

Plumber

At a Glance

Plumbers install and repair pipes, plumbing systems, and fixtures. They manage sewage waste, and make sure we have clean drinking water.

16 Career Clusters

Architecture & Construction

Manufacturing

Earnings

Earnings Range: 13 - 38/hr

Level of Education

- High School
- 2-Year College or Technical Training

Core Tasks

- Read blueprints to plan system and estimate what materials are needed
- Cut holes in the building for the pipe
- Assemble sections of pipe; usually by cutting and bending lengths of pipe
- Fit water supply and drainage pipes using soldering equipment and glue
- Install fixtures such as toilets and faucets

Attributes & Abilities

- Physically fit
- Comfortable with heights
- Able to solve math problems quickly and accurately
- Work well with your hands
- Hand-eye coordination

Workplace

- Work for plumbing contractors, governments, or self-employed
- Often work in small, cramped spaces
- Exposed to a lot of dirt and grime
- The work is physically demanding
- Most work a 5-day, 40-hour week, but overtime is sometimes necessary

Job Description

Leaky pipe? Clogged drain? Sounds like a job for a plumber. Plumbers are highly skilled tradespeople who install and repair plumbing systems and fixtures.

Many of us are familiar with plumbers who visit our homes. They install new sinks or tubs, or fix clogged drains. But plumbers also work on construction sites. They install plumbing for new office towers and condo buildings.

Plumbers are needed wherever fresh water must be supplied and wastewater removed. They fit pipes and fixtures. They install water supplies, drainage, and sewage systems. They also make repairs to existing plumbing

systems. Plumbers often specialize in new construction or in repairs and upgrades. Many people in this trade focus on work in either homes or commercial buildings.

When installing a system in a new building, plumbers first study the building's blueprints. These detailed drawings show the planned location of pipes and plumbing fixtures. That way, they can decide the best way to install the system.

Plumbers measure and mark the areas where the pipes will be installed and connected. They may have to cut holes in floors, ceilings, or walls to make space for the pipes.

Next, they assemble the various plumbing pieces to be installed. This usually involves cutting and bending lengths of plumbing pipe. They use saws, pipe cutters, and pipe-bending machines to get the job done.

Once the system is installed, plumbers connect it to the water flow. They hook up water and drainage pipes to local sewer systems. In this way, plumbers play a special role in public health and sanitation. They have to follow rules and take precautions with our plumbing systems. Plumbers make sure that we have clean drinking water and don't get sick.

Working Conditions

Plumbers work at a range of sites, including:

- construction sites
- buildings under renovation
- homes
- offices
- factories

They may spend quite a bit of time traveling to and from work sites. They work in all types of weather. They may have to deal with frozen pipes in the winter, or burst pipes once they thaw.

It is important for plumbers to follow the safety rules. They often work in small, cramped spaces. They may suffer cuts from metal pipes. People who are working on construction sites risk slips and falls.

Sometimes, plumbers come into contact with water while working near electrical and heating systems. They must be extremely careful in order to avoid electrical shocks. Even jobs that seem simple and safe can become hazardous. This is especially true when dealing with rusty pipes in places that are hard to reach.

Plumbers often get wet and dirty at work. Burst pipes, clogged toilets, and overflowing drains can be very messy! They usually wear overalls and protective clothing.

This can be a physically demanding job. Plumbers often need to lift and carry heavy materials and equipment. They use all sorts of simple and complex tools. Common examples include saws, wrenches, and power tools. They may be required to use welding torches and soldering guns when they work on pipes.

Plumbers typically work 40 to 50 hours a week. However, they need to be flexible with their schedules. This is especially true if they do contract or maintenance work. Plumbers in these positions tend to work evening or weekend shifts. They have to be able to take emergency repair calls, even when they aren't scheduled to work.

Earnings

Plumbers may work for plumbing contractors or government sewer maintenance departments. Some plumbers are self-employed. They usually work either full time or on a contract basis. Most people in this trade are paid an hourly wage, but some earn an annual salary. Some contract workers are paid a set amount for each job they do.

Wages range from \$15 to \$44 an hour, with a median wage of \$25 an hour. For full-time workers, this adds up to a range of \$30,000 to \$91,000 a year. The median income is \$51,000 a year. In some areas, master plumbers with good reputations can earn more than \$91,000 a year.

Those who are fully qualified are called journeyman plumbers. Most people start their careers as apprentices. These beginner plumbers are paid a portion of a journeyman's salary. This tends to be 50% in the first year, and increases each year until the end of the training.

Earnings depend on their level of experience, employer, and location. The highest wages are often earned by supervisors. Income also depends on whether a plumber is unionized. People who belong to a union tend to earn more than those who are not. Union members' wages are negotiated for them by union leaders.

Plumbers may get benefits along with their pay. These can include health insurance, pension plans, and paid vacation days.

Massachusetts Wages

Occupation: Plumbers, Pipefitters, and Steamfitters

Level of Experience	Hourly	Annual
Entry Wage	\$23.14	\$48,140
Median Wage	\$30.44	\$63,320
Experienced Wage	\$44.29	\$92,110

Source: U.S. Department of Labor, Bureau of Labor Statistics <http://www.bls.gov>

Massachusetts Outlook

Occupation: Plumbers, Pipefitters, and Steamfitters

Employment

2014	10,820
2024	11,280

Change

Number	460
Percentage	4.2

Annual Average Openings

Total	Growth	Replacement
190	--	--

Source: Projections Central <http://www.projectionscentral.com>

Education

You can start preparing to be a plumber in high school. Classes in plumbing, drafting, and blueprint reading are useful. Math and physics courses are of value for this trade. Construction-related courses in welding and electrical systems may be helpful, too. These kinds of classes are also offered by technical schools.

Most plumbers learn the trade through a 4 to 5-year apprenticeship program. These programs provide you with both in-class lessons and hands-on training. Apprentices work and earn a wage while learning. These programs are offered through unions and contractor organizations.

To become an apprentice, you need to be at least 18 years old. You should also be physically fit. Many programs require you to have a high school diploma. These programs can be tough to get into. A high school diploma can give you the edge, even if it isn't required.

Another option is to get your own work experience and education. You can take courses at colleges and find a plumber will train you informally. However, apprenticeships are widely known to provide the best training for the field.

You usually have to be licensed to work as a plumber. Most areas require you to meet certain experience and training criteria. You may have to pass an exam as well.

Some applicants choose to get Armed Forces training in plumbing. You may be given credit for it when you enter a civilian apprenticeship program.

Related College Programs

- Plumbing Technology/Plumber
- Pipefitting/Pipefitter and Sprinkler Fitter
- Construction Trades, General

Other Suggested Qualifications

High school or post-secondary courses in shop, plumbing, math, drafting, blueprint reading, and physics are good preparation. Construction-related courses in welding and electrical systems may also be helpful in securing work as a well-rounded tradesperson. Plumbers need both physical and mental skills. Plumbing is a very physical job. You should be prepared to work in cramped spaces such as under sinks, and to work at heights if necessary. Mental skills are necessary to make mathematical calculations and solve installation and repair challenges.

Sample High School Program of Study

This Program of Study can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals.

Construction Architecture & Construction

Grade 9	Grade 10	Grade 11	Grade 12
English/Language Arts			
English/Language Arts I	English/Language Arts II	English/Language Arts III Technical Writing	English/Language Arts IV
Math			
Algebra I	Geometry	Algebra II	Construction Math Statistics

Grade 9	Grade 10	Grade 11	Grade 12
Science			
Earth or Life or Physical Science	Biology	Physics	Chemistry
Social Studies/Sciences			
State History Civics or World History	U.S. History	Economics Psychology	
Career & Technical Courses			
Introduction to the Built Environment	The Language of Architecture and Construction Information Technology Applications	Safety, Health and the Workplace Environment Principles of Construction	Applications in Construction

States' Career Clusters Initiative, 2008, www.careerclusters.org.

Important

- Check with your advisor to make sure that your course selections satisfy your graduation requirements.
- Courses available may vary from school to school.

Sample Career Path

People take different pathways through their careers, but no one starts at the top. This is an example of how the earnings, education and experience requirements, and responsibilities might progress for someone in this occupation.

Level 1

Sample Title	Apprentice
Earnings	\$28,000 to \$40,000 a year
Requirements	<ul style="list-style-type: none"> • High school diploma • Registered in an apprenticeship program • Possibly have your own tools
Responsibilities	Preparing the job site for qualified plumbers; learning plumbing theories and practices; doing simple tasks such as cutting pipe and easier welding jobs—all supervised by a fully-qualified plumber.

Level 2

Sample Title	Journeyperson Plumber
Earnings	\$45,000 to \$65,000 a year
Requirements	<ul style="list-style-type: none">• Completion of apprenticeship• Plumber's license
Responsibilities	Working independently; reading blueprints; cutting pipe; welding it in place; installing other pipes with sealant; training apprentices.

Level 3

Sample Title	Supervisor
Earnings	\$60,000 to \$80,000 a year
Requirements	<ul style="list-style-type: none">• Several years of experience
Responsibilities	Preparing blueprints; coordinating large job sites with other plumbers; cutting pipe; welding it in place; installing other pipes with sealant; training apprentices.

Related Careers

Here are some other occupations that you might be interested in. Click on an occupation name to learn more.

- Boilermaker
- Cable Installer and Repairer
- Carpenter
- Construction Tradesperson
- Drywaller
- Electrician
- Glazier
- Heating, Air Conditioning, Refrigeration Tech
- Home Inspector
- Insulator
- Ironworker
- Millwright
- Pipefitter
- Pipelayer
- Sheet Metal Worker
- Sprinkler System Installer
- Stationary Engineer
- Steamfitter
- Water Well Driller
- Welder

Related Military Careers

- Plumber / Pipe Fitter

Career Clusters

Career Clusters are groups or families of occupations that share common characteristics such as knowledge requirements, skill sets, and/or goals.

Architecture & Construction

Manufacturing

National Employment by Industry

Industry	% Employed
Construction	68
Self-Employed	14

Source: O*Net Online, Browse by Industry, US Department of Labor
<http://online.onetcenter.org/find/industry>

Other Resources

Plumbing-Heating-Cooling Contractors Association (PHCC)

This organization represents contractors employed in the plumbing, heating, and cooling industry. For general career information, scroll over Tools & Resources and click on Careers.
<http://www.phccweb.org>

United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States, Canada and Australia (UA)

The UA is a trade association representing plumbing and pipefitting professionals across the US, Canada, and Australia. Browse the Training & Recruitment section to learn about different trades and apprenticeship opportunities.
<http://www.ua.org>

Home Builders Institute (HBI)

HBI provides training for careers in the building industry. Scroll over Programs and click on Career & Certification Services to learn more about the services they offer.
<http://www.hbi.org>

Building Advantage – Apprenticeship Program

This organization aims to raise awareness about construction and trade unions. Here you can find excellent career videos to help you learn more about a variety of careers.
<http://www.buildingadvantage.org/apprenticeship>

DoItYourself.Com – Plumbing

This DoItYourself.Com site has detailed descriptions and diagrams for plumbing projects.
<http://www.doityourself.com/scat/plumbing>

Theplumber.Com

A non-commercial site maintained by a plumber and owner of a plumbing business. There is great information throughout this site, and be sure to check out the Plumbing Care & Repair Handbook.
<http://www.theplumber.com>

Build Your Future – Choose Your Career Path

This program of the National Center for Construction Education and Research (NCCER) aims to promote

careers and education in the construction industry. Here you can find out more about getting started in construction.

<http://byf.org/path>

Occupational Outlook Handbook – Plumbers, Pipefitters, and Steamfitters

Career information from the US Department of Labor.

<http://www.bls.gov/ooh/Construction-and-Extraction/Plumbers-pipefitters-and-steamfitters.htm>