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Protective Service Occupations and Compliance Inspectors

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Construction and Building Inspectors

(D.O.T. 168.167-030, -034, -038, -046, and -050; .267-010, -102; 182.267; 850.387, .467)

Nature of the Work

Construction and building inspectors examine the construction, alteration, or repair of buildings, highways and streets, sewer and water systems, dams, bridges, and other structures to ensure compliance with building codes and ordinances, zoning regulations, and contract specifications. They make the initial inspections during the first phase of construction, and make followup inspections throughout the construction period to monitor continuing compliance with regulations. In areas with severe natural hazards—such as earthquakes or hurricanes—inspectors monitor compliance with additional regulations. Inspectors generally specialize in one particular type of construction work.

Building inspectors inspect the structural quality and general safety of buildings. Some may specialize—for example, in structural steel or reinforced concrete buildings. Before construction, plan examiners determine whether the plans for the building or other structure comply with building code regulations and are suited to the engineering and environmental demands of the building site. They visit the worksite before the foundation is poured to inspect the soil condition and positioning and depth of the footings. Then they inspect the foundation after it has been completed. The size and type of structure and the rate of completion determine the number of other visits they must make. Upon completion of the project, they make a final comprehensive inspection. In addition, inspectors may calculate fire insurance rates by assessing the type of construction, building contents, availability of fire protection equipment, and risks posed by adjoining buildings.

Electrical inspectors inspect the installation of electrical systems and equipment to ensure that they function properly and comply with electrical codes and standards. They visit worksites to inspect new and existing wiring, lighting, sound and security systems, motors, and generating equipment. They also inspect the installation of the electrical wiring for heating and air-conditioning systems, appliances, and other components.

Elevator inspectors examine lifting and conveying devices such as elevators, escalators, moving sidewalks, personnel lifts and hoists, inclined railways, ski lifts, and amusement rides.

Mechanical inspectors inspect the installation of the mechanical components of commercial kitchen appliances, heating and air-conditioning equipment, gasoline and butane tanks, gas and oil piping, and gas-fired and oil-fired appliances. Some specialize in inspecting boilers or ventilating equipment.

Plumbing inspectors examine plumbing systems, including private disposal systems, water supply and distribution systems, plumbing fixtures and traps, and drain, waste, and vent lines.

Public works inspectors ensure that Federal, State, and local government construction of water and sewer systems, highways, streets, bridges, and dams conforms to detailed contract specifications. They inspect excavation and fill operations, the placement of forms for concrete, concrete mixing and pouring, asphalt paving, and grading operations. They record the work and materials used so that contract payments can be calculated. Public works inspectors may specialize in highways, reinforced concrete, or ditches. Others specialize in dredging operations required for bridges and dams or for harbors.

Home inspectors conduct inspections of newly built homes to ascertain adherence to regulatory requirements. Some home inspectors are hired by prospective home buyers to inspect and report on the condition of the home's major systems and components. Home inspectors typically are hired either immediately prior to a purchase offer or as a contingency to a sales contract.

Construction and building inspectors increasingly use computers to help them monitor the status of construction inspection activities and the issuance of permits. Details about construction projects, building and occupancy permits, and other information can thus be stored and easily retrieved.

Although inspections are primarily visual, inspectors often use tape measures, survey instruments, metering devices, and test equipment such as concrete strength measurers. They often keep a daily log of their work, take photographs, file reports, and, if necessary, act on their findings. For example, construction inspectors notify the construction contractor, superintendent, or supervisor when they discover something that does not comply with the appropriate codes, ordinances, contract specifications, or approved plans. If the deficiency is not corrected within a reasonable or specified period of time, government inspectors have authority to issue a "stop-work" order.

Many inspectors also investigate construction or alterations being done without proper permits. Violators of permit laws are directed to obtain permits and submit to inspection.

Working Conditions

Construction and building inspectors usually work alone. However, several may be assigned to a large, complex project. They may spend much of their time in a field office reviewing blueprints, answering letters or telephone calls, writing reports, and scheduling inspections. The rest of their time is spent inspecting construction and building sites.

Inspection sites may be dirty and cluttered with tools, materials, or debris. Inspectors may have to climb ladders or many flights of stairs, or may have to crawl in tight places. Although the work is not considered hazardous, inspectors often wear "hard hats" for safety.

Inspectors normally work regular hours. However, if an accident occurs at a construction site, inspectors must respond immediately and may work irregular hours to complete their report.

Employment

Construction and building inspectors held about 60,000 jobs in 1990. Nearly three-fifths worked for local governments, primarily municipal or county building departments. Employment of local government inspectors is concentrated in cities and in suburban areas undergoing rapid growth. Local governments employ large inspection staffs, including many inspectors who specialize in structural steel, reinforced concrete, boiler, electrical, and elevator inspection.

One-fifth of all construction and building inspectors were employed at the Federal and State levels. Many construction inspectors employed by the Federal Government worked for the Department of Defense, primarily for the U.S. Army Corps of Engineers. Other important Federal employers include the Departments of Agriculture, Housing and Urban Development, and Interior, and the Tennessee Valley Authority.

Most of the remaining inspectors worked for firms in the engineering and architectural services, construction, and business services industries.

Training, Other Qualifications, and Advancement

Construction or building inspectors need several years of experience as a construction contractor, supervisor, or craft worker before becoming inspectors. Most employers also require an applicant to have a high school diploma. High school courses in drafting, algebra, geometry, and English are also useful.

Workers who want to become inspectors should have a thorough knowledge of construction materials and practices in either a general area like structural or heavy construction, or in a specialized area such as electrical or plumbing systems, reinforced concrete, or structural steel. Many construction and building inspectors have recent experience as carpenters, electricians, plumbers, or pipefitters.

Employers prefer inspectors who have graduated from an apprenticeship program, have studied engineering or architecture for at

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Building inspectors monitor the installation of piping.

least 2 years, or have a degree from a community or junior college, with courses in construction technology, blueprint reading, mathematics, and building inspection.

Construction and building inspectors must be in good physical condition in order to walk and climb about construction sites. They also must have a driver's license. In addition, Federal, State, and many local governments usually require that inspectors pass a civil service examination.

Construction and building inspectors usually receive most of their training on the job. At first, working with an experienced inspector, they learn about inspection techniques; codes, ordinances, and regulations; contract specifications; and recordkeeping and reporting duties. They begin by inspecting less complex types of construction such as residential buildings. They then progress to more complex assignments. An engineering degree is frequently required to advance to supervisory inspector.

Since they advise builders and the general public on building codes, construction practices, and technical developments, construction and building inspectors must keep abreast of new building code developments. Many employers provide formal training programs to broaden inspectors' knowledge of construction materials, practices, and inspection techniques. Inspectors who work for small agencies or firms that do not conduct training programs can broaden their knowledge and upgrade their skills by attending State-conducted training programs, by taking college or correspondence courses, or by attending seminars sponsored by the organizations listed under Sources of Additional Information below.

Certification enhances construction inspectors— chances for higher paying, more responsible positions. Some States and cities require certification for employment. Inspectors with substantial experience and education can attain certification by passing stringent examinations on construction techniques, materials, and code requirements. The organizations listed below offer many categories of certification for inspectors and plan examiners, including the designation "CBO," Certified Building Official.

Job Outlook

Employment of construction and building inspectors is expected to grow about as fast as the average for all occupations through the year 2005. Increases in the level of construction activity and a rising concern for public safety and for improvements in the quality of construction should spur demand for construction and building inspectors. A growing volume of real estate transactions and a greater awareness and emphasis on home inspections will add to employment requirements for home inspectors. The trend of government—particularly Federal and State—to contract out construction inspection functions should increase demand for inspectors in the private sector.

Most job openings will arise from the need to replace inspectors who retire or leave the occupation for other reasons. Because of the trend toward the establishment of professional standards for inspectors, job prospects should be best for highly experienced craft workers who have some college education or who are certified as inspectors.

Employment of construction and building inspectors is not always directly affected by changes in the level of building activity. Unlike most construction occupations, inspectors—particularly those in government—seldom experience layoffs when construction activity declines. During these periods, maintenance and renovation—which usually require more frequent inspection than new construction—generally continue, enabling inspectors to continue working full time year round. In an upturn, new jobs for inspectors increase but not to the same degree as construction activity.

Earnings

The median annual salary of construction and building inspectors was $30,100 in 1990. The middle 50 percent earned between $24,600 and $37,400. The lowest 10 percent earned less than $19,700 and the highest 10 percent earned more than $46,000 a year. Generally, building inspectors, including plan examiners, earn the highest salaries. Salaries in large metropolitan areas are substantially higher than those in small local jurisdictions.

Related Occupations

Construction and building inspectors combine a knowledge of construction principles and law with the ability to coordinate data, diagnose problems, and communicate with people. Workers in other occupations with a similar combination of skills are drafters, estimators, industrial engineering technicians, and surveyors.

Sources of Additional Information

Information about a career and certification as a construction or building inspector is available from the following model code organizations:

☛ International Conference of Building Officials, 5360 South Workman Mill Rd., Whittier, CA 90601.

☛ Building Officials and Code Administrators International, Inc., 4051 West Flossmoor Rd., Country Club Hills, IL 60478.

☛ Southern Building Code Congress International, Inc., 900 Montclair Rd., Birmingham, AL 35213.

Information on careers and certification as a home inspector is available from:

☛ American Society of Home Inspectors, Inc., Seventh Floor, 3299 K St. NW., Washington, DC 20007.

For information about a career as a State or local government construction or building inspector, contact your State or local employment service.

Persons interested in a career as a construction and building inspector with the Federal Government can obtain information from:

☛ U.S. Office of Personnel Management, 1900 E St. NW., Washington, DC 20415.

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Correction Officers

(D.O.T. 372.367-014, .567-014, .667-018, and .677; and 375.367)

Nature of the Work

Correction officers are charged with the safety and security of persons who have been arrested, are awaiting trial, or who have been convicted of a crime and sentenced to serve time in a correctional institution. Correction officers may escort prisoners in transit between courtrooms, correctional institutions, and other points. They maintain order within the institution, enforce rules and regulations, and often supplement the counseling that inmates receive from psychologists, social workers, and other mental health professionals.

To make sure inmates are orderly and obey rules, correction officers monitor inmates' activities, including working, exercising, eating, and bathing. They assign and supervise inmates' work assignments, as well as instruct and help them on specific tasks. Sometimes it is necessary to search inmates and their living quarters for weapons or drugs, to settle disputes between inmates, and to enforce discipline. Correction officers cannot show favoritism and must report any inmate who violates the rules. To prevent escapes, officers staff security positions in towers and at gates. They count inmates periodically to make sure all are present.

Correction officers inspect the facilities to assure the safety and security of the prisoners. For example, they check cells and other areas of the institution for unsanitary conditions, fire hazards, and evidence of infractions of rules by inmates. In addition, they routinely inspect locks, window bars, grill doors, and gates for signs of tampering.

Correction officers report orally and in writing on inmate conduct and on the quality and quantity of work done by inmates. Officers also report disturbances, violations of rules, and any unusual occurrences. They usually keep a daily record of their activities. In some modern facilities, correction officers monitor the activities of prisoners from a centralized control center with the aid of closed circuit television cameras.

Correction officers escort inmates to and from cells and other areas and admit and accompany authorized visitors within the facility. From time to time, they may inspect mail for contraband (prohibited items), administer first aid, or assist police authorities by investigating crimes committed within the institution and by searching for escaped inmates.

Counseling and helping inmates with problems are increasingly important parts of the correction officer's job. Correctional institutions usually employ psychologists and social workers to counsel inmates, but correction officers informally supplement the work of the professionals. They may arrange a change in a daily schedule so that an inmate can visit the library, help inmates get news of their families, talk over personal problems that may have led to committing a crime, or suggest where to look for a job after release from prison. In some institutions, officers receive specialized training and have a more formal counseling role and may lead or participate in group counseling sessions.

Correction sergeants directly supervise correction officers. They usually are responsible for maintaining security and directing the activities of a group of inmates during an assigned watch or in an assigned area.

Working Conditions

Correction officers may work indoors or outdoors, depending on their specific duties. Some indoor areas are well lighted, heated, and ventilated, but others are overcrowded, hot, and noisy. Outdoors, weather conditions may be disagreeable. Working in a correctional institution can be stressful and hazardous; correction officers occasionally have been injured or killed during inmate disturbances.

Correction officers usually work an 8-hour day 5 days a week. Prison security must be provided around the clock, which means some officers work weekends, holidays, and nights. Officers also frequently are required to work overtime.

Employment

Correction officers held about 230,000 jobs in 1990. About three-fifths worked at State correctional institutions such as prisons, prison camps, and reformatories. Most of the remainder worked at city and county jails or other institutions run by local governments. A few thousand correction officers worked at Federal correctional institutions.

Most correction officers work in relatively large institutions located in rural areas, although a significant number work in jails and other smaller facilities located in cities and towns.

Training, Other Qualifications, and Advancement

Most institutions require that correction officers must meet an 18- or 21-year age minimum, have a high school education or its equivalent, and be a United States citizen. In addition, correctional institutions increasingly seek correction officers with postsecondary education in psychology, criminology, and related fields—reflecting a continuing emphasis on personal counseling and rehabilitation of inmates.

Correction officers must be in good health. Many States require candidates to meet formal standards of physical fitness, eyesight, and hearing. Strength, good judgment, and the ability to think and act quickly are assets. Other common requirements include a driver's license, work experience that demonstrates reliability, and having no felony convictions. Some States screen applicants for drug abuse and require candidates to pass a written or oral examination.

The Federal Government, as well as almost every State and a few localities, provides training for correction officers based on guidelines established by the American Correctional Association. Some States have special training academies. All States and local departments of correction, however, provide informal on-the-job training.

Academy trainees generally receive several weeks or months of instruction on institutional policies, regulations, and operations; counseling psychology, crisis intervention, inmate behavior, and contraband control; custody and security procedures; fire and safety; inmate rules and rights; administrative responsibilities; written and oral communication, including preparation of reports; self-defense, including the use of firearms; cardiopulmonary resuscitation; and physical fitness training. New Federal correction officers undergo 2 weeks of training at their assigned institutions followed by 3 weeks of basic correctional instruction at the Federal Bureau of Prisons training center at Glynco, Georgia. On-the-job trainees receive several weeks or months of similar training in an actual job setting under an experienced officer. Experienced officers receive inservice training to keep abreast of new ideas and procedures. Some complete home- study courses.

Correction officers employed in Michigan must be certified. The criteria for certification are 340 hours of academy training and 15 hours of more advanced training that includes the law regarding corrections; human growth and development; and prison organization. Officers in Pennsylvania's 2-year apprenticeship program, which provides 4 weeks of orientation, 4 weeks of training at its academy, and

Correction officers closely monitor the activities of prisoners.

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20 months of on-the-job training, receive certification from the U.S. Department of Labor.

With additional education, experience, or training, qualified officers may advance to correction sergeant or other supervisory, administrative, or counseling positions. Many correctional institutions require experience as a correction officer for other corrections positions. Officers sometimes transfer to related areas, such as probation and parole.

Job Outlook

Employment of correction officers is expected to increase much faster than the average for all occupations through the year 2005 as additional officers are hired to supervise and counsel a growing inmate population. Expansion and new construction of correctional facilities are also expected to create many new jobs for correction officers. Increasing public concern about the spread of illegal drugs—resulting in more convictions—and the adoption of mandatory sentencing guidelines calling for longer sentences and reduced parole for inmates will also spur demand for correction officers. Rapid growth in demand coupled with job openings resulting from the need to replace experienced workers who retire or transfer to other occupations should mean favorable job opportunities for correction officers.

Employment of correction officers is not usually affected by changes either in economic conditions or in the overall level of government spending because security must be maintained in correctional institutions at all times. Even when corrections budgets are cut, correction officers are rarely laid off.

Earnings

According to a survey by CONTAC, Inc., correction officers at the State level had average earnings of about $22,900 a year in 1990. Starting pay averaged $18,400 and ranged from $12,400 in Kentucky to $29,400 in California. Average earnings for experienced workers ranged from $14,700 in South Dakota to $37,400 in New Jersey. Salaries generally were comparable for correction officers working in jails and other county and municipal correctional institutions.

At the Federal level, the starting salary was about $18,900 a year in 1991; supervisory correction officers start at about $25,700 a year. The 1990 average salary for all Federal nonsupervisory correction officers was about $23,800 and for supervisors, about $27,400.

Correction officers usually are provided uniforms or an allowance to purchase their own. Most are provided or can participate in hospitalization or major medical insurance plans; many officers can get disability and life insurance at group rates. They also receive vacation and sick leave and pension benefits. Officers employed by the Federal Government and most State governments are covered by civil service systems or merit boards. In 36 out of 50 States in the U.S., correction officers are represented by labor unions.

Related Occupations

A number of related careers are open to high school graduates who are interested in the protective services and the field of security. Bailiffs guard offenders and maintain order in courtrooms during proceedings. Bodyguards escort people and protect them from injury or invasion of privacy. House or store detectives patrol business establishments to protect against theft and vandalism and to enforce standards of good behavior. Security guards protect government, commercial, and industrial property against theft, vandalism, illegal entry, and fire. Police officers and deputy sheriffs maintain law and order, prevent crime, and arrest offenders.

Other corrections careers are open to persons interested in working with offenders. Probation and parole officers counsel offenders, process their release from correctional institutions, and evaluate their progress in becoming productive members of society. Recreation leaders organize and instruct offenders in sports, games, arts, and crafts. Some of these related occupations are discussed elsewhere in the *Handbook*.

Sources of Additional Information

Information about entrance requirements, training, and career opportunities for correction officers may be obtained from the Federal Office of Personnel Management, Federal Bureau of Prisons, State civil service commissions, State departments of correction, or nearby correctional institutions and facilities.

Information on corrections careers, as well as information about schools that offer criminal justice education, financial assistance, and job listings, is available from:

☛ CONTAC, Inc., P.O. Box 81826, Lincoln, NE 68501.

Additional information on careers in corrections is available from:

☛ The American Correctional Association, 8025 Laurel Lakes Ct., Laurel, MD 20707.

☛ American Jail Association, P.O. Box 2158, Hagerstown, MD 21742.

☛ American Probation and Parole Association, P.O Box 51017, Salt Lake City, UT 84152.

Firefighting Occupations

(D.O.T. 373 except .117; 379.687-010; 452.134, .364-014, .687-014)

Nature of the Work

Every year, fires take thousands of lives and destroy property worth billions of dollars. Firefighters help protect the public against this danger. This statement provides information only about career firefighters; it does not cover volunteer firefighters, who make up the overwhelming majority of all firefighters in the Nation.

During duty hours, firefighters must be prepared to respond to a fire and handle any emergency that arises. Because firefighting is dangerous and complex, it requires organization and teamwork. At every fire, firefighters perform specific duties assigned by an officer such as a lieutenant, captain, or chief. They may connect hose lines to hydrants, operate a pump, or position ladders. Their duties may change several times while the company is in action. They may rescue victims and administer emergency medical aid, ventilate smoke-filled areas, operate equipment, and salvage the contents of buildings.

The job of firefighter has become more complicated in recent years due to the use of increasingly sophisticated equipment. In addition, many firefighters have assumed additional responsibilities—for example, working with ambulance services that provide emergency medical treatment, assisting in the recovery from natural disasters such as earthquakes and tornadoes, and becoming involved with the control and cleanup of oil spills and other hazardous chemical incidents.

Most fire departments also are responsible for fire prevention. They provide specially trained personnel to inspect public buildings for conditions that might cause a fire. They may check building plans, the number and working condition of fire escapes and fire doors, the storage of flammable materials, and other possible hazards. In addition, firefighters educate the public about fire prevention and safety measures. They frequently speak on this subject before school assemblies and civic groups.

Between alarms, they have classroom training, clean and maintain equipment, conduct practice drills and fire inspections, and participate in physical fitness activities. Firefighters also prepare written reports on fire incidents and review fire science literature to keep abreast of technological developments and administrative practices and policies.

Working Conditions

Firefighters spend much of their time at fire stations, which usually have facilities for dining and sleeping. When an alarm comes in, firefighters must respond rapidly, regardless of the weather or hour. They may spend long periods at fires, hazardous chemical incidents, and other emergencies on their feet and outdoors, sometimes in adverse weather.

Firefighting is one of the most hazardous occupations. It involves risk of death or injury from sudden cave-ins of floors or toppling walls and from exposure to flames and smoke. Firefighters also may come in contact with poisonous, flammable, and explosive gases and chemicals.

Work hours of firefighters are longer and vary more widely than hours of most other workers. The majority of firefighters work over 50 hours a week; during some weeks, they may work significantly longer

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Firefighters enter buildings that are on fire.

hours. In some cities, firefighters are on duty for 24 hours, then off for 48 hours, and receive an extra day off at intervals. In other cities, they work a day shift of 10 hours for 3 or 4 days, a night shift of 14 hours for 3 or 4 nights, have 3 or 4 days off, and then repeat the cycle. In addition, firefighters often work extra hours at fires and other emergencies. Fire lieutenants and fire captains often work the same hours as the firefighters they supervise. Duty hours include time when firefighters study, train, and perform fire prevention duties.

Employment

Firefighters held about 280,000 jobs in 1990. More than 9 out of 10 worked in municipal fire departments. Some very large cities have several thousand firefighters, while many small towns have only a few. Some firefighters work in fire departments on Federal and State installations, including airports. Private firefighting companies employ a small number.

Training, Other Qualifications, and Advancement

Applicants for municipal firefighting jobs may have to pass a written test; tests of strength, physical stamina, coordination, and agility; and a medical examination—including a test that screens for drug use. Workers also may be monitored on a random basis for drug use after accepting employment. Examinations are open to persons who are at least 18 years of age and have a high school education or the equivalent. Those who receive the highest scores have the best chances for appointment. Experience as a volunteer firefighter or as a firefighter in the Armed Forces and completion of community college courses in fire science may improve an applicant's chances for appointment. In fact, in recent years, an increasing proportion of entrants to this occupation have some postsecondary education.

As a rule, beginners in large fire departments are trained for several weeks at the department's training center. Through classroom instruction and practical training, the recruits study firefighting techniques, fire prevention, hazardous materials, local building codes, and emergency medical procedures; also, they learn how to use axes, saws, chemical extinguishers, ladders, and other firefighting and rescue equipment. After completing this training, they are assigned to a fire company, where they are evaluated during a period of probation.

A small but growing number of fire departments have accredited apprenticeship programs lasting 3 to 4 years. These programs combine formal, technical instruction with on-the-job training under the supervision of experienced firefighters. Technical instruction covers subjects such as firefighting techniques and equipment, chemical hazards associated with various combustible building materials, emergency medical procedures, and fire prevention and safety.

Most experienced firefighters continue to study to improve their job performance and prepare for promotion examinations. Today, firefighters need more training to operate increasingly sophisticated equipment and to deal safely with the greater hazards associated with fighting fires in larger, more elaborate structures. To progress to higher level positions, firefighters must acquire expertise in the most advanced firefighting equipment and techniques and in building construction, emergency medical procedures, writing, public speaking, management and budgeting procedures, and labor relations. Fire departments frequently conduct training programs, and some firefighters attend training sessions sponsored by the National Fire Academy on a variety of topics such as executive development, anti-arson techniques, and public fire safety and education. Some States also have extensive firefighter training programs.

Many colleges and universities offer courses leading to 2- or 4-year degrees in fire engineering or fire science. Many fire department offer firefighters incentives such as tuition reimbursement or higher pay for completing advanced training. Most fire captains and other supervisory personnel have some college training.

Among the personal qualities firefighters need are mental alertness, courage, mechanical aptitude, endurance, and a sense of public service. Initiative and good judgment are extremely important because firefighters often must make quick decisions in emergencies. Because members of a crew eat, sleep, and work closely together under conditions of stress and danger, they should be dependable and able to get along well with others in a group. Leadership qualities are assets for officers, who must establish and maintain discipline and efficiency as well as direct the activities of firefighters in their companies.

Opportunities for promotion are good in most fire departments. As firefighters gain experience, they may advance to a higher rank. After 3 to 5 years of service, they may become eligible for promotion to the grade of lieutenant. The line of further promotion usually is to captain, then battalion chief, assistant chief, deputy chief, and finally to chief. Advancement generally depends upon scores on a written examination, performance on the job, and seniority. Increasingly, fire departments are using assessment centers—which simulate a variety of actual job performance tasks—to screen for the best candidates for promotion. However, many fire departments require a master's degree—preferably in public administration or a related field—for promotion to positions higher than battalion chief.

Job Outlook

Firefighters are expected to face considerable competition for available job openings. Firefighting attracts many people because a high school education usually is sufficient, earnings are relatively high, and a pension is guaranteed upon retirement. In addition, the work is frequently exciting and challenging and affords an opportunity to perform a valuable public service. Consequently, the number of qualified applicants in most areas generally exceeds the number of job openings, even though the written examination and physical requirements eliminate many applicants. This situation is expected to persist through the year 2005.

Employment of firefighters is expected to increase about as fast as the average for all occupations through the year 2005 as a result of

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the increase in the Nation's population and fire protection needs. In addition, the number of paid firefighter positions is expected to increase as a percentage of all firefighter jobs. Much of the expected increase will occur in smaller communities with expanding populations that augment volunteers with career firefighters to better meet growing, increasingly complex fire protection needs. However, little growth is expected in large, urban fire departments. A small number of local governments are expected to contract for firefighting services with private companies.

Turnover of firefighter jobs is unusually low, particularly for an occupation that requires a relatively limited investment in formal education. Nevertheless, most job openings are expected to result from the need to replace those who retire or stop working for other reasons, or who transfer to other occupations.

Layoffs of firefighters are not common. Fire protection is an essential service, and citizens are likely to exert considerable pressure on city officials to expand or at least preserve the level of fire-protection coverage. Even when budget cuts do occur, local fire departments usually cut expenses by postponing equipment purchases or hiring new firefighters, rather than by laying off staff.

Earnings

According to a 1990 survey by the International City Management Association, entrance salaries for beginning full-time firefighters averaged about $19,700 a year. Nonsupervisory firefighters had an average salary of about $25,000 a year, but their earnings varied considerably depending on city size and region of the country. Average earnings ranged from $23,200 in the smallest cities to $31,400 in the largest cities, and from $21,500 in the South to $29,300 in the West. Fire lieutenants and fire captains may earn considerably more.

The law requires that overtime be paid to those firefighters who average 53 or more hours a week during their work period—which ranges from 7 to 28 days.

Firefighters receive a range of fringe benefits that usually includes medical and liability insurance, vacation and sick leave, and some paid holidays. Practically all fire departments provide protective clothing (helmets, boots, and coats) and breathing apparatus and many also provide dress uniforms. Firefighters generally are covered by liberal pension plans that often provide retirement at half pay at age 50 after 25 years of service or at any age if disabled in the line of duty.

The majority of career firefighters are members of the International Association of Fire Fighters.

Related Occupations

A related fire protection occupation is the fire-protection engineer, who identifies fire hazards in homes and workplaces and designs prevention programs and automatic fire detection and extinguishing systems. Other occupations in which workers respond to emergencies include police officers and emergency medical technicians.

Sources of Additional Information

Information on obtaining a job as a firefighter is available from local civil service offices or fire departments.

Information about a career as a firefighter may be obtained from:

☛ International Association of Fire Chiefs, 1329 18th St. NW., Washington, DC 20036.

☛ International Association of Fire Fighters, 1750 New York Ave. NW., Washington, DC 20006.

Information about firefighter professional qualifications and a list of college and universities that offer 2- or 4-year degree programs in fire science or fire prevention may be obtained from:

☛ National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

Additional information on the salaries and hours of work of firefighters in various cities is published annually by the International City Management Association in its *Municipal Yearbook*, which is available in many libraries.

Guards

(D.O.T. 372.563, .567-010, .667-010, -014, and -030 through -038; 376.667-010; and 379.667-010)

Nature of the Work

Guards, also called security officers, patrol and inspect property to protect against fire, theft, vandalism, and illegal entry. Their duties vary with the size, type, and location of their employer.

In office buildings, banks, hospitals, and department stores, guards protect records, merchandise, money, and equipment. In department stores, they often work with undercover detectives to watch for theft by customers or store employees.

At ports, airports, and railroads, guards protect merchandise being shipped as well as property and equipment. They screen passengers and visitors for weapons, explosives, and other contraband. They ensure that nothing is stolen while being loaded or unloaded, and watch for fires, prowlers, and trouble among work crews. Sometimes they direct traffic.

Guards who work in public buildings, such as museums or art galleries, protect paintings and exhibits. They also answer routine questions from visitors and sometimes guide tours.

In factories, laboratories, government buildings, data processing centers, and military bases where valuable property or information—such as information on new products, computer codes, or defense secrets—must be protected, guards check the credentials of persons and vehicles entering and leaving the premises. University, park, or recreation guards perform similar duties and also may issue parking permits and direct traffic. Golf course patrollers prevent unauthorized persons from using the facility and help keep play running smoothly.

At social affairs, sports events, conventions, and other public gatherings, guards provide information, assist in crowd control, and watch for persons who may cause trouble. Some guards work as "bouncers" and patrol places of entertainment such as nightclubs to preserve order among customers and to protect property.

Armored car guards protect money and valuables during transit. Bodyguards protect individuals from bodily injury, kidnapping, or invasion of privacy.

In a large organization, a security officer often is in charge of the guard force; in a small organization, a single worker may be responsible for all security measures. Patrolling usually is done on foot, but if the property is large, guards may make their rounds by car or motor scooter. As more businesses purchase advanced electronic security systems to protect their property, more guards are being assigned to stations where they monitor perimeter security, environmental functions, communications, and other systems. In many cases, these guards maintain radio contact with other guards patrolling on foot or in motor vehicles. Some guards use computers to store information on matters relevant to security—for example, visitors or suspicious occurrences—during their hours on duty.

As they make their rounds, guards check all doors and windows, see that no unauthorized persons remain after working hours, and ensure that fire extinguishers, alarms, sprinkler systems, furnaces, and various electrical and plumbing systems are working properly. They sometimes set thermostats or turn on lights for janitorial workers.

Guards usually are uniformed and may carry a nightstick and gun, although the use of guns is decreasing. They also may carry a flashlight, whistle, two-way radio, and a watch clock—a device that indicates the time at which they reach various checkpoints.

Correction officers—guards who work in prisons and other correctional institutions—are discussed separately in this section of the *Handbook*.

Working Conditions

Guards work indoors and outdoors patrolling buildings, industrial plants, and grounds. Indoors, they may be stationed at a guard desk to monitor electronic security and surveillance devices or to check the credentials of persons entering or leaving the premises. They also may be stationed at gate shelters or may patrol grounds in all weather.

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Because guards often work alone, there may be no one nearby to help if an accident or injury occurs. Some large firms, therefore, use a reporting service that enables guards to be in constant contact with a central station outside the plant. If they fail to transmit an expected signal, the central station investigates. Guard work is usually routine, but guards must be constantly alert for threats to themselves and to the property that they are protecting. Guards who work during the day may have a great deal of contact with other employees and members of the public.

Many guards work alone at night; the usual shift lasts 8 hours. Some employers have three shifts, and guards rotate to divide daytime, weekend, and holiday work equally. Guards usually eat on the job instead of taking a regular break.

Employment

Guards held about 883,000 jobs in 1990. Industrial security firms and guard agencies employed over one-half of all guards. These organizations provide security services on contract, assigning their guards to buildings and other sites as needed. The remainder were in-house guards, employed in large numbers by banks; building management companies; hotels; hospitals; retail stores; restaurants and bars; schools, colleges, and universities; and Federal, State, and local governments.

Although guard jobs are found throughout the country, most are located in metropolitan areas.

Training, Other Qualifications, and Advancement

Most employers prefer guards who are high school graduates. Applicants with less than a high school education also can qualify if they pass reading and writing tests and demonstrate competence in following written and oral instructions. Some jobs require a driver's license. Employers also seek people who have had experience in the military police or in State and local police departments. Most persons who enter guard jobs have prior work experience, although it is usually unrelated. Because of limited formal training requirements and flexible hours, this occupation attracts some persons seeking a second job. For some entrants, retired from military careers or other protective services, guard employment is a second career.

Applicants are expected to have good character references, no police record, good health—especially in hearing and vision—and good personal habits such as neatness and dependability. They should be mentally alert, emotionally stable, and physically fit in order to cope with emergencies. Some employers require applicants to take a polygraph examination or a written test of honesty, attitudes, and other personal qualities. Most employers require applicants and experienced workers to submit to drug screening tests as a condition of employment.

Guards provide protection against theft and vandalism.

Virtually all States and the District of Columbia have licensing or registration requirements for guards who work for contract security agencies. Registration generally requires that employment of an individual as a guard be reported to the licensing authorities—the State police department or other State licensing commission. To be granted a license as a guard, individuals generally must be 18 years old, have no convictions for perjury or acts of violence, pass a background examination, and complete classroom training in such subjects as property rights, emergency procedures, and seizure of suspected criminals. In 1990, only about five States and the District of Columbia had licensing requirements for in-house guards.

Candidates for guard jobs in the Federal Government must have some experience as a guard and pass a written examination. Armed Forces experience also is an asset. For most Federal guard positions, applicants must qualify in the use of firearms.

The amount of training guards receive varies. Training requirements generally are increasing as modern, highly sophisticated security systems become more commonplace. Many employers give newly hired guards instruction before they start the job and also provide several weeks of on-the-job training. Guards receive training in protection, public relations, report writing, crisis deterrence, first aid, drug control, and specialized training relevant to their particular assignment. Guards employed at establishments that place a heavy emphasis on security usually receive extensive formal training. For example, guards at nuclear power plants may undergo several months of training before being placed on duty under close supervision. Guards may be taught to use firearms, administer first aid, operate alarm systems and electronic security equipment, and spot and deal with security problems. Guards who are authorized to carry firearms may be periodically tested in their use according to State or local laws. Some guards are periodically tested for strength and endurance.

Although guards in small companies receive periodic salary increases, advancement is likely to be limited. However, most large organizations use a military type of ranking that offers advancement in position and salary. Higher level guard experience may enable persons to transfer to police jobs that offer higher pay and greater opportunities for advancement. Guards with some college education may advance to jobs that involve administrative duties or the prevention of espionage and sabotage. A few guards with management skills open their own contract security guard agencies.

Job Outlook

Job openings for persons seeking work as guards are expected to be plentiful through the year 2005. High turnover in this large occupation ranks it among those providing the greatest number of job openings in the entire economy. Many opportunities are expected for persons seeking full-time employment, as well as for those seeking part-time or second jobs at night or on weekends. However, some competition is expected for in-house guard positions. Compared to contract security guards, in-house guards enjoy higher earnings and benefits, greater job security, and more advancement potential, and are usually given more training and responsibility.

Employment of guards is expected to grow faster than the average for all occupations through the year 2005. Increased concern about crime, vandalism, and terrorism will heighten the need for security in and around plants, stores, offices, and recreation areas. The level of business investment in increasingly expensive plant and equipment is expected to rise, resulting in growth in the number of guard jobs. Demand for guards will also grow as private security firms increasingly perform duties—such as monitoring crowds at airports and providing security in courts—formerly handled by government police officers and marshals. (Police, detectives, and special agents are discussed separately in this section of the *Handbook.*) Because engaging the services of a security guard firm is easier and less costly than assuming direct responsibility for hiring, training, and managing a security guard force, job growth is expected to be concentrated among contract security guard agencies.

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Guards employed by industrial security and guard agencies occasionally are laid off when the firm at which they work does not renew its contract with their agency. Most are able to find employment with other agencies, however. Guards employed directly by the firm at which they work are seldom laid off because a plant or factory must still be protected even when economic conditions force it to close temporarily.

Earnings

Guards working in 23 urban areas averaged an estimated $6.28 an hour in 1990. Those working in the Midwestern States earned more than the average, while guards employed in the South earned somewhat less. Hourly wages of guards were estimated to average $10.63 in public utilities and transportation; $11.83 in manufacturing; $8.45 in wholesale trade; $8.78 in banking, finance, insurance, and real estate; $6.96 in retail trade; and $5.61 in the various service industries, including security and guard agencies. Guards with specialized training or some supervisory responsibilities averaged $9.37 an hour, while those with less training and responsibility averaged $5.99 an hour. Guards employed by industrial security and guard agencies generally started at or slightly above the minimum wage, which was $4.25 an hour in 1991.

Unionized in-house guards tend to earn more than the average. Many guards are represented by the United Plant Guard Workers Of America. Other guards belong to the International Union of Guards or the International Union Of Security Officers.

Depending on their experience, newly hired guards in the Federal Government earned between $13,500 and $15,200 a year in 1991. Guards employed by the Federal Government averaged about $19,200 a year in 1990. These workers usually receive overtime pay as well as a wage differential for the second and third shifts.

Related Occupations

Guards protect property, maintain security, and enforce regulations for entry and conduct in the establishments at which they work. Related security and protective service occupations include: Bailiffs, border guards, correction officers, deputy sheriffs, fish and game wardens, house or store detectives, police officers, and private investigators.

Sources of Additional Information

Further information about work opportunities for guards is available from local employers and the nearest State employment service office.

Information about registration and licensing requirements for guards may be obtained from the State licensing commission or the State police department. In States where local jurisdictions establish licensing requirements, contact a local government authority such as the sheriff, county executive, or city manager.

Information about Federal Government contract guard job requirements is presented in the *Contract Guard Information Manual*, GPO Publication No. 022-00-00192-2, which may be purchased from the U.S. Government Printing Office, Washington, DC 20402.

Inspectors and Compliance Officers, Except Construction

(A list of D.O.T. codes is available on request from the Chief, Division of Occupational Outlook, Bureau of Labor Statistics, Washington, DC 20212.)

Nature of the Work

Inspectors and compliance officers enforce adherence to a wide range of laws, regulations, policies, and procedures that protect the public on matters such as health, safety, food, immigration, licensing, interstate commerce, and international trade. Depending upon their employer, inspectors vary widely in title and responsibilities.

Health Inspectors. Health inspectors work with engineers, chemists, microbiologists, health workers, and lawyers to insure compliance with public health and safety regulations governing food, drugs, cosmetics, and other consumer products. They also administer regulations that govern the quarantine of persons and products entering the United States from foreign countries. The major types of health inspectors are consumer safety, food, agricultural quarantine, and environmental health inspectors. In addition, some inspectors work in a field closely related to food inspection—agricultural commodity grading.

Most *consumer safety inspectors* specialize in food, feeds and pesticides, weights and measures, cosmetics, or drugs and medical equipment. Some are proficient in several areas. Working individually or in teams under a senior or supervisory inspector, they periodically check firms that produce, handle, store, and market food, drugs, and cosmetics. They look for inaccurate product labeling, and for decomposition or chemical or bacteriological contamination that could result in a product becoming harmful to health. They use portable scales, cameras, ultraviolet lights, container sampling devices, thermometers, chemical testing kits, radiation monitors, and other equipment to ascertain violations. They send product samples collected as part of their examinations to laboratories for analysis.

After completing their inspection, inspectors discuss their observations with plant managers or officials and point out areas where corrective measures are needed. They write reports of their findings and, when necessary, compile evidence that may be used in court if legal action must be taken to enforce the law.

Federal and State laws empower *food inspectors* to inspect meat, poultry, and their byproducts to insure that they are safe for public consumption. Working onsite as a team under a veterinarian, they inspect meat and poultry slaughtering, processing, and packaging operations. They also check for correct product labeling and proper sanitation.

Agricultural quarantine inspectors protect American agriculture from the spread of foreign plant and animal pests and diseases. To safeguard crops, forests, gardens, and livestock, they inspect ships, aircraft, railroad cars, and motor vehicles entering the United States for restricted or prohibited plants, animals, insects, agricultural commodities, and animal by-products.

Environmental health inspectors, or sanitarians, who work primarily for State and local governments, insure that food, water, and air meet government standards. They check the cleanliness and safety of food and beverages produced in dairies and processing plants, or served in restaurants, hospitals, and other institutions. They often examine the handling, processing, and serving of food for compliance with sanitation rules and regulations and oversee the treatment and disposal of sewage, refuse, and garbage. In addition, inspectors examine places where pollution is a danger, test for pollutants, and collect air, water, or waste samples for analysis. They determine the nature and cause of pollution and initiate action to stop it.

In large local and State health or agriculture departments, environmental health inspectors may specialize in milk and dairy products, food sanitation, waste control, air pollution, water pollution, institutional sanitation, or occupational health. In rural areas and small cities, they may be responsible for a wide range of environmental health activities.

Agricultural commodity graders apply quality standards to aid the buying and selling of commodities and to insure that retailers and consumers know the quality of the products they purchase. They generally specialize in an area such as eggs and egg products, meat, poultry, processed or fresh fruits and vegetables, grain, tobacco, cotton, or dairy products. They examine product samples to determine quality and grade, and issue official grading certificates. Graders also may inspect the plant and equipment to maintain sanitation standards.

Regulatory Inspectors. Regulatory inspectors insure compliance with laws and regulations that protect the public welfare. Important types of regulatory inspectors include immigration, customs, air safety, railroad, motor vehicle, occupational safety and health, mine, wage-hour compliance, and alcohol, tobacco, and firearms inspectors.

Immigration inspectors interview and examine people seeking to enter the United States and its territories. They inspect passports to determine whether people are legally eligible to enter and to verify their citizenship status and identity. Immigration inspectors also prepare reports, maintain records, and process applications and petitions for immigration or temporary residence in the United States.

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Customs inspectors enforce laws governing imports and exports. Stationed in the U.S. and overseas at airports, seaports, and border crossing points, they examine, count, weigh, gauge, measure, and sample commercial and non-commercial cargoes entering and leaving the United States to determine admissibility and the amount of tax that must be paid. They insure that all cargo is properly described on accompanying manifests to determine the proper duty. They inspect baggage and articles worn by passengers and crew members to insure that all merchandise is declared, proper duties are paid, and contraband is not present. They also ensure that people, ships, planes, and anything used to import or export cargo comply with all appropriate entrance and clearance requirements.

Postal inspectors observe the functioning of the postal system and recommend improvements. They investigate criminal activities such as theft and misuse of the mail. In instances of suspected mismanagement or fraud, inspectors conduct management or financial audits. They also collaborate with other government agencies, such as the Internal Revenue Service, as members of special task forces.

Aviation safety inspectors insure that Federal Aviation Administration (FAA) regulations which govern the quality and safety of aircraft equipment and personnel are maintained. Aviation safety inspectors may inspect aircraft and equipment manufacturing, maintenance and repair, or flight operations procedures. They usually specialize in either commercial or general aviation aircraft. They also examine and certify aircraft pilots, pilot examiners, flight instructors, schools, and instructional materials.

Railroad inspectors verify the compliance of railroad systems and equipment with Federal safety regulations. They investigate accidents and review railroads' operating practices.

Motor vehicle inspectors verify the compliance of automobiles and trucks with State requirements for safe operation and emissions. They inspect truck cargoes to assure compliance with legal limitations on gross weight and hazardous cargoes.

Traffic inspectors oversee the scheduled service of streetcar, bus, or railway systems and determine the need for additional vehicles, revised schedules, or other changes to improve service. They also report conditions hazardous to passengers and disruptive to service.

Occupational safety and health inspectors visit places of employment to detect unsafe machinery and equipment or unhealthy working conditions. They discuss their findings with the employer or plant manager and urge that violations be promptly corrected in accordance with Federal, State, or local government safety standards and regulations.

Mine safety and health inspectors work to insure the health and safety of miners. They visit mines and related facilities to obtain information on health and safety conditions and to enforce safety laws and regulations. They discuss their findings with the management of the mine and issue citations describing violations and hazards that must be corrected. Mine inspectors also investigate and report on mine accidents and may direct rescue and fire-fighting operations when fires or explosions occur.

Wage-hour compliance inspectors inspect employers' time, payroll, and personnel records to insure compliance with Federal laws on such matters as minimum wages, overtime, pay, and employment of minors. They often interview employees to verify the employer's records and to check for complaints.

Equal opportunity representatives ascertain and correct unfair employment practices through consultation with and mediation between employers and minority groups.

Alcohol, tobacco, and firearms inspectors inspect distilleries, wineries, and breweries; cigar and cigarette manufacturing plants; wholesale liquor dealers and importers; firearms and explosives manufacturers, dealers, and users; and other regulated facilities. They insure compliance with revenue laws and other regulations on operating procedures, unfair competition, and trade practices, and determine that appropriate taxes are paid.

Securities compliance examiners implement regulations concerning securities transactions. They investigate applications for registration of securities sales and complaints of irregular securities transactions, and recommend necessary legal action.

Revenue officers investigate delinquent tax returns and liabilities. They attempt to resolve tax problems with taxpayers and recommend penalties, collection actions, and prosecution when necessary.

Attendance officers investigate continued absences of pupils from public schools.

Dealer compliance representatives inspect franchised establishments to ascertain compliance with the franchiser's policies and procedures. They may suggest changes in financial and other operations.

Logging operations inspectors review contract logging operations. They prepare reports and issue remedial instructions for violations of contractual agreements and of fire and safety regulations.

Travel accommodations raters inspect hotels, motels, restaurants, campgrounds, and vacation resorts. They evaluate travel and tourist accommodations for travel guide publishers and organizations such as tourism promoters and automobile clubs.

Quality control inspectors and coordinators inspect products manufactured or processed by private companies for government use to insure compliance with contract specifications. They may specialize in specific products such as lumber, machinery, petroleum products, paper products, electronic equipment, or furniture. Others coordinate the activities of workers engaged in testing and evaluating pharmaceuticals in order to control quality of manufacture and insure compliance with legal standards.

Other inspectors and compliance officers include coroners, code inspectors, mortician investigators, and construction and building inspectors. (Construction and building inspectors are discussed elsewhere in the *Handbook*.)

Working Conditions

Inspectors and compliance officers' work may be active; they meet many people and work in a variety of environments. Their jobs often involve considerable field work, and some inspectors travel frequently. They are furnished with an automobile or are reimbursed for travel expenses.

At times, inspectors have unfavorable working conditions. For example, mine safety and health inspectors often are exposed to the same hazards as miners. Food inspectors may have to examine and inspect the livestock slaughtering process. Food and alcohol, tobacco, and firearms inspectors frequently come in contact with strong, unpleasant odors. Many inspectors work long and often irregular hours.

Environmental health inspectors ensure that hazardous materials are properly stored.

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Employment

Inspectors and compliance officers held 156,000 jobs in 1990. State governments employed 32 percent, the Federal Government—chiefly the Departments of Defense, Treasury, Agriculture, and Justice—employed 30 percent, and local governments employed 20 percent. The remaining 18 percent were employed in the U.S. Postal Service and throughout the private sector—primarily in education, hospitals, insurance companies, labor unions, and manufacturing firms.

The largest single employer of consumer safety inspectors is the U.S. Food and Drug Administration, but the majority work for State governments. Most food inspectors and agricultural commodity graders in processing plants are employed by the U.S. Department of Agriculture, as are agricultural quarantine inspectors. Most environmental health inspectors work for State and local governments.

Most Federal regulatory inspectors work in regional and district offices throughout the United States. The Department of Defense employs the most quality control inspectors. The Treasury Department employs internal revenue officers, alcohol, tobacco, and firearms inspectors, and customs inspectors. Aviation safety inspectors work for the Federal Aviation Administration. The Environmental Protection Agency employs inspectors to verify compliance with pollution control laws. The Department of Labor employs wage-hour compliance officers. Occupational safety and health inspectors and mine safety and health inspectors also work for the Department of Labor and for many State governments. Immigration inspectors are employed by the Department of Justice. Like agricultural quarantine inspectors, immigration and customs inspectors work at U.S. airports, seaports, and border crossing points, and at foreign airports.

Training, Other Qualifications, and Advancement

Because of the diversity of functions, qualifications for inspector and compliance officer jobs differ greatly. Requirements are a combination of education, experience, and often a passing grade on a written examination. Employers generally prefer applicants with college training, including courses related to the job.

Food inspectors must have related experience and pass an examination based on specialized knowledge.

Aviation safety inspectors must have considerable experience in aviation maintenance and operations and knowledge of the industry and relevant Federal laws. In addition, FAA mechanic or pilot and medical certificates are required. Some also are required to have an FAA flight instructor rating. Many aviation safety inspectors have had flight training and mechanical training in the Armed Forces. No written examination is required.

Applicants for mine safety and health inspector positions generally must have experience in mine safety, management, or supervision, or possess a skill such as that of an electrician (for mine electrical inspectors). In some cases, a general aptitude test may be required. Most mine safety inspectors are former miners.

Applicants for internal revenue officer jobs must have a bachelor's degree or 3 years of business, legal, or investigative work experience that displays strong analytical ability.

Environmental health inspectors, called sanitarians in many States, sometimes must have a bachelor's degree in environmental health or in the physical or biological sciences. In most States, they are licensed by examining boards.

All inspectors and compliance officers are trained in applicable laws and inspection procedures through a combination of classroom and on-the-job training. In general, people who want to enter this occupation should be able to accept responsibility and like detailed work. Inspectors and compliance officers should be neat and personable and able to express themselves well orally and in writing.

Federal Government inspectors and compliance officers whose job performance is satisfactory advance through their career ladder to a specified full performance level. For positions above this level (usually supervisory positions), advancement is competitive, based on agency needs and individual merit. Advancement opportunities in State and local governments and the private sector are often similar to those in the Federal Government.

Some civil service examinations, including those for agricultural quarantine inspectors and agricultural commodity graders, rate applicants solely on their experience and education and require no written examination.

Job Outlook

Employment of inspectors and compliance officers is expected to increase faster than the average for all occupations through the year 2005. Employment growth, particularly in local government, will reflect the expansion of regulatory and compliance programs in solid and hazardous waste disposal and water pollution. In private industry, employment growth will reflect increasing self-enforcement of government and company regulations and policies, particularly among the rapidly growing number of franchise dealerships in various industries. Most job openings, however, will arise from the need to replace those who transfer to other occupations, or retire or leave the labor force for other reasons.

Employment of inspectors and compliance officers is seldom affected by general economic fluctuations. Most work in programs which enjoy wide public support. As a result, they are less likely to lose their jobs than many other workers when government programs are cut.

Earnings

The median annual salary of inspectors and compliance officers, except construction, was $30,300 in 1990. The lowest 10 percent earned less than $17,700; the highest 10 percent earned at least $49,400.

Most starting Federal salaries were around $17,000 a year in 1991. However, some inspectors and compliance officers—for example, aviation safety officers and postal inspectors—started at $25,700 a year.

In the Federal Government, the average annual salary in 1990 varied substantially—from $21,600 to $50,300—depending upon the nature of the inspection or compliance activity. Table 1 presents average salaries for selected inspectors and compliance officers in the Federal Government in 1990.

Table 1. Average salaries of selected Federal inspectors and compliance officers, 1990

Occupation	Salary
Highway safety inspectors	$50,327
Air safety investigators	48,304
Insurance examiners	45,171
Mine safety and health inspectors	43,828
Railroad safety inspectors	42,855
Equal opportunity compliance officials	42,049
Consumer safety inspectors	41,703
Securities compliance examiners	41,207
Environmental protection specialists	39,678
Import specialists	37,305
Internal revenue officers	36,318
Alcohol, tobacco, and firearms inspectors	35,603
Quality assurance inspectors	34,436
Public health quarantine inspectors	33,142
Agricultural commodity warehouse examiners	32,284
Customs inspectors	31,537
Transportation rate and tariff examiners	31,216
Agricultural commodity graders	29,225
Immigration inspectors	27,970
Food inspectors	26,228
Consumer safety inspectors	22,899
Environmental protection assistants	21,590

SOURCE: *U.S. Office of Personnel Management*

Salaries of inspectors and compliance officers in State and local government and in private industry are generally lower than those of their Federal counterparts.

Most inspectors and compliance officers work for Federal, State, and local government and in large private firms, all of which generally offer more generous fringe benefits—for example, pension and

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retirement plans, health and life insurance plans, and paid vacations—than do smaller firms.

Related Occupations

Inspectors and compliance officers are responsible for seeing that laws and regulations are obeyed. Revenue agents, construction and building inspectors, fire marshals, State and local police officers, customs patrol officers, customs special agents, and fish and game wardens also enforce laws.

Sources of Additional Information

Information on Federal Government jobs is available from offices of the State employment service, area offices of the U.S. Office of Personnel Management, and Federal Job Information Centers in large cities throughout the country. For information on a career as a specific type of Federal inspector or compliance officer, the Federal department or agency that employs them may also be contacted directly.

Information about State and local government jobs is available from State civil service commissions, usually located in each State capital, or from local government offices.

Information about jobs in private industry is available from the State Employment Service, which is listed under "Job Service" or "Employment" in the State government section of local telephone directories.

Inspectors, Testers, and Graders

(A list of D.O.T. codes is available on request from the Chief, Division of Occupational Outlook, Bureau of Labor Statistics, Washington, DC 20212.)

Nature of the Work

Inspectors, testers, and graders ensure that products meet quality standards. They may compare products to samples or to specifications in blueprints or graphs to make sure they are free from defects or other problems. Virtually all manufactured products, including foods, textiles, clothing, glassware, automotive components and completed vehicles, electronic components, computers, and structural steel, are inspected.

Inspectors generally visually check and may also listen to or feel products, or even taste or smell them. They verify dimensions, color, weight, texture, strength, or other physical characteristics of objects and look for imperfections such as cuts, scratches, bubbles, missing pieces, misweaves, or crooked seams. Many inspectors use micrometers, electronic equipment, calipers, alignment gauges, and other instruments to check and compare the dimensions of parts against the parts' specifications. Those testing electrical devices may use voltmeters, ammeters, and oscilloscopes to test the insulation, current flow, and resistance. Machinery testers generally check that parts fit and move correctly and are properly lubricated, check the pressure of gases and the level of liquids, test the flow of electricity, and do a test run to check for proper operation. Some jobs involve only a quick visual inspection; others require a much longer detailed one. Senior inspectors may also set up tests and test equipment.

Some inspectors examine materials received from a supplier before sending them on to the production line. Others inspect components, subassemblies, and assemblies or perform a final check on the finished product.

Inspectors mark, tag, or note problems. They may reject defective items outright, send them for rework, or, in the case of minor problems, fix them themselves. If the product checks out, they may screw on a nameplate, tag it, stamp a serial number, or certify it in some other way. Inspectors also may calibrate precision instruments used in inspection work.

Inspectors, testers, and graders record the results of their inspections, compute the percentage of defects and other statistical parameters, prepare inspection and test reports, notify supervisors of problems, and may help analyze and correct problems.

Increasingly in manufacturing, inspectors are being used in the middle of production lines, rather than at the end. They still test products to ensure that they will meet with specifications, but they may direct the production line to adjust the machinery before the manufacturing line produces unusable parts.

Working Conditions

Working conditions vary from industry to industry. Some inspectors examine similar products for an entire shift; others examine a variety of items. Most remain at one work station, but some travel from place to place to do inspections. Some are on their feet all day; others sit. In some industries, inspectors are exposed to the noise and grime of machinery; in others, they work in a clean, quiet environment. Some may have to lift heavy objects.

Some inspectors work evenings, nights, or weekends. In these cases, shift assignments generally are made on the basis of seniority. Overtime may be required to meet production goals.

Employment

Inspectors, testers, and graders held about 668,000 jobs in 1990. Over 8 of every 10 worked in manufacturing industries, including motor vehicles and equipment; electronic components and accessories; communications equipment; apparel; aircraft and parts; plastic products; and office, computing, and accounting machines. Some worked in wholesale trade, transportation, testing and photofinishing labs, engineering services, and government agencies. Although they are employed throughout the country, most jobs are in large metropolitan areas where many large factories are located.

Training, Other Qualifications, and Advancement

A high school diploma is helpful and may be required for some jobs. Simple jobs are generally filled by beginners with a few days' training. More complex ones are filled by experienced assemblers, machine operators, or mechanics who already have a thorough knowledge of the products and production processes.

In-house training for new inspectors may cover the use of special meters, gauges, computers, or other instruments; quality control techniques, blueprint reading, and reporting requirements. There are some postsecondary training programs in testing, but most employers prefer to train inspectors themselves.

Inspectors, testers, and graders need mechanical aptitude, good hand-eye coordination, and good vision.

Advancement for these workers frequently takes the form of higher pay. However, they also may advance to inspector of more complex products, supervisor, or quality control technician.

Job Outlook

Employment of inspectors, testers, and graders is expected to remain about the same through the year 2005. Because the occupation is large, however, many job openings will arise each year from the need to replace workers who transfer to other occupations or leave the labor force.

Inspectors test electrical components to ensure they work properly.

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Even though the volume of manufactured goods will grow, employment will not grow for several reasons. For one thing, manufacturers are taking steps to improve production methods—relying on computers and statistical analysis to control the production process. This should result in fewer defects and reduced requirements for inspectors. In some cases, machines will alert workers when items approach limits so that problems can be corrected before defects occur. In addition, more firms are holding assemblers, machine operators, and other production workers responsible for quality, and having them correct problems as they occur. Also, better inspecting machinery will improve inspectors' speed and accuracy, so fewer of them will be needed, and, in some cases, completely automated equipment will eliminate the need for inspectors.

Earnings

Inspectors, testers, and graders had median weekly earnings of about $380 in 1990. The middle 50 percent earned from about $285 to $526 a week. The lowest 10 percent earned less than $209 a week; the highest 10 percent earned more than $679.

Related Occupations

Other workers who inspect products or services are construction and building inspectors and inspectors and compliance officers, except construction, which includes consumer safety, environmental health, agricultural commodity, immigration, customs, postal, motor vehicle, safety, and other inspectors.

Sources of Additional Information

For general information about this occupation, contact:

☛ The National Tooling and Machining Association, 9300 Livingston Rd., Fort Washington, MD 20744.

☛ The American Society for Quality Control, Membership Department, 310 West Wisconsin Ave., Milwaukee, WI 53203.

(List of D.O.T. codes available on request. See p.444.)

Police, Detectives, and Special Agents

(D.O.T. 168.167-010; 372.137, .167-018, .363, .367-010; 375.133 through .137-018, .137-026 through .167-014, -022, -030 through -046, .263 through .363, .384; and 377.264)

Nature of the Work

The safety of our Nation's cities, towns, and highways greatly depends on the work of police officers, detectives, and special agents, whose responsibilities range from controlling traffic to preventing and investigating crimes. In most jurisdictions, whether on or off duty, these officers are expected to exercise their authority whenever necessary.

As civilian police department employees and private security personnel increasingly assume routine police duties, police and detectives are able to spend more time fighting serious crime. Police and detectives are also becoming more involved in community relations—increasing public confidence in the police and mobilizing the public to help the police fight crime.

Police officers and detectives who work in small communities and rural areas have many duties. In the course of a day's work, they may direct traffic at the scene of a fire, investigate a burglary, and give first aid to an accident victim. In a large police department, by contrast, officers usually are assigned to a specific type of duty. Most officers are detailed either to patrol or to traffic duty; smaller numbers are assigned to special work such as accident prevention. Others are experts in chemical and microscopic analysis, firearms identification, and handwriting and fingerprint identification. In very large cities, a few officers may work with special units such as mounted and motorcycle police, harbor patrols, helicopter patrols, canine corps, mobile rescue teams, and youth aid services.

Sheriffs and deputy sheriffs generally enforce the law in rural areas or those places where there is no local police department. Bailiffs are responsible for keeping order in the courtroom. U.S. marshalls serve civil writs and criminal warrants issued by Federal judges and are responsible for the safety and transportation of jurors and prisoners.

Detectives and special agents are plainclothes investigators who gather facts and collect evidence for criminal cases. They conduct interviews, examine records, observe the activities of suspects, and participate in raids or arrests.

Federal Bureau of Investigation (FBI) special agents investigate violations of Federal laws in connection with bank robberies, theft of Government property, organized crime, espionage, sabotage, kidnapping, and terrorism. Agents with specialized training usually work on cases related to their background. For example, agents with an accounting background may investigate white-collar crimes such as bank embezzlements or fraudulent bankruptcies and land deals. Frequently, agents must testify in court about cases that they investigate.

Special agents employed by the U.S. Department of Treasury work for the U.S. Customs Service; the Bureau of Alcohol, Tobacco, and Firearms; the U.S. Secret Service; and the Internal Revenue Service. Customs agents enforce laws to prevent smuggling of goods across U.S. borders. Alcohol, tobacco, and firearms agents might investigate suspected illegal sales of guns or the underpayment of taxes by a liquor or cigarette manufacturer. U.S. Secret Service agents protect the President, Vice President, and their immediate families, Presidential candidates, ex-Presidents, and foreign dignitaries visiting the United States. Secret Service agents also investigate counterfeiting, the forgery of Government checks or bonds, and the fraudulent use of credit cards. Internal Revenue Service special agents collect evidence against individuals and companies that are evading the payment of Federal taxes.

Federal drug enforcement agents conduct criminal investigations of illicit drug activity. They compile evidence and arrest individuals who violate Federal drug laws. They may prepare reports that are used in criminal proceedings, give testimony in court, and develop evidence that justifies the seizure of financial assets gained from illegal activity.

State police officers (sometimes called State troopers or highway patrol officers) patrol highways and enforce laws and regulations that govern their use. They issue traffic citations to motorists who violate the law. At the scene of an accident, they direct traffic, give first aid, and call for emergency equipment including ambulances. They also write reports that may be used to determine the cause of the accident. In addition, State police officers provide services to motorists on the highways. For example, they may radio for road service for drivers with mechanical trouble, direct tourists to their destination, or give information about lodging, restaurants, and tourist attractions.

State police officers also provide traffic assistance and control during road repairs, fires, and other emergencies, as well as during special occurrences such as parades and sports events. They sometimes check the weight of commercial vehicles, conduct driver examinations, and give information on highway safety to the public.

In addition to highway responsibilities, State police in the majority of States also enforce criminal laws. In communities and counties that do not have a local police force or a large sheriff's department, the State police are the primary law enforcement agency, investigating crimes such as burglary or assault. They also may help city or county police catch lawbreakers and control civil disturbances.

Most new police recruits begin on patrol duty, riding in a police vehicle or walking on "foot" patrol. They work alone or with experienced officers in such varied areas as congested business districts or outlying residential neighborhoods. Officers attempt to become thoroughly familiar with conditions throughout their area and, while on patrol, remain alert for anything unusual. They note suspicious circumstances, such as open windows or lights in vacant buildings, as well as hazards to public safety such as burned-out street lights or fallen trees. Officers enforce traffic regulations and also watch for stolen vehicles. At regular intervals, officers report to police headquarters from call boxes, radios, or telephones.

Regardless of where they work, police, detectives, and special agents must write reports and maintain police records. They may be called to testify in court when their arrests result in legal action. Some officers, such as division or bureau chiefs, are responsible for training or certain kinds of criminal investigations, and those who

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command police operations in an assigned area have administrative and supervisory duties.

Working Conditions

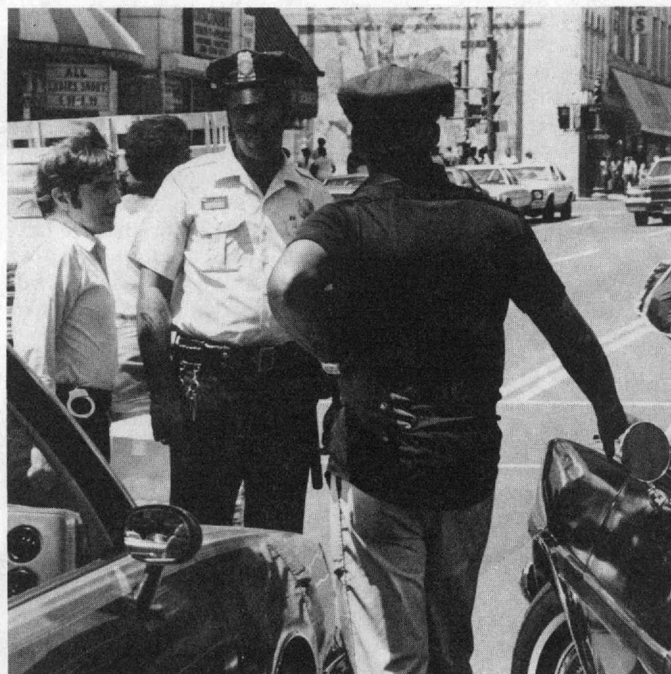
Police, detectives, and special agents usually work 40 hours a week. Because police protection must be provided around the clock in all but the smallest communities, some officers work weekends, holidays, and nights. Police officers, detectives, and special agents are subject to call any time their services are needed and may work overtime, particularly during criminal investigations.

The jobs of some special agents such as U.S. Secret Service agents require extensive travel.

Police, detectives, and special agents may have to work outdoors for long periods in all kinds of weather. The injury rate among these law officers is higher than in many occupations and reflects the risks taken in pursuing speeding motorists, apprehending criminals, and dealing with public disorders. Police work can be very dangerous, and this can be very stressful for the officer as well as for his or her family.

Employment

Police, detectives, and special agents held about 665,000 jobs in 1990. Most were employed by local governments, primarily in cities with more than 25,000 inhabitants. Some cities have very large police forces, while hundreds of small communities employ fewer than 25 officers each. State police agencies employed about 10 percent of all police, detectives, and special agents; various Federal agencies, particularly the Treasury Department and the Federal Bureau of Investigation, employed an additional 5 percent. There are about 17,000 State and local police departments in the Nation.



Police officers investigate the cause of traffic accidents.

Training, Other Qualifications, and Advancement

Civil service regulations govern the appointment of police and detectives in practically all States and large cities and in many small ones. Candidates must be U.S. citizens, usually at least 20 years of age, and must meet rigorous physical and personal qualifications. Eligibility for appointment depends on performance in competitive written examinations as well as on education and experience. Physical examinations often include tests of vision, strength, and agility.

Because personal characteristics such as honesty, good judgment, and a sense of responsibility are especially important in police and detective work, candidates are interviewed by a senior officer at police headquarters, and their character traits and background are investigated. In some police departments, candidates also may be interviewed by a psychiatrist or a psychologist, or be given a personality test. Most applicants are subjected to lie detector examinations and drug testing. Some police departments subject police officers in sensitive positions to drug testing as a condition of continuing employment. Although police and detectives often work independently, they must perform their duties in accordance with laws and departmental rules. They should enjoy working with people and serving the public.

In large police departments, where most jobs are found, applicants usually must have a high school education. An increasing number of cities and States require some college training, and some hire law enforcement students as police interns; some departments require a college degree. A few police departments accept applicants as recruits who have less than a high school education, particularly if they have worked in a field related to law enforcement.

To be considered for appointment as an FBI special agent, an applicant must be a graduate of an accredited law school; be a college graduate with a major in either accounting, engineering, or computer science; or be fluent in a foreign language. College graduates who do not have specialized degrees must have at least 3 years of full-time work experience. Applicants must be U.S. citizens, between 23 and 35 years of age at the time of appointment, and willing to accept an assignment anywhere in the United States. They also must be in excellent physical condition with at least 20/200 vision corrected to 20/40 in one eye and 20/20 in the other eye. All new agents undergo 15 weeks of training at the FBI academy at the U.S. Marine Corps base in Quantico, Virginia.

Applicants for special agent jobs with the U.S. Department of Treasury must have a bachelor's degree, or a minimum of 3 years' work experience of which at least 2 are in criminal investigation, or a comparable combination of experience and education. Candidates must be in excellent physical condition and be less than 35 years of age at the time of entrance on duty. Treasury agents undergo 8 weeks of training at the Federal Law Enforcement Training Center in Glynco, Georgia, and another 8 weeks of specialized training with their particular bureau.

Applicants for special agent jobs with the U.S. Drug Enforcement Administration must have a college degree in any field and 1 year of experience conducting criminal investigations or have achieved a record of scholastic excellence while in college. The minimum age for entry is 21 and the maximum age is 35. Drug enforcement agents undergo 14 weeks of specialized training at the FBI Academy in Quantico, Virginia.

More and more, police departments are encouraging applicants to take post-high school training in law enforcement. Many entrants to police and detective jobs have completed some formal postsecondary education; a significant number are college graduates. Many junior colleges, colleges, and universities offer programs in law enforcement or administration of justice. Other courses helpful in preparing for a police career include psychology, counseling, English, American history, public administration, public relations, sociology, business law, chemistry, and physics. Physical education and sports are especially helpful in developing the stamina and agility needed for police work. Knowledge of a foreign language is an asset in areas that have concentrations of ethnic populations.

Some large cities hire high school graduates who are still in their teens as civilian police cadets or trainees. They do clerical work and attend classes and are appointed to the regular force at age 21 if qualified.

Before their first assignments, officers usually go through a period of training. In small communities, recruits work for a short time with experienced officers. In State and large city police departments, they get more formal training that may last a number of weeks or months. This training includes classroom instruction in constitutional law and civil rights, State laws and local ordinances, and accident investigation. Recruits also receive training and supervised experience in patrol, traffic control, use of firearms, self-defense, first aid, and handling emergencies.

Police officers usually become eligible for promotion after a probationary period ranging from 6 months to 3 years. In a large department, promotion may enable an officer to become a detective or specialize in one type of police work such as laboratory analysis of

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evidence, traffic control, communications, or working with juveniles. Promotions to sergeant, lieutenant, and captain usually are made according to a candidate's position on a promotion list, as determined by scores on a written examination and on-the-job performance.

Many types of training help police officers and detectives improve their job performance. Through training given at police department academies—required annually in many States—and colleges, officers keep abreast of crowd-control techniques, civil defense, legal developments that affect their work, and advances in law enforcement equipment. Many police departments pay all or part of the tuition for officers to work toward associate and bachelor's degrees in law enforcement, police science, administration of justice, or public administration, and pay higher salaries to those who earn a degree.

Job Outlook

Employment of police officers, detectives, and special agents is expected to increase about as fast as the average for all occupations through the year 2005 due to the increase in the Nation's population and police protection needs. A more security-conscious society and growing concern about drug-related crimes should contribute to the increasing demand for police services. However, employment growth may be tempered somewhat by continuing budgetary constraints. In addition, private security firms may increasingly assume some routine police duties such as crowd surveillance at airports and other public places. Although turnover in police, detective, and special agent jobs is among the lowest of all occupations, the need to replace workers who retire, transfer to other occupations, or stop working for other reasons will be the source of most job openings.

The opportunity for public service through police work is attractive to many. The job frequently is challenging and involves much responsibility. Furthermore, in many communities, police officers may retire with a pension to pursue a second career while still in their 40's. Because of attractive salaries and benefits, the number of qualified candidates generally exceeds the number of job openings in many Federal agencies and some State and local police departments—resulting in increased hiring standards and selectivity by employers. Competition is expected to remain keen for higher paying jobs in larger police departments. Persons having college training in law enforcement should have the best opportunities. Opportunities will be best in those communities whose departments are expanding and are having difficulty attracting an adequate supply of police officers. Competition is expected to be extremely keen for special agent positions with the FBI, Treasury Department, and Drug Enforcement Administration as these prestigious jobs tend to attract a far greater number of applicants than the number of job openings. Consequently, only the most highly qualified candidates obtain jobs.

The level of government spending influences the employment of police officers, detectives, and special agents. The number of job opportunities, therefore, can vary from year to year and from place to place. Layoffs, on the other hand, are rare because early retirements enable most staffing cuts to be handled through attrition. Police officers who lose their jobs from budget cuts usually have little difficulty finding jobs with other police departments.

Earnings

According to a 1990 survey by the International City Management Association, police officers started at an average of $22,400 a year and could reach an average maximum of $28,700 a year after about 6 years of service. Some officers with longer service may be eligible to receive additional "longevity pay" averaging about $1,500 a year. Earnings vary by region and the size of the police department. Larger departments generally pay higher salaries. Police officers and detectives who work in the West earn somewhat higher salaries, while those employed in the South earn somewhat less.

According to a 1989 survey by the Bureau of Justice Statistics, police and detective sergeants earned salaries ranging from $18,900 in smaller jurisdictions of fewer than 2,500 people to $37,300 in larger juisdictions of over 1 million people. Salaries for police chiefs ranged from about $22,000 in smaller jurisdictions to over $90,000 in larger juisdictions.

In 1991, starting FBI agents earned about $28,300 a year, starting Treasury Department agents earned about $17,000 or $21,000 a year, and starting DEA agents earned either $21,000 or $25,700 a year, depending on their qualifications. Salaries of experienced FBI agents started at around $44,300, while supervisory agents started at around $52,400 a year. Salaries of experienced Treasury Department and DEA agents started at $37,300, while supervisory agents started at $44,300.

Total earnings frequently exceed the stated salary due to payments for overtime, which can be significant, especially during criminal investigations or when police are needed for crowd control during sporting events or political rallies. In addition to the common fringe benefits—paid vacation, sick leave, and medical and life insurance—most police departments and Federal agencies provide officers with special allowances for uniforms and furnish revolvers, nightsticks, handcuffs, and other required equipment. In addition, because police officers generally are covered by liberal pension plans, many retire at half-pay after 20 or 25 years of service.

Related Occupations

Police officers maintain law and order in the Nation's cities, towns, and rural areas. Workers in related law enforcement occupations include guards, bailiffs, correction officers, deputy sheriffs, fire marshals, fish and game wardens, and U.S. marshals.

Sources of Additional Information

Information about entrance requirements may be obtained from Federal, State, and local civil service commissions or police departments.

Additional information on the salaries and hours of work of police and detectives in various cities is published annually by the International City Management Association in its *Municipal Yearbook*, which is available in many libraries.

Contact any Office of Personnel Management Job Information Center for pamphlets providing general information and instructions for submitting an application for jobs as Treasury special agents, drug enforcement agents, FBI special agents, or U.S. marshalls. Look under U.S. Government, Office of Personnel Management, in your telephone directory to obtain a local telephone number. If there is no listing in your directory, dial the toll-free number 800-555-1212 and request the number of the nearest Office of Personnel Management Job Information Center.

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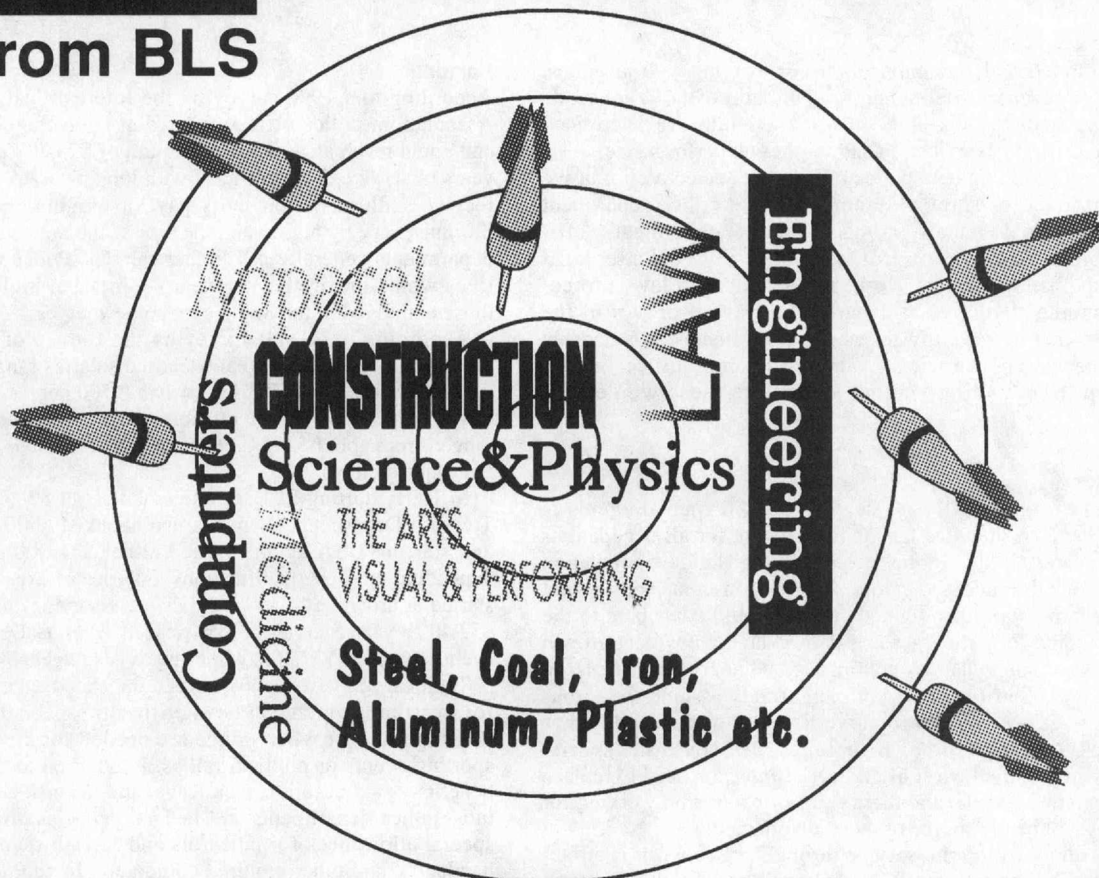

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Career Guide to Industries, BLS Bulletin 2403, was produced by the same staff that prepares the *Occupational Outlook Handbook*—the Federal Goverment's premier career guidance publication. This new book is a must for guidance counselors, individuals planning their careers, job seekers, and others who want the latest word on career information from an industry perspective.

Note: At press time, the price for this publication was not available. Contact any of the Bureau of Labor Statistics Regional Offices listed on the inside front cover, or the Division of Occupational Outlook, Bureau of Labor Statistics, Washington, DC 20212.

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