

## Construction and Extraction

### Roofers

**Roofers** repair and install roofs made from a combination of some of the following: tar, asphalt, gravel, rubber, thermoplastic, metal, and shingles - all of which protect buildings and their contents from water damage. A leaky roof can damage ceilings, walls, and furnishings. Repair and reroofing - replacing old roofs on existing buildings - make up the majority of work for roofers.

There are two types of roofs; low-slope and steep-slope. Low-slope roofs rise 4 inches or less per horizontal foot 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 contain low-slope roofs, while the majority of residential houses have steep-slope roofs. Some roofers work on both types; others specialize.

A small but increasing number of buildings now have “green” roofs that incorporate landscape roofing systems. A landscape roofing system begins with a single or multiple waterproof layers. 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 responsible for making sure the roof is watertight and can endure 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, roofers then nail 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 sections of the roof meet each other at an angle or where 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 nail-heads with roofing cement or caulking to prevent water leakage. A similar process is used when installing tile, metal shingles, or shakes (rough wooden shingles).

Some roofers specialize in waterproofing or damp-proofing 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 may also 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 damp-proofing.

## Education/Training

### *How to Obtain:*

Generally a High School Diploma or equivalent is helpful, as are courses in mechanical drawing and basic mathematics, whether through a vocational program or a community college. Many individuals learn on the job as helpers or laborers. Another option is to join an apprenticeship program, which typically lasts 3 years and includes at least 2,000 hours of paid long-term 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

Apprenticeship programs can be found through the United Union of Roofers, Waterproofers, and Allied Workers.

No state-level certification or licensing is required to become an entry-level roofer in New York state (working for someone else), provided one is not a contractor as well. Most states do require that roofing contractors be licensed. Licensing requirements vary, and may include:

- Business and Law exam
- Specialty exam (roofing, electrical, landscaping)
- Specific number of years of experience

New York does not have a statewide licensing requirement; however counties or cities in New York may have local licensing requirements.

### *More Information on Licensing and Apprenticeship Programs:*

- State Contractor License Board List:  
[http://www.clsi.com/state\\_contractor\\_license\\_board.htm](http://www.clsi.com/state_contractor_license_board.htm)
- Directory of State Licensing Requirements for Roofers:  
[http://www.roofhelp.com/state\\_licensing\\_requirements.htm](http://www.roofhelp.com/state_licensing_requirements.htm)
- United Union of Roofers, Waterproofers, and Allied Workers Apprenticeship:  
<http://www.unionroofers.com/education/apprenticeship.aspx>

### *Average Costs:*

Apprenticeship programs generally do not charge the apprentice for classroom instruction, provided the apprentice maintains employment with a contractor affiliated with the apprenticeship program, throughout the apprenticeship period of 3 to 4 years.

The cost of licensing varies by state and locality, from around a \$100 - \$400\* fee to having to post a \$10,000 bond for some roofing contractor licenses.

\*Note: Costs of license renewal vary.