
Brickmasons, Blockmasons, and Stonemasons

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Significant Points

- Job prospects are expected to be very good, especially for workers with restoration skills.
- Most entrants learn informally on the job, but apprenticeship programs provide the most thorough training.
- The work is usually outdoors and involves lifting heavy materials and working on scaffolds.
- About 24 percent were self-employed.

Nature of the Work

Brickmasons, blockmasons, and stonemasons create attractive, durable surfaces and structures. For thousands of years, these workers have built buildings, fences, roads, walkways, and walls using bricks, concrete blocks, and natural stone. The structures that they build will continue to be in demand for years to come.

The work varies in complexity, from laying a simple masonry walkway to installing an ornate exterior on a highrise building. Workers cut or break the materials used to create walls, floors, and other structures. Once their building materials are properly sized, they are laid with or without a binding material. These workers use their own perceptions and a variety of tools to ensure that the structure meets the desired standards. After finishing laying the bricks, blocks, or stone, these workers clean the finished product with a variety of cleaning agents.

Brickmasons and *blockmasons*—who often are called simply *bricklayers*—build and repair walls, floors, partitions, fireplaces, chimneys, and other structures with brick, precast masonry panels, concrete block, and other masonry materials. Some brickmasons specialize in installing firebrick linings in industrial furnaces.

When building a structure, brickmasons use one of two methods, either the corner lead or the corner pole. Using the corner lead method, they begin by constructing a pyramid of bricks at each corner—called a lead. After the corner leads are complete, less experienced brickmasons fill in the wall between the corners using a line from corner to corner to guide each course, or layer, of brick. Due to the precision needed, corner leads are time-consuming to erect and require the skills of experienced bricklayers.

Because of the expense associated with building corner leads, some brickmasons use corner poles, also called masonry guides, which enable them to build an entire wall at the same time. They fasten the corner poles (posts) in a plumb position to define the wall line and stretch a line between them. This line serves as a guide for each course of brick. Brickmasons then spread a bed of mortar (a cement, lime, sand, and water mixture) with a trowel (a flat, bladed metal tool with a handle), place the brick on the mortar bed, and press and tap the brick into place. Depending on blueprint specifications, brickmasons either cut bricks with a hammer and chisel or saw them to fit around windows,

doors, and other openings. Mortar joints are then finished with jointing tools for a sealed, neat, uniform appearance. Although brickmasons typically use steel supports, or lintels, at window and door openings, they sometimes build brick arches, which support and enhance the beauty of the brickwork.

Refractory masons are brickmasons who specialize in installing firebrick and refractory tile in high-temperature boilers, furnaces, cupolas, ladles, and soaking pits in industrial establishments. Most of these workers are employed in steel mills, where molten materials flow on refractory beds from furnaces to rolling machines. They also are employed at oil refineries, glass furnaces, incinerators, and other locations requiring high temperatures during the manufacturing process.

After a structure is completed there is still work that often needs to be done. Pointing, cleaning, and caulking workers can be the final workers on a job or the primary workers on a restoration project. These workers use chemicals to clean the laid materials to give the structure a finished appearance. Older structures also need to be refurbished as the mortar or binding agents break down. In many cases a grinder or blade is used to carefully remove the old mortar. Special care is taken to not damage the main structural integrity or the bricks, blocks, or stone. New mortar is then inserted. Depending on how much mortar is being replaced and how, it may take several applications to allow the new mortar to cure properly. These same masons replace and repair damaged masonry materials as part of the building's restoration process.



Brickmasons, blockmasons, and stonemasons usually work outdoors.

Stonemasons build stone walls, as well as set stone exteriors and floors. They work with two types of stone—natural cut stone, such as marble, granite, and limestone and artificial stone made from concrete, marble chips, or other masonry materials. Stonemasons usually work on nonresidential structures, such as houses of worship, hotels, and office buildings, but they also work on residences.

Stonemasons often work from a set of drawings, in which each stone has been numbered for identification. Helpers may locate and carry these prenumbered stones to the masons. A derrick operator using a hoist may be needed to lift large stone pieces into place.

When building a stone wall, masons set the first course of stones into a shallow bed of mortar. They then align the stones with wedges, plumb lines, and levels, and work them into position with various tools. Masons continue to build the wall by alternating layers of mortar and courses of stone. As the work progresses, masons remove the wedges, fill the joints between stones, and use a pointed metal tool, called a tuck pointer, to smooth the mortar to an attractive finish. To hold large stones in place, stonemasons attach brackets to the stone and weld or bolt these brackets to anchors in the wall. Finally, masons wash the stone with a cleansing solution to remove stains and dry mortar.

When setting stone floors, which often consist of large and heavy pieces of stone, masons first use a trowel to spread a layer of damp mortar over the surface to be covered. Using crowbars and hard rubber mallets for aligning and leveling, they then set the stone in the mortar bed. To finish, workers fill the joints and clean the stone slabs.

Masons use a special hammer and chisel to cut stone. They cut stone along the grain to make various shapes and sizes, and valuable pieces often are cut with a saw that has a diamond blade. Some masons specialize in setting marble which, in many respects, is similar to setting large pieces of stone. Brickmasons and stonemasons also repair imperfections and cracks, and replace broken or missing masonry units in walls and floors.

Most nonresidential buildings now are built with walls made of concrete block, brick veneer, stone, granite, marble, tile, or glass. In the past, masons doing nonresidential interior work mainly built block partition walls and elevator shafts, but because many types of masonry and stone are used in the interiors of today's nonresidential structures, these workers now must be more versatile. For example, some brickmasons and blockmasons now install structural insulated concrete units and wall panels. They also install a variety of masonry anchors and other masonry-associated accessories used in many highrise buildings.

Work environment. Brickmasons, blockmasons, and stonemasons usually work outdoors, but in contrast to the past when work slowed down in the winter months, new processes and materials are allowing these masons to work in a greater variety of weather conditions. Masons stand, kneel, and bend for long periods and often have to lift heavy materials. Common hazards include injuries from tools and falls from scaffolds, but these can often be avoided when proper safety equipment is used and safety practices are followed.

Most workers work a standard 40-hour week. Earnings for workers in these trades can be reduced on occasion because poor weather and slowdowns in construction activity limit the time they can work.

Training, Other Qualifications, and Advancement

Most brickmasons, blockmasons, and stonemasons pick up their skills informally, observing and learning from experienced workers. Many others receive initial training in vocational education schools or from industry-based programs common throughout the country. Others complete an apprenticeship, which generally provides the most thorough training.

Education and training. Individuals who learn the trade on the job usually start as helpers, laborers, or mason tenders. These workers carry materials, move or assemble scaffolds, and mix mortar. When the opportunity arises, they learn from experienced craftworkers how to mix and spread mortar, lay brick and block, or set stone. They also may learn restoration skills such as cleaning, pointing, and repointing. As they gain experience, they learn more difficult tasks and make the transition to full-fledged craftworkers. The learning period on the job may last longer than if trained in an apprenticeship program. Industry-based training programs offered through construction companies usually last between 2 and 4 years.

Apprenticeships for brickmasons, blockmasons, and stonemasons usually are sponsored by local contractors, trade associations, or local union-management committees. Apprenticeship programs usually require 3 years of on-the-job training, in addition to a minimum of 144 hours of classroom instruction each year in blueprint reading, mathematics, layout work, sketching, and other subjects. Applicants for apprenticeships must be at least 17 years old and in good physical condition. A high school education is preferable with courses in mathematics, mechanical drawing, and general shop.

Apprentices often start by working with laborers, carrying materials, mixing mortar, and building scaffolds for about a month. Next, apprentices learn to lay, align, and join brick and block. They may also learn on the job to work with stone and concrete, which enables them to work with more than one masonry material.

Bricklayers who work in nonresidential construction usually work for large contractors and receive well-rounded training—normally through apprenticeship in all phases of brick or stone work. Those who work in residential construction usually work primarily for small contractors and specialize in only one or two aspects of the job.

Some workers learn at technical schools that offer masonry courses. Entrance requirements and fees vary depending on the school and who is funding the program. Some people take courses before being hired, and some take them later as part of the on-the-job training.

Other qualifications. The most desired quality in workers is dependability and a strong work ethic. Knowledge of basic math including measurement, volume, mixing proportions, algebra, plane geometry, and mechanical drawing are important in this trade.

Advancement. With additional training and experience, brickmasons, blockmasons, and stonemasons may become supervisors for masonry contractors. Some eventually become

Projections data from the National Employment Matrix

Occupational Title	SOC Code	Employment, 2006	Projected employment, 2016	Change, 2006-16	
				Number	Percent
Brickmasons, blockmasons, and stonemasons.....	47-2020	182,000	200,000	18,000	10
Brickmasons and blockmasons	47-2021	158,000	174,000	15,000	10
Stonemasons	47-2022	24,000	26,000	2,400	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*.

owners of businesses employing many workers and may spend most of their time as managers. Others move into closely related areas such as construction management or building inspection. Many unionized Joint Apprenticeship and Training Committees offer continual “life long learning” through continuing education courses that help those members who want to advance their technical knowledge and their careers.

Employment

Brickmasons, blockmasons, and stonemasons held 182,000 jobs in 2006. The vast majority were brickmasons. Workers in these crafts are employed primarily by building, specialty trade, or general contractors.

About 24 percent of brickmasons, blockmasons, and stonemasons were self-employed. Many of the self-employed are contractors who work on small jobs, such as patios, walkways, and fireplaces.

Job Outlook

Average employment growth is expected. Job prospects should be very good, especially for workers with restoration skills.

Employment change. Jobs for brickmasons, blockmasons, and stonemasons are expected to increase 10 percent over the 2006-16 decade, about as fast as the average for all occupations, as population and business growth create a need for new houses, industrial facilities, schools, hospitals, offices, and other structures. Also stimulating demand for workers will be the need to restore a growing number of old brick buildings. Moreover, the use of brick and stone for decorative work on building fronts, sidewalks, and in lobbies and foyers is increasing. Brick exteriors should remain very popular, reflecting a growing preference for durable exterior materials requiring little maintenance. Increased construction on hillsides also will spur the demand for new masons as designers create attractive areas that need retaining walls to hold soil in place. There is also an increased demand for durable homes that incorporate brick or stone in hurricane-prone areas.

Job prospects. Job opportunities for brickmasons, blockmasons, and stonemasons are expected to be very good through 2016. A large number of masons are expected to retire over the next decade. The large number of aging masonry buildings will increase opportunities for workers with restoration skills. Also, workers able to install new synthetic materials will have improved opportunities. Applicants who take masonry-related courses at technical schools will have better opportunities than those without these courses.

Employment of brickmasons, blockmasons, and stonemasons, like that of many other construction workers, is sensitive to changes in the economy. When the level of construction activity falls, workers in these trades can experience periods of unem-

ployment. On the other hand, shortages of these workers may occur in some areas during peak periods of building activity.

Earnings

Median hourly earnings of wage and salary brickmasons and blockmasons in May 2006 were \$20.66. The middle 50 percent earned between \$15.96 and \$26.26. The lowest 10 percent earned less than \$12.24, and the highest 10 percent earned more than \$32.43. Median hourly earnings in the two industries employing the largest number of brickmasons in May 2006 were \$20.57 in the foundation, structure, and building exterior contractors industry and \$20.67 in the masonry contractors industry.

Median hourly earnings of wage and salary stonemasons in May 2006 were \$17.29. The middle 50 percent earned between \$13.12 and \$22.04. The lowest 10 percent earned less than \$10.36, and the highest 10 percent earned more than \$28.46.

Apprentices or helpers usually start at about 50 percent of the wage rate paid to experienced workers. Pay increases as apprentices gain experience and learn new skills. Employers usually increase apprentices' wages about every 6 months based on specific advancement criteria.

Some brickmasons, blockmasons, and stonemasons are members of the International Union of Bricklayers and Allied Craftworkers.

Related Occupations

Brickmasons, blockmasons, and stonemasons combine a thorough knowledge of brick, concrete block, stone, and marble with manual skill to erect attractive, yet highly durable, structures. Workers in other occupations with similar skills include carpet, floor, and tile installers and finishers; cement masons, concrete finishers, segmental pavers, and terrazzo workers; and plasterers and stucco masons.

Sources of Additional Information

For details about apprenticeships or other work opportunities in these trades, contact local bricklaying, stonemasonry, or marble-setting contractors; the Associated Builders and Contractors; a local office of the International Union of Bricklayers and Allied Craftworkers; a local joint union-management apprenticeship committee; or the nearest office of the State employment service or apprenticeship agency. Apprenticeship information is also available from the U.S. Department of Labor's toll free helpline: (877) 872-5627 and online at: http://www.doleta.gov/atels_bat

For general information on apprenticeships and how to get them, see the *Occupational Outlook Quar-*

terly 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 in many libraries and career centers.

For information on training for brickmasons, blockmasons, and stonemasons, contact:

➤ Associated Builders and Contractors, Workforce Development Division, 4250 North Fairfax Dr., 9th Floor, Arlington, VA 22203. Internet: <http://www.trytools.org>

➤ International Union of Bricklayers and Allied Craftworkers, International Masonry Institute National Training Center, 17101 Science Dr., Bowie, MD 20715.

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

➤ Mason Contractors Association of America, 33 South Roselle Rd., Schaumburg, IL 60193.

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

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

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

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

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

For general information about the work of bricklayers, contact:

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

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

➤ Brick Industry Association, 11490 Commerce Park Dr., Reston, VA 22091-1525. Internet: <http://www.brickinfo.org>

➤ National Concrete Masonry Association, 13750 Sunrise Valley Dr., Herndon, VA 20171-3499.

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