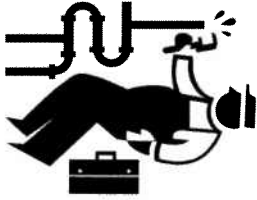


	Current Number of Workers 2006	Projected Number of Workers 2016	% Change to 2016	Average Annual Openings	 <b>Plumbers/Pipefitters/Steamfitters</b> <b>SOC # 47-2152</b>	
<b>Regional</b>	400	500	25.00%	20		
<b>Texas</b>	31,900	39,350	23.40%	1405		
<b>Education/ Training Time</b>	<b>Is License Required?</b>	<b>Wage Rate \$/Hr. 2008 Regionally</b>	<b>Percent Female</b>	<b>Average Age</b>	<b>Job Turnover</b>	<b>Why Most Job Openings Occur</b>
<b>1+ years OR Apprentice</b>	<b>Yes</b>	\$17.10	1.1%	39.7	Average	<b>Equal Growth/ Replacement</b>

#### JOB DESCRIPTION

Assemble, install, alter, and repair pipelines or pipe systems that carry water, steam, air, or other liquids or gases. May install heating and cooling equipment and mechanical control systems. *Possible Green Job with enhanced skills.*

#### WHERE DO WORKERS FIND JOBS?

Building Equipment Contractors  
 Nonresidential Building Construction  
 Local Government, Except Education  
 Utility System Construction  
 Other Specialty Trade Contractors  
 Foundation, Structure, and Building Exterior Contractors  
 Support Activities for Mining

#### RELATED COLLEGE PROGRAMS

CIP 460502 Pipefitting/Pipefitter and Sprinkler Fitter  
 CIP 460503 Plumbing Technology/Plumber

#### IMPORTANT KNOWLEDGE

ARTS AND HUMANITIES  
 \* English Language  
 ENGINEERING AND TECHNOLOGY  
 \* Building and Construction  
 \* Design  
 \* Engineering and Technology  
 \* Mechanical

#### IMPORTANT SKILLS

CONTENT  
 \* Active Listening \* Reading Comprehension  
 PROCESS  
 \* Active Learning \* Critical Thinking  
 RESOURCE MANAGEMENT SKILLS  
 \* Time Management  
 SOCIAL SKILLS  
 \* Instructing .  
 SYSTEMS SKILLS  
 \* Judgment and Decision Making  
 TECHNICAL SKILLS  
 \* Equipment Selection \* Installation \* Repairing

#### IMPORTANT ABILITIES

CONTROL MOVEMENT ABILITIES  
 \* Multilimb Coordination  
 FINE MANIPULATIVE ABILITIES  
 \* Arm-Hand Steadiness \* Finger Dexterity  
 FLEXIBILITY, BALANCE, AND COORDINATION  
 \* Extent Flexibility  
 IDEA GENERATION AND REASONING ABILITIES  
 \* Deductive Reasoning \* Information Ordering  
 \* Problem Sensitivity  
 SPATIAL ABILITIES  
 \* Visualization  
 VERBAL ABILITIES  
 \* Oral Comprehension \* Oral Expression  
 VISUAL ABILITIES  
 \* Near Vision

## **NATURE OF THE WORK: Plumbers/Pipefitters/Steamfitters**

Most people are familiar with plumbers, who come to their home to unclog a drain or install an appliance. In addition to these activities, however, pipelayers, plumbers, pipefitters, and steamfitters install, maintain, and repair many different types of pipe systems. For example, some systems move water to a municipal water treatment plant and then to residential, commercial, and public buildings. Other systems dispose of waste, provide gas to stoves and furnaces, or provide for heating and cooling needs. Pipe systems in powerplants carry the steam that powers huge turbines. Pipes also are used in manufacturing plants to move material through the production process. Specialized piping systems are very important in both pharmaceutical and computer-chip manufacturing.

Although pipelaying, plumbing, pipefitting, and steamfitting sometimes are considered a single trade, workers generally specialize in one of five areas. Pipelayers lay clay, concrete, plastic, or cast-iron pipe for drains, sewers, water mains, and oil or gas lines. Before laying the pipe, pipelayers prepare and grade the trenches either manually or with machines. After laying the pipe, they weld, glue, cement or otherwise join the pieces together. Plumbers install and repair the water, waste disposal, drainage, and gas systems in homes and commercial and industrial buildings. Plumbers also install plumbing fixtures--bathtubs, showers, sinks, and toilets--and appliances such as dishwashers and water heaters. Pipefitters install and repair both high- and low-pressure pipe systems used in manufacturing, in the generation of electricity, and in the heating and cooling of buildings. They also install automatic controls that are increasingly being used to regulate these systems. Some pipefitters specialize in only one type of system. Steamfitters install pipe systems that move liquids or gases under high pressure. Sprinklerfitters install automatic fire sprinkler systems in buildings.

Pipelayers, plumbers, pipefitters, and steamfitters use many different materials and construction techniques, depending on the type of project. Residential water systems, for example, incorporate copper, steel, and plastic pipe that can be handled and installed by one or two plumbers. Municipal sewerage systems, on the other hand, are made of large cast-iron pipes; installation normally requires crews of pipefitters. Despite these differences, all pipelayers, plumbers, pipefitters, and steamfitters must be able to follow building plans or blueprints and instructions from supervisors, lay out the job, and work efficiently with the materials and tools of their trade. Computers and specialized software are used to create blueprints and plan layouts.

When construction plumbers install piping in a new house, for example, they work from blueprints or drawings that show the planned location of pipes, plumbing fixtures, and appliances. Recently, plumbers have become more involved in the design process. Their knowledge of codes and the operation of plumbing systems can cut costs. They first lay out the job to fit the piping into the structure of the house with the least waste of material. Then they measure and mark areas in which pipes will be installed and connected. Construction plumbers also check for obstructions such as electrical wiring and, if necessary, plan the pipe installation around the problem.

Sometimes, plumbers have to cut holes in walls, ceilings, and floors of a house. For some systems, they may hang steel supports from ceiling joists to hold the pipe in place. To assemble a system, plumbers--using saws, pipe cutters, and pipe-bending machines--cut and bend lengths of pipe. They connect lengths of pipe with fittings, using methods that depend on the type of pipe used. For plastic pipe, plumbers connect the sections and fittings with adhesives. For copper pipe, they slide a fitting over the end of the pipe and solder it in place with a torch.

After the piping is in place in the house, plumbers install the fixtures and appliances and connect the system to the outside water or sewer lines. Finally, using pressure gauges, they check the system to ensure that the plumbing works properly.