.2%
Manufacturing	1.6%	1.9%	1.1%	2.3%	5.0%	4.5%	-1.8%	5.6%	3.1%	6.5%
Wholesale trade	4.8%	4.0%	7.7%	5.6%	6.7%	5.2%	1.0%	4.9%	4.7%	3.2%
Retail trade	2.6%	1.1%	4.8%	4.0%	4.2%	6.9%	4.7%	3.0%	4.6%	3.2%
Transportation and warehousing	6.4%	-0.8%	12.0%	28.7%	11.7%	9.6%	1.5%	5.4%	11.4%	10.1%
Information	0.6%	0.0%	-4.6%	7.8%	0.3%	-3.3%	1.9%	4.3%	2.2%	1.7%
Finance and insurance	-0.3%	6.1%	11.8%	0.5%	5.3%	6.7%	8.5%	4.1%	5.0%	10.4%
Real estate and rental and leasing	4.1%	6.0%	2.2%	3.4%	3.5%	8.8%	8.4%	7.4%	6.3%	5.6%
Professional, scientific, and technical services	3.7%	4.0%	5.1%	5.2%	4.8%	4.9%	4.7%	5.5%	5.0%	8.3%
Management of companies and enterprises	9.5%	5.3%	21.3%	-8.1%	7.1%	7.8%	-7.9%	21.5%	4.1%	-2.8%
Administrative and support and waste management and remediation services	2.9%	1.6%	7.4%	1.4%	7.2%	4.2%	3.6%	8.1%	4.9%	7.7%

OVER YEAR CHANGE IN CONTRIBUTION TO COLORADO GDP,
IN MILLIONS OF CURRENT-YEAR DOLLARS

Industry Name	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	Average 2012-2017	2017- 2018
PRIVATE INDUSTRIES (CONTINUED)										
Educational services	9.0%	2.1%	6.0%	3.3%	5.0%	3.1%	5.5%	0.4%	3.5%	4.6%
Health care and social assistance	3.6%	3.6%	4.5%	2.7%	5.2%	7.2%	6.6%	4.0%	5.1%	5.0%
Arts, entertainment, and recreation	5.5%	5.1%	3.2%	28.0%	15.4%	11.9%	7.6%	2.0%	13.0%	7.0%
Accommodation and food services	2.5%	5.7%	7.2%	6.6%	3.0%	11.0%	4.7%	6.8%	6.4%	6.8%
Other services (except government and government enterprises)	-0.3%	1.8%	5.6%	4.0%	6.6%	5.8%	4.0%	3.7%	4.8%	6.2%
Private Industry (total)	2.6%	3.6%	3.4%	5.4%	6.3%	3.9%	3.4%	6.3%	5.1%	6.2%
GOVERNMENT										
Government and government enterprises	3.1%	0.8%	1.5%	2.8%	4.5%	6.2%	3.1%	3.9%	4.1%	4.4%
All Industry (total)	2.6%	4.1%	3.7%	5.8%	6.6%	3.6%	3.4%	6.6%	5.2%	6.5%

NUMBER OF PRIVATE CONSTRUCTION ESTABLISHMENTS IN COLORADO

NAICS	Industry Name	YEAR											
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		
2361	Residential Building Construction	4,499	4,030	3,674	3,526	3,471	3,522	3,731	3,920	4,141	4,326		
2362	Non-Residential Building Construction	1,073	1,033	989	991	983	996	1,015	1,040	1,090	1,136		
236	Building Construction (Total)	5,572	5,062	4,663	4,517	4,454	4,518	4,746	4,960	5,231	5,461		
2371	Utility System Construction	577	562	542	542	550	561	578	573	574	563		
2372	Land Subdivision	251	208	170	153	137	132	128	126	117	119		
2373	Highway, Street, and Bridge Construction	218	211	205	216	210	209	220	221	220	222		
2379	Other Heavy and Civil Engineering Construction	101	96	102	107	117	117	113	112	116	119		
237	Heavy and Civil Engineering Construction (Total)	1,146	1,076	1,018	1,017	1,013	1,019	1,039	1,031	1,026	1,023		
2381	Foundation, Structure, and Building Exterior Contractors	2,865	2,646	2,421	2,326	2,274	2,330	2,500	2,640	2,789	2,911		
2382	Building Equipment Contractors (MEP)	4,874	4,638	4,402	4,304	4,248	4,291	4,476	4,590	4,746	4,847		
2383	Building Finishing Contractors	3,857	3,557	3,259	3,055	2,969	3,011	3,213	3,357	3,502	3,649		
2389	Other Specialty Trade Contractors	2,170	1,963	1,806	1,753	1,710	1,744	1,796	1,862	1,950	1,994		
238	Specialty Trade Contractors (Total)	13,766	12,804	11,887	11,439	11,200	11,376	11,985	12,448	12,987	13,400		
23	Construction	20,484	18,943	17,569	16,973	16,667	16,913	17,769	18,440	19,243	19,884		

NUMBER OF PRIVATE MECHANICAL, ELECTRICAL, AND PLUMBING ESTABLISHMENTS IN COLORADO

		YEAR										
NAICS	Industry Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
238211	Residential Electrical and Other Wiring Installation Contractors	1,488	1,416	1,305	1,256	1,230	1,236	1,287	1,343	1,382	1,420	
238212	Non-Residential Electrical and Other Wiring Installation Contractors	802	782	747	730	723	716	739	749	759	758	
23821	Electrical and Other Wiring Installation Contractors	2,291	2,198	2,052	1,986	1,953	1,953	2,026	2,092	2,141	2,178	
238221	Residential Plumbing Heating, and Air Conditioning Contractors	1,880	1,764	1,691	1,674	1,656	1,682	1,783	1,832	1,935	2,002	
238222	Non-Residential Plumbing, Heating, and Air Conditioning Contractors	534	515	499	488	481	489	494	491	489	487	
23822	Plumbing, Heating, and Air Conditioning Contractors	2,415	2,279	2,190	2,161	2,137	2,172	2,276	2,323	2,424	2,488	
238291	Other Residential Building Equipment Contractors	39	33	37	36	38	44	46	45	47	47	
238292	Other Non-Residential Building Equipment Contractors	130	128	123	122	121	124	128	130	135	134	
23829	Other Building Equipment Contractors	169	161	160	158	159	167	174	175	182	181	
2382	Building Equipment Contractors (MEP)	4,874	4,638	4,402	4,304	4,248	4,291	4,476	4,590	4,746	4,847	

APPENDIX F: NUMBER OF ESTABLISHMENTS BY NUMBER OF EMPLOYEES

NUMBER OF PRIVATE CONSTRUCTION ESTABLISHMENTS BY NUMBER OF EMPLOYEES, DATA FOR 2017

NAICS	Industry Name	NUMBER OF EMPLOYEES										All establishments
		1-4	5-9	10-19	20-49	50-99	100+	100-249	250-499	500-999	1000+	
2361	Residential Building Construction	3,522	406	171	76	27	10	10	0	0	0	4,214
2362	Non-Residential Building Construction	456	149	110	77	28	22	19	0	3	0	845
236	Building Construction (Total)	3,978	555	281	153	55	32	29	0	3	0	5,059
2371	Utility System Construction	227	85	78	69	34	25	17	8	0	0	521
2372	Land Subdivision	97	15	3	0	0	0	0	0	0	0	116
2373	Highway, Street, and Bridge Construction	76	34	27	38	26	17	13	4	0	0	219
2379	Other Heavy and Civil Engineering Construction	37	9	14	5	0	3	3	0	0	0	70
237	Heavy and Civil Engineering Construction (Total)	437	143	122	112	60	45	33	12	0	0	926
2381	Foundation, Structure, and Building Exterior Contractors	1,934	423	277	219	57	20	20	0	0	0	2,933
2382	Building Equipment Contractors (MEP)	2,867	736	441	282	89	61	48	13	0	0	4,479
2383	Building Finishing Contractors	2,607	412	249	115	37	19	19	0	0	0	3,441
2389	Other Specialty Trade Contractors	1,040	291	191	153	21	17	13	4	0	0	1,714
238	Specialty Trade Contractors (Total)	8,448	1,862	1,158	769	204	117	100	17	0	0	12,567
23	Construction	12,863	2,560	1,561	1,035	321	212	162	36	9	5	18,552

PERCENTAGE OF PRIVATE CONSTRUCTION ESTABLISHMENTS BY NUMBER OF EMPLOYEES, DATA FOR 2017

NUMBER OF EMPLOYEES												
NAICS	Industry Name	1-4	5-9	10-19	20-49	50-99	100+	100-249	250-499	500-999	1000+	All estab- lishments
2361	Residential Building Construction	83.6%	9.6%	4.1%	1.8%	0.6%	0.2%	0.2%	0.0%	0.0%	0.0%	4,214
2362	Non-Residential Building Construction	54.0%	17.6%	13.0%	9.1%	3.3%	2.6%	2.2%	0.0%	0.4%	0.0%	845
236	Building Construction (Total)	78.6%	11.0%	5.6%	3.0%	1.1%	0.6%	0.6%	0.0%	0.1%	0.0%	5,059
2371	Utility System Construction	43.6%	16.3%	15.0%	13.2%	6.5%	4.8%	3.3%	1.5%	0.0%	0.0%	521
2372	Land Subdivision	83.6%	12.9%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	116
2373	Highway, Street, and Bridge Construction	34.7%	15.5%	12.3%	17.4%	11.9%	7.8%	5.9%	1.8%	0.0%	0.0%	219
2379	Other Heavy and Civil Engineering Construction	52.9%	12.9%	20.0%	7.1%	0.0%	4.3%	4.3%	0.0%	0.0%	0.0%	70
237	Heavy and Civil Engineering Construction (Total)	47.2%	15.4%	13.2%	12.1%	6.5%	4.9%	3.6%	1.3%	0.0%	0.0%	926
2381	Foundation, Structure, and Building Exterior Contractors	65.9%	14.4%	9.4%	7.5%	1.9%	0.7%	0.7%	0.0%	0.0%	0.0%	2,933
2382	Building Equipment Contractors (MEP)	64.0%	16.4%	9.8%	6.3%	2.0%	1.4%	1.1%	0.3%	0.0%	0.0%	4,479
2383	Building Finishing Contractors	75.8%	12.0%	7.2%	3.3%	1.1%	0.6%	0.6%	0.0%	0.0%	0.0%	3,441
2389	Other Specialty Trade Contractors	60.7%	17.0%	11.1%	8.9%	1.2%	1.0%	0.8%	0.2%	0.0%	0.0%	1,714
238	Specialty Trade Contractors (Total)	67.2%	14.8%	9.2%	6.1%	1.6%	0.9%	0.8%	0.1%	0.0%	0.0%	12,567
23	Construction	69.3%	13.8%	8.4%	5.6%	1.7%	1.1%	0.9%	0.2%	0.0%	0.0%	18,552

APPENDIX G: AVERAGE NUMBER OF EMPLOYEES

ANNUAL AVERAGE NUMBER OF CONSTRUCTION EMPLOYEES IN COLORADO (PRIVATE INDUSTRY)

NUMBER OF EMPLOYEES		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
NAICS	Industry Name										
2361	Residential Building Construction	11,846	10,257	9,648	10,078	11,543	12,963	14,044	15,321	16,531	17,705
2362	Non-Residential Building Construction	12,644	10,919	10,758	10,670	11,789	13,471	14,026	14,715	15,727	17,009
236	Construction of Buildings	24,489	21,176	20,405	20,748	23,332	26,434	28,070	30,036	32,258	34,714
2371	Utility System Construction	9,502	8,738	9,691	9,417	11,240	12,994	12,619	11,770	11,783	13,836
2372	Land Subdivision	868	683	621	584	558	578	554	505	494	671
2373	Highway, Street, and Bridge Construction	6,085	6,137	5,926	6,147	6,603	7,256	7,419	7,292	7,817	8,000
2379	Other Heavy and Civil Engineering Construction	2,123	1,473	1,620	1,754	2,219	2,022	2,229	1,936	1,885	1,962
237	Heavy and Civil Engineering Construction (Total)	18,578	17,031	17,858	17,901	20,621	22,850	22,820	21,503	21,979	24,469
2381	Foundation, Structure, and Building Exterior Contractors	18,948	16,399	15,357	16,195	17,750	19,591	20,979	22,417	23,679	24,259
2382	Building Equipment Contractors (MEP)	37,237	32,604	32,165	33,540	36,256	40,369	42,756	45,004	47,597	50,365
2383	Building Finishing Contractors	17,940	15,489	14,256	14,901	15,920	17,491	18,146	19,461	20,535	21,184
2389	Other Specialty Trade Contractors	13,811	12,410	12,201	12,469	13,725	15,399	15,833	16,726	17,424	18,106
238	Specialty Trade Contractors (Total)	87,936	76,903	73,979	77,105	83,651	92,850	97,714	103,609	109,235	113,914
23	Construction	131,003	115,110	112,242	115,754	127,604	142,134	148,604	155,148	163,473	173,096

ANNUAL AVERAGE NUMBER OF MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACTOR EMPLOYEES IN COLORADO (PRIVATE INDUSTRY)

		NUMBER OF EMPLOYEES										
NAICS	Industry Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
238211	Residential Electrical and Other Wiring Contractors	6,694	5,856	5,556	5,801	6,135	6,888	7,370	8,053	8,452	8,949	
238212	Non-Residential Electrical and Other Wiring Contractors	10,842	9,767	9,806	9,966	10,708	11,960	12,839	13,221	13,489	14,041	
23821	Electrical and Other Wiring Contractors	17,536	15,623	15,362	15,767	16,843	18,848	20,209	21,274	21,941	22,989	
238221	Residential Plumbing, Heating, and Air Conditioning Contractors	8,888	8,005	7,854	8,400	9,352	10,192	10,793	11,566	12,578	13,377	
238222	Non-Residential Plumbing, Heating, and Air Conditioning Contractors	9,142	7,559	7,459	7,843	8,515	9,540	9,878	10,361	11,107	11,752	
23822	Plumbing, Heating, and Air Conditioning Contractors	18,031	15,565	15,313	16,243	17,867	19,732	20,671	21,927	23,685	25,129	
238291	Other Residential Building Equipment Contractors	130	77	148	125	120	140	97	96	94	115	
238292	Other Non-Residential Building Equipment Contractors	1,540	1,340	1,342	1,406	1,426	1,649	1,779	1,708	1,877	2,132	
23829	Other Building Equipment Contractors	1,670	1,417	1,490	1,531	1,546	1,790	1,876	1,804	1,971	2,247	
2382	Building Equipment Contractors (MEP)	37,237	32,604	32,165	33,540	36,256	40,369	42,756	45,004	47,597	50,365	

AVERAGE ANNUAL WAGES FOR CONSTRUCTION EMPLOYEES IN COLORADO (PRIVATE INDUSTRY)

NAICS	Industry Name	NUMBER OF EMPLOYEES									
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
2361	Residential Building Construction	\$47,473	\$45,732	\$46,602	\$49,413	\$51,176	\$54,349	\$58,094	\$60,385	\$63,655	\$67,441
2362	Non-Residential Building Construction	\$66,877	\$66,969	\$67,314	\$67,827	\$66,541	\$69,034	\$70,591	\$73,339	\$76,432	\$81,100
236	Construction of Buildings	\$57,491	\$56,682	\$57,522	\$58,883	\$58,940	\$61,833	\$64,338	\$66,731	\$69,885	\$74,134
2371	Utility System Construction	\$58,369	\$57,906	\$59,969	\$62,007	\$62,666	\$64,873	\$64,549	\$66,317	\$69,194	\$72,369
2372	Land Subdivision	\$74,457	\$84,384	\$80,031	\$86,977	\$89,655	\$97,264	\$112,334	\$116,817	\$130,816	\$116,652
2373	Highway, Street, and Bridge Construction	\$54,123	\$54,323	\$54,781	\$56,352	\$57,704	\$60,551	\$63,061	\$65,937	\$68,641	\$71,273
2379	Other Heavy and Civil Engineering Construction	\$64,573	\$53,045	\$57,618	\$58,999	\$61,462	\$60,724	\$66,419	\$67,403	\$69,567	\$69,992
237	Heavy and Civil Engineering Construction (Total)	\$58,439	\$57,257	\$58,731	\$60,585	\$61,678	\$63,953	\$65,407	\$67,473	\$70,414	\$73,034
2381	Foundation, Structure, and Building Exterior Contractors	\$39,098	\$38,806	\$39,166	\$40,549	\$41,505	\$44,468	\$46,399	\$49,205	\$51,521	\$54,236
2382	Building Equipment Contractors (MEP)	\$49,605	\$50,414	\$51,204	\$51,995	\$52,135	\$54,199	\$55,631	\$57,289	\$58,070	\$60,395
2383	Building Finishing Contractors	\$35,877	\$35,480	\$36,025	\$37,755	\$39,323	\$42,095	\$44,110	\$46,168	\$48,399	\$50,664
2389	Other Specialty Trade Contractors	\$39,086	\$40,309	\$40,986	\$42,972	\$44,770	\$47,848	\$48,870	\$51,525	\$53,818	\$55,910
238	Specialty Trade Contractors (Total)	\$42,888	\$43,300	\$44,095	\$45,380	\$46,233	\$48,813	\$50,414	\$52,521	\$54,154	\$56,561
23	Construction	\$47,824	\$47,827	\$48,865	\$50,151	\$51,052	\$53,668	\$55,347	\$57,344	\$59,444	\$62,414

AVERAGE ANNUAL WAGES FOR MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACTOR EMPLOYEES IN COLORADO (PRIVATE INDUSTRY)

		NUMBER OF EMPLOYEES										
NAICS	Industry Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
238211	Residential Electrical and Other Wiring Contractors	\$42,797	\$43,337	\$45,731	\$45,630	\$45,209	\$45,890	\$48,300	\$49,516	\$49,550	\$52,509	
238212	Non-Residential Electrical and Other Wiring Contractors	\$54,508	\$55,128	\$55,462	\$57,077	\$57,134	\$59,129	\$60,340	\$61,683	\$62,470	\$64,563	
23821	Electrical and Other Wiring Contractors	\$50,037	\$50,708	\$51,942	\$52,866	\$52,790	\$54,291	\$55,949	\$57,077	\$57,493	\$59,871	
238221	Residential Plumbing, Heating, and Air Conditioning Contractors	\$41,360	\$41,674	\$42,250	\$43,653	\$43,537	\$45,224	\$47,035	\$49,107	\$50,376	\$53,069	
238222	Non-Residential Plumbing, Heating, and Air Conditioning Contractors	\$54,542	\$56,061	\$56,276	\$56,762	\$57,399	\$60,480	\$61,318	\$63,873	\$64,647	\$66,627	
23822	Plumbing, Heating, and Air Conditioning Contractors	\$48,044	\$48,662	\$49,082	\$49,982	\$50,143	\$52,600	\$53,861	\$56,084	\$57,068	\$59,409	
238291	Other Residential Building Equipment Contractors	\$33,902	\$40,160	\$42,684	\$46,354	\$45,404	\$42,700	\$41,394	\$39,950	\$45,946	\$44,139	
238292	Other Non-Residential Building Equipment Contractors	\$64,299	\$67,933	\$67,905	\$65,977	\$69,919	\$73,269	\$73,379	\$76,384	\$78,076	\$78,531	
23829	Other Building Equipment Contractors	\$61,930	\$66,429	\$65,400	\$64,381	\$68,018	\$70,871	\$71,725	\$74,437	\$76,539	\$76,771	
2382	Building Equipment Contractors (MEP)	\$49,605	\$50,414	\$51,204	\$51,995	\$52,135	\$54,199	\$55,631	\$57,289	\$58,070	\$60,395	

AVERAGE WEEKLY WAGES FOR CONSTRUCTION EMPLOYEES IN COLORADO (PRIVATE INDUSTRY)

NAICS	Industry Name	NUMBER OF EMPLOYEES									
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
2361	Residential Building Construction	\$913	\$879	\$896	\$950	\$984	\$1,045	\$1,117	\$1,161	\$1,224	\$1,297
2362	Non-Residential Building Construction	\$1,286	\$1,288	\$1,295	\$1,304	\$1,280	\$1,328	\$1,358	\$1,410	\$1,470	\$1,560
236	Construction of Buildings	\$1,106	\$1,090	\$1,106	\$1,132	\$1,133	\$1,189	\$1,237	\$1,283	\$1,344	\$1,426
2371	Utility System Construction	\$1,122	\$1,114	\$1,153	\$1,192	\$1,205	\$1,248	\$1,241	\$1,275	\$1,331	\$1,392
2372	Land Subdivision	\$1,432	\$1,623	\$1,539	\$1,673	\$1,724	\$1,870	\$2,160	\$2,246	\$2,516	\$2,243
2373	Highway, Street, and Bridge Construction	\$1,041	\$1,045	\$1,053	\$1,084	\$1,110	\$1,164	\$1,213	\$1,268	\$1,320	\$1,371
2379	Other Heavy and Civil Engineering Construction	\$1,242	\$1,020	\$1,108	\$1,135	\$1,182	\$1,168	\$1,277	\$1,296	\$1,338	\$1,346
237	Heavy and Civil Engineering Construction (Total)	\$1,124	\$1,101	\$1,129	\$1,165	\$1,186	\$1,230	\$1,258	\$1,298	\$1,354	\$1,404
2381	Foundation, Structure, and Building Exterior Contractors	\$752	\$746	\$753	\$780	\$798	\$855	\$892	\$946	\$991	\$1,043
2382	Building Equipment Contractors (MEP)	\$954	\$970	\$985	\$1,000	\$1,003	\$1,042	\$1,070	\$1,102	\$1,117	\$1,161
2383	Building Finishing Contractors	\$690	\$682	\$693	\$726	\$756	\$810	\$848	\$888	\$931	\$974
2389	Other Specialty Trade Contractors	\$752	\$775	\$788	\$826	\$861	\$920	\$940	\$991	\$1,035	\$1,075
238	Specialty Trade Contractors (Total)	\$825	\$833	\$848	\$873	\$889	\$939	\$970	\$1,010	\$1,041	\$1,088
23	Construction	\$920	\$920	\$940	\$964	\$982	\$1,032	\$1,064	\$1,103	\$1,143	\$1,200

AVERAGE WEEKLY WAGES FOR CONSTRUCTION EMPLOYEES IN COLORADO (PRIVATE INDUSTRY)

		NUMBER OF EMPLOYEES										
NAICS	Industry Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
238211	Residential Electrical and Other Wiring Contractors	\$823	\$833	\$879	\$878	\$869	\$883	\$929	\$952	\$953	\$1,010	
238212	Non-Residential Electrical and Other Wiring Contractors	\$1,048	\$1,060	\$1,067	\$1,098	\$1,099	\$1,137	\$1,160	\$1,186	\$1,201	\$1,242	
23821	Electrical and Other Wiring Contractors	\$962	\$975	\$999	\$1,017	\$1,015	\$1,044	\$1,076	\$1,098	\$1,106	\$1,151	
238221	Residential Plumbing, Heating, and Air Conditioning Contractors	\$795	\$801	\$813	\$839	\$837	\$870	\$905	\$944	\$969	\$1,021	
238222	Non-Residential Plumbing, Heating, and Air Conditioning Contractors	\$1,049	\$1,078	\$1,082	\$1,092	\$1,104	\$1,163	\$1,179	\$1,228	\$1,243	\$1,281	
23822	Plumbing, Heating, and Air Conditioning Contractors	\$924	\$936	\$944	\$961	\$964	\$1,012	\$1,036	\$1,079	\$1,097	\$1,142	
238291	Other Residential Building Equipment Contractors	\$652	\$772	\$821	\$891	\$873	\$821	\$796	\$768	\$884	\$849	
238292	Other Non-Residential Building Equipment Contractors	\$1,237	\$1,306	\$1,306	\$1,269	\$1,345	\$1,409	\$1,411	\$1,469	\$1,501	\$1,510	
23829	Other Building Equipment Contractors	\$1,191	\$1,277	\$1,258	\$1,238	\$1,308	\$1,363	\$1,379	\$1,431	\$1,472	\$1,476	
2382	Building Equipment Contractors (MEP)	\$954	\$970	\$985	\$1,000	\$1,003	\$1,042	\$1,070	\$1,102	\$1,117	\$1,161	

AVERAGE ANNUAL PAYROLL FOR PRIVATE CONSTRUCTION INDUSTRY IN COLORADO (IN MILLIONS OF DOLLARS)

APPENDIX J: AVERAGE ANNUAL PAYROLL

		NUMBER OF EMPLOYEES										
NAICS	Industry Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
2361	Residential Building Construction	\$562	\$469	\$450	\$498	\$591	\$705	\$816	\$925	\$1,052	\$1,194	
2362	Non-Residential Building Construction	\$846	\$731	\$724	\$724	\$784	\$930	\$990	\$1,079	\$1,202	\$1,379	
236	Construction of Buildings	\$1,408	\$1,200	\$1,174	\$1,222	\$1,375	\$1,634	\$1,806	\$2,004	\$2,254	\$2,573	
2371	Utility System Construction	\$555	\$506	\$581	\$584	\$704	\$843	\$815	\$781	\$815	\$1,001	
2372	Land Subdivision	\$65	\$58	\$50	\$51	\$50	\$56	\$62	\$59	\$65	\$78	
2373	Highway, Street, and Bridge Construction	\$329	\$333	\$325	\$346	\$381	\$439	\$468	\$481	\$537	\$570	
2379	Other Heavy and Civil Engineering Construction	\$137	\$78	\$93	\$103	\$136	\$123	\$148	\$130	\$131	\$137	
237	Heavy and Civil Engineering Construction (Total)	\$1,086	\$975	\$1,049	\$1,085	\$1,272	\$1,461	\$1,493	\$1,451	\$1,548	\$1,787	
2381	Foundation, Structure, and Building Exterior Contractors	\$741	\$636	\$601	\$657	\$737	\$871	\$973	\$1,103	\$1,220	\$1,316	
2382	Building Equipment Contractors (MEP)	\$1,847	\$1644	\$1,647	\$1,744	\$1,890	\$2,188	\$2,379	\$2,578	\$2,764	\$3,042	
2383	Building Finishing Contractors	\$644	\$514	\$514	\$563	\$626	\$736	\$800	\$898	\$994	\$1,073	
2389	Other Specialty Trade Contractors	\$540	\$500	\$500	\$536	\$614	\$737	\$774	\$862	\$938	\$1,012	
238	Specialty Trade Contractors (Total)	3,771	\$3,330	\$3,262	\$3,499	\$3,867	\$4,532	\$4,926	\$5,442	\$5,916	\$6,443	
23	Construction	\$6,265	\$5,505	\$5485	\$5,805	\$6,514	\$7,628	\$8,225	\$8,897	\$9,718	\$10,804	

AVERAGE ANNUAL PAYROLL FOR MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACTORS IN COLORADO (IN MILLIONS OF DOLLARS)

		NUMBER OF EMPLOYEES										
NAICS	Industry Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
238211	Residential Electrical and Other Wiring Contractors	\$823	\$833	\$879	\$878	\$869	\$883	\$929	\$952	\$953	\$1,010	
238212	Non-Residential Electrical and Other Wiring Contractors	\$1,048	\$1,060	\$1,067	\$1,098	\$1,099	\$1,137	\$1,160	\$1,186	\$1,201	\$1,242	
23821	Electrical and Other Wiring Contractors	\$962	\$975	\$999	\$1,017	\$1,015	\$1,044	\$1,076	\$1,098	\$1,106	\$1,151	
238221	Residential Plumbing, Heating, and Air Conditioning Contractors	\$795	\$801	\$813	\$839	\$837	\$870	\$905	\$944	\$969	\$1,021	
238222	Non-Residential Plumbing, Heating, and Air Conditioning Contractors	\$1,049	\$1,078	\$1,082	\$1,092	\$1,104	\$1,163	\$1,179	\$1,228	\$1,243	\$1,281	
23822	Plumbing, Heating, and Air Conditioning Contractors	\$924	\$936	\$944	\$961	\$964	\$1,012	\$1,036	\$1,079	\$1,097	\$1,142	
238291	Other Residential Building Equipment Contractors	\$652	\$772	\$821	\$891	\$873	\$821	\$796	\$768	\$884	\$849	
238292	Other Non-Residential Building Equipment Contractors	\$1,237	\$1,306	\$1,306	\$1,269	\$1,345	\$1,409	\$1,411	\$1,469	\$1,501	\$1,510	
23829	Other Building Equipment Contractors	\$1,191	\$1,277	\$1,258	\$1,238	\$1,308	\$1,363	\$1,379	\$1,431	\$1,472	\$1,476	
2382	Building Equipment Contractors (MEP)	\$954	\$970	\$985	\$1,000	\$1,003	\$1,042	\$1,070	\$1,102	\$1,117	\$1,161	

APPENDIX K: COMPARISON INDUSTRY EMPLOYMENT AND WAGES

AVERAGE ANNUAL NUMBER OF ESTABLISHMENTS - COMPARISON INDUSTRIES, 2009-2018

NAICS	Industry Name	NUMBER OF EMPLOYEES									
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
23	Construction	20,484	18,943	17,569	16,973	16,667	16,913	17,769	18,440	19,243	19,884
31-33	Manufacturing	5,662	5,437	5,278	5,280	5,324	5,430	5,665	5,712	5,750	5,804
44-45	Retail Trade	17,963	17,417	17,119	17,261	17,296	17,230	17,581	17,805	17,859	17,839
52	Finance and Insurance	10,720	10,347	10,110	10,137	10,203	10,289	10,845	10,720	11,059	11,212
53	Real Estate and Rental and Leasing	9,813	9,289	8,991	9,091	9,288	9,636	10,857	9,813	11,493	12,114
54	Professional, Scientific, and Technical Services	29,062	29,242	29,592	30,434	31,020	31,760	35,248	29,062	36,521	37,833
62	Health Care and Social Assistance	13,286	13,665	13,961	14,255	14,382	14,531	16,912	13,286	18,346	18,565

AVERAGE ANNUAL NUMBER OF EMPLOYEES - COMPARISON INDUSTRIES, 2009-2018

NAICS	Industry Name	NUMBER OF EMPLOYEES									
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
23	Construction	131,003	115,110	112,242	115,754	127,604	142,134	148,604	155,148	163,473	173,096
31-33	Manufacturing	129,642	125,494	129,159	131,989	132,666	136,208	140,816	142,383	144,067	147,285
44-45	Retail Trade	238,421	236,725	239,988	243,709	249,242	254,949	263,015	269,066	270,792	272,773
52	Finance and Insurance	100,857	98,236	98,056	99,783	103,142	103,618	106,322	108,984	111,298	112,657
53	Real Estate and Rental and Leasing	42,930	41,348	41,190	41,893	42,850	44,497	46,939	48,749	50,572	52,144
54	Professional, Scientific, and Technical Services	42,930	167,508	172,087	178,315	188,989	196,675	204,587	210,192	215,830	224,584
62	Health Care and Social Assistance	225,935	232,263	239,958	247,025	250,661	261,413	275,209	286,585	293,468	298,580

AVERAGE ANNUAL WAGES - COMPARISON INDUSTRIES, 2009-2018

NUMBER OF EMPLOYEES		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
NAICS	Industry Name										
23	Construction	\$47,824	\$47,827	\$48,865	\$50,151	\$51,052	\$53,668	\$55,347	\$57,344	\$59,444	\$62,414
31-33	Manufacturing	\$58,019	\$60,033	\$61,668	\$62,237	\$62,393	\$65,168	\$66,483	\$66,329	\$69,446	\$70,677
44-45	Retail Trade	\$26,693	\$26,823	\$27,113	\$27,833	\$28,159	\$29,096	\$30,070	\$30,625	\$31,568	\$32,461
52	Finance and Insurance	\$68,766	\$71,408	\$74,312	\$77,610	\$79,231	\$82,936	\$88,023	\$90,007	\$92,579	\$96,246
53	Real Estate and Rental and Leasing	\$40,860	\$41,860	\$43,918	\$46,940	\$49,096	\$50,559	\$53,067	\$54,984	\$57,232	\$59,486
54	Professional, Scientific, and Technical Services	\$77,600	\$79,623	\$81,381	\$84,065	\$84,852	\$87,131	\$88,868	\$90,437	\$93,588	\$97,859
62	Health Care and Social Assistance	\$44,247	\$44,310	\$44,852	\$45,689	\$45,906	\$46,791	\$48,166	\$48,801	\$49,771	\$51,210

AVERAGE WEEKLY WAGES - COMPARISON INDUSTRIES, 2009-2018

NUMBER OF EMPLOYEES		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
NAICS	Industry Name										
23	Construction	\$920	\$920	\$940	\$964	\$982	\$1,032	\$1,064	\$1,103	\$1,143	\$1,200
31-33	Manufacturing	\$1,116	\$1,154	\$1,186	\$1,197	\$1,200	\$1,253	\$1,279	\$1,276	\$1,335	\$1,359
44-45	Retail Trade	\$513	\$516	\$521	\$535	\$542	\$560	\$578	\$589	\$607	\$624
52	Finance and Insurance	\$1,322	\$1,373	\$1,429	\$1,493	\$1,524	\$1,595	\$1,693	\$1,731	\$1,780	\$1,851
53	Real Estate and Rental and Leasing	\$786	\$805	\$845	\$903	\$944	\$972	\$1,021	\$1,057	\$1,101	\$1,144
54	Professional, Scientific, and Technical Services	\$1,492	\$1,531	\$1,565	\$1,617	\$1,632	\$1,676	\$1,709	\$1,739	\$1,800	\$1,882
62	Health Care and Social Assistance	\$851	\$852	\$863	\$879	\$883	\$900	\$926	\$938	\$957	\$985

AVERAGE ANNUAL PAYROLL (IN MILLIONS) - COMPARISON INDUSTRIES, 2009-2018

		NUMBER OF EMPLOYEES									
NAICS	Industry Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
23	Construction	\$6,265	\$5,505	\$5,485	\$5,805	\$6,514	\$7,628	\$8,225	\$8,897	\$9,718	\$10,804
31-33	Manufacturing	\$7,522	\$7,534	\$7,965	\$8,215	\$8,277	\$8,876	\$9,362	\$9,444	\$10,005	\$10,410
44-45	Retail Trade	\$6,364	\$6,350	\$6,507	\$6,783	\$7,018	\$7,418	\$7,909	\$8,240	\$8,548	\$8,854
52	Finance and Insurance	\$6,936	\$7,015	\$7,287	\$7,744	\$8,172	\$8,594	\$9,359	\$9,809	\$10,304	\$10,843
53	Real Estate and Rental and Leasing	\$1,754	\$1,731	\$1,809	\$1,966	\$2,104	\$2,250	\$2,491	\$2,680	\$2,894	\$3,102
54	Professional, Scientific, and Technical Services	\$13,158	\$13,337	\$14,005	\$14,990	\$16,036	\$17,137	\$18,181	\$19,009	\$20,199	\$21,978
62	Health Care and Social Assistance	\$9,997	\$10,292	\$10,762	\$11,286	\$11,507	\$12,232	\$13,256	\$13,986	\$14,606	\$15,290

2018-2028 EMPLOYMENT PROJECTIONS FOR CONSTRUCTION TRADES IN COLORADO

SOC	Occupation	2018 estimated employment	Total Employment Change 2018-2028	2018 estimated employ- ment	Annual Average Percent Change	Total Annual Average Employment Change	Total Percent Change
47-1000	Supervisors of Construction and Extraction Workers	17,238	22,287	5,049	2.60%	504.9	29.3%
47-2011	Boilermakers	82	96	14	1.59%	1.4	17.1%
47-2021	Brickmasons and Blockmasons	2,342	2,978	636	2.43%	63.6	27.2%
47-2022	Stonemasons	380	475	95	2.26%	9.5	25.0%
47-2031	Carpenters	22,727	28,499	5,772	2.29%	577.2	25.4%
47-2041	Carpet Installers	399	510	111	2.48%	11.1	27.8%
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	203	259	56	2.47%	5.6	27.6%
47-2043	Floor Sanders and Finishers	348	446	98	2.51%	9.8	28.2%
47-2044	Tile and Marble Setters	1,456	1,819	363	2.25%	36.3	24.9%
47-2051	Cement Masons and Concrete Finishers	6,102	7,827	1,725	2.52%	172.5	28.3%
47-2061	Construction Laborers	30,367	37,987	7,620	2.26%	762	25.1%
47-2071	Paving, Surfacing, and Tamping Equipment Operators	2,466	2,994	528	1.96%	52.8	21.4%
47-2072	Pile-Driver Operators	**	**	**	**	**	**
47-2073	Operating Engineers and Other Construction Equipment Operators	10,689	13,443	2,754	2.32%	275.4	25.8%
47-2081	Drywall and Ceiling Tile Installers	4,162	4,772	610	1.38%	61	14.7%

** = Data not available

APPENDIX L: CONSTRUCTION OCCUPATION FUTURE EMPLOYMENT PROJECTIONS

2018-2028 EMPLOYMENT PROJECTIONS FOR CONSTRUCTION TRADES IN COLORADO (CONTINUED)

SOC	Occupation	2018 estimated employment	Total Employment Change 2018-2028	2018 estimated employ- ment	Annual Average Percent Change	Total Annual Average Employment Change	Total Percent Change
47-2082	Tapers	701	802	101	1.36%	10.1	14.4%
47-2111	Electricians	19,546	24,731	5,185	2.38%	518.5	26.5%
47-2121	Glaziers	1,426	1,806	380	2.39%	38	26.6%
47-2131	Insulation Workers, Floor, Ceiling, and Wall	807	943	136	1.57%	13.6	16.9%
47-2132	Insulation Workers, Mechanical	817	1,034	217	2.38%	21.7	26.6%
47-2141	Painters, Construction and Maintenance	7,768	9,319	1,551	1.84%	155.1	20.0%
47-2142	Paperhangers	**	**	**	**	**	**
47-2151	Pipelayers	932	1,209	277	2.64%	27.7	29.7%
47-2152	Plumbers, Pipefitters, and Steamfitters	10,777	14,369	3,592	2.92%	359.2	33.3%
47-2161	Plasterers and Stucco Masons	909	1,076	167	1.70%	16.7	18.4%
47-2171	Reinforcing Iron and Rebar Workers	378	492	114	2.67%	11.4	30.2%
47-2181	Roofers	4,444	5,731	1,287	2.58%	128.7	29.0%
47-2211	Sheet Metal Workers	3,747	4,784	1,037	2.47%	103.7	27.7%
47-2221	Structural Iron and Steel Workers	1,441	1,855	414	2.56%	41.4	28.7%
47-2231	Solar Photovoltaic Installers	**	**	**	**	**	**
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	551	713	162	2.61%	16.2	29.4%

** = Data not available

2018-2028 EMPLOYMENT PROJECTIONS FOR CONSTRUCTION TRADES IN COLORADO (CONTINUED)

SOC	Occupation	2018 estimated employment	Total Employment Change 2018-2028	2018 estimated employ- ment	Annual Average Percent Change	Total Annual Average Employment Change	Total Percent Change
47-3012	Helpers--Carpenters	315	409	94	2.65%	9.4	29.8%
47-3013	Helpers--Electricians	412	525	113	2.45%	11.3	27.4%
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	**	**	**	**	**	**
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	349	478	129	3.20%	12.9	37.0%
47-3016	Helpers--Roofers	188	244	56	2.64%	5.6	29.8%
47-3019	Helpers, Construction Trades, All Other	**	**	**	**	**	**
47-4011	Construction and Building Inspectors	2,420	2,943	523	1.98%	52.3	21.6%
47-4021	Elevator Installers and Repairers	431	559	128	2.63%	12.8	29.7%
47-4031	Fence Erectors	653	838	185	2.53%	18.5	28.3%
47-4041	Hazardous Materials Removal Workers	1,467	1,805	338	2.10%	33.8	23.0%
47-4051	Highway Maintenance Workers	3,343	3,847	504	1.41%	50.4	15.1%
47-4061	Rail-Track Laying and Maintenance Equipment Operators	**	**	**	**	**	**
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	524	632	108	1.89%	10.8	20.6%

** = Data not available

2018-2028 EMPLOYMENT PROJECTIONS FOR CONSTRUCTION TRADES IN COLORADO (CONTINUED)

SOC	Occupation	2018 estimated employment	Total Employment Change 2018-2028	2018 estimated employ- ment	Annual Average Percent Change	Total Annual Average Employment Change	Total Percent Change
47-4091	Segmental Pavers	**	**	**	**	**	**
47-4099	Construction and Related Workers, All Other	1,150	1,478	328	2.54%	32.8	28.5%
47-5012	Rotary Drill Operators, Oil and Gas	1,174	1,652	478	3.47%	47.8	40.7%
47-5023	Earth Drillers, Except Oil and Gas	565	731	166	2.61%	16.6	29.4%
47-5071	Roustabouts, Oil and Gas	3,335	4,581	1,246	3.23%	124.6	37.4%
47-5081	Helpers--Extraction Workers	411	550	139	2.96%	13.9	33.8%
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	5,906	7,839	1,933	2.87%	193.3	32.7%
51-4121	Welders, Cutters, Solderers, and Brazers	5,504	6,552	1,048	1.76%	104.8	19.0%

** = Data not available

APPENDIX M: CONSTRUCTION-RELATED ACADEMIC PROGRAM CODES

CONSTRUCTION-RELATED ACADEMIC PROGRAMS

CIP: 2010 CLASSIFICATION OF INSTRUCTIONAL PROGRAMS

CIP	Program Name
040901	Architectural Technology/Technician
040902	Architectural and Building Sciences/Technology
140801	Civil Engineering, General
143301	Construction Engineering
150000	Engineering Technologies/Technicians, General
150101	Architectural Engineering Technology/Technician
150201	Civil Engineering Technologies/Technicians
150501	Heating, Ventilation, Air Conditioning, and Refrigeration Engineering Technology/Technician
150503	Energy Management and Systems Technology/Technician
150505	Solar Energy Technology/Technician
151001	Construction Engineering Technology/Technician
151102	Surveying Technology/Surveying
151301	Drafting and Design Technology/Technician, General
151302	CAD/CADD Drafting and/or Design Technology/Technician
151303	Architectural Drafting and Architectural CAD/CADD
151307	3-D Modeling and Design Technology/Technician
151501	Engineering/Industrial Management
460000	Construction Trades, General
460201	Carpentry/Carpenter
460301	Electrical and Power Transmission Installation/Installer, General
460302	Electrician
460303	Lineworker / Line Worker

CONSTRUCTION-RELATED ACADEMIC PROGRAMS

CIP: 2010 CLASSIFICATION OF INSTRUCTIONAL PROGRAMS

CIP	Program Name
460403	Building/Home/Construction Inspection/Inspector
460412	Building/Construction Site Management/Manager
460415	Building Construction Technology/Technician
460499	Building/Construction Finishing, Management, and Inspection - Other
460502	Pipefitting/Pipefitter and Sprinkler Fitter
460503	Plumbing Technology/Plumber
470201	Heating, Air Conditioning, Ventilation, and Refrigeration Maintenance Technology/Technician
480508	Welding Technology/Welder
480510	Computer Numerically Controlled (CNC) Machinist Technology/CNC Machinist
480701	Woodworking, General
490202	Construction/Heavy Equipment/Earthmoving Equipment Operation
522001	Construction Management, General
522002	Construction Project Management
522099	Construction Management, Other
309999	Multi-/Interdisciplinary Studies, Other (Construction Management)
529999	Business, Management, Marketing, and Related Support Services, Other (Real Estate and Construction Management)

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