



# Construction Industry Careers

Your path to a rewarding future

## Construction



is one of the largest industries in the country, and yet, when thinking about careers, many high school students do not even consider the opportunities construction offers. Of all the careers that you have to choose from, construction offers a sense of accomplishment like no other. In construction, you change people's lives — whether it is the house that they live in, the office or hospital that they work in, or the roads that they drive on.

## Apprenticeship



in Northern Ohio has been around for more than a century, however, many do not know about the great opportunities that apprenticeship training offers:

1. **Working from day one.**
2. **Getting trained in all aspects of your field.**
3. **Getting paid to go to work and school.**
4. **Completing with limited debt.**

## Associated Builders and Contractors of Ohio



has sponsored thousands of construction apprentices for more than 25 years. Our association believes in merit and that if you are a hard worker, you will achieve great things. We look forward to working with you to start your career in the construction industry!



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# Why Construction?

## Top 5 Reasons to Choose a Career in the Construction Industry

1. The construction industry is one of the largest industries in the United States. As long as there is a modern civilization in this country, there will be need to build, repair and remodel the homes, commercial buildings, roads and infrastructures that exist throughout the country.
2. Due to the aging workforce of skilled craft persons, good paying jobs are even more available as people start to retire.
3. Unlike other industries, the majority of the construction installation cannot be built in other countries. You have to build roads and buildings on its final location — right here in the United States.
4. Those who choose a career in construction have a sense of accomplishment when they see their completed project. There is an immediate feedback showing productivity and a job well done which will last for generations to enjoy.
5. The construction industry is constantly evolving. Advanced technology on machines, computers, math and physics are all part of completing projects safer, more efficient and “greener”.





# What is Apprenticeship?

The use of apprenticeship training has been around since the middle ages, and is still used today as an educational path to pass down experience from one person to another. Today, apprenticeships are a widely used industry learning tool using a formal training program that combines on the job training with classroom instruction. It combines the practical and theoretical aspects of highly skilled occupations.

Depending on the trade, apprenticeship programs are 3-5 year post-secondary educational training programs where apprentices receive a wide variety of training throughout all aspects of the trade. During the apprenticeship, apprentices are registered and contracted through the State of Ohio, Bureau of Apprenticeship Standards.

## Earn While You Learn

Apprentices are paid a progressive scale throughout their apprenticeship both on the job and while attending class. The State of Ohio sets the wages based on a survey of those already skilled in the trade. Many employers pay above the state-mandated minimum based on the student's apprentice's performance, safety, and quality. ABC of N Ohio encourages employers to pay based on the apprentice's merit on the job.

Though tuition is the responsibility of the apprentice, the wages earned by attending Paid Related Instruction typically covers the cost of the class. In addition, some employers and apprentices have agreements for tuition reimbursement.

## On the Job Work Experience

The majority of the training is done on the job. Employers are responsible to train apprentices in all aspects of the trade with relevant work experience, so when graduating from the program, the apprentice achieves journey level status in the trade. Apprentices are supervised at all times throughout the apprenticeship to ensure safe and proper training.

## Education

The theoretical training is broken down into both paid and unpaid training. Paid related instruction classes are the classes that apprentices are paid to attend and consist of the majority of the education.

Unpaid related instruction are classes that the employer is not mandated to pay the apprentice to attend. All apprentices are required to take First Aid, CPR, and 10-hour OSHA Safety Training classes. Other unpaid requirements change depending on the specific trade but are complementary training to the paid related instruction.

## Completion

Upon completion of the requirements, the apprentice will graduate from the apprenticeship program and receive a certificate of completion from the State of Ohio and, if their trade is licensed, receive their journey level license. Unlike those completing a traditional college path, completed apprentices already have careers with employers they have worked with for a number of years and do not need to look for a job.

# College vs Apprenticeship

## What Kind of Education is Right for You?

When exploring possible career choices, there are many things to consider. An extremely important aspect of any career is the training and education it requires. As you research possible occupations, be sure to review the kind of training needed to be successful. Although most career-level occupations require post-secondary education, they do not necessarily require a four-year bachelor's degree.

In construction there are many different types of careers. Engineers, architects, estimators, and project managers often require a four year degree or beyond. At the field level, completing an apprenticeship program is a recognized achievement—one that can open the door to multiple possibilities.

When choosing a career, earning potential is a key thing to consider. You want to be in a career path that will allow you to support yourself and your family. So how does apprenticeship stack up against a college degree?

## Dollars and What Makes Sense for You

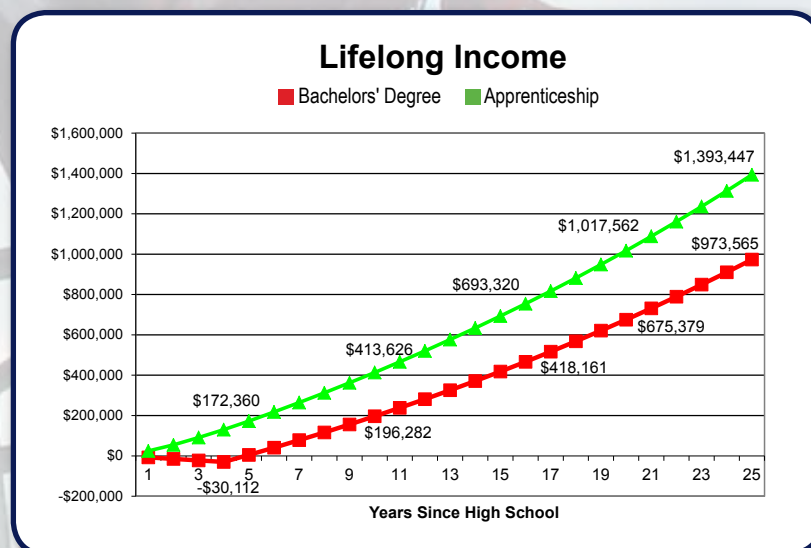
Many times, people think that you have to earn a bachelor's degree in order to be successful. Consider this example of two people — one who gets a bachelor's degree from a public university and the other one completes an electrical apprenticeship.

An average public university student in Ohio spends approximately \$7,500 per year on tuition, not counting room, board, or books. An electrical apprentice will spend approximately \$2,000 on program costs per year for five years, although many employers have a tuition reimbursement program.

Assuming the college student finishes in four years and starts work immediately after graduation with a starting pay of \$35,000 a year with 3% increases each year, the college graduate will earn approximately a grand total of \$974,000 by the time his or her 25th high school reunion comes around.

On the other hand, the electrical apprentice will earn more than \$150,000 while in a five year apprenticeship program (apprentices are paid both on the job and when attending class). Assuming the same 3% raise every year, the electrician will earn nearly \$1,400,000 in the same 25 years after high school.

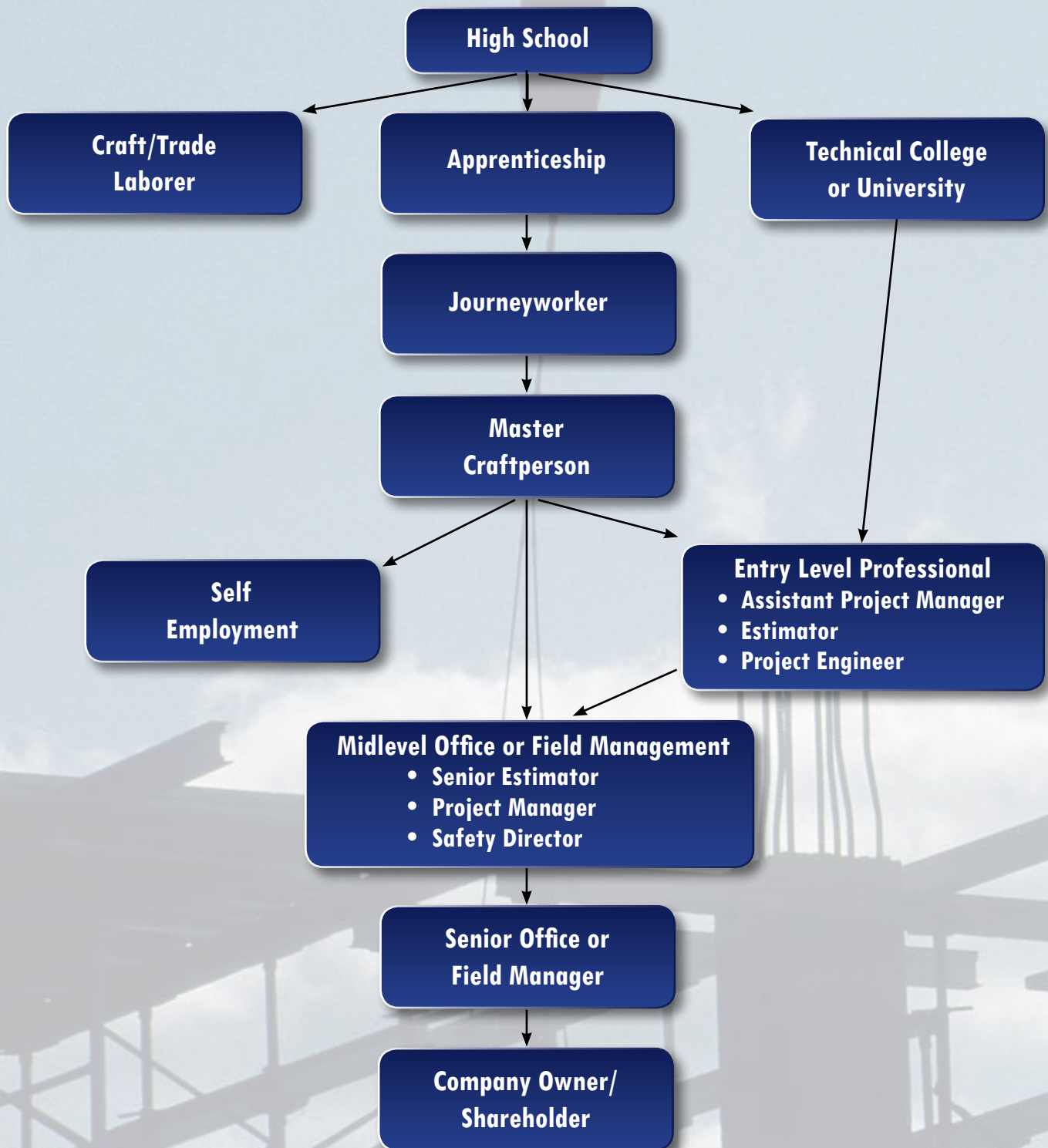
Of course, there are a number of variables which can affect this calculation one way or another, but it demonstrates that a career in construction can be financially rewarding.





# Construction Career Path

Careers in the construction industry are honorable and rewarding. Feeling great about what you do is why more than 7 million Americans choose construction as their career. Start out as an apprentice and follow the career path to project superintendent, field management, senior management, or all the way to company owner.



# Safety in Construction

**Safety is the center of our training!**



Construction is a fast-paced environment that involves potential hazards, which is why safety awareness and training are critical in the construction industry. Employers know that the safety of their employees is the top priority on any job. ABC of N. Ohio is committed to quality safety education throughout the apprenticeship and the industry.

- ✓ Before an employer is approved to train in the ABC of Northern Ohio Apprenticeship program, employers have to verify that they have a written safety and hazardous communication program and have regular safety meetings to promote safety on the job site.
- ✓ In paid related instruction classes, each year students work through a Safety Workbook which goes through the rules and regulations of the OSHA 1926 Standards.
- ✓ All apprentices are required to take First Aid, CPR, and a 10-hour OSHA class within the first year of their apprenticeship.

By being proactive and mandating safety training, the employers and ABC of Northern Ohio are able to develop a culture of safety and create a work environment that protects everyone.



# Bricklaying

**Average Skilled Wage Rate: \$29.48\***

Bricklayers (also referred to as Masons) construct, repair, and renovate structures of brick, block, stone, and a variety of other materials so that the structures are waterproof, weatherproof, and long lasting. Their work includes reviewing blueprints, cutting and grinding of the materials, and laying of the brick so that they are even, straight, and clean.

Bricklayers must be dedicated and patient since most of this work is done by hand and is labor-intensive.

## Length of Apprenticeship

3 years

(Includes 4,280 on the job work hours, 400 paid related instruction hours, and 20 unpaid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by a Department of Workforce Development



# Carpentry

**Average Skilled Wage Rate: \$28.54\***

Carpenters are skilled craftsman who cut, fit, and assemble a variety of different building materials. Some examples of their work include rough framing, forming of concrete foundations and slabs, roofing, siding, windows, finish carpentry, and general building repairs.

Technology has led to much advancement in recent decades, so carpenters are more versatile than ever before and have the ability to manage many responsibilities on a project. They are required to use hand and power tools on a daily basis, which increases their overall productivity and accuracy.

Carpenters are typically working from a set of detailed construction documents, so good math, reading, and communication skills are essential. The understanding of geometry is one of the most important aspects of their work, as this affects layout and their ability to construct in a square, plumb manner.

## Length of Apprenticeship

4 years

(Includes 6,416 on the job work hours, 576 paid related instruction hours, and 120 unpaid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Passing Accuplacer Score

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development





# Concrete Finishing

**Average Skilled Wage Rate: \$24.56\***

Concrete Finishers are skilled workers who place work on a variety of unique structures, such as skyscrapers, dams, schools, airports, highways, and other vertical and horizontal concrete structures. They use their acquired skills to spread concrete so it is level and the right depth, and then top it off with a specified finish that ranges from basic to more architectural. Concrete finishers have a great deal of responsibility to create a quality product, because it is very visible to the customers. A variety of hand and power tools are used to complete projects, and due to the variety of projects that Concrete Finishers work on.

## Length of Apprenticeship

3 years

(Includes 4,000 on the job work hours and 400 paid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development



# Construction Craft Laborer

**Average Skilled Wage Rate: \$20.83\***

Construction Craft Laborers are generalists who perform many different tasks including all aspects of highway construction, demolition of buildings, hazardous waste removal, excavating, erosion control, traffic control, underground utilities, tending machines, and operating a variety of equipment including hand and power tools, material and personal lifts, skid steers and other light equipment.

As construction work becomes more dependent on the use of complex equipment and machinery and a broader selection of materials and techniques, the construction craft laborer is increasingly expected to have enhanced competencies in using, managing, and understanding resources, information, and technology. They also need to have basic communication, comprehension, and interpersonal skills.

## Length of Apprenticeship

3 years

(Includes 4,000 on the job work hours and 400 paid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development





# Electrical

**Average Skilled Wage Rate: \$28.47\***

Electricians plan the electrical systems for homes and businesses, and install conduit, wiring, and other electrical components for breaker boxes, switches, light fixtures, heating and air conditioning, electrical machinery, and a variety of other things. On the job, electricians use a variety of hand and power tools. All electricians are required to follow the National Electrical Code to ensure safety. Electricians must have good critical thinking and mathematical skills.

## Length of Apprenticeship

5 years

(Includes 8,640 on the job work hours, 720 paid related instruction hours, and 200 unpaid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Passing Accuplacer Score

“C” or better in Algebra

Copy of Driver’s License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development



# Electronic Systems Technician

**Average Skilled Wage Rate: \$20.64\***

Electronic Systems Technician is an exciting career on the cutting edge of technology. They install and provide field maintenance and service on products that transport voice, video, audio, and data signals, such as fire alarm systems, intrusion detection systems, audio systems, CCTV systems, broadband systems, access control systems, data networks, media management systems, telecommunications systems and DCS (digital control systems).

Electronic Systems Technicians work with both hand tools and with computers, and they should have good problem-solving and math skills.

## Length of Apprenticeship

4 years

(Includes 6,550 on the job work hours, 576 paid related instruction hours, and 150 unpaid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Passing Accuplacer Score

“C” or better in Algebra

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development





# Heat & Frost Insulating

**Average Skilled Wage Rate: \$28.99\***

Heat & Frost Insulators install and repair insulation on mechanical systems (such as heating and cooling systems, industrial equipment, pipes, ductwork, etc.) for heat retention, condensation prevention, and personal safety. Since insulation needs to fit around different objects and require the individual to follow different codes for fire-stopping, Heat & Frost Insulators need to be able to not only follow blueprints but also problem solve.

## Length of Apprenticeship

4 years

(Includes 6,240 on the job work hours and 400 paid related instruction hours)

## School Location for Paid Related Instruction

In House

**\*\*Employers become certified and teach the apprentices in-house when it is most convenient for them and the apprentices.**

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development



# Heavy Equipment Operating

**Average Skilled Wage Rate: \$29.06\***

Heavy Equipment Operators install, transport, operate, and maintain heavy machinery (such as cranes, bulldozers, excavators, and backhoes) used in the construction of roads, bridges, buildings and various other structures. Since typical work is along live roads and utilities, it is very important that Heavy Equipment Operators work in a safe and professional manner.

## Length of Apprenticeship

3 years

(Includes 5,200 on the job work hours and 400 paid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development



# Heating, Ventilating, and Air Conditioning (HVAC)

**Average Skilled Wage Rate: \$26.75\***

HVAC (Heating, Ventilating, and Air Conditioning) technicians install, maintain, and repair heating, ventilating, and air-conditioning systems in both residential and commercial locations.

Since there are different systems which run differently and consist of mechanical and electrical parts, HVAC technicians need to understand the different operating principles and be able to interpret written specifications of new systems. In addition, HVAC Technicians need to have good problem solving skills when working on repairs of HVAC systems.

## Length of Apprenticeship

5 years

(Includes 8,430 on the job work hours, 576 paid related instruction hours, and 30 unpaid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Passing Accuplacer Score

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development





# Plumbing

**Average Skilled Wage Rate: \$30.87\***

Plumbers design, install, and repair piping systems (including those connected to washers, bathtubs, sinks, toilets, heating and cooling systems) that distribute water and remove waste from buildings. Plumbers must know about water distribution and water supply systems, underground and private waste systems, sanitary drain and venting systems, and connection of fixtures.

Plumbers need to be very familiar with Plumbing Code to ensure safety. In addition, plumbers should be good with mathematics, physics, blueprint reading, basic construction practices, and welding.

## Length of Apprenticeship

5 years

(Includes 8,000 on the job work hours, 572 paid related instruction hours, and 260 unpaid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Passing Accuplacer or TABE Scores

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development



# Roofing

**Average Skilled Wage Rate: \$20.49\***

Roofers install roofs made of tar or asphalt and gravel, rubber, thermoplastic, and metal, and shingles made of asphalt, slate, fiberglass, wood, tile, and other materials. Roofers may also waterproof foundation wall and floors. Repair or re-roofing provides many work opportunities.

## Length of Apprenticeship

4 years

(Includes 6,000 on the job work hours, 400 paid related instruction hours,  
and 40 unpaid related instruction hours)

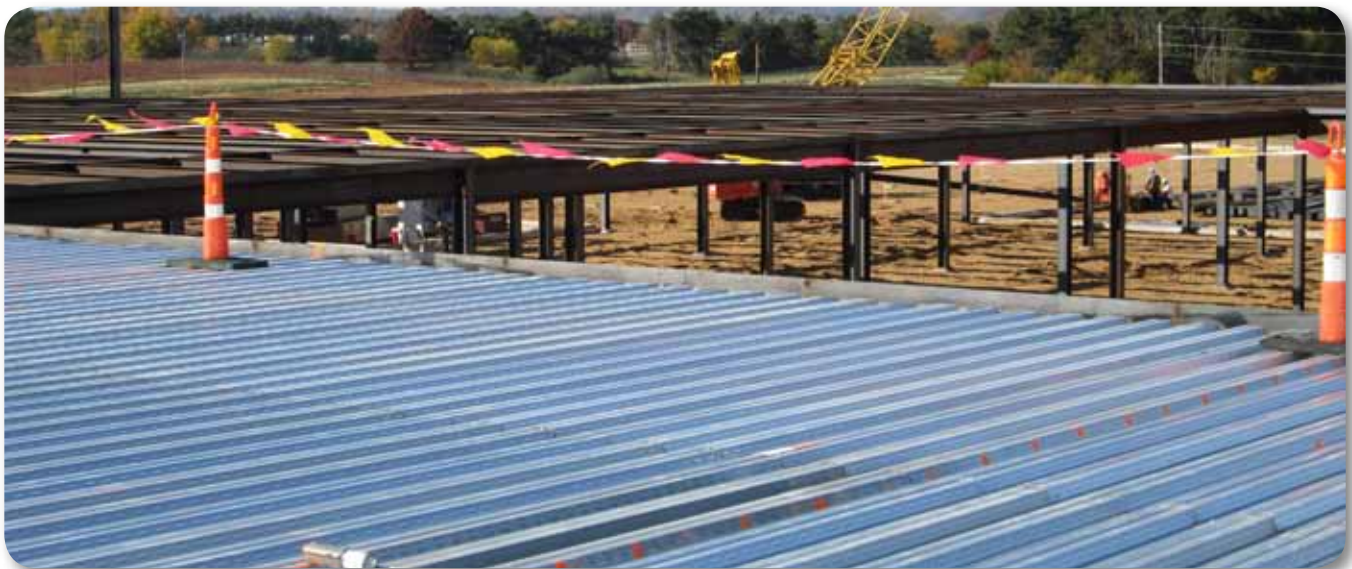
## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development



# Sprinkler Fitting

**Average Skilled Wage Rate: \$36.42\***

Sprinkler Fitters designs, installs, and maintains wet and dry fire protection systems by working with a variety of pipe and tubing materials. Working from blueprints, Sprinkler Fitters perform such tasks as measuring, cutting, and threading pipe for installation, connecting fittings, and then testing the system to ensure that there are no leaks in accordance with national and local codes. Once systems are installed, Sprinkler Fitters do follow up inspections and maintenance. Sprinkler Fitters need to be strong in mathematics and critical thinking.

## Length of Apprenticeship

4 years

(Includes 8,400 on the job work hours and 400 paid related instruction hours)

## School Location for Paid Related Instruction

Correspondence Course

\*\*Apprentices work through curriculum through a correspondence course at their own pace.

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Passing Accuplacer

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development





# Steamfitting

**Average Skilled Wage Rate: \$34.14\***

Steamfitters install, service, and repair pipes and equipment that will withstand high pressure for distribution of steam, chemicals, compressed air, fuel, or other types of pressure producers in both commercial and industrial projects. Steamfitters need to have a thorough knowledge of the principles of heating and cooling and of all temperature control as well as how to read blueprints so they can prepare pipe through measuring, cutting, threading, welding, brazing, and soldering.

## Length of Apprenticeship

5 years

(Includes 8,076 on the job work hours, 576 paid related instruction hours, and 150 unpaid related instruction hours)

## Application Requirements

Apprenticeship Application

High School Diploma or Equivalent

Passing Accuplacer Score

“C” or better in Algebra

Copy of Driver's License

\*Based on 2013 Skilled Wage Rates provided by the Department of Workforce Development



# Other Options

Construction is one of the largest industries in the United States, so if you choose to get into construction, apprenticeship is just one of the options in getting your education.

## Technical Degree/Certificate or Associate's Degree

Many of the technical schools in the state have one or two year degree programs in the trades. Taking these programs can give you a great foundation to your career in construction. In some instances, after people finish their technical degree, they then start an apprenticeship and are granted some credit towards the apprenticeship.

For those who are looking for an Associate's Degree, graduates of the apprenticeship program can get their "Technical Studies — Journeyworker Associate of Applied Science Degree". Completing the apprenticeship fulfills 39 credits. To get the degree, students need to complete another 21 credits of general education classes.

## Bachelor Degree in Construction

There are many options of career choices if you would like to get your Bachelor's Degree and many different schools throughout the state to choose from.

### Possible degrees include:

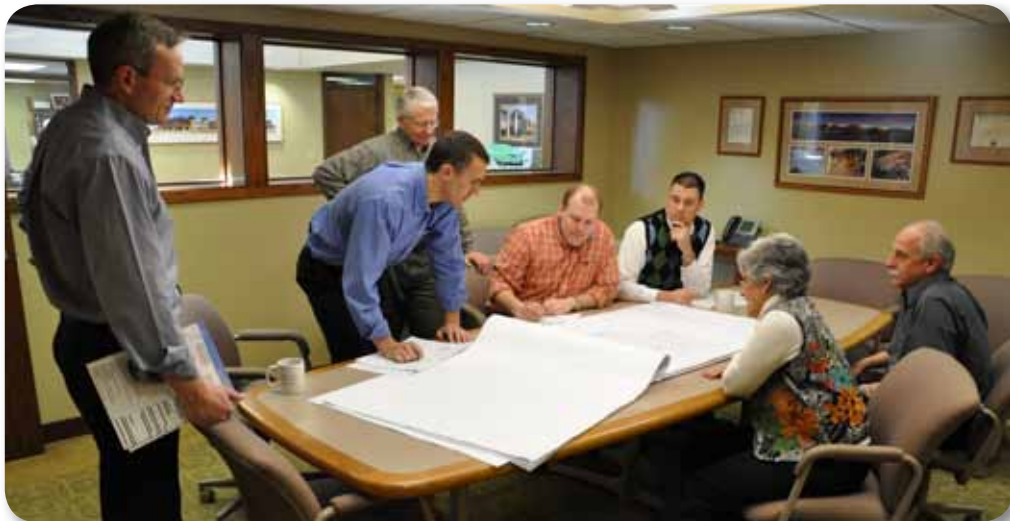
Construction Management

Civil Engineering

Structural Engineering

Architecture

Occupational Safety



## Notes



Thank you to the following for making this book possible:

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Careers in Construction Committee Sponsors**

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