



Division of Research
and Statistics

The Skilled Trades in New York State

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A Division of the New York State Department of Labor

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Introduction

Employers throughout New York State currently report they are facing labor shortages as they attempt to hire workers in the skilled trades. These worker shortages are expected to worsen in the coming years due to a combination of demographic (e.g., retiring baby boomers) and economic (e.g., increased demand for workers in the skilled trades) factors.

The average age of workers in New York State's construction sector is 43 years old, and the average age of workers in the state's manufacturing sector is 47 years old. This is older than the average age of all workers in the state (42 years old). Moreover, data from Economic Modeling Specialists International (EMSI) show that the largest concentrations of workers in these two sectors are between 45 and 54 years of age (29.0% of manufacturing workers and 28.4% of construction workers). As a result, as these workers begin to retire and exit the workforce, new workers will be needed to take their place.

As the average age in many skilled trade occupations continues to climb and older workers begin to exit the labor force, in many cases there are not enough trained individuals in the pipeline ready to replace retiring workers. This is especially true in occupations that require a great deal of manual or physical labor.

One consequence of businesses being unable to find the skilled workers that they need is slowed job growth and/or delayed expansion plans. However, the need to fill job vacancies in the skilled trades also represents an opportunity for workers to train in many of these relatively high-paying occupations. This is especially true for certain populations, such as females and various ethnic groups, which are currently underrepresented in the skilled trades in the state.

Types of Occupations

What specific occupations are considered part of the skilled trades, and in what industries are they primarily found? Our analysis relies in part on a list of skilled trade occupations compiled by the State of Michigan's Department of Technology, Management and Budget in 2013. The Michigan list was supplemented by the addition of several other occupations with relatively high wages and strong job growth projected over the next decade in New York State.

The authors of the Michigan report further refined their occupational list by noting the major industry groups (i.e., manufacturing, construction and services) that principally employ specific occupations. See the list of occupations by major industry group in the Appendix at the end of this paper.

Key Numbers for the Skilled Trades in New York State

Employment

In Skilled Trades Occupations:
607,710

In All Occupations: 8,984,890

Skilled Trades Occupations/All Occupations: 6.8%

Annual Wage Range (Medians)

For Skilled Trades Occupations:
\$19,570-\$97,110 (Median: \$45,830)

For All Occupations: \$19,550-\$178,890 (Median: \$42,340)

Long-Term Job Growth, 2014-2024

For Skilled Trades: +17.0%

For All Occupations: +13.1%

Total Annual Openings, 2014-2024

For Skilled Trades: 24,890

For All Occupations: 361,750

Skilled Trades/All Occupations: 6.9%

Online Job Ads (Help Wanted Online):

July 1, 2015 –June 30, 2016

For Skilled Trades: 133,250

For All Occupations: 1,954,000

Skilled Trades/All Occupations: 6.8%

There are many high-paying occupations in the skilled trades, especially in manufacturing and construction. Many titles pay well above New York State's overall median annual wage (\$42,340). While many job titles in the skilled trades do not require formal post-secondary degrees, they often require apprenticeship training or moderate- to long-term on-the-job training, where specialized skills and knowledge can be obtained.

Most skilled trade occupations share a number of common characteristics. For example, workers training in these job titles should:

- Enjoy working with their hands
- Be able to follow directions
- Have good reading and math skills

Additional skills and knowledge needed for some skilled trade jobs include:

- Taking measurements
- Reading blueprints
- Having good eye-hand coordination

Workers that are detailed-oriented and work well with others should be successful in these career choices.

With apprenticeship programs, workers earn a salary while obtaining hands-on skills. They also attend classroom training, which is a plus for individuals who cannot afford to take time off from work to become educated in a specific occupation. Apprenticeships can vary in length from one to five years.

People employed in the skilled trades can work in a wide variety of settings, such as: outside on a building construction site; indoors in a machine or fabrication shop; in a laboratory; in an auto shop; in a food production plant; or in a building installing electrical wiring or plumbing.

Occupational Growth in New York State, 2014-2024

Every two years, the New York State Department of Labor publishes long-term, statewide occupational projections that cover a 10-year planning period (currently 2014-2024). These projections are intended to help individuals make informed education and career decisions and assist educators and training providers in planning for future workforce needs.

Some of the most important data elements in the occupational projections series include the change in the number of jobs (both net and percent) over the planning period. Also important is the number of openings expected to occur in the occupation each year over. The number of annual openings in an occupation is equal to annual growth in the occupation plus replacement need. Replacement needs occur due to retirements as well as when current workers get promoted or move between companies.

Long-term projections data for skilled trade occupations in New York State are impressive. From 2014 to 2024, the combined total job count in the skilled trades in New York is expected to grow by 116,270, or 17.0%. In addition, the skilled trades in New York State are expected to offer almost 25,000 openings each year, including 11,780 due to employment growth and 13,110 due to replacement need.

As noted above, many skilled trade occupations are high paying and do not require a college degree. Some examples include: machinist; plumber; electrician; carpenter; industrial machinery mechanics; and heating, air conditioning and refrigeration mechanics and installers.

Long-term statewide occupational projections are available online at:

<http://labor.ny.gov/stats/2014-2024-Statewide-2012-2022-Regional-Long-Term-Occupational-Projections.xls>.

Projected Industry Growth in New York State, 2014-2024

The New York State Department of Labor also publishes long-term, statewide industry employment projections that cover the same 10-year period (currently 2014-2024) as the long-term occupational projections. Below, we present projections information for two sectors -- manufacturing and construction -- that employ a large number of workers in the skilled trades.

Long-term statewide industry projections are available online at:

<http://labor.ny.gov/stats/2014-2024-Statewide-2012-2022-Regional-long-term-industry-projections.xls>.

Manufacturing Sector

New York State's manufacturing sector represents about 5% of total employment in the state. Although manufacturing is expected to grow at a slower pace (+0.9%) than the state economy as a whole (+13.1%) over the 10-year planning period, there will be many job openings available each year due to replacement needs.

Manufacturing sector job growth over the 2014-2024 period is expected to be concentrated in four manufacturing industries in particular -- food processing (+20.2%), beverage and tobacco products (+17.8%), wood products (+13.9%), fabricated metal products (+13.2%) and plastics and rubber products (+12.8%). These manufacturing industries are projected to create many job opportunities as they are all expected to grow by at least 10% over the 2014-2024 period.

Some occupational categories with significant numbers of skilled trade workers employed in the manufacturing sector include:

- Vehicle and mobile equipment mechanics, installers, and repairers
- Other installation, maintenance and repair occupations
- Assemblers and fabricators
- Metal and plastic workers

The table below lists examples of skilled trade occupations typically found in the manufacturing sector. These job titles pay above-average wages and do not typically require a college degree for entry into the occupation.

High-paying Skilled Trade Occupations* Manufacturing Sector New York State, 2015

SOC Code	Job Title	Median Annual Wage
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	\$81,470
49-9062	Medical Equipment Repairers	\$56,130
49-9041	Industrial Machinery Mechanics	\$52,000
49-9043	Maintenance Workers, Machinery	\$47,780
51-4012	CNC Machine Tool Programmers	\$46,960

**Refers to occupations with a median wage greater than \$42,340 (state's overall median wage).*

Construction Sector

The job count in New York State's construction sector is expected to grow by 28.4% in 2014-2024, by far the most rapid growth rate of any major industry sector in the state. This rate of growth translates into net job growth of 97,500 within the construction sector over the 10-year projections period. Moreover, construction's projected rate of job growth is more than double the rate of employment growth (+13.1%) for all industries combined.

Within the construction sector, the largest number of new jobs is expected to arise in specialty trade contractors (+75,740). This is followed by construction of buildings (+14,230) and heavy and civil engineering construction (+7,520).

The table below lists examples of skilled trade occupations typically found in the construction sector. These job titles pay above-average wages and do not typically require a college degree for entry into the occupation.

**High-paying Skilled Trade Occupations*
Construction Sector
New York State, 2015**

SOC Code	Job Title	Median Annual Wage
47-2171	Reinforcing Iron and Rebar Workers	\$97,110
47-2221	Structural Iron and Steel Workers	\$90,810
47-2011	Boilermakers	\$74,850
47-2111	Electricians	\$68,770
47-2044	Tile and Marble Setters	\$68,720
47-2152	Plumbers, Pipefitters, and Steamfitters	\$66,180
47-2073	Operating Engineers and Other Construction Equipment Operators	\$63,640
47-2211	Sheet Metal Workers	\$63,260
47-2021	Brickmasons and Blockmasons	\$63,250
47-2051	Cement Masons and Concrete Finishers	\$62,940
47-2082	Tapers	\$59,980
47-2071	Paving, Surfacing, and Tamping Equipment Operators	\$58,590
47-2131	Insulation Workers, Mechanical	\$57,400
47-2081	Drywall and Ceiling Tile Installers	\$57,210
47-2121	Glaziers	\$54,010
47-2031	Carpenters	\$52,870
47-2141	Painters, Construction and Maintenance	\$47,140

**Refers to occupations with a median wage greater than \$42,340 (state's overall median wage).*

Demand for Skilled Trade Workers in New York State

To gain further insight into the current demand for workers in the skilled trades, we looked at the number of job ads posted by employers in New York State. For this analysis, we used data from the Conference Board’s Help Wanted Online data series. The table below shows the 15 skilled trade occupations with the most posted job ads over the July 1, 2015 - June 30, 2016 period.

**15 Skilled Trade Occupations with Most Help Wanted Ads
New York State, July 1, 2015 - June 30, 2016**

SOC Code	Job Title	Number of Ads
49-9071	Maintenance and Repair Workers, General	20,130
43-6013	Medical Secretaries	15,747
49-3023	Automotive Service Technicians and Mechanics	10,917
47-2031	Carpenters	9,449
35-1011	Chefs and Head Cooks	7,880
39-5012	Hairdressers, Hairstylists, and Cosmetologists	7,480
31-9092	Medical Assistants	7,010
31-9091	Dental Assistants	5,696
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	4,500
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	4,465
43-6012	Legal Secretaries	4,155
47-2111	Electricians	4,137
49-3021	Automotive Body and Related Repairers	3,426
47-2152	Plumbers, Pipefitters, and Steamfitters	3,179
47-2141	Painters, Construction and Maintenance	2,747

Source: Conference Board, Help Wanted Online series

Groups Underrepresented in the Skilled Trades

As noted earlier in this paper, workers in the skilled trade occupations tend to be older on average than the overall workforce in New York State. Data from the American Community Survey provide further insight into the composition of the skilled trade workforce. For example, 97.8% of Construction and Extractive Craft Workers and 92.8% of Installation, Maintenance and Repair Craft Workers are male. For both occupational groups, there is a large untapped labor pool of female workers that could be recruited and trained to fill these job openings. In contrast, there is more gender equity among Production Operative Workers, where 33.3% of workers are female.

Data from Economic Modeling Specialists International (EMSI), an economic software firm that specializes in employment data and labor market analysis, provides insight on the

demographics of workers in New York State. EMSI data point to a largely white, male workforce within New York State's construction and manufacturing sectors. In 2015, males represent 84.1% of construction workers and 68.7% of manufacturing workers in the state. Similarly, Whites account for 73.0% of construction workers and 73.4% of manufacturing workers. Hispanics/Latinos represent the next largest ethnic group in each sector; they account for 14.2% of construction workers and 12.6% of manufacturing workers in the state.

The statistics underscore the fact that certain populations, such as women and some minority groups, are currently underrepresented within the skilled trades. Reaching out to these groups, as well as encouraging young people to train and enter the skilled trades occupations, could help partially alleviate some of the labor shortages discussed above. Many students may not be aware of these types of occupations and the good potential that they offer.

There are additional populations of potential workers that could be recruited to help fill some of the job gaps in this field. Below are some examples that workforce planners might wish to consider.

- Refugees or immigrants to the state that might have already attained these types of skills or practiced these trades in their home countries or are interested in training in these fields
- Veterans would be a good fit for these careers as they tie in to their military skills
- Individuals living in poverty that are seeking higher-paying employment opportunities

An additional population segment could be individuals who are re-entering the workforce after being incarcerated and are making a fresh start for themselves.

Summary

The skilled trades sector represents an excellent career field for many segments of the population in New York State. Increasing demand for these occupations and a growing need to replace retiring workers means there are many job openings in high-paying occupations with good job security.

For Further Information

Questions regarding this report should be directed to Kevin Jack, Statewide Labor Market Analyst. He can be reached via email at Kevin.Jack@labor.ny.gov or by phone at (518) 457-3800.

Appendix: Skilled Trade Job Titles by Major Industry Sector

This list is based in part on a 2013 report originally prepared by the State of Michigan’s Department of Technology, Management and Budget. Additional job titles with a strong presence in New York State were added to the initial Michigan list. To view the original report on skilled trades prepared by the State of Michigan, go to:

archive.milmi.org/admin/uploadedPublications/2055_Employment_Occupations_Skilled_Trades_Michigan.pdf.

Occupations in the Skilled Industrial Trades (Manufacturing)

SOC Code	Job Title
47-2011	Boilermakers
47-2111	Electricians
47-2152	Plumbers, Pipefitters, and Steamfitters
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay
49-9012	Control and Valve Installers and Repairers (Ex. Mechanical Door)
49-9041	Industrial Machinery Mechanics
49-9043	Maintenance Workers, Machinery
49-9044	Millwrights
49-9062	Medical Equipment Repairers
49-9069	Precision Instrument and Equipment Repairers, All Other
49-9071	Maintenance and Repair Workers, General
49-9096	Riggers
51-4012	CNC Machine Tool Programmers, Metal and Plastic
51-4041	Machinists
51-4061	Model Makers, Metal and Plastic
51-4062	Patternmakers, Metal and Plastic
51-4111	Tool and Die Makers
51-4121	Welders, Cutters, Solderers, and Brazers
51-4194	Tool Grinders, Filers, and Sharpeners
51-7011	Cabinetmakers and Bench Carpenters
51-7031	Model Makers, Wood
51-7032	Patternmakers, Wood
51-8021	Stationary Engineers and Boiler Operators
51-8031	Water and Wastewater Treatment Plant and System Operators

Occupations in the Skilled Construction Trades

SOC Code	Job Title
47-2011	Boilermakers*
47-2021	Brickmasons and Blockmasons
47-2022	Stonemasons
47-2031	Carpenters
47-2041	Carpet Installers
47-2044	Tile and Marble Setters
47-2051	Cement Masons and Concrete Finishers
47-2053	Terrazzo Workers and Finishers
47-2071	Paving, Surfacing, and Tamping Equipment 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
47-2132	Insulation Workers, Mechanical
47-2141	Painters, Construction and Maintenance
47-2151	Pipelayers
47-2152	Plumbers, Pipefitters, and Steamfitters*
47-2161	Plasterers and Stucco Masons
47-2171	Reinforcing Iron and Rebar Workers
47-2211	Sheet Metal Workers
47-2221	Structural Iron and Steel Workers
47-4021	Elevator Installers and Repairers
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers
49-9096	Riggers*
53-7021	Crane and Tower Operators

*Primary Category for this Skilled Trade Occupation

Occupations in the Skilled Service Trades

SOC Code	Job Title
29-2021	Dental Hygienists
29-2041	Emergency Medical Technicians and Paramedics
29-2057	Ophthalmic Medical Technicians
31-9091	Dental Assistants
31-9092	Medical Assistants
31-9094	Medical Transcriptionists
31-9097	Phlebotomists
35-1011	Chefs and Head Cooks
39-4031	Morticians, Undertakers, and Funeral Directors
39-5012	Hairdressers, Hairstylists, and Cosmetologists
39-5092	Manicurists and Pedicurists
43-6012	Legal Secretaries
43-6013	Medical Secretaries
49-3021	Automotive Body and Related Repairers
49-3023	Automotive Service Technicians and Mechanics
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists
49-3041	Farm Equipment Mechanics and Service Technicians
51-3011	Bakers
51-6041	Shoe and Leather Workers and Repairers
51-9071	Jewelers and Precious Stone and Metal Workers
51-9081	Dental Laboratory Technicians
51-9082	Medical Appliance Technicians
53-2012	Commercial Pilots

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