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## Carpenters

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### Significant Points

- About 32 percent of all carpenters—the largest construction trade—were self-employed.
- Job opportunities should be best for those with the most training and skills.
- Between 3 and 4 years of both on-the-job training and classroom instruction usually is needed to become a skilled carpenter.

### Nature of the Work

Carpenters are involved in many different kinds of construction, from the building of highways and bridges to the installation of kitchen cabinets. Carpenters construct, erect, install, and repair structures and fixtures made from wood and other materials.

Each carpentry task is somewhat different, but most involve the same basic steps. Working from blueprints or instructions from supervisors, carpenters first do the layout—measuring, marking, and arranging materials—in accordance with local building codes. They cut and shape wood, plastic, fiberglass, or drywall using hand and power tools, such as chisels, planes, saws, drills, and sanders. They then join the materials with nails, screws, staples, or adhesives. In the last step, carpenters do a final check of the accuracy of their work with levels, rules, plumb bobs, framing squares, and surveying equipment, and make any necessary adjustments.

When working with prefabricated components, such as stairs or wall panels, the carpenter's task is somewhat simpler because it does not require as much layout work or the cutting and assembly of as many pieces. Prefabricated components are designed for easy and fast installation and generally can be installed in a single operation.

Some carpenters do many different carpentry tasks, while others specialize in one or two. Carpenters who remodel homes and other structures, for example, need a broad range of carpentry skills. As part of a single job, for example, they might frame walls and partitions, put in doors and windows, build stairs, install cabinets and molding, and complete many other tasks. Because these carpenters are so well-trained, they often can switch from residential building to commercial construction or remodeling work, depending on which offers the best work opportunities.

Carpenters who work for large construction contractors or specialty contractors may perform only a few regular tasks, such as constructing wooden forms for pouring concrete, or erecting scaffolding. Some carpenters build tunnel bracing, or brattices, in underground passageways and mines to control the circulation of air through the passageways and to worksites. Others build concrete forms for tunnel, bridge, or sewer construction projects.

Carpenters employed outside the construction industry perform a variety of installation and maintenance work. They may replace panes of glass, ceiling tiles, and doors, as well as repair desks, cabinets, and other furniture. Depending on the employer, carpenters install partitions, doors, and windows;



*Carpenters cut and shape wood, plastic, fiberglass, or drywall using hand and power tools.*

change locks; and repair broken furniture. In manufacturing firms, carpenters may assist in moving or installing machinery. (For more information on workers who install machinery, see the discussion of millwrights as well as industrial machinery installation, repair, and maintenance workers elsewhere in the *Handbook*.)

**Work environment.** As is true of other building trades, carpentry work is sometimes strenuous. Prolonged standing, climbing, bending, and kneeling often are necessary. Carpenters risk injury working with sharp or rough materials, using sharp tools and power equipment, and working in situations where they might slip or fall. Although many carpenters work indoors, those that work outdoors are subject to variable weather conditions.

Most carpenters work a standard 40 hour week. Hours may be longer during busy periods.

### Training, Other Qualifications, and Advancement

Carpenters learn their trade through formal and informal training programs. Between 3 and 4 years of both on-the-job training and classroom instruction usually is needed to become a skilled carpenter. There are a number of ways to train, but a more formal training program often improves job opportunities.

**Education and training.** Learning to be a carpenter can start in high school. Classes in English, algebra, geometry, physics, mechanical drawing, blueprint reading, and general shop will prepare students for the further training they will need.

After high school, there are a number of different ways to obtain the necessary training. Some people get a job as a carpenter's helper, assisting more experienced workers. At the same time, the helper might attend a trade or vocational school, or community college to receive further trade-related training and eventually become a carpenter.

Some employers offer employees formal apprenticeships. These programs combine on-the-job training with related classroom instruction. Apprentices usually must be at least 18 years old and meet local requirements. Apprenticeship programs usually last 3 to 4 years, but length varies with the apprentice's skill.

On the job, apprentices learn elementary structural design and become familiar with common carpentry jobs, such as layout, form building, rough framing, and outside and inside finishing.

### Projections data from the National Employment Matrix

Occupational Title	SOC Code	Employment, 2006	Projected employment, 2016	Change, 2006-16	
				Number	Percent
Carpenters .....	47-2031	1,462,000	1,612,000	150,000	10

NOTE: Data in this table are rounded. See the discussion of the employment projections table in the *Handbook* introductory chapter on *Occupational Information Included in the Handbook*.

They also learn to use the tools, machines, equipment, and materials of the trade. In the classroom, apprentices learn safety, first aid, blueprint reading, freehand sketching, basic mathematics, and various carpentry techniques. Both in the classroom and on the job, they learn the relationship between carpentry and the other building trades.

The number of apprenticeship programs is limited, however, so only a small proportion of carpenters learn their trade through these programs. Most apprenticeships are offered by commercial and industrial building contractors with union membership.

Some people who are interested in carpentry careers choose to get their classroom training before seeking a job. There are a number of public and private vocational-technical schools and training academies affiliated with unions and contractors that offer training to become a carpenter. Employers often look favorably upon these students and usually start them at a higher level than those without the training.

**Other qualifications.** Carpenters need manual dexterity, eye-hand coordination, physical fitness, and a good sense of balance. The ability to solve arithmetic problems quickly and accurately also is required. In addition, military service or a good work history is viewed favorably by employers.

**Certification and advancement.** Carpenters who complete formal apprenticeship programs receive certification as journeymen. Some carpenters earn other certifications in scaffold building, high torque bolting, or pump work. These certifications prove that carpenters are able to perform these tasks, which can lead to additional responsibilities.

Carpenters usually have more opportunities than most other construction workers to become general construction supervisors because carpenters are exposed to the entire construction process. For those who would like to advance, it is increasingly important to be able to communicate in both English and Spanish in order to relay instructions and safety precautions to workers; Spanish-speaking workers make up a large part of the construction workforce in many areas. Carpenters may advance to carpentry supervisor or general construction supervisor positions. Others may become independent contractors. Supervisors and contractors need good communication skills to deal with clients and subcontractors. They should be able to identify and estimate the quantity of materials needed to complete a job and accurately estimate how long a job will take to complete and what it will cost.

### Employment

Carpenters are employed throughout the country in almost every community and make up the largest building trades occupation. They held about 1.5 million jobs in 2006.

About 32 percent worked in construction of buildings and about 23 percent worked for specialty trade contractors. Most

of the rest of the wage and salary workers worked for manufacturing firms, government agencies, retail establishments, and a wide variety of other industries. About 32 percent of all carpenters were self-employed. Some carpenters change employers each time they finish a construction job. Others alternate between working for a contractor and working as contractors themselves on small jobs, depending on where the work is available.

### Job Outlook

Average job growth, coupled with replacement needs, create a large number of openings each year. Job opportunities should be best for those with the most training and skills.

**Employment change.** Employment of carpenters is expected to increase by 10 percent during the 2006-16 decade, about as fast as the average for all occupations. The need for carpenters should grow as construction activity increases in response to demand for new housing and office and retail space, and for modernizing and expanding schools and industrial plants. A strong home remodeling market also will create demand for carpenters. Moreover, construction of roads and bridges as well as restaurants, hotels, and other businesses will increase the demand for carpenters in the coming decade.

Some of the demand for carpenters, however, will be offset by expected productivity gains resulting from the increasing use of prefabricated components and improved fasteners and tools. Prefabricated wall panels, roof assemblies, and stairs, as well as prehung doors and windows can be installed very quickly. Instead of having to be built on the worksite, prefabricated walls, partitions, and stairs can be lifted into place in one operation; beams and, in some cases, entire roof assemblies, are lifted into place using a crane. As prefabricated components become more standardized, builders will use them more often. In addition, improved adhesives are reducing the time needed to join materials, and lightweight, cordless, and pneumatic tools—such as nailers and drills—will all continue to make carpenters more productive. New and improved tools, equipment, techniques, and materials also have made carpenters more versatile, allowing them to perform more carpentry tasks.

**Job prospects.** Job opportunities should be best for those with the most training and skills. Job growth and replacement needs for those who leave the occupation create a large number of openings each year. Many people with limited skills take jobs as carpenters but eventually leave the occupation because they dislike the work or cannot find steady employment.

Carpenters with all-around skills will have better opportunities for steady work than carpenters who can perform only a few relatively simple, routine tasks. Carpenters can experience periods of unemployment because of the short-term nature of many construction projects, winter slowdowns in construction

activity in northern areas, and the cyclical nature of the construction industry.

Employment of carpenters, like that of many other construction workers, is sensitive to the fluctuations of the economy. Workers in these trades may experience periods of unemployment when the overall level of construction falls. On the other hand, shortages of these workers may occur in some areas during peak periods of building activity.

Job opportunities for carpenters also vary by geographic area. Construction activity parallels the movement of people and businesses and reflects differences in local economic conditions. The areas with the largest population increases will also provide the best opportunities for jobs as carpenters and for apprenticeships for people seeking to become carpenters.

### Earnings

In May 2006, median hourly earnings of wage and salary carpenters were \$17.57. The middle 50 percent earned between \$13.55 and \$23.85. The lowest 10 percent earned less than \$10.87, and the highest 10 percent earned more than \$30.45. Median hourly earnings in the industries employing the largest numbers of carpenters were as follows:

Residential building construction.....	\$17.39
Foundation, structure, and building exterior contractors .....	17.03
Nonresidential building construction.....	15.12
Building finishing contractors.....	13.76
Employment services.....	10.88

Earnings can be reduced on occasion, because carpenters lose work time in bad weather and during recessions when jobs are unavailable. Earnings may be increased by overtime during busy periods.

Some carpenters are members of the United Brotherhood of Carpenters and Joiners of America.

### Related Occupations

Carpenters are skilled construction workers. Other skilled construction occupations include brickmasons, blockmasons, and

stonemasons; cement masons, concrete finishers, segmental pavers, and terrazzo workers; drywall installers, ceiling tile installers, and tapers; electricians; pipelayers, plumbers, pipefitters, and steamfitters; and plasterers and stucco masons.

### Sources of Additional Information

For information about carpentry apprenticeships or other work opportunities in this trade, contact local carpentry contractors, locals of the union mentioned above, local joint union-contractor apprenticeship committees, or the nearest office of the State employment service or apprenticeship agency. You can also find information on the registered apprenticeship system with links to State apprenticeship programs on the U.S. Department of Labor's Web site: [http://www.doleta.gov/atels\\_bat](http://www.doleta.gov/atels_bat) Apprenticeship information is also available from the U.S. Department of Labor's toll free helpline: (877) 872-5627.

For information on training opportunities and carpentry in general, contact:

► Associated Builders and Contractors, 4250 North Fairfax Dr., 9th Floor, Arlington, VA 22203.

Internet: <http://www.trytools.org>

► Associated General Contractors of America, Inc., 2300 Wilson Blvd., Suite 400, Arlington, VA 22201.

Internet: <http://www.agc.org>

► National Center for Construction Education and Research, 3600 NW., 43rd St., Bldg. G, Gainesville, FL, 32606.

Internet: <http://www.nccer.org>

► National Association of Home Builders, Home Builders Institute, 1201 15th St.NW., Washington, DC 20005.

Internet: <http://www.hbi.org>

► United Brotherhood of Carpenters and Joiners of America, Carpenters Training Fund, 6801 Placid St., Las Vegas, NV 89119. Internet: <http://www.carpenters.org>

For general information on apprenticeships and how to get them, see the *Occupational Outlook Quarterly* article "Apprenticeships: Career training, credentials—and a paycheck in your pocket," online at <http://www.bls.gov/opub/ooq/2002/summer/art01.pdf> and in print at many libraries and career centers.