

MICHIGAN **CONSTRUCTION**

INDUSTRY CLUSTER WORKFORCE ANALYSIS



STATE OF MICHIGAN

Department of Technology, Management & Budget
Michigan Center for Data and Analytics

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INDUSTRY CLUSTER
WORKFORCE ANALYSIS

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TABLE OF CONTENTS

4	Key Findings
5	Introduction
6	Employment and Wages
8	Subclusters
10	Key Occupations
13	Career Pathway
15	Apprenticeships
16	Real-Time Demand
20	Employment Projections
21	Workforce Demographics
25	Talent Pipeline
26	Conclusion

An aerial photograph of a large-scale construction project. In the upper left, a red and white conveyor belt system is used for material transport. A yellow excavator is visible on the far left. A dirt road or path runs diagonally across the center. To the right, there's a concrete structure under construction with rebar visible. In the lower half, a yellow dump truck is on the left, a white pickup truck is in the center, and a white semi-truck is on the right. A yellow excavator is also visible in the bottom right corner. The ground is a mix of dirt, gravel, and some vegetation.

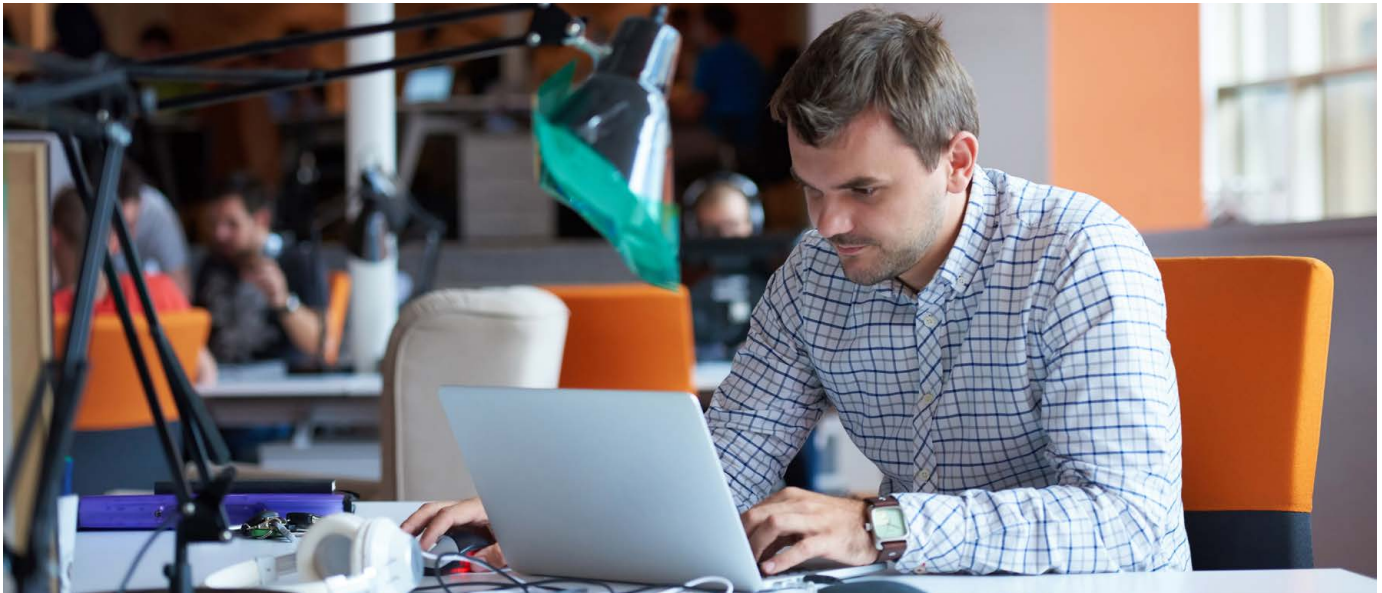
ABOUT THIS REPORT

This report is the product of a partnership between the Michigan Center for Data and Analytics and the Michigan Department of Labor and Economic Opportunity. It is designed to explore the Construction industry cluster in Michigan through leveraging a variety of data sources. These include key occupations, education and training requirements, real-time online job ad demand, labor force projections, workforce demographics, the talent pipeline, and more. The intention of this report is to support workforce development across the state and to highlight the position of Construction in Michigan.



Key Findings

- Between 2011 and 2021, employment in Construction has grown by 50.6 percent, well above the 7.4 percent observed for total statewide employment. Construction has also offset losses occurring during the COVID-19 pandemic and currently employs 316,000 individuals across the state.
- Construction has a nominal (not inflation-adjusted) average salary of \$76,500. This is significantly greater than the average salary for total statewide employment which sits at \$61,700.
- More than half of the 25 key occupations within the Construction cluster require less than a postsecondary degree while requiring some form of on-the-job training or an apprenticeship. Many of these occupations have an hourly median wage greater than that of the Construction cluster overall (\$23.89) and total statewide employment (\$21.73).
- Construction has a 4.6 percentage points greater share of 25- to 64-year-olds than the total statewide employment. Construction also has a larger share of those with a high school diploma or less compared to the state, outpacing the total statewide employment share by 2.4 percentage points.
- With men making up almost three-quarters of its employment, Construction joins clusters such as Energy, Manufacturing, and Mobility where men make up at least 70 percent of employment in each. Comparatively, men account for just over half of all employment statewide.



Introduction

An **industry cluster** is a strong concentration of related industries in one location.

These clusters consist of related employers, suppliers, and support institutions in a product or service field. Industry clusters that are prevalent in a particular region fuel the regional economy, generate payrolls, and create innovation by leveraging the knowledge and resources of all involved.

The Construction cluster is well represented in Michigan and covers a variety of different sectors, including (but not limited to) the construction of buildings and roads, the manufacturing of construction materials, and the wholesale of construction materials. Having a diverse set of opportunities within the cluster allows for individuals in Michigan with different educational backgrounds and skill sets to find work in Construction.

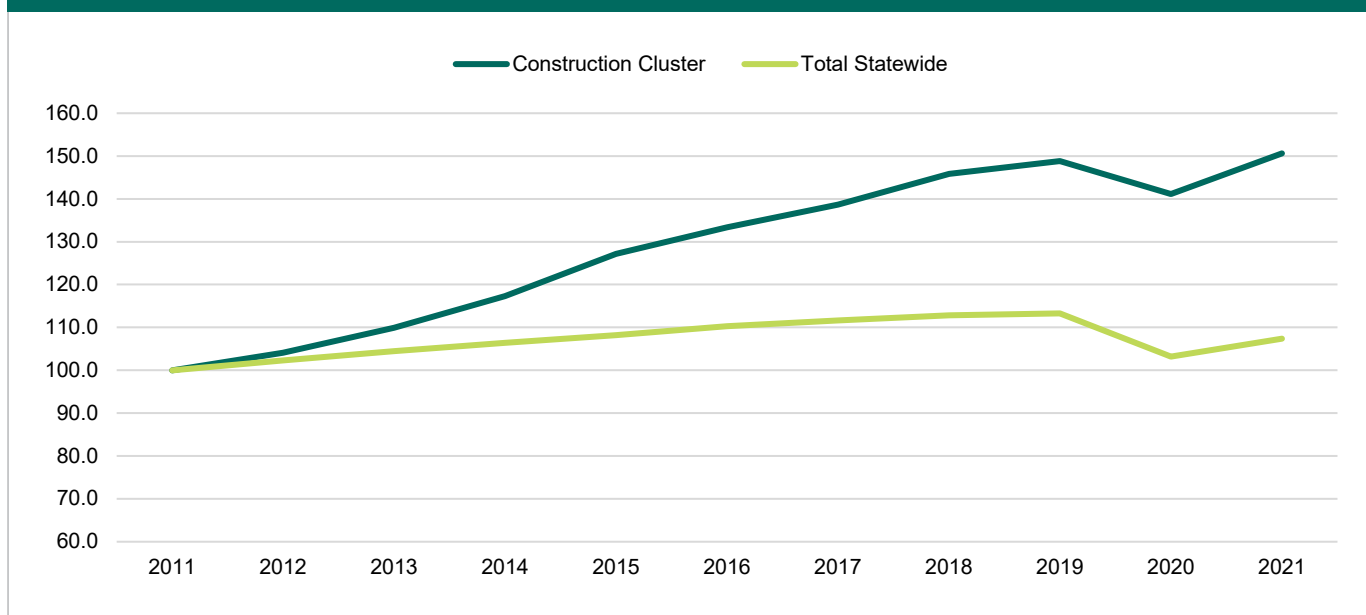
The Construction cluster consists of eight subclusters:

- Construction
- Construction Professional and Business Services
- Wholesale of Construction Supply
- Construction Materials and Machinery Manufacturing
- Other Services
- Logging
- Mining
- Construction Lending and Leasing



Employment and Wages

FIGURE 1: EMPLOYMENT INDEX, MICHIGAN CONSTRUCTION CLUSTER (INDEX YEAR: 2011)

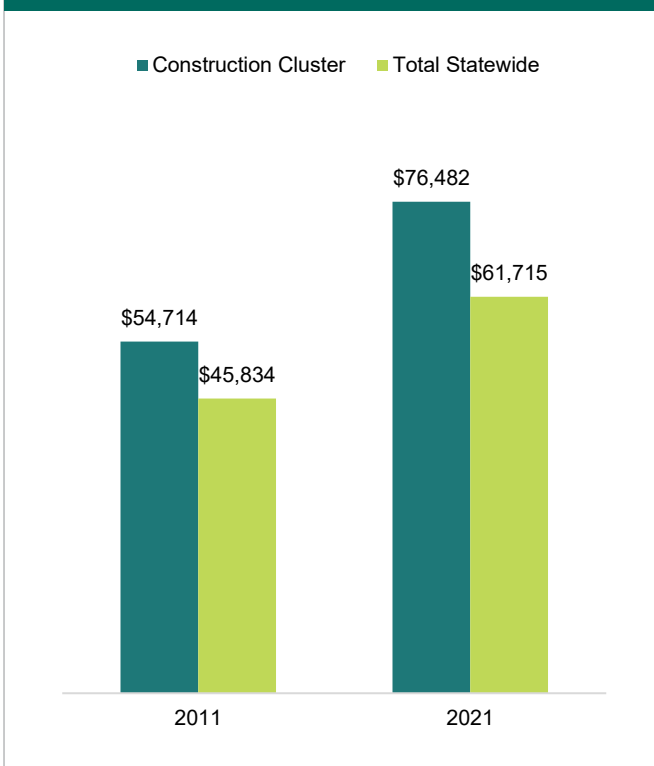


Source: Quarterly Census of Employment and Wages, Michigan Center for Data and Analytics

Employment in both the Construction cluster and total statewide employment are indexed to 2011 in Figure 1. Construction employment grew very quickly over the past decade, offsetting losses observed during the Great Recession. From 2011 to 2021, the cluster saw a 50.6 percent expansion in employment, significantly greater than the 7.4 percent growth seen for all employment in Michigan. In 2020, employment in the cluster dropped by 5.1 percent, losing over 16,000 jobs. These losses have since been offset and Construction employment grew 1.2 percent from 2019 to 2021, an increase of nearly 3,900 jobs.



FIGURE 2: NOMINAL WAGE* CHANGE, MICHIGAN CONSTRUCTION CLUSTER, 2011–2021

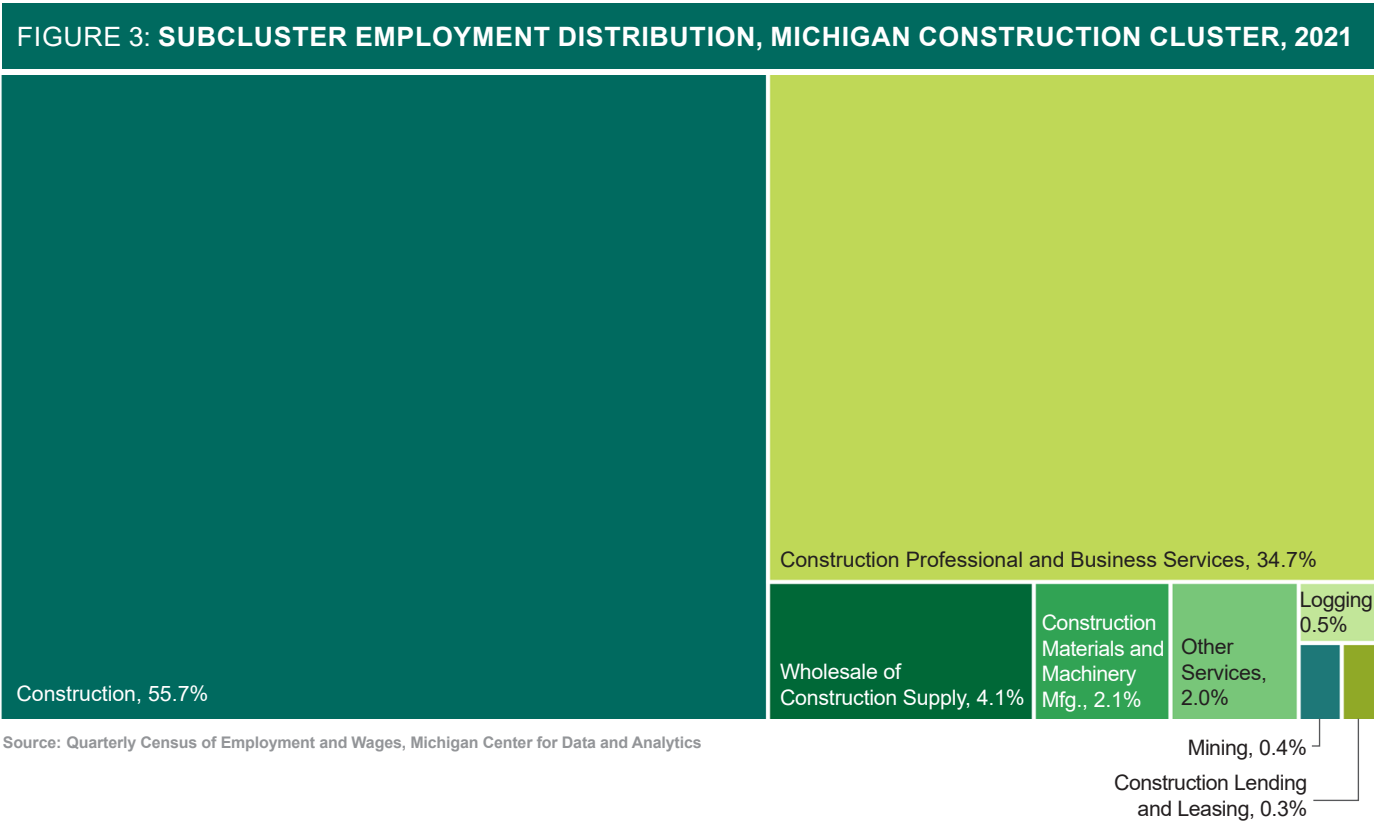


Source: Quarterly Census of Employment and Wages, Michigan Center for Data and Analytics

*Nominal wages are not adjusted for inflation.

The Construction cluster had an average salary of \$76,500 in 2021. This was roughly \$14,800 greater than the average salary for all employment in Michigan. Compared to 2011, the average salary in the cluster has increased 39.8 percent from \$54,700. The growth rate in the cluster was 5.2 percentage points greater than the growth seen among all employment. Because of this, the gap between average salaries within the cluster has widened since 2011 when the Construction average salary outpaced that of all employment by \$8,900.

Subclusters



Construction

- Construction of Buildings
- Heavy and Civil Engineering Construction
- Specialty Trade Contractors

More than half (55.7 percent) of employment within the Construction cluster is within the *Construction* subcluster. *Specialty trade contractors* is the largest industry within the subcluster, accounting for 64.0 percent of the total employment. The *Construction* subcluster employs 176,100 individuals in Michigan and has an average annual salary of \$70,200. *Heavy and civil engineering construction*, which makes up 11.1 percent of employment within the subcluster, has an average annual salary of \$89,000.

Construction Professional and Business Services

- All Other Professional, Scientific, and Technical Services
- Architectural Services
- Engineering Services
- Industrial Design Services
- Landscaping Services
- Surveying and Mapping (except Geophysical) Services

The *Construction professional and business services* subcluster employs just over 109,800 individuals, making up 34.7 percent of Construction employment in Michigan. The high-paying industry of *Engineering services* employs 51.0 percent of those in the subcluster and has an average annual salary of nearly \$108,600, well above the cluster average salary of \$76,500. *Landscaping services* is the second largest industry in the subcluster, employing 22.4 percent.

Wholesale of Construction Supply

Coal and Other Mineral and Ore Merchant Wholesalers
Construction and Mining (Except Oil Well) Machinery
and Equipment Merchant Wholesalers

Electrical Apparatus and Equipment, Wiring Supplies,
and Related Equipment Merchant Wholesalers

Lumber and Other Construction Materials Merchant
Wholesalers

Wholesale of construction supply is the third largest subcluster within Construction and employs 4.1 percent (13,100 individuals) of those within the cluster. It is the second highest-paying subcluster within Construction and has an average annual salary of just under \$83,000. Almost 42 percent of subcluster employment is within the industry of *Lumber and other construction materials merchant wholesalers*.

Construction Materials and Machinery Manufacturing

Adhesive Manufacturing

All Other Miscellaneous Nonmetallic Mineral Product
Manufacturing

All Other Miscellaneous Wood Product Manufacturing

Construction Machinery Manufacturing

Hardwood Veneer and Plywood Manufacturing

Power-Driven Handtool Manufacturing

Sawmill, Woodworking, and Paper Machinery
Manufacturing

Softwood Veneer and Plywood Manufacturing

Wood Container and Pallet Manufacturing

Wood Preservation

The subcluster of *Construction materials and machinery manufacturing* employs 2.1 percent (6,800 individuals) of the Construction cluster and includes a diverse mix of manufacturing industries. Just under two-thirds of subcluster employment is within the industries of *Wood container and pallet manufacturing*, *Construction machinery manufacturing*, and *Adhesive manufacturing*. The average annual salary for the subcluster measures \$61,400, significantly lower than the average annual salary for Construction overall, but on par with the statewide average.

Other Services

Commercial and Industrial Machinery and Equipment
(except Automotive and Electronic) Repair and
Maintenance

Other services employs 2.0 percent (6,300 individuals) of the Construction cluster in Michigan. The subcluster consists of a single industry that focuses on activities such as repairing heavy and industrial machinery and has an average annual salary of \$65,200, roughly \$11,000 less than that of the cluster.

Logging

Logging

Timber Tract Operations

Logging, which includes establishments involved in cutting and transporting timber or producing wood chips, accounts for just 0.5 (1,700 individuals) percent of Construction employment. Nearly all (95.6 percent) of those in the subcluster are in the industry of *Logging*. The subcluster is the lowest-paying subcluster within Construction with an average annual salary of \$48,500.

Mining

Construction Sand and Gravel Mining

Just 0.4 percent (1,200 individuals) of employment within the Construction cluster is concentrated in *Mining*. The subcluster consists of a single industry: *Construction sand and gravel mining*. The average annual salary for the subcluster is \$76,500, on par with that of the entire cluster.

Construction Lending and Leasing

Construction, Mining, and Forestry Machinery and
Equipment Rental and Leasing

The smallest subcluster within Construction is *Construction lending and leasing* and it makes up 0.3 percent of cluster employment. This subcluster includes the renting or leasing of equipment such as bulldozers or well drilling machinery. The average annual salary for the subcluster is \$80,700, roughly \$4,200 higher than that of Construction.

Key Occupations

Occupational analysis is important to understanding an industry cluster. Key occupations are chosen by a favorable mix of criteria that include the occupation's share of the cluster's total employment, the concentration within the cluster, and the projected outlook for that occupation. Due to the occupations having large volumes within the cluster, they are generally representative of the expected wages, education, and skills within the industry cluster.

- Over half (16) of the 25 key occupations in the Construction cluster have a median hourly wage greater than that of the cluster (\$23.89). Of the lower-paying key occupations, six offer wages greater than the cluster median wage with more experience and time on the job.
- There are 14 key occupations that require a high school diploma or equivalent or less, most of which require on-the-job training or an apprenticeship. At the other end of the educational attainment spectrum, nine of the key occupations require a bachelor's degree.
- Between 2020 and 2030, there are projected to be over 34,700 average annual openings across the 25 key occupations in the Construction cluster. These projected openings are well distributed across the list with *Landscaping and groundskeeping* workers having the most. These openings are due to a variety of reasons such as labor force exits and retirements, occupational transfers, and growth in the occupation.

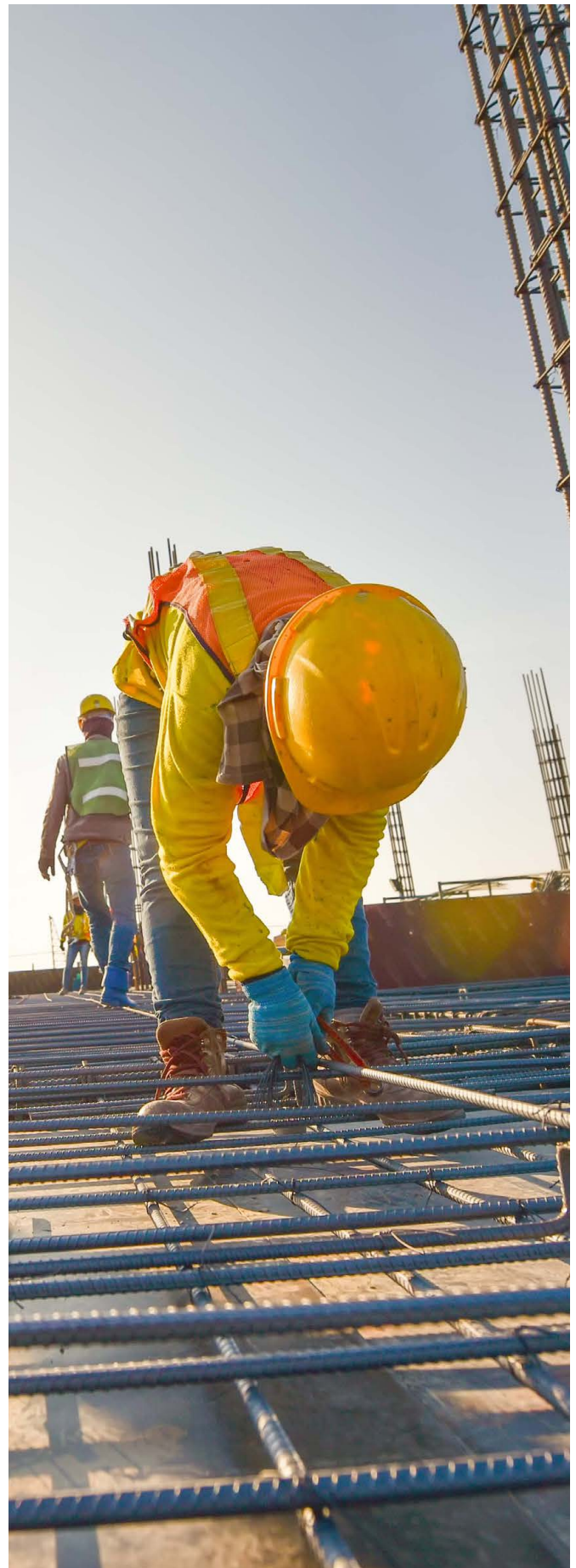


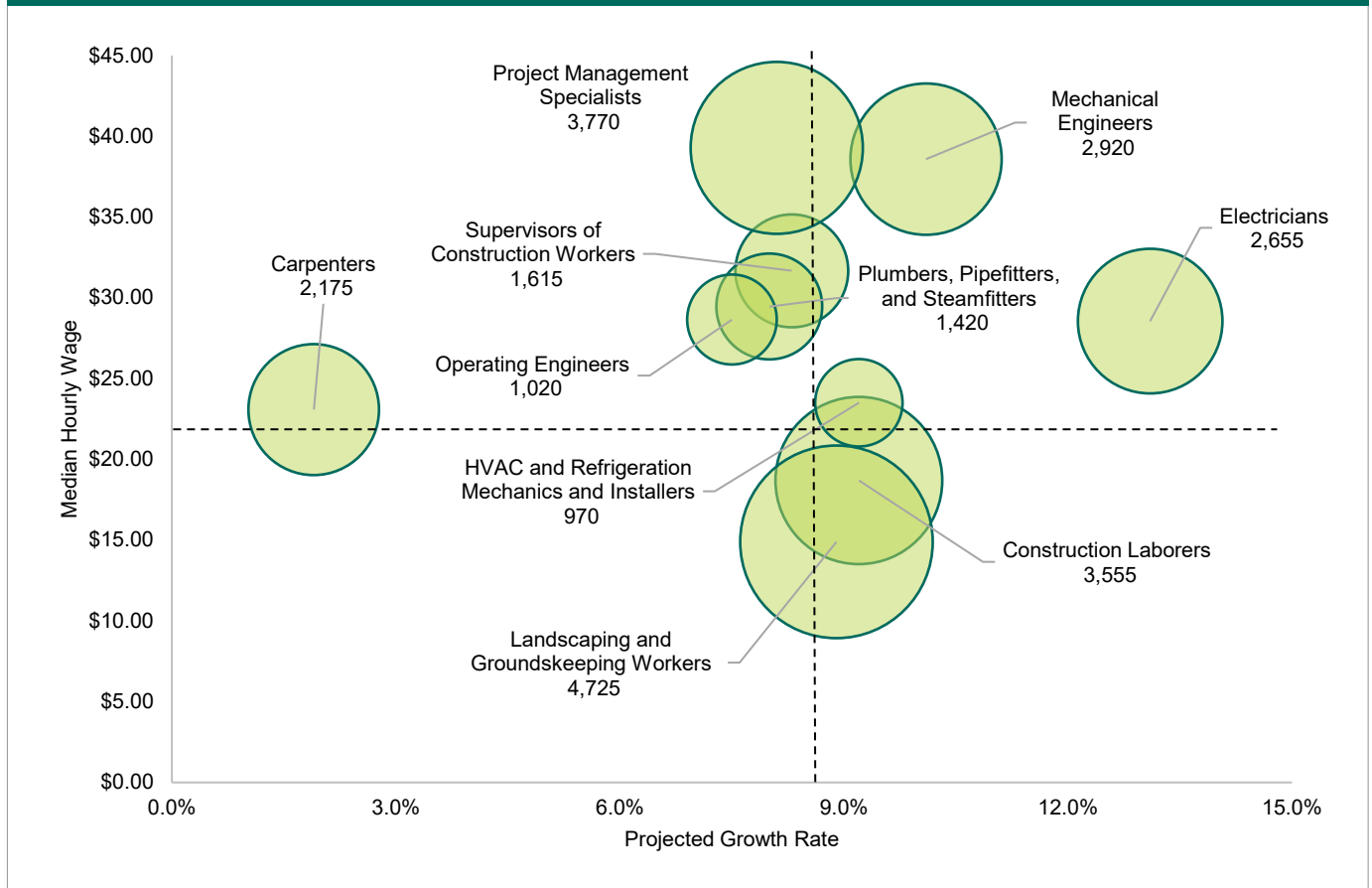
FIGURE 4: KEY OCCUPATIONS, MICHIGAN CONSTRUCTION CLUSTER, 2021

KEY OCCUPATION	CLUSTER EMP.	MICHIGAN EMP.	CLUSTER WAGE RANGE (HOURLY)	ANNUAL OPENINGS	TYPICAL EDUCATION AND TRAINING OJT: ON-THE-JOB TRAINING
Construction Laborers	22,870	26,080	\$17–\$23	3,555	No Formal Education Credential and Short-term OJT
Landscaping and Groundskeeping Workers	17,740	28,140	\$14–\$18	4,725	No Formal Education Credential and Short-term OJT
Electricians	15,820	22,330	\$19–\$37	2,655	High School Diploma or Equivalent and Apprenticeship
Carpenters	14,630	16,000	\$18–\$29	2,175	High School Diploma or Equivalent and Apprenticeship
Supervisors of Construction Workers	12,490	14,680	\$29–\$39	1,615	High School Diploma or Equivalent
Mechanical Engineers	11,340	32,520	\$37–\$49	2,920	Bachelor's Degree
Plumbers, Pipefitters, and Steamfitters	9,660	12,650	\$22–\$38	1,420	High School Diploma or Equivalent and Apprenticeship
Operating Engineers	8,070	10,230	\$23–\$30	1,020	High School Diploma or Equivalent and Moderate-term OJT
HVAC and Refrigeration Mechanics and Installers	7,850	9,480	\$19–\$30	970	Postsecondary Nondegree Award and Long-term OJT
Project Management Specialists	6,430	22,070	\$31–\$50	3,770	Bachelor's Degree
Sales Representatives of Services	5,160	25,680	\$23–\$47	3,010	High School Diploma or Equivalent and Moderate-term OJT
Construction Managers	4,900	6,030	\$37–\$61	750	Bachelor's Degree and Moderate-term OJT
Civil Engineers	4,780	6,640	\$30–\$47	530	Bachelor's Degree
Cement Masons and Concrete Finishers	4,590	4,880	\$18–\$29	420	No Formal Education Credential and Moderate-term OJT
Painters, Construction and Maintenance	3,830	4,820	\$18–\$23	660	No Formal Education Credential and Moderate-term OJT
Architectural and Engineering Managers	3,560	11,380	\$61–\$80	860	Bachelor's Degree
Cost Estimators	2,590	5,620	\$28–\$45	550	Bachelor's Degree and Moderate-term OJT
Roofers	2,570	2,610	\$18–\$29	370	No Formal Education Credential and Moderate-term OJT
Electrical Engineers	2,520	10,050	\$36–\$50	645	Bachelor's Degree
Sheet Metal Workers	2,370	3,470	\$22–\$37	340	High School Diploma or Equivalent and Apprenticeship
Mobile Heavy Equipment Mechanics, Except Engines	2,280	3,390	\$23–\$31	395	High School Diploma or Equivalent and Long-term OJT
Architects, Except Landscape and Naval	2,090	2,310	\$29–\$45	225	Bachelor's Degree and Internship/Residency
Supervisors of Landscaping and Groundskeeping Workers	2,040	3,100	\$19–\$30	580	High School Diploma or Equivalent
Commercial and Industrial Designers	1,640	3,610	\$30–\$48	410	Bachelor's Degree
Architectural and Civil Drafters	1,510	1,830	\$21–\$29	170	Associate Degree

Source: Cluster employment, Michigan employment, and Wage range: Occupational Employment and Wage Statistics, Michigan Center for Data and Analytics (2021); Annual Openings: 2020–2030 Long-term Occupational Projections, Michigan Center for Data and Analytics; Typical Education and Training: U.S. Bureau of Labor Statistics

Note: Cluster employment is the total count of the occupation within the defined industry cluster, while Michigan employment is the total count of that occupation in the state across all industries.

FIGURE 5: KEY OCCUPATIONS, MICHIGAN CONSTRUCTION CLUSTER, 2021



Source: 2021 Occupational Employment and Wage Statistics, Michigan Center for Data and Analytics (Wages); 2020–2030 Long-term Occupational Projections, Michigan Center for Data and Analytics (Projected Growth Rate and Annual Openings)

Several key occupations within Construction are displayed in Figure 5 and show a mix of projected long-term growth, projected annual openings, and statewide median wages. The circle sizes are determined by projected annual openings. The lines at 8.8 percent and \$21.73 indicate statewide projected employment growth through 2030 and the statewide median wage from 2021. Of the key occupations displayed, each are projected to expand between 2020 and 2030. The growth rates of the occupations range from 1.9 percent for *Carpenters* to 13.1 percent for *Electricians*. *Mechanical engineers* has the second highest growth rate among the listed occupations at 10.1 percent.

All but two occupations in the chart earn a median hourly wage greater than that of the statewide median wage. *Project management specialists* has the highest median hourly wage of the listed key occupations at \$39.27. This is followed by *Mechanical engineers* (\$38.58) and *Supervisors of construction workers* (\$31.67).

Potential Construction Career Pathway



Construction Laborers

- \$18.62
- No Formal Educational Credential
- Short-term On-the-Job Training
- License

Carpenters

- \$23.09
- High School Diploma or Equivalent
- Apprenticeship
- License

Construction and Building Inspectors

- \$28.59
- High School Diploma or Equivalent
- Five Years or More Experience
- Moderate-term On-the-Job Training
- License

Electricians

- \$29.77
- High School Diploma or Equivalent
- Apprenticeship
- License

First-Line Supervisors of Construction Trades and Extraction Workers

- \$31.31
- High School Diploma or Equivalent
- Five Years or More Experience
- License

Operating Engineers and Other Construction Equipment Operators

- \$28.51
- High School Diploma or Equivalent
- Moderate-term On-the-Job Training
- License

Construction Managers

- \$47.67
- Bachelor's Degree
- Moderate-term On-the-Job Training
- License

Project Management Specialists

- \$39.17
- Bachelor's Degree

High School Diploma or Equivalent and Short-term Training

Construction Laborers
Insulation Workers, Floor, Ceiling, and Wall
Laborers and Freight, Stock, and Material Movers, Hand
Landscaping and Groundskeeping Workers
Tree Trimmers and Pruners

Several occupations within the Construction cluster require a high school diploma or equivalent and/or short-term training (one month or less). Occupations in this grouping provide ample opportunities for individuals to work in Construction without having to obtain postsecondary education or complete long-term training (more than 12 months). *Construction laborers* is a critical occupation in the cluster, employing nearly 22,900 individuals and only requiring short-term training. The median hourly wages of the five occupations highlighted in this tier range from \$14.82 to \$23.19.

Postsecondary Certificate or Moderate-term Training

Cement Masons and Concrete Finishers
Construction and Building Inspectors
Operating Engineers and Other Construction Equipment Operators
Painters, Construction and Maintenance
Roofers

There is a large selection of occupations in Construction that require moderate-term training (more than one month and up to 12 months) or a postsecondary certificate. Jobs within this tier can offer individuals slightly higher wages while not requiring the completion of a postsecondary degree or an apprenticeship. The occupations listed in this category have a median hourly wage range of \$18.60 to \$28.84. The occupation with the highest median wage, *Construction and building inspectors*, also requires five years or more of related work experience, in addition to a postsecondary certificate and moderate-term training.

Associate Degree or Long-term Training or Apprenticeships

Carpenters
Electricians
Heating, Air Conditioning, and Refrigeration Mechanics and Installers
Industrial Machinery Mechanics
Plumbers, Pipefitters, and Steamfitters

Most Construction occupations that require an associate degree or the completion of an apprenticeship or long-term training pay above the statewide median hourly wage of \$21.73. Four of the occupations listed in this category also appear in the key occupations list for Construction, as they are crucial to the cluster. Median hourly wages for the occupations listed within this tier vary from \$23.07 to \$29.45.

Bachelor's Degree or Higher

Civil Engineers
Construction Managers
General and Operations Managers
Mechanical Engineers
Project Management Specialists

There are a significant number of jobs in the cluster that require a bachelor's degree or higher. These occupations are typically much higher paying than those in other tiers. Included in this category are an array of engineering positions. With experience, there are also several management careers which are important in Construction. The median hourly wages for the occupations highlighted in this category range from \$37.21 to \$47.76.



Apprenticeships

The Construction industry cluster is considered a traditional apprenticeship sector along with Manufacturing. This is because these two industries typically make up the majority of apprentices. Usually, Construction is the largest apprenticeship cluster, and this held true in 2021. There were 11,978 active registered apprentices in the cluster across Michigan. Nearly all (93.6 percent) of these were in the industry of *Specialty trade contractors*. There was slightly above-average representation in the cluster compared to all apprentices among people of color (12.6 percent) and veterans (6.4 percent). There was a below-average share of women in the cluster of 4.0 percent. The Detroit Metro region had the largest share of active apprentices at 44.7 percent. East Michigan had the second most active apprentices in the Construction cluster at 22.4 percent.

The number of newly registered apprentices in Construction increased dramatically in the middle part of the last decade following an influx of funding and resources for registered apprenticeships in Michigan. From 2008 to 2015, there was an average of just under 2,000 new apprentices in the cluster. From 2016 to 2021, there was an average of more than 3,600 each year. This peaked at 4,378 in 2020. The number of Construction completers bottomed out at nearly 500 in 2014 but have increased every year since. There were just over 1,000 completers in the cluster in both 2019 and 2020 and more than 1,100 in 2021.

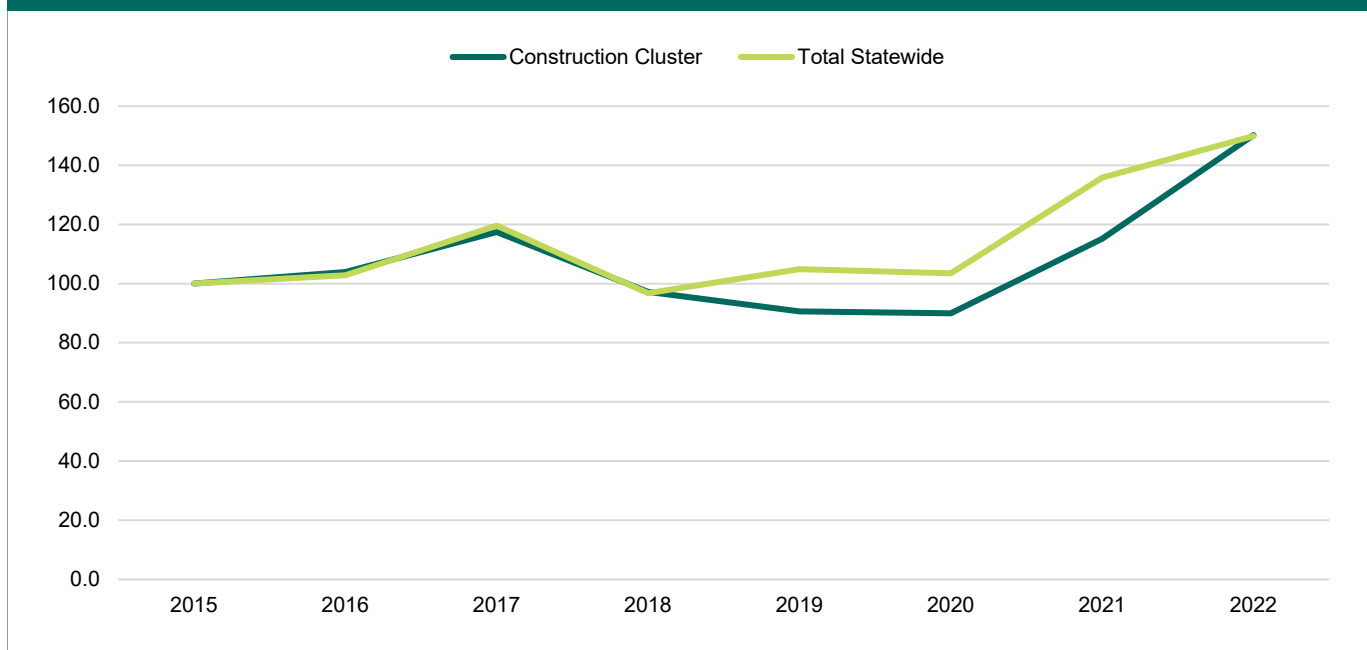
Real-Time Demand

Real-time demand is measured as the number of job advertisements posted online for an occupation or industry. The data is provided by Burning Glass Technologies and The Conference Board Help Wanted Online. Over time, online job advertisements have become more prevalent as technology becomes a more prominent method of communication. The use of online job postings still varies by industry with some areas of the economy being more reliant on methods such as word-of-mouth or local advertisements. However, online job advertisements can provide a mix of information about an industry cluster such as total available ads, top requested skills and certifications, minimum education requirements, and more.

Since 2017, Construction cluster online advertisements declined each year until 2020–2021 (Figure 6). There were 1.5 online ads in 2022 for every one in 2015 for both the cluster and the state. In Figure 6, online job advertisements for the Construction cluster and the state are indexed to 2015. Each level of 2015 online job advertisements was set equal to 100 and the percent changes were calculated from there. Between 2019 and 2021, growth in the Construction cluster lagged behind Michigan. By 2022, growth in the cluster not only met, but slightly exceeded the statewide increase by almost half a percentage point.

Real-time demand is measured as the number of job advertisements posted online for an occupation or industry.

FIGURE 6: ONLINE JOB ADVERTISEMENTS INDEX, MICHIGAN CONSTRUCTION CLUSTER (INDEX YEAR: 2015)



Source: The Conference Board Help Wanted OnLine, Burning Glass Technologies

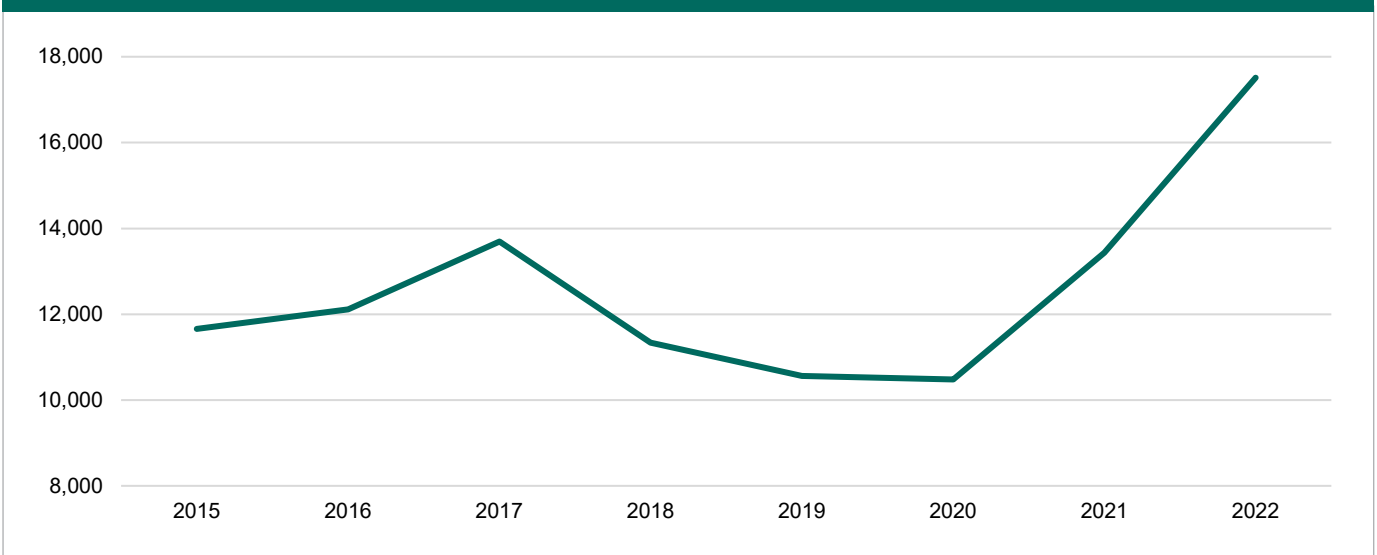


Figure 7 displays the total number of annual online job advertisements in the Construction cluster. The decline from 2017 to 2020 becomes even more obvious with this chart, showing just under 14,000 ads annually in 2017 down to under 11,000 in 2020. The sharp increase between 2020 and 2022 has exceeded the levels observed in 2017. Occupations with some of the largest growth during the time period include *Construction managers*; *Janitors and cleaners*; *Landscaping and groundskeeping workers*; and *Electrical engineers*.

Just like its key occupations, online job advertisements for the Construction cluster are generally split between those that require a high school diploma or equivalent and those that require a bachelor's degree. Under 6 percent of online ads request a minimum of any other degree levels for the cluster.

Some of the outstanding industries in the cluster in terms of online advertisements are *Architectural, engineering, and related services*; *Services to buildings and dwellings*; and *Building equipment contractors*. All three of these industries had over 2,700 online job advertisements across the state during 2022.

FIGURE 7: ONLINE JOB ADVERTISEMENTS, MICHIGAN CONSTRUCTION CLUSTER



Source: The Conference Board Help Wanted OnLine, Burning Glass Technologies



The top 10 certifications and baseline or specialized skills are based on the number of times the skill or certification is listed in an online job advertisement for the specific time period (July 2021 to June 2022). Certifications are designated credentials earned by an individual to verify skills or knowledge gained to perform a job. Baseline skills are often called “foundational skills” and are defined as the common, non-specialized skills that cut across a broad range of occupations. Lastly, specialized skills include professional and job-specific skills requested in job advertisements.

Certifications and Skills Requested in Michigan Construction Cluster Online Job Ads

Top 10 Certifications

American Board for Engineering and Technology (ABET) Accredited

CDL Class A

Electrician Certification

Engineer in Training Certification

Licensed Professional Engineer

Occupational Safety and Health Administration Certification

OSHA Safety 10 Hour

Project Management Certification

Project Management Professional (PMP)

Security Clearance

Note: Driver's license is not listed here but did appear in the top 10 certifications for every industry cluster.

Top 10 Baseline Skills

Communication Skills

Detail-Oriented

Microsoft Excel

Microsoft Office

Organizational Skills

Physical Abilities

Planning

Problem Solving

Teamwork/Collaboration

Time Management

Top 10 Specialized Skills

Budgeting

Client Base Retention

Customer Service

Plumbing

Project Management

Repair

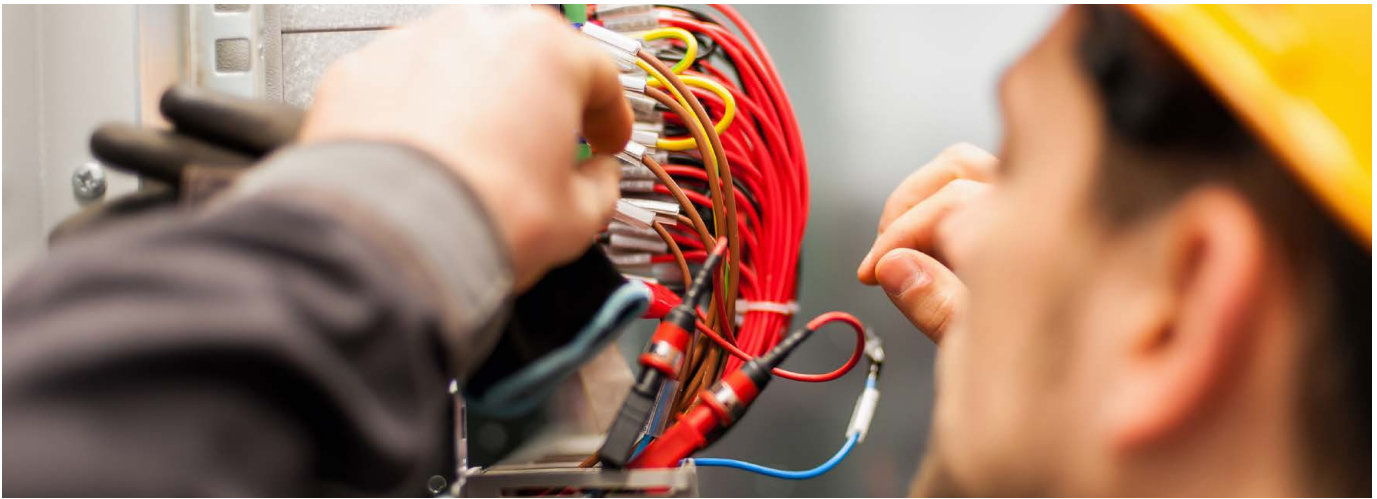
Sales

Scheduling

Upselling Products and Services

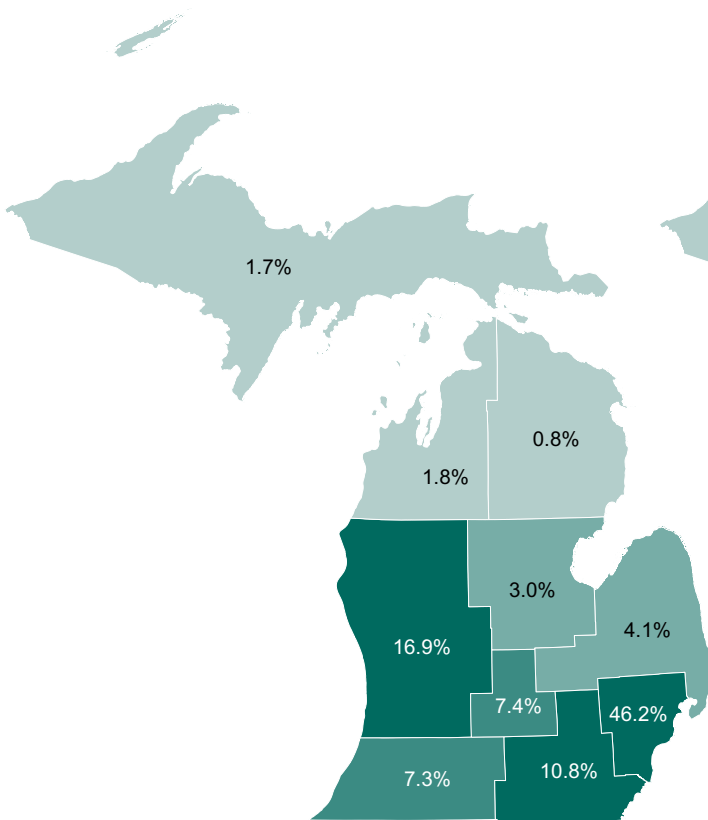
Vehicle Inspection

Source: The Conference Board Help Wanted OnLine, Burning Glass Technologies

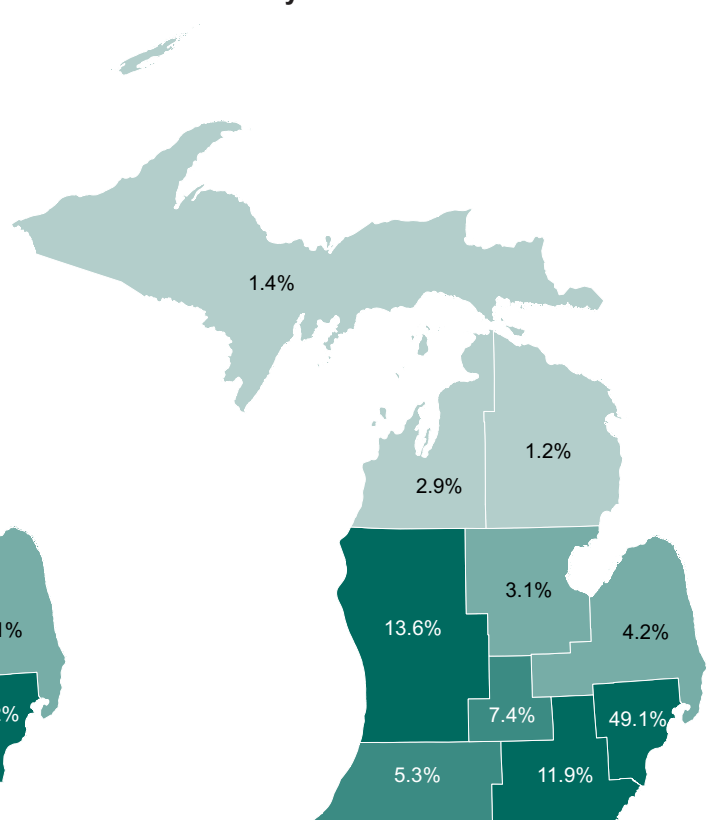


Construction cluster job advertisements are most prominent in the Detroit Metro, West Michigan, and Southeast regions. This is in line with what is seen at the statewide level with total available online job advertisements. The Detroit Metro region does have a slightly higher share of all Construction-related advertisements than it does for total statewide ads.

Share of Total Job Advertisements by Michigan Prosperity Region, July 2021 to June 2022



Share of Construction Cluster Job Advertisements by Michigan Prosperity Region, July 2021 to June 2022



Source: The Conference Board Help Wanted OnLine, Burning Glass Technologies

Employment Projections

Projections do not exist by industry cluster, but they do exist for industries and occupations that make up the industry cluster. Although projections through 2030 show nearly 9 percent growth in total statewide employment, it is important to remember that these projections begin with a base year of 2020, where total employment was down compared to prior years.

Figure 8 shows the occupations with the highest projected growth rates within the Construction cluster through 2030. Of these top high-growth occupations, only *Civil engineers* requires the completion of a postsecondary degree. The other four are obtainable with either completing an apprenticeship or moderate/long-term training. Together,

these five occupations are expected to expand in employment by nearly 4,900 jobs between 2020 and 2030 and are also projected to provide a combined 4,200 average annual openings over the time period.

The occupations with the largest number of projected annual openings are highlighted within Figure 9. There is a wide variety of educational and training combinations represented among these five careers, providing opportunities for those of all backgrounds. *Mechanical engineers* and *Project management specialists* have bachelor's degree requirements while the rest require less education but more training. Together, these occupations are also expected to add nearly 16,000 jobs through 2030.

FIGURE 8: MICHIGAN CONSTRUCTION CLUSTER OCCUPATIONS WITH THE MOST PROJECTED GROWTH THROUGH 2030



Source: 2020–2030 Occupational Employment Projections, Michigan Center for Data and Analytics

FIGURE 9: MICHIGAN CONSTRUCTION CLUSTER OCCUPATIONS WITH THE MOST PROJECTED ANNUAL OPENINGS THROUGH 2030



Source: 2020–2030 Occupational Employment Projections, Michigan Center for Data and Analytics

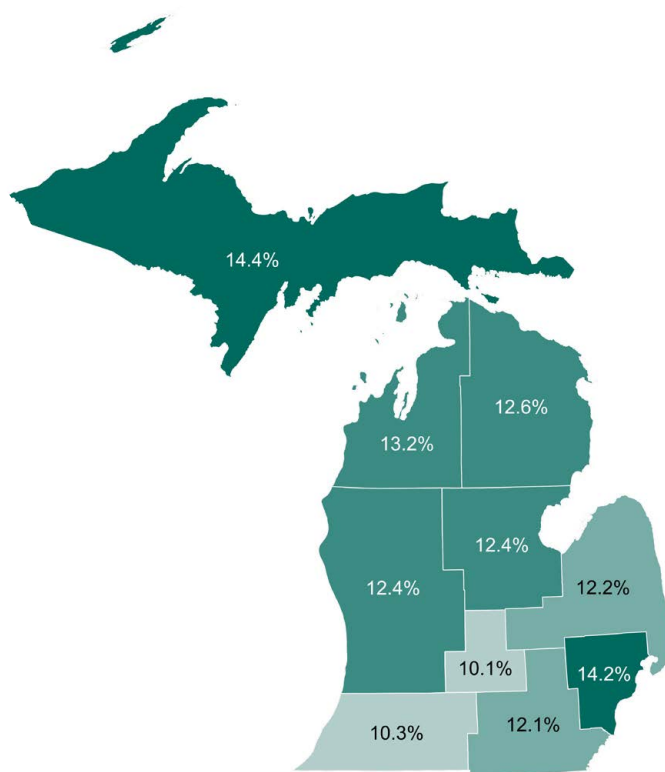
Workforce Demographics

Data on workforce demographics such as gender, age, education, and race or ethnicity are important to identifying industry cluster characteristics and evaluating potential disparities. Understanding and addressing gaps in education and skills across demographic groups can aid the growth of an industry cluster. In order to maintain or attract younger workers across an industry cluster, employers may need to acclimate to what their workforce values, such as opportunities for financial and professional gain. The following section displays characteristics of the Construction cluster workforce in Michigan. These data analyses rely on the Longitudinal Employer-Household Dynamics program and may vary from industry data published by the Quarterly Census of Employment and Wages due to limitations of data availability and differences in collection time periods.

The Construction cluster has an employment share of over 10 percent within each prosperity region in Michigan. The Upper Peninsula has the largest share of Construction employment at 14.4 percent followed by the Detroit Metro region at 14.2 percent. South Central Michigan has the lowest share of cluster employment at 10.1 percent.

Construction has an above-average share of those within the prime working-age group. The widest gap between the cluster and state is among those age 45 to 54 at 1.7 percentage points. On the other hand, just 10.2 percent of cluster employment is among those age 19 to 24, 1.6 percentage points less than the statewide share for the age group. There are also slightly fewer

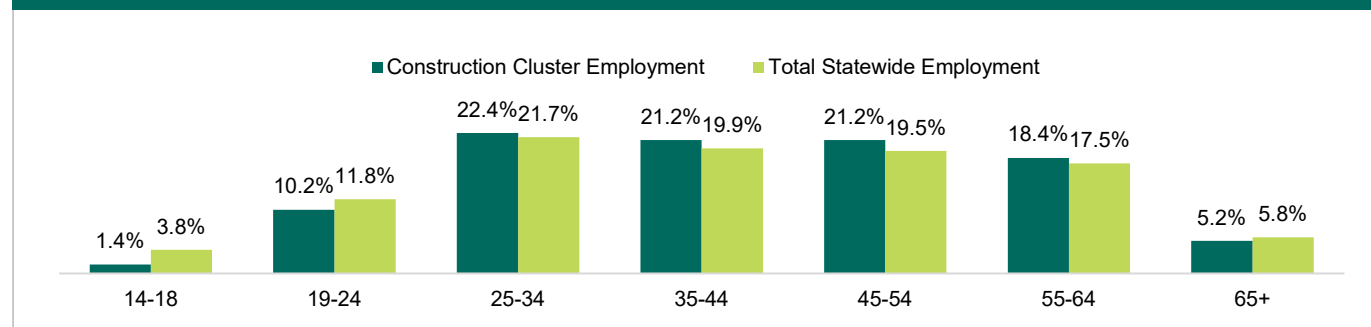
Construction Cluster Share of Total Employment by Michigan Prosperity Region



Source: Longitudinal Employer-Household Dynamics, U.S. Census Bureau

employed among the oldest age group (65 to 99). Lower shares among these groups could be due to either the physical demands, on-the-job training, or postsecondary educational requirements needed by many occupations within Construction.

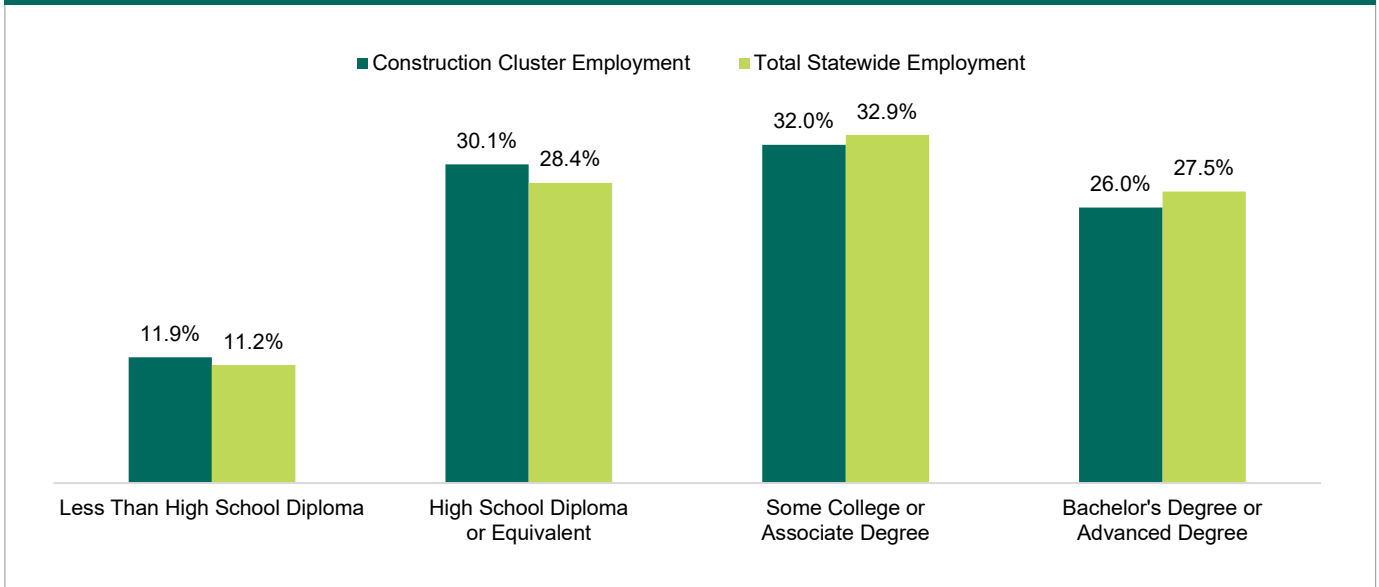
FIGURE 10: MICHIGAN CONSTRUCTION CLUSTER EMPLOYMENT BY AGE, THIRD QUARTER 2021



Source: Third Quarter 2021 Longitudinal Employer-Household Dynamics program, U.S. Census Bureau



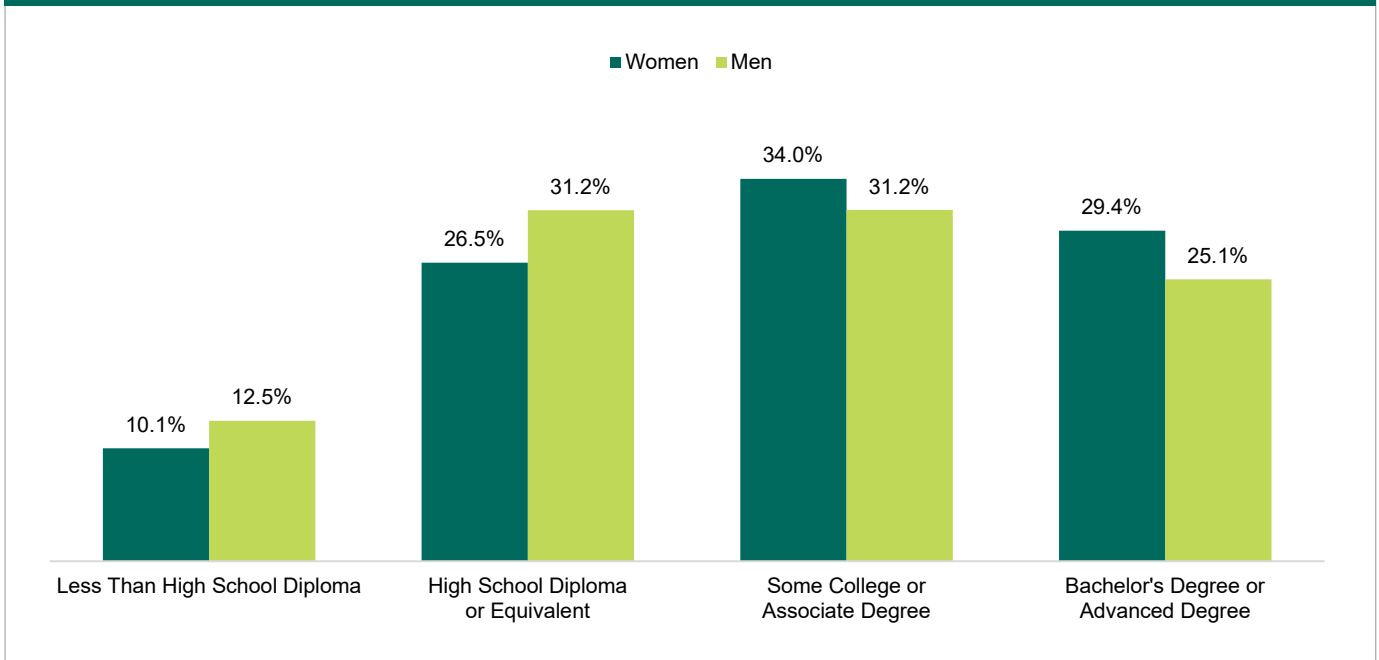
FIGURE 11: MICHIGAN CONSTRUCTION CLUSTER EMPLOYMENT BY EDUCATION, THIRD QUARTER 2021



Source: Third Quarter 2021 Longitudinal Employer-Household Dynamics program, U.S. Census Bureau

Employment by educational attainment in the Construction cluster is similar to that of the state. The cluster has slightly higher shares without a postsecondary education including those with a high school diploma or equivalent, which is 1.7 percentage points greater than the statewide employment share. Among those with a bachelor's degree or higher, Construction has a share of employment that is 1.5 percentage points lower than statewide.

FIGURE 12: MICHIGAN CONSTRUCTION CLUSTER EMPLOYMENT BY EDUCATION AND GENDER, THIRD QUARTER 2021



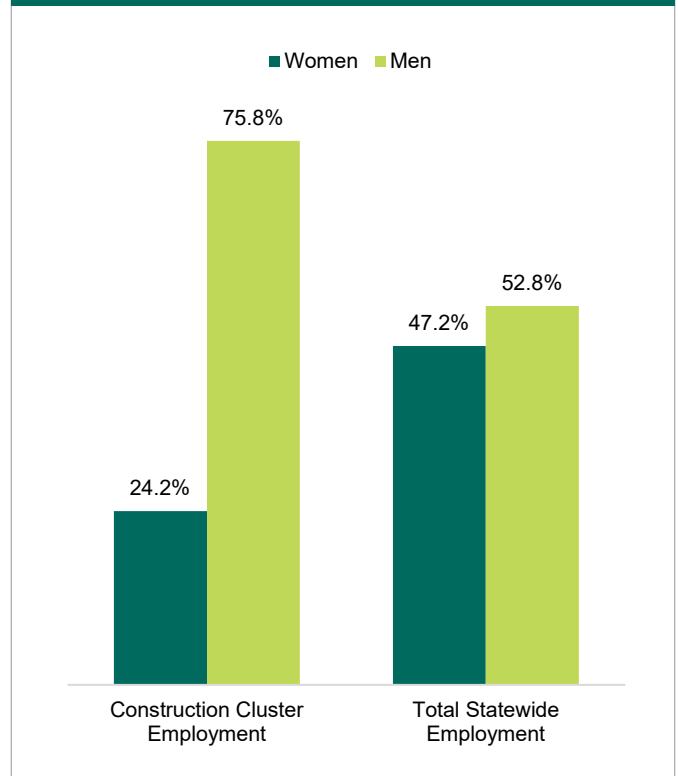
Source: Third Quarter 2021 Longitudinal Employer-Household Dynamics program, U.S. Census Bureau

Women in Construction have a higher share of postsecondary education than men, especially among those with a bachelor's degree or higher (4.4 percentage points higher). There are more men than women employed with a high school diploma (or equivalent) or less within the cluster. The difference between men and women with less than a high school diploma is 2.4 percentage points. Quarterly average earnings increase with more educational attainment, however, the difference in earnings between men and women widens among the higher degree levels.

Among those with a bachelor's degree or higher, men earn nearly \$2,500 more per month than women in the cluster. In fact, a woman with a bachelor's degree or higher in Construction could expect to earn just slightly more than what a man with a high school diploma or equivalent would earn in the cluster.

Men make up over three-quarters (75.8 percent) of Construction cluster employment. This is significantly higher than the share of men among total statewide employment (52.8 percent). However, Construction is not unique in employing mostly men. Other clusters that employ a share of men greater than 70 percent include Energy, Manufacturing, and Mobility.

FIGURE 13: MICHIGAN CONSTRUCTION CLUSTER EMPLOYMENT BY GENDER, THIRD QUARTER 2021



Source: Third Quarter 2021 Longitudinal Employer-Household Dynamics program, U.S. Census Bureau

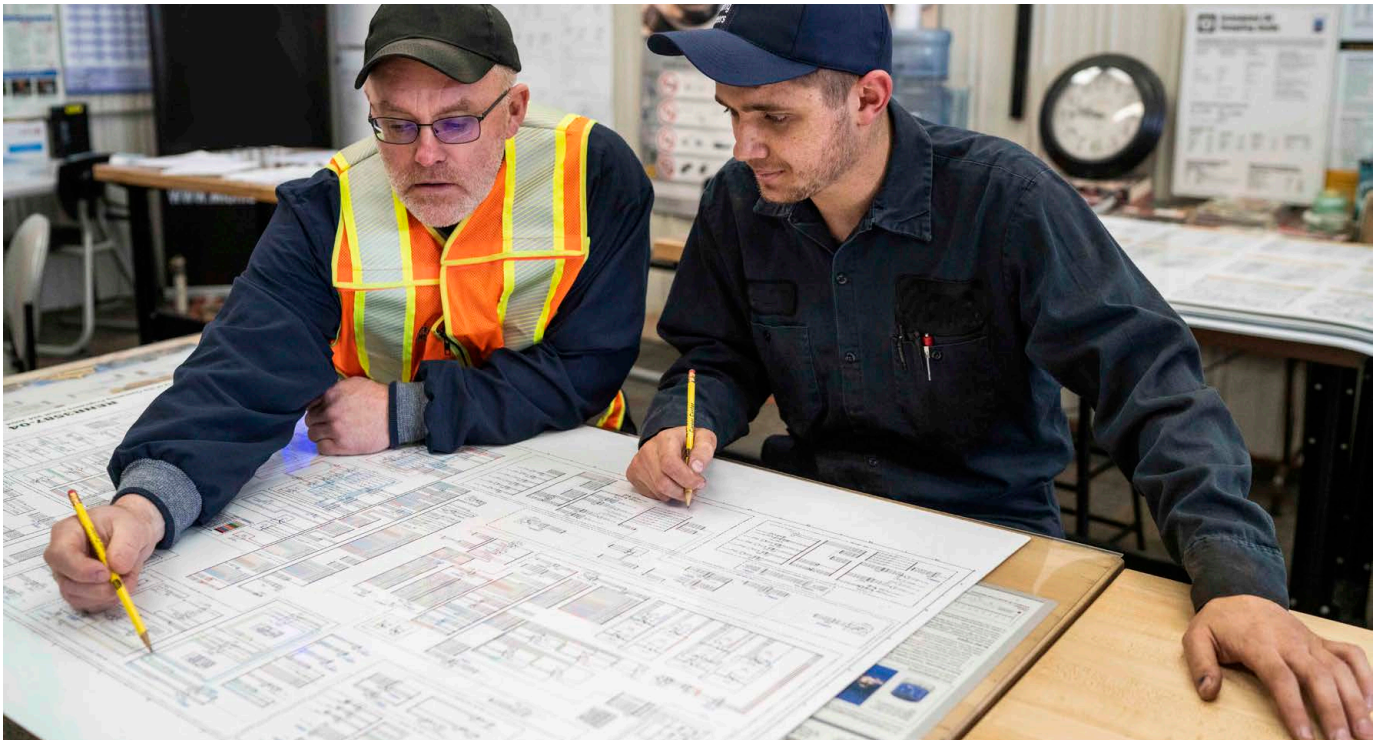
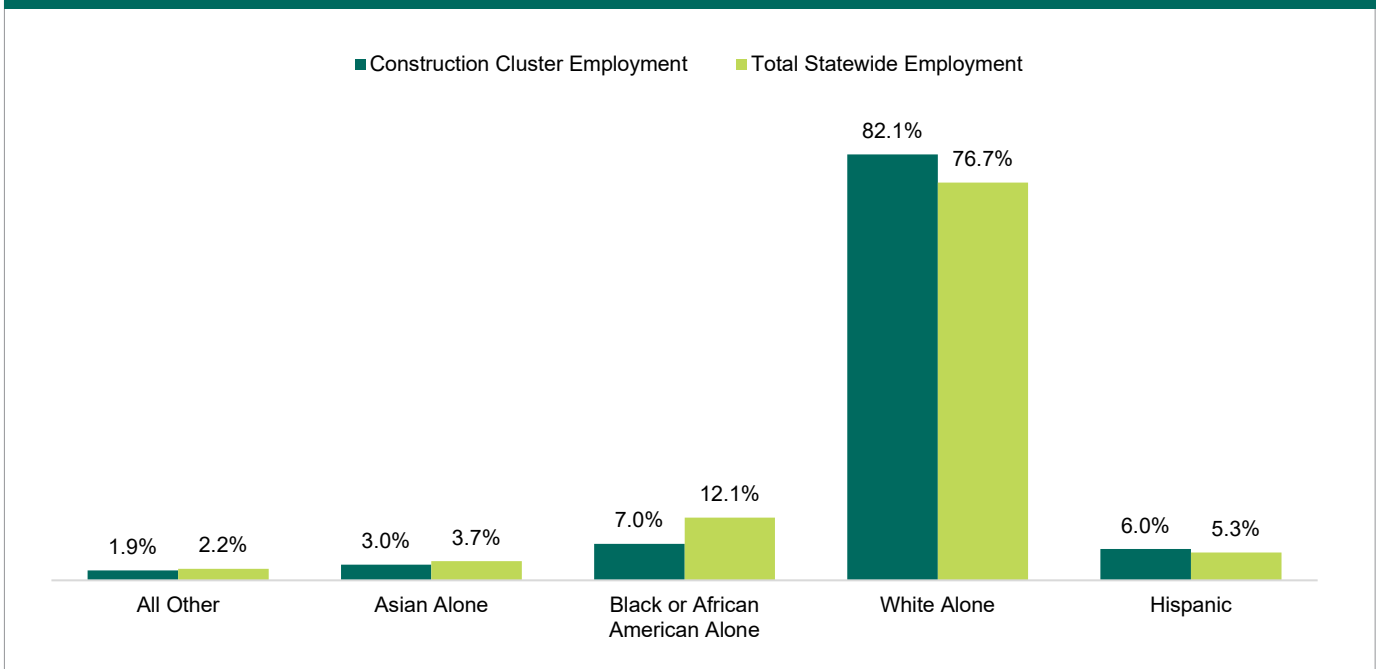


FIGURE 14: MICHIGAN CONSTRUCTION CLUSTER EMPLOYMENT BY RACE AND ETHNICITY, THIRD QUARTER 2021



Source: Third Quarter 2021 Longitudinal Employer-Household Dynamics program, U.S. Census Bureau

Construction has a much lower share (5.1 percentage points lower) of those who are Black or African American alone compared to total statewide employment, while the share of those who are white alone is 5.4 percentage points greater in the cluster. The cluster also observes a slightly lower share of those who are Asian and a greater share of Hispanic individuals.

Talent Pipeline

Data for education program completers of instructional programs are available from the National Center for Education Statistics. These data can be used to estimate ever-changing levels of supply for some occupations in the labor market. There are no officially defined programs for clusters. Certain programs are more likely to lead to work in the Construction cluster than others, but there are opportunities across the educational spectrum including business, social work, and manufacturing programs to name a few. This section will highlight only a few of hundreds of possible programs that can lead to a job in the Construction cluster. Many factors can shift completers, such as an increase in student enrollment during periods of high unemployment or the difficulties that come with attending school during a pandemic. For example, demand for workers may be causing upward pressures on programs while other factors such as a lack of instructors are causing the number of total completers to decrease.

Within the cluster, *Business administration and management, general* and *Mechanical engineering* had the largest number of completers in 2021 across the state with 2,865 and 1,907, respectively. The University of Michigan-Ann Arbor, Michigan State University, Michigan Technological University, and Kettering University combined to account for 57.2 percent of all *Mechanical*

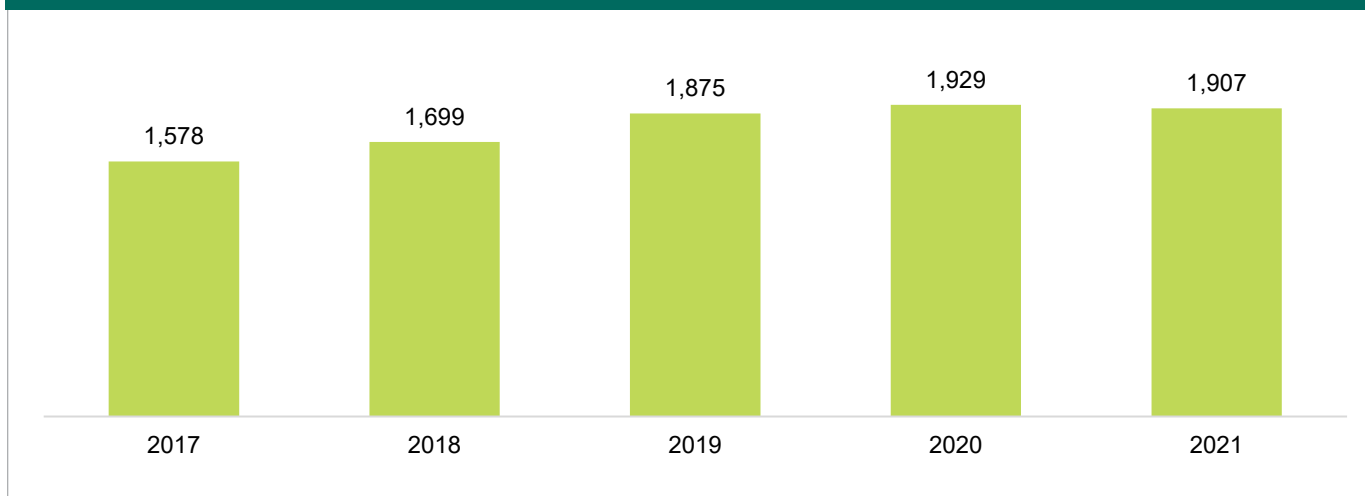
engineering completers. Other common bachelor programs in the state that lead to the Construction cluster include, but are not limited to, *Accounting* (1,571), *Finance, general* (1,544), *Electrical and electronics engineering* (873), and *Computer science* (523).

Master's level graduates were also vital to the Construction cluster. Just over 38 percent of all those who finished a master's degree in the cluster were in *Business administration and management, general*. *Mechanical engineering* had the second highest share at 6.4 percent.

There was a wider variety of programs represented among those who completed a short-term certificate program in the cluster. These programs include *Heating, ventilation, air conditioning and refrigeration engineering technology/technician* (529), *Truck and bus driver/commercial vehicle operator and instructor* (497), and *Welding technology/welder* (353). These programs are typically only captured in the data if they are completed at federally funded institutions. There are likely further short-term training programs in the state at unreported educational centers.

Other programs that could lead to employment within the Construction cluster include *Chemical engineering*; *Computer engineering, general*; and *Civil engineering, general*.

FIGURE 15: MICHIGAN MECHANICAL ENGINEERING BACHELOR'S PROGRAM COMPLETERS, 2017–2021



Source: National Center for Education Statistics, Integrated Postsecondary Education Data System

Conclusion

Construction is a cluster that has been well defined and employs a large section of Michigan's workforce. It offers a wide array of occupations for multiple education and training levels, many of which are high-paying careers. The cluster plays a significant role across Michigan, employing a large share of individuals within each of the state's 10 prosperity regions. However, the cluster faces a lack of racial diversity compared to the state and a lower share of employment among Michigan's youth.

Strengths

Low Educational Barriers

Construction has a share of those with a high school diploma or equivalent 1.7 percentage points greater than the share for total statewide employment. It also employs a slightly larger share of those without a high school diploma, offering a number of opportunities, including several high-paying careers, for those who do not want to pursue postsecondary education.

Regionally Diverse

Each prosperity region in Michigan has a share of Construction employment greater than 10 percent of total regional employment, allowing individuals from all over the state the opportunity to work in the cluster. The regions with the highest share of Construction employment are the Upper Peninsula and Detroit Metro regions.

Heavy Apprenticeship Representation

The Construction cluster had the largest representation of active registered apprentices across any cluster in Michigan, with nearly 12,000 in 2021. These apprentices were well represented in the Detroit Metro and East Michigan regions. Completing a registered apprenticeship often leads to a high-paying career post-completion.

Online Job Advertisements Trending Upward

Job advertisements in the Construction cluster have begun to trend upward in 2021 and 2022, combating a three-year period of decline between 2017 and 2020. 2022 is the first year in which online advertisements in the cluster have exceeded the previous peak in 2017. Some of the occupations contributing the most to this numerical growth are *Construction managers* and *Janitors and cleaners*.

High-Paying Cluster

The average salary in Construction is roughly \$15,000 more than that of the total statewide employment, offering high-paying careers to those who choose to work in the cluster. This can be seen as a good recruiting tool for the cluster to remain competitive in the coming years.



Challenges

Unequal Wages Across Genders

Within the cluster, a woman who has obtained a bachelor's degree or higher could expect to earn only slightly more than a man who has obtained a high school diploma or equivalent. As educational attainment increases in Construction, the gap in wages between men and women increases as well. This is a common occurrence across many sectors as women continue to face a wage gap.

Lacks Racial Diversity When Compared to Statewide Workforce

Construction employs a much larger share (5.4 percentage points greater) of those who are white alone compared to total statewide employment. Much of this gap can be attributed to the cluster having a share of Black or African American alone individuals that is 5.1 percentage points lower than the total statewide employment. Within Construction apprenticeship programs however, 12.5 percent of active registered apprentices are people of color. This is much greater than the share for all active apprentices. A push toward employing a more diverse share of underrepresented groups could make it a more attractive cluster to individuals and increase the talent pool.



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