

The median hourly earnings in the largest industries employing hazardous materials removal workers in 2000 are shown below.

Miscellaneous special trade contractors .....	\$13.78
Sanitary services .....	13.30

According to the limited data available, treatment, storage, and disposal workers usually earn slightly more than asbestos- and lead-abatement workers or decontamination technicians. Decontamination and decommissioning workers and radiation protection technicians, though constituting the smallest group, tend to earn the highest wages.

### Related Occupations

Asbestos- and lead-abatement workers share skills with other construction trades workers, including brickmasons, blockmasons, and stonemasons; cement masons, concrete finishers, segmental pavers, and terrazzo workers; insulation workers; and sheet-metal workers. Treatment, storage, and disposal workers, decommissioning and decontamination workers, and decontamination and radiation safety technicians work closely with plant and system operators, such as power plant operators, distributors, and dispatchers and water and wastewater treatment plant operators.

### Sources of Additional Information

For more information on hazardous-materials removal workers, including training information, contact:

► Laborers-AGC Education and Training Fund, 37 Deerfield Rd., P.O. Box 37, Promfret, CT 06259.

## Insulation Workers

(O\*NET 47-2131.00, 47-2132.00)

### Significant Points

- Workers must follow strict safety guidelines to protect themselves from the dangers of insulating irritants.
- Most insulation workers learn informally on the job; others complete formal apprenticeship programs.
- Excellent employment opportunities are expected, resulting largely from job turnover.

### Nature of the Work

Properly insulated buildings reduce energy consumption by keeping heat in during the winter and out in the summer. Refrigerated storage rooms, vats, tanks, vessels, boilers, and steam and hot water pipes also are insulated to prevent the wasteful transfer of heat. Insulation workers install the materials used to insulate buildings and equipment.

Insulation workers cement, staple, wire, tape, or spray insulation. When covering a steam pipe, for example, insulation workers measure and cut sections of insulation to the proper length, stretch it open along a cut that runs the length of the material, and slip it over the pipe. They fasten the insulation with adhesive, staples, tape, or wire bands. Sometimes, they wrap a cover of aluminum, plastic, or canvas over it and cement or band the cover in place. Insulation workers may screw on sheet metal around insulated pipes to protect the insulation from weather conditions or physical abuse.

When covering a wall or other flat surface, workers may use a hose to spray foam insulation onto a wire mesh. The wire mesh provides a rough surface to which the foam can cling and add strength to the finished surface. Workers may then install drywall or apply a final coat of plaster for a finished appearance.



*Insulation workers install insulation around pipes and within walls and floors.*

In attics or exterior walls of uninsulated buildings, workers blow in loose-fill insulation. A helper feeds a machine with fiberglass, cellulose, or rock wool insulation while another worker blows the insulation with a compressor hose into the space being filled.

In new construction or major renovations, insulation workers staple fiberglass or rockwool batts to exterior walls and ceilings before drywall, paneling, or plaster walls are put in place. In making major renovations to old buildings or when putting new insulation around pipes and industrial machinery, insulation workers often must first remove the old insulation. In the past, asbestos—now known to cause cancer in humans—was used extensively in walls and ceilings and for covering pipes, boilers, and various industrial equipment. Because of this danger, U.S. Environmental Protection Agency regulations require that asbestos be removed before a building undergoes major renovations or is demolished. When asbestos is present, specially trained workers must remove the asbestos before insulation workers can install the new insulating materials. (See the statement on hazardous-materials removal workers elsewhere in the *Handbook*.)

Insulation workers use common handtools—trowels, brushes, knives, scissors, saws, pliers, and stapling guns. They use power saws to cut insulating materials, welding machines to join sheet metal or secure clamps, and compressors to blow or spray insulation.

### Working Conditions

Insulation workers generally work indoors. They spend most of the workday on their feet, either standing, bending, or kneeling. Sometimes, they work from ladders or in tight spaces. The work requires more coordination than strength. Insulation work often is dusty and dirty, and the summer heat can make the insulation worker very uncomfortable. Minute particles from insulation materials, especially when blown, can irritate the eyes, skin, and respiratory system. Workers must follow strict safety guidelines to protect themselves from the dangers of insulating irritants. They keep work areas well-ventilated; wear protective suits, masks, and respirators; and take decontamination showers when necessary.

### Employment

Insulation workers held about 53,000 jobs in 2000. The construction industry employed 9 out of 10 of these workers; most worked for insulation or other construction trades contractors. Small numbers of insulation workers held jobs in the Federal Government, in wholesale trade, and in shipbuilding and other manufacturing

industries that have extensive installations for power, heating, and cooling. Most worked in urban areas. In less populated areas, carpenters, heating and air-conditioning installers, or drywall installers may do insulation work.

### Training, Other Qualifications, and Advancement

Most insulation workers learn their trade informally on the job, although some workers complete formal apprenticeship programs. For entry jobs, insulation contractors prefer high school graduates who are in good physical condition and licensed to drive. High school courses in blueprint reading, shop math, science, sheet-metal layout, woodworking, and general construction provide a helpful background. Applicants seeking apprenticeship positions must have a high school diploma or its equivalent, and be at least 18 years old.

Trainees who learn on the job receive instruction and supervision from experienced insulation workers. Trainees begin with simple tasks, such as carrying insulation or holding material while it is fastened in place. On-the-job training can take up to 2 years, depending on the nature of the work. Learning to install insulation in homes generally requires less training than does insulation application in commercial and industrial settings. As they gain experience, trainees receive less supervision, more responsibility, and higher pay.

In contrast, trainees in formal apprenticeship programs receive in-depth instruction in all phases of insulation. Apprenticeship programs may be provided by a joint committee of local insulation contractors and the local union of the International Association of Heat and Frost Insulators and Asbestos Workers, to which many insulation workers belong. Programs normally consist of 4 years of on-the-job training coupled with classroom instruction, and trainees must pass practical and written tests to demonstrate knowledge of the trade.

Skilled insulation workers may advance to supervisor, shop superintendent, or insulation contract estimator, or they may set up their own insulation business.

### Job Outlook

Job opportunities are expected to be excellent for insulation workers, largely due to the numerous openings arising each year as experienced insulation workers move to other occupations. Because there are no strict training requirements for entry, many people with limited skills work as insulation workers for a short time and then move on to other types of work, creating many job openings. Other opportunities will arise from the need to replace workers who leave the labor force. In addition, many potential workers may prefer work that is less strenuous and has more comfortable working conditions. Well-trained workers will have especially favorable opportunities.

In addition to replacement needs, new jobs will arise as employment of insulation workers increases about as fast as the average for all occupations through the year 2010 as a result of growth in residential and nonresidential construction. Demand for insulation workers will be spurred by the continuing concerns about the efficient use of energy to heat and cool buildings, resulting in increased demand for insulation workers in the construction of new residential, industrial, and commercial buildings. In addition, renovation and efforts to improve insulation in existing structures also will increase demand.

Insulation workers in the construction industry may experience periods of unemployment because of the short duration of many construction projects and the cyclical nature of construction activity. Workers employed in industrial plants generally have more stable employment because maintenance and repair must be done on a continuing basis. Most insulation is applied after buildings

are enclosed, so weather conditions have less effect on the employment of insulation workers than on that of some other construction occupations.

### Earnings

In 2000, median hourly earnings of insulation workers were \$13.05. The middle 50 percent earned between \$9.99 and \$17.00. The lowest 10 percent earned less than \$7.96, and the highest 10 percent earned more than \$24.75. Median hourly earnings in the industries employing the largest numbers of insulation workers in 2000 are shown below:

Miscellaneous special trade contractors .....	\$13.91
Masonry, stonework, and plastering .....	12.24

Union workers tend to earn more than nonunion workers. Apprentices start at about one-half of the journeyworker's wage. Insulation workers doing commercial and industrial work earn substantially more than those working in residential construction, which does not require as much skill.

### Related Occupations

Insulation workers combine their knowledge of insulation materials with the skills of cutting, fitting, and installing materials. Workers in occupations involving similar skills include carpenters; carpet, floor, and tile installers and finishers; drywall installers, ceiling tile installers, and tapers; roofers; and sheet metal workers.

### Sources of Additional Information

For information about training programs or other work opportunities in this trade, contact a local insulation contractor, a local chapter of the International Association of Heat and Frost Insulators and Asbestos Workers, the nearest office of the State employment service or apprenticeship agency, or:

- ▶ International Association of Heat and Frost Insulators and Asbestos Workers, 1776 Massachusetts Ave. NW., Suite 301, Washington, DC 20036. Internet: <http://www.insulators.org>
- ▶ National Insulation and Abatement Contractors Association, 99 Canal Center Plaza, Suite 222, Alexandria, VA 22314.
- ▶ Insulation Contractors Association of America, 1321 Duke St., Suite 303, Alexandria, VA 22314.

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## Painters and Paperhangers

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(O\*NET 47-2141.00, 47-2142.00)

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### Significant Points

- Working conditions can be hazardous.
- Most workers learn informally on the job as helpers; however, training authorities recommend completion of an apprenticeship program.
- Due to worker turnover, employment prospects should be good.

### Nature of the Work

Paint and wall coverings make surfaces clean, attractive, and bright. In addition, paints and other sealers protect outside walls from wear caused by exposure to the weather. Although some people do both painting and paperhanging, each requires different skills.

*Painters* apply paint, stain, varnish, and other finishes to buildings and other structures. They choose the right paint or finish for the surface to be covered, taking into account durability, ease of