

Pipefitter

At a Glance

Pipefitters install, fix, and replace the pipes that carry gas, water, or raw materials. These pipe systems are required in homes, plants, and many other settings.

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 work out what type and size of pipe to use
- Sketch and lay out the job
- Measure, cut, and assemble the pipes
- Install and secure the pipes and test for leaks and other problems
- May repair and maintain old pipe systems

Attributes & Abilities

- Physically fit
- Comfortable with heights
- Able to read blueprints
- Hand-eye coordination

Workplace

- Work for pipeline construction contractors, utility companies, oil and gas companies, and manufacturers
- May work indoors or outdoors, sometimes in bad weather
- The work is physically demanding
- Some risk of falls, cuts from sharp tools, and burns from hot pipes and soldering equipment
- Most work a 5-day, 40-hour week, but overtime is sometimes necessary

Job Description

Even if we don't see them very often, pipes are a crucial part of modern life. They carry essential resources to and from homes, businesses, and industries. Pipe systems transport water, gas, and raw materials to wherever the materials need to go. Pipefitters install, repair, and replace these pipes for us.

Some pipes move fresh water from water treatment plants. The pipes bring water to our homes, as well as to commercial and public buildings. Other pipes keep us warm in winter, bringing in gas for furnaces. In the summer, pipes carry air to the air conditioning systems. Other pipes carry waste material away safely.

Pipefitters install and fix all kinds of pipes. For example, they work with the low and high-pressure pipe systems used in manufacturing. They fix the pipes used in the process of electricity generation. Other pipe systems are used to heat and cool buildings. Pipefitters install the controls that regulate these systems.

Before starting a job, pipefitters have to prepare for the work to be done. They study blueprints and look at any related drawings and specifications. After this prep work, they decide what type of pipe to use. Next, they make detailed sketches of where the pipe system will go in the building. They lay out the system in consultation with supervisors.

Pipefitters then measure, cut, solder, and assemble the pipes. They lay or install the pipe system, securing each section as they go. At this stage, they test for any leaks and other problems. Depending on the type of pipe, pipefitters may work as part of a team with welders.

People in this field also repair and maintain pipes. They remove and replace sections of pipe when they wear out. They do general maintenance work on pipe systems, too.

Some pipefitters choose to specialize in a certain system. For example, steamfitters are one kind of specialist. They install and maintain pipe systems that move liquids or gases under high pressure. Sprinkler system installers work with automatic fire sprinkler systems. Check out the profiles for either of these careers if you want to learn more.

Working Conditions

Pipefitters can work for:

- pipeline construction contractors
- maintenance contractors
- thermal or steam generating plants
- manufacturers
- utility companies
- oil refineries
- gas plants
- pulp mills
- chemical plants

Depending on the type of pipe being installed, they may work indoors or outdoors. They sometimes have to work in bad weather.

This job is physically demanding. Pipefitters must be able to lift heavy pieces of equipment and sections of pipe. They have to stand for long periods. They often have to work in cramped or uncomfortable positions. This work calls for both strength and stamina.

There is also a risk of injury. Pipefitters can fall from ladders or be cut by sharp tools. They can get burns from hot pipes and soldering tools. Following safety rules and wearing the right safety gear can reduce these risks. Leather gloves and steel-toed boots are often worn on the job.

These tradespeople usually work about 40 hours a week. There may be some overtime when a construction deadline is coming up. Pipefitters who do repairs may have to work night or weekend shifts. They may also be on call for emergency repairs.

Many projects require workers to travel to local job sites.

Earnings

Most pipefitters make between \$15 and \$44 an hour. They typically earn between \$30,000 and \$91,000 a year. Some people in senior roles earn higher incomes. The median wage for all pipefitters, steamfitters, and plumbers is about \$25 an hour.

Apprentices start by earning about half the wage earned by a fully qualified pipefitter. Their pay rises for each year of their training.

Annual income in this trade depends on wages and the number of hours worked. The amount of work depends on the region's economy. Pipefitters are more likely to find work when the economy is strong. A weak economy can send the construction industry into a slump.

Full-time workers may get benefits as well as their pay. These can include paid vacations, medical and dental benefits, and a pension plan. Self-employed workers have to take care of their own benefits.

Many pipefitters are members of a union. It's called the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada (UA). Their wages and benefits are negotiated by union reps. Unionized workers tend to have better wages and benefits than those who aren't in the union.

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

The most common way to become a pipefitter is through an apprenticeship program. These programs take 4 or 5 years to complete. They combine on-the-job training with classroom lessons. This option allows you to learn all aspects of the trade.

The requirements to apply to these programs vary by region. In most areas, you have to be 18 years old and in good physical shape. Employers also prefer if you have a high school diploma.

Some apprenticeships are offered by the UA trade union. Other programs are available through non-union groups. One example is the Associated Builders and Contractors (ABC).

Another path you can take is Armed Forces training in plumbing and pipefitting. It's a great way to prepare to work in these trades. You can get credit for this experience when you enter a civilian apprenticeship program.

Pipefitters need a license to work in some states and regions. To get a license, you may have to pass an exam.

Related College Programs

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

Other Suggested Qualifications

You need to be in good physical shape for this job. Climbing and working from extreme heights may be required. High school or post-secondary courses in shop, plumbing, general math, drafting, blueprint reading, and physics provide a good background for this career. Good hand-eye coordination and manual dexterity are required to do precision work such as cutting, welding, and installing pipes and components. Armed Forces training in plumbing and pipefitting is considered very good preparation. Persons with this background may be given credit for previous experience when entering a civilian apprenticeship program.

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
Science			

Grade 9	Grade 10	Grade 11	Grade 12
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	\$25,000 to \$40,000 a year
Requirements	<ul style="list-style-type: none"> • Preferably a high school diploma (required for some programs) • Registered in an apprenticeship program • Possibly have your own tools
Responsibilities	Preparing the job site for qualified pipefitters; learning pipefitting theories and practices; doing simple tasks such as drilling holes and drilling fasteners into walls and floors—all supervised by a journey-level pipefitter.

Level 2

Level 2

Sample Title	Journey-Level Pipefitter
Earnings	\$45,000 to \$65,000 a year
Requirements	<ul style="list-style-type: none">• Completion of apprenticeship• Licensed by state or municipality, if required
Responsibilities	Working independently; preparing pipe for welders in commercial and industrial settings and pipeline sites; handling and placing pipes in final position; buffing and finishing joints; training apprentices.

Level 3

Sample Title	Foreperson
Earnings	\$60,000 to \$85,000 a year
Requirements	<ul style="list-style-type: none">• Several years of experience
Responsibilities	Preparing pipe for welders in commercial and industrial settings and pipeline sites; handling and placing pipes in final position; buffing and finishing joints; training apprentices; coordinating large job sites with other pipefitters.

Related Careers

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

- Boilermaker
- Construction Tradesperson
- Crane Operator
- Heavy Equipment Operator
- Ironworker
- Millwright
- Oil and Gas Well Drilling Crew
- Pipelayer
- Plumber
- Sheet Metal Worker
- Sprinkler System Installer
- Steamfitter
- 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

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 learn about different trades and apprenticeship opportunities.

<http://www.ua.org>

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>

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>

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>