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# Material Moving Occupations

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## Significant Points

- Despite little or no change in employment, job openings should be plentiful because these occupations are very large and numerous openings will be created to replace workers who leave them.
- Most jobs require little work experience or training.
- Pay is low, and the seasonal nature of the work may reduce earnings.

## Nature of the Work

Material moving workers are categorized into two groups—operators and laborers. Operators use machinery to move construction materials, earth, petroleum products, and other heavy materials. Generally, they move materials over short distances—around construction sites, factories, or warehouses. Some move materials onto or off of trucks and ships. Operators control equipment by moving levers, wheels, and/or foot pedals; operating switches; or turning dials. They also may set up and inspect equipment, make adjustments, and perform minor maintenance or repairs.

Laborers and hand material movers move freight, stock, or other materials by hand; clean vehicles, machinery, and other equipment; feed materials into or remove materials from machines or equipment; and pack or package products and materials.

Material moving occupations are classified by the type of equipment they operate or the goods they handle. Each piece of equipment requires different skills, as do different types of loads. (For information on operating engineers; paving, surfacing, and tamping equipment operators; and pile-driver operators, see the statement on construction equipment operators elsewhere in the *Handbook*.)

*Industrial truck and tractor operators* drive and control industrial trucks or tractors equipped to move materials around warehouses, storage yards, factories, construction sites, or other worksites. A typical industrial truck, often called a forklift or lift truck, has a hydraulic lifting mechanism and forks for moving heavy and large objects. Industrial truck and tractor operators also may operate tractors that pull trailers loaded with materials, goods, or equipment within factories and warehouses or around outdoor storage areas.

*Excavating and loading machine and dragline operators* tend or operate machinery equipped with scoops, shovels, or buckets to dig and load sand, gravel, earth, or similar materials into trucks or onto conveyors. Construction and mining industries employ the majority of excavation and loading machine and dragline operators. *Dredge operators* excavate waterways, removing sand, gravel, rock, or other materials from harbors,

lakes, rivers, and streams. Dredges are used primarily to maintain navigable channels but also are used to restore wetlands and other aquatic habitats; reclaim land; and create and maintain beaches. *Underground mining loading machine operators* use underground loading machines to load coal, ore, or rock into shuttles and mine cars or onto conveyors. Loading equipment may include power shovels, hoisting engines equipped with cable-drawn scrapers or scoops, and machines equipped with gathering arms and conveyors.

*Crane and tower operators* work mechanical boom and cable or tower and cable equipment to lift and move materials, machinery, and other heavy objects. Operators extend and retract horizontally mounted booms and lower and raise hooks attached to load lines. Most operators are guided by other workers using hand signals or a radio. Operators position loads from an on-board console or from a remote console at the site. While crane and tower operators are noticeable at office building and other construction sites, the biggest group works in primary metal, metal fabrication, and transportation equipment manufacturing industries that use heavy, bulky materials. Operators also work at major ports, loading and unloading large containers on and off ships. *Hoist and winch operators* control movement of cables, cages, and platforms to move workers and materials for manufacturing, logging, and other industrial operations. They work in positions such as derrick operators and hydraulic boom operators. Many hoist and winch operators are found in manufacturing or construction industries.

*Pump operators* tend, control, and operate pump and manifold systems that transfer gases, oil, or other materials to vessels or equipment. They maintain the equipment and regulate the flow of materials according to a schedule set up by petroleum engineers or production supervisors. *Gas compressor and gas pumping station operators* operate steam, gas, electric motor, or internal combustion engine-driven compressors. They transmit, compress, or recover gases, such as butane, nitrogen, hydrogen, and natural gas. *Wellhead pumpers* operate pumps and auxiliary equipment to produce flows of oil or gas from extraction sites.

*Tank car, truck, and ship loaders* operate ship-loading and -unloading equipment, conveyors, hoists, and other specialized material-handling equipment such as railroad tank car-unloading equipment. They may gauge or sample shipping tanks and test them for leaks. *Conveyor operators and tenders* control and tend conveyor systems that move materials to or from stockpiles, processing stations, departments, or vehicles. *Shuttle car operators* run diesel or electric-powered shuttle cars in underground mines, transporting materials from the working face to mine cars or conveyors.

*Laborers and hand freight, stock, and material movers* manually move materials and perform other unskilled, general labor. These workers move freight, stock, and other materials to and from storage and production areas, loading docks, delivery vehicles, ships, and containers. Their specific duties vary by industry and work setting. In factories, they may move raw materials or finished goods between loading docks, storage areas, and work areas, as well as sort materials and supplies and prepare them according to their work orders. Specialized work-

ers within this group include baggage and cargo handlers—who work in transportation industries—and truck loaders and unloaders.

*Hand packers and packagers* manually pack, package, or wrap a variety of materials. They may inspect items for defects, label cartons, stamp information on products, keep records of items packed, and stack packages on loading docks. This group also includes order fillers, who pack materials for shipment, as well as grocery store courtesy clerks. In grocery stores, they may bag groceries, carry packages to customers' cars, and return shopping carts to designated areas.

*Machine feeders and offbearers* feed materials into or remove materials from equipment or machines tended by other workers.

*Cleaners of vehicles and equipment* clean machinery, vehicles, storage tanks, pipelines, and similar equipment using water and cleaning agents, vacuums, hoses, brushes, cloths, or other cleaning equipment.

*Refuse and recyclable material collectors* gather refuse and recyclables from homes and businesses into their trucks for transport to a dump, landfill, or recycling center. They lift and empty garbage cans or recycling bins by hand or, using hydraulic lift trucks, pick up and empty dumpsters. They work along scheduled routes.

**Work environment.** Material moving work tends to be repetitive and physically demanding. Workers may lift and carry heavy objects and stoop, kneel, crouch, or crawl in awkward positions. Some work at great heights and some work outdoors—regardless of weather and climate. Some jobs expose workers to fumes, odors, loud noises, harmful materials and chemicals, or dangerous machinery. To protect their eyes, respiratory systems, and hearing, these workers wear safety clothing, such as gloves, hardhats, and other safety devices such as respirators. These jobs have become much less dangerous as safety equipment—such as overhead guards on lift trucks—has become common. Accidents usually can be avoided by observing proper operating procedures and safety practices.

Material movers generally work 8-hour shifts—though longer shifts are not uncommon. In industries that work around the clock, material movers may work overnight shifts. Some do this because their employers do not want to disturb customers



*Many job openings are expected in material moving occupations.*

during normal business hours. Refuse and recyclable material collectors often work shifts starting at 5 or 6 a.m. Some material movers work only during certain seasons, such as when the weather permits construction activity.

### **Training, Other Qualifications, and Advancement**

Many material moving occupations require little or no formal training. Most training for these occupations are done on the job. For those jobs requiring physical exertion, employers may require that applicants pass a physical exam. Some employers also require drug testing or background checks.

**Education and training.** Material movers generally learn skills informally, on the job, from more experienced workers or their supervisors. Some employers prefer applicants with a high school diploma, but most simply require workers to be at least 18 years old and physically able to perform the work.

Workers who handle toxic chemicals or use industrial trucks or other dangerous equipment must receive specialized training in safety awareness and procedures. Many of the training requirements are standardized through the U.S. Occupational Safety and Health Administration. This training is usually provided by the employer. Employers also must certify that each operator has received the training and evaluate each operator at least once every 3 years.

For other operators, such as crane operators and those working with specialized loads, there are some training and apprenticeship programs available, such as that offered by the International Union of Operating Engineers. Apprenticeships combine paid on-the-job training with classroom instruction.

**Licensure.** Fifteen States and 6 cities have laws requiring crane operators to be licensed. Licensing requirements typically include a written as well as a skills test to demonstrate that the licensee can operate a crane safely.

**Certification and other qualifications.** Some types of equipment operators can become certified by professional associations, such as the National Commission for the Certification of Crane Operators, and some employers may require operators to be certified.

Material moving equipment operators need a good sense of balance, the ability to judge distances, and eye-hand-foot coordination. For jobs that involve dealing with the public, such as grocery store courtesy clerks, workers should be pleasant and courteous. Most jobs require basic arithmetic skills and the ability to read procedural manuals, to understand orders, and other billing documents. Mechanical aptitude and training in automobile or diesel mechanics can be helpful because some operators may perform basic maintenance on their equipment. Experience operating mobile equipment—such as tractors on farms or heavy equipment in the Armed Forces—is an asset. As material moving equipment becomes more advanced, workers will need to be increasingly comfortable with technology.

**Advancement.** In many of these occupations, experience may allow workers to qualify or become trainees for jobs such as construction trades workers; assemblers or other production workers; motor vehicle operators; or vehicle and mobile equipment mechanics, installers, and repairers. In many workplaces new employees gain experience in a material moving position

before being promoted to a better paying and more highly skilled job. Some may eventually advance to become supervisors.

### Employment

Material movers held 4.8 million jobs in 2006. They were distributed among the detailed occupations as follows:

Laborers and freight, stock, and material movers, hand ..	2,416,000
Packers and packagers, hand.....	834,000
Industrial truck and tractor operators.....	637,000
Cleaners of vehicles and equipment.....	368,000
Machine feeders and offbearers .....	148,000
Refuse and recyclable material collectors.....	136,000
Excavating and loading machine and dragline operators.....	80,000
Conveyor operators and tenders.....	50,000
Crane and tower operators .....	46,000
Tank car, truck, and ship loaders.....	16,000
Wellhead pumpers.....	14,000
Pump operators, except wellhead pumpers.....	11,000
Gas compressor and gas pumping station operators .....	4,200
Loading machine operators, underground mining .....	3,100
Hoist and winch operators .....	3,000
Shuttle car operators .....	2,900
Dredge operators .....	2,100
Material moving workers, all other.....	54,000

About 29 percent of all material movers worked in the wholesale trade or retail trade industries. Another 21 percent worked in manufacturing; 16 percent in transportation and warehousing; 4 percent in construction and mining; and 14 percent in the employment services industry, on a temporary or contract basis. For example, companies that need workers for only a

few days, to move materials or to clean up a site, may contract with temporary help agencies specializing in providing suitable workers on a short-term basis. A small proportion of material movers were self-employed.

Material movers work in every part of the country. Some work in remote locations on large construction projects such as highways and dams, while others work in factories, warehouses, or mining operations.

### Job Outlook

Job openings should be numerous because these occupations is very large and turnover is relatively high, even though little or no change in employment is expected because of automation.

**Employment change.** Employment in material moving occupations is projected to decline by 1 percent between 2006 and 2016, which is considered little or no change in employment. Improvements in equipment, such as automated storage and retrieval systems and conveyors, will continue to raise productivity and moderate the demand for material movers.

Job growth for material movers depends on the growth or decline of employing industries and the type of equipment the workers operate or the materials they handle. Employment will grow in the warehousing and storage industry as more firms contract out their warehousing functions to this industry. For example, a frozen food manufacturer may reduce its costs by outsourcing these functions to a refrigerated warehousing firm, which can more efficiently deal with the specialized storage needs of frozen food. Jobs in mining are expected to decline due to continued productivity increases within that industry. Opportunities for material movers will also decline in manufacturing due to productivity improvements and outsourcing of warehousing and other activities that depend on material

### Projections data from the National Employment Matrix

Occupational Title	SOC Code	Employment, 2006	Projected employment, 2016	Change, 2006-16	
				Number	Percent
Material moving occupations.....	53-7000	4,825,000	4,800,000	-25,000	-1
Conveyor operators and tenders.....	53-7011	50,000	46,000	-3,700	-7
Crane and tower operators .....	53-7021	46,000	48,000	1,300	3
Dredge, excavating, and loading machine operators .....	53-7030	85,000	92,000	6,900	8
Dredge operators.....	53-7031	2,100	2,300	100	7
Excavating and loading machine and dragline operators.....	53-7032	80,000	87,000	6,700	8
Loading machine operators, underground mining .....	53-7033	3,100	3,200	100	4
Hoist and winch operators .....	53-7041	3,000	3,000	0	-1
Industrial truck and tractor operators.....	53-7051	637,000	624,000	-13,000	-2
Laborers and material movers, hand .....	53-7060	3,766,000	3,741,000	-25,000	-1
Cleaners of vehicles and equipment.....	53-7061	368,000	420,000	52,000	14
Laborers and freight, stock, and material movers, hand .....	53-7062	2,416,000	2,466,000	50,000	2
Machine feeders and offbearers .....	53-7063	148,000	125,000	-22,000	-15
Packers and packagers, hand.....	53-7064	834,000	730,000	-104,000	-12
Pumping station operators.....	53-7070	29,000	25,000	-3,800	-13
Gas compressor and gas pumping station operators .....	53-7071	4,200	3,400	-700	-17
Pump operators, except wellhead pumpers.....	53-7072	11,000	9,200	-1,300	-13
Wellhead pumpers.....	53-7073	14,000	13,000	-1,700	-12
Refuse and recyclable material collectors.....	53-7081	136,000	146,000	10,000	7
Shuttle car operators .....	53-7111	2,900	2,600	-200	-8
Tank car, truck, and ship loaders.....	53-7121	16,000	18,000	1,500	9
Material moving workers, all other.....	53-7199	54,000	54,000	400	1

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*.

movers. Job growth generally will be slower in large establishments, which can afford to invest in automated systems for their material moving needs.

Construction is very sensitive to changes in economic conditions, so the number of job openings in this industry will fluctuate. Although increasing automation will eliminate some routine tasks, new jobs will be created by the need to operate and maintain new equipment. Additionally, firms are more likely initially to use workers when expanding their businesses as opposed to using automated systems due to the large fixed costs associated with such systems.

**Job prospects.** Despite the little or no employment growth expected, job openings should be plentiful due to the fact that these occupations are very large and there will be a relatively high number of openings created by the need to replace workers who transfer to other occupations or who retire or leave the labor force for other reasons—characteristic of occupations requiring little prior or formal training.

### Earnings

Median hourly earnings of material moving workers in May 2006 were relatively low, as indicated by the following tabulation:

Gas compressor and gas pumping station operators .....	\$21.83
Pump operators, except wellhead pumps.....	19.13
Shuttle car operators .....	18.78
Crane and tower operators .....	18.77
Loading machine operators, underground mining .....	17.91
Wellhead pumps.....	17.38
Dredge operators.....	16.26
Hoist and winch operators .....	16.16
Excavating and loading machine and dragline operators.....	15.83
Tank car, truck, and ship loaders.....	15.37
Refuse and recyclable material collectors.....	13.93
Industrial truck and tractor operators.....	13.11
Conveyor operators and tenders.....	13.09
Machine feeders and offbearers .....	10.88
Laborers and freight, stock, and material movers, hand .....	10.20
Cleaners of vehicles and equipment.....	8.68
Packers and packagers, hand.....	8.48
Material moving workers, all other.....	14.55

Wages vary according to experience and job responsibilities. Wages usually are higher in metropolitan areas. Seasonal peaks and lulls in workload can affect the number of hours scheduled which affects earnings. Some crane operators, such as those unloading containers from ships at major ports earn substantially more than their counterparts in other industries or establishments. Certified crane operators tend to have a slightly higher hourly rate than those who are not certified.

### Related Occupations

Other workers who operate mechanical equipment include construction equipment operators; machine setters, operators, and tenders—metal and plastic; rail transportation workers; and truck drivers and driver/sales workers. Other entry-level workers who perform mostly physical work include agricultural workers; building cleaning workers; construction laborers; forest, conservation, and logging workers; and grounds maintenance workers.

### Sources of Additional Information

For information about job opportunities and training programs, contact local State employment service offices, building or construction contractors, manufacturers, and wholesale and retail establishments.

Information on safety and training requirements is available from:

► U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 200 Constitution Ave., NW., Washington, DC 20210. Internet: <http://www.osha.gov>

Information on training and apprenticeships for industrial truck operators is available from:

► International Union of Operating Engineers, 1125 17th St. NW., Washington, D.C. 20036. Internet: <http://www.iuoe.org>

Information on crane and derrick certification and licensure is available from:

► National Commission for the Certification of Crane Operators, 2750 Prosperity Ave., Suite 505, Fairfax, VA 22031. Internet: <http://www.nccco.org>