Roofers

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Significant Points

- Most roofers learn their skills informally on the job; some roofers train through 3-year apprenticeships.
- Most job openings will arise from the need to replace those who leave the occupation because the work is hot, strenuous, and dirty, causing many people to switch to jobs in other construction trades.
- Demand for roofers is less susceptible to downturns in the economy than demand for other construction trades because most roofing work consists of repair and reroofing.

Nature of the Work

A leaky roof can damage ceilings, walls, and furnishings. Roofers repair and install roofs made of tar or asphalt and gravel; rubber or thermoplastic; metal; or shingles to protect buildings and their contents from water damage. Repair and reroofing—replacing old roofs on existing buildings—makes up the majority of work for roofers.

There are two types of roofs—low-slope and steep-slope. Low-slope roofs rise 4 inches per horizontal foot or less and are installed in layers. Steep-slope roofs rise more than 4 inches per horizontal foot and are usually covered in shingles. Most commercial, industrial, and apartment buildings have low-slope roofs. Most houses have steep-slope roofs. Some roofers work on both types; others specialize.

Most low-slope roofs are covered with several layers of materials. Roofers first put a layer of insulation on the roof deck. Over the insulation, they often spread a coat of molten bitumen, a tarlike substance. Next, they install partially overlapping layers of roofing felt—a fabric saturated in bitumen—over the surface. Roofers use a mop to spread hot bitumen over the felt before adding another layer of felt. This seals the seams and makes the surface watertight. Roofers repeat these steps to build up the desired number of layers, called "plies." The top layer is glazed to make a smooth finish or has gravel embedded in the hot bitumen to create a rough surface.

An increasing number of low-slope roofs are covered with a single-ply membrane of waterproof rubber or thermoplastic compounds. Roofers roll these sheets over the roof's insulation and seal the seams. Adhesive, mechanical fasteners, or stone ballast hold the sheets in place. Roofers must make sure the building is strong enough to hold the stone ballast.

A small but growing number of buildings now have "green" roofs that incorporate plants. A "green" roof begins with a single or multi-ply waterproof layer. After it is proven to be leak free, roofers put a root barrier over it, and then layers of soil, in which trees and grass are planted. Roofers are usually responsible for making sure the roof is watertight and can withstand the weight and water needs of the plants.

Most residential steep-slope roofs are covered with shingles. To apply shingles, roofers first lay, cut, and tack 3-foot strips of roofing felt over the entire roof. Starting from the bottom edge, the roofer then staples or nails overlapping rows of shingles to the roof. Roofers measure and cut the felt and shingles to fit intersecting roof surfaces and to fit around vent pipes and chimneys. Wherever two roof surfaces intersect, or shingles reach a vent pipe or chimney, roofers cement or nail flashing-strips of metal or shingle over the joints to make them watertight. Finally, roofers cover exposed nailheads with roofing cement or caulking to prevent water leakage. Roofers who use tile, metal shingles, or shakes (rough wooden shingles) follow a similar process.

Roofers also install equipment that requires cutting through roofs, such as ventilation ducts and attic fans. Some roofers are expert in waterproofing; some waterproof and dampproof masonry and concrete walls, floors, and foundations. To prepare surfaces for waterproofing, they hammer and chisel away rough spots or remove them with a rubbing brick, before applying a coat of liquid waterproofing compound. They also may paint or spray surfaces with a waterproofing material or attach waterproofing membrane to surfaces. Roofers usually spray a bitumen-based coating on interior or exterior surfaces when dampproofing.

Work environment. Roofing work is strenuous. It involves heavy lifting, as well as climbing, bending, and kneeling. Roofers work outdoors in all types of weather, particularly when making repairs. However, they rarely work when it rains or in very cold weather as ice can be dangerous. In northern States, roofing work is generally not performed during winter months. During the summer, roofers may work overtime to complete jobs quickly, especially before forecasted rainfall.

Workers risk slips or falls from scaffolds, ladders, or roofs or burns from hot bitumen, but safety precautions, can prevent most accidents. In addition, roofs can become extremely hot during the summer, causing heat-related illnesses. In 2005, the rate of injuries for roofing contractors in construction was almost twice that of workers overall.

Training, Other Qualifications, and Advancement

Most roofers learn their skills informally by working as helpers for experienced roofers and by taking classes, including safety training, offered by their employers; some complete 3-year apprenticeships.

Education and training. A high school education, or its equivalent, is helpful and so are courses in mechanical drawing and basic mathematics. Although most workers learn roofing as helpers for experienced workers, some roofers train through 3-year apprenticeship programs administered by local union-

Most residential steep-slope roofs are covered with shingles.

Projections data from the National Employment Matrix

Occupational Title	SOC Code	Employment, 2006	Projected employment, 2016	Change, 2006-16	
				Number	Percent
Roofers	47-2181	156,000	179,000	22,000	14

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*.

management committees representing roofing contractors and locals of the United Union of Roofers, Waterproofers, and Allied Workers. Apprenticeship programs usually include at least 2,000 hours of paid on-the-job training each year, plus a minimum of 144 hours of classroom instruction a year in tools and their use, arithmetic, safety, and other topics. On-the-job training for apprentices is similar to the training given to helpers, but an apprenticeship program is more structured and comprehensive. Apprentices, for example, learn to dampproof and waterproof walls.

Trainees start by carrying equipment and material and erecting scaffolds and hoists. Within 2 or 3 months, they are taught to measure, cut, and fit roofing materials and, later, to lay asphalt or fiberglass shingles. Because some roofing materials are used infrequently, it can take several years to get experience working on all types of roofing.

Other qualifications. Good physical condition and good balance are essential for roofers. They cannot be afraid of heights. Experience with metal-working is helpful for workers who install metal roofing. Usually, apprentices must be at least 18 years old.

Advancement. Roofers may advance to become supervisors or estimators for a roofing contractor or become contractors themselves.

Employment

Roofers held about 156,000 jobs in 2006. Almost all salaried roofers worked for roofing contractors. About 20 percent of roofers were self-employed. Many self-employed roofers specialized in residential work.

Job Outlook

Most job openings will arise from turnover, because the work is hot, strenuous, and dirty, causing many people to switch to jobs in other construction trades. Faster-than-average employment growth is expected.

Employment change. Employment of roofers is expected to grow 14 percent between 2006 and 2016, which is faster than the average for all occupations. Roofs deteriorate faster than most other parts of buildings, and they need to be repaired or replaced more often. So as the number of buildings continues to increase, demand for roofers is expected to grow. In addition to repair work, the need to install roofs on new buildings is also expected to add to the demand for roofers.

Job prospects. Job opportunities for roofers will arise primarily because of the need to replace workers who leave the occupation. The proportion of roofers who leave the occupation each year is higher than in most construction trades—roofing work is hot, strenuous, and dirty, and a significant number of workers treat roofing as a temporary job until they find other work. Some roofers leave the occupation to go into other construction trades. Jobs should be easiest to find during spring and summer.

Employment of roofers who install new roofs, 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. Nevertheless, roofing is more heavily concentrated on repair and replacement rather than new installation, making demand for roofers less susceptible to the business cycle than it is for some other construction trades.

Earnings

In May 2006, median hourly earnings of wage and salary roofers were $15.51. The middle 50 percent earned between $12.12 and $20.79. The lowest 10 percent earned less than $9.81, and the highest 10 percent earned more than $26.79. The median hourly earnings of roofers in the foundation, structure, and building exterior contractors industry were $15.54. Earnings may be reduced on occasion when poor weather limits the time roofers can work.

Apprentices usually start earning about 40 percent to 50 percent of the rate paid to experienced roofers. They receive periodic raises as they master the skills of the trade.

Some roofers are members of the United Union of Roofers, Waterproofers, and Allied Workers. Hourly wages and fringe benefits are generally higher for union workers.

Related Occupations

Roofers use shingles, bitumen and gravel, single-ply plastic or rubber sheets, or other materials to waterproof building surfaces. Workers in other occupations who cover surfaces with special materials for protection and decoration include carpenters; carpet, floor, and tile installers and finishers; cement masons, concrete finishers, segmental pavers, and terrazzo workers; drywall installers, ceiling tile installers, and tapers; plasterers and stucco masons; and sheet metal workers.

Sources of Additional Information

For information about apprenticeships or job opportunities in roofing, contact local roofing contractors, a local chapter of the roofers union, a local joint union-management apprenticeship committee, or the nearest office of your 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** Apprenticeship information is also available from the U.S. Department of Labor's toll free helpline: (877) 872-5627.

For information about the work of roofers, contact:

➤ National Roofing Contractors Association, 10255 W. Higgins Rd., Suite 600, Rosemont, IL 60018-5607.
Internet: **http://www.nrca.net**
➤ United Union of Roofers, Waterproofers, and Allied Workers, 1660 L St.NW., Suite 800, Washington, DC 20036.
Internet: **http://www.unionroofers.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.