

A Guide to Office Safety and Health



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Acknowledgments

A Guide to Office Safety and Health was prepared for the N.C. Department of Labor by the L.A. Weaver Co., of Raleigh, N.C., which specializes in occupational and environmental safety and health and ergonomics. Additional material was supplied by N.C. Department of Labor J. Edgar Geddie, Ph.D. The information in this guide was updated in 2008.

This guide is intended to be consistent with all existing OSHA standards; therefore, if an area is considered by the reader to be inconsistent with a standard, then the OSHA standard should be followed.

To obtain additional copies of this book, or if you have questions about North Carolina occupational safety and health standards or rules, please contact:

**N.C. Department of Labor
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Additional sources of information are listed on the inside back cover of this book.

The projected cost of the NCDOL OSH program for federal fiscal year 2008–2009 is \$17,042,662. Federal funding provides approximately 30 percent (\$4,090,400) of this total.



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Foreword

When most people think of occupational safety and health needs, they picture the dangers lurking around construction sites or in factories. However, office workers have discovered over the years that they also face many unique challenges to their safety and health.

A Guide to Office Safety and Health examines many of these potential risks and offers solutions to them. General office safety, indoor air pollution, computer workstations and office environmental issues are discussed in this booklet.

In North Carolina, NCDOL inspectors enforce the federal Occupational Safety and Health Act through a state plan approved by the U.S. Department of Labor. The Division of Occupational Safety and Health of the N.C. Department of Labor offers many educational programs to the public and produces publications, including this guide, to help inform people about their rights and responsibilities regarding occupational safety and health.

When looking through this guide, please remember the mission of the N.C. Department of Labor is greater than just to enforce regulations. An equally important goal is to help people find ways to create safe workplaces. This booklet, like the other educational materials produced by the N.C. Department of Labor, can help.

Cherie Berry
Commissioner of Labor

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Introduction

Historically, the office has been considered a relatively safe and healthy place to work. Increasingly, however, office workers have expressed concerns about the office environment and their working conditions. These concerns are also reflected in complaints of discomfort, anxiety, irritation and general job dissatisfaction and can be measured in terms of sick leave, absenteeism and job turnover. This industry guide discusses major areas of concern related to health and safety in the office.

Accidents that occur in offices are frequently due to poorly designed office environments and improper office procedures. The rate of office accidents declines when office workers are informed of potential hazards and safe work practices. Training regarding general safety precautions for work in an office reduces both the number and severity of accidents.

Office workers are increasingly sensitive to the effects of computer video display terminals (VDTs) upon their health and safety. Individuals who use computers with VDTs commonly report stress-related and musculoskeletal disorders. If such disorders are to be reduced, computer workstations must accommodate the needs of office workers.

Concern over air quality in offices has generated various health-related symptoms that are known collectively as the "sick building syndrome." Indoor air pollution and inadequate ventilation are presently subjects of intense study.

The ambience of interoffice surroundings has caused problems for office workers. Such factors as improper temperature, inadequate humidity, and even colors of walls and furnishings are now known to be sources of discomfort. These are situations that should be considered in creating a safety, healthful and efficient office environment.

General Office Safety

Concern for safety is not a typical concern for the office worker because the office is not generally perceived as a hazardous environment. As this industry guide shows, potential safety hazards do exist in the office and, if not corrected, can result in decreased productivity and possible serious injury.

Types of Office Accidents

The most common office accident is falling. Falls account for the greatest number of disabling injuries. They result in the most severe injuries and the highest percentage of lost workdays due to such injuries.

Falls from chairs occur when workers lean back to tilt their chairs, place their feet on a desk, sit down without looking, and rise from or move around in a chair. Falls on stairs also occur, but more precaution is usually exercised on stairs because the fall hazard they pose is recognized. Slips, trips and falls can result from poor housekeeping such as wet surfaces, electrical cords improperly placed and walkways obstructed by trash. Falls also occur when workers stand on chairs or other office furniture to reach elevated objects.

Injuries from strain and overexertion frequently occur when office workers attempt to move or improperly lift heavy objects. Office workers sustain muscular and back injuries by carrying or moving books, office furniture, equipment and supplies without assistance. They may exacerbate such injuries by the stretching, twisting and bending required by the office routine.

Office workers are injured when struck by objects. File drawers may fall from the cabinet when pulled too far, typewriters can fall from a rolling table, or doors opened from the side opposite the worker may strike the employee. Similarly, injuries occur when workers strike objects. Employees bump into doors and desks. File cabinets inadvertently left open are a source of injury.

Infectious cuts are caused by sharp objects normally found in office environments, such as staples and pens. Fingers can get caught under the knife edge of a paper cutter.

Office Hazard Control

The process for controlling hazards in the office is similar to that for controlling hazards in industrial settings. The preferred means of hazard control is to eliminate the hazard (engineering controls). Another means is minimizing exposure to the hazard (administrative controls). Office-related hazards are controlled by carefully considering the office environment and by following office safety procedures.

Office Environment

The layout of an office should incorporate the principles of work flow, taking into consideration safety and health, efficiency, and convenience. The Life Safety Code (National Fire Protection Association NFPA 101) covers specific requirements for stairways, exits, and doors. For example, handrails for stairs are required to be located 30 to 34 inches above the tread surface.

Standards enforced under the Occupational Safety and Health Act of North Carolina (OSHANC) also address stairs. Generally speaking, enclosed stairways with four or more risers and less than 44 inches wide require a handrail on one side. Enclosed stairways wider than 44 inches require a handrail for both sides. Regardless of stair width, there must be a stair railing for each open side. An intermediate stair railing is required for stairs wider than 88 inches.

Doors that open into a passageway can pose a hazard to oncoming traffic. Guardrails can be used to minimize that hazard or the floor can be painted to mark the swing area. Exits should be unobstructed and well illuminated. Emergency lighting is required for exit hallways or paths.

Inadequate illumination caused by glare or shadows that interfere with vision can contribute to accidents. Illumination levels should be consistent to reduce visual fatigue created when one moves from bright surroundings into dark ones. The office layout should not require employees to face windows, unshielded lamps or other sources of glare.

Hazards from electrical equipment can be reduced by:

- ◆ Using only UL-listed (Underwriters Laboratories Inc.) equipment.
- ◆ Arranging electrical extension cords to avoid tripping hazards.
- ◆ Installing proper receptacles.

Electrical appliances such as coffee makers, radios and lamps can become sources of fire or electrical shock. Appliances should be equipped with electrical plugs that have a ground prong, or the appliance should be marked “double insulated” by the manufacturer.

Electrical extension cords must never be used as a substitute for permanent wiring. When extension cords are a temporary necessity, they should be taped down, clipped to the back of desks or covered with a rubber passageway if they cross the floor.

The National Electrical Code (NEC), NFPA 70, requires ground fault circuit interrupters (GFCIs) for restroom areas. The GFCI is a fast-acting device that senses current leakage caused by a fault in the electrical circuit. The GFCI shuts off the electricity to interrupt its faulty flow. It is good practice to use GFCIs wherever electrical hazards might develop.

All fuses and circuit breakers must be identified. This is easily accomplished by placing a label on each fuse or circuit breaker switch and a corresponding label on each receptacle and light switch. This practice will reduce the time needed to identify a specific fuse or circuit breaker when there is a need to turn it off.

Floor surfaces should have a slip-resistant finish. Tripping hazards can be minimized by immediately replacing defective tiles and carpet or worn floor mats. Slip-resistant floor wax can give polished floors a higher coefficient of friction. Floor mats and runners offer a more slip-resistant protection for stairways or lobby entrances.

Offices should have an area specifically designed for storing supplies. Materials should be neatly stacked in stable piles with the heaviest pieces on the bottom. Office equipment should not be placed on the edge of a table or desk.

Office Safety Procedures

Following safe work procedures in the office can prevent many accidents. Running in offices must be prohibited. Those walking in a passageway should keep to the right. Accidents result when persons stand in front of doors, so employees should stand clear of the door swing path. Employees should not attempt to carry stacks of materials that are high enough to obstruct vision. If an elevator is available, it should be used instead of carrying stacks of material up flights of stairs.

Proper attention should be given to the act of ascending or descending stairs. Stairways should not be areas for congregation. Those using the stairs should not crowd or push. Falls on stairs occur when people are distracted through conversation or by turning to another person while descending. Individuals should not stand near doors at stairways.

Fall hazards can be prevented through good housekeeping in the office. Spilled liquids should be cleaned up promptly, and loose objects and broken glass should be removed when first noticed. Broken glass should be immediately vacuumed or swept and the fine pieces should be picked up with a damp cloth.

Poor sitting habits can also lead to falls. Rolling in one’s chair across the floor, leaning sideways in a chair to pick up objects from the floor, and leaning back in the chair with feet on the desk are excellent examples of poor office safety procedures.

Filing cabinets can be a major cause of accidents and should be used with care. When using filing cabinets, follow these safety tips:

- ◆ Close all file drawers immediately after use.
- ◆ Close the file drawer with the drawer handle and not using feet.
- ◆ Open only one file drawer at a time to avoid toppling the cabinet.
- ◆ Never leave an open drawer unattended and never open a drawer if someone is underneath it.
- ◆ Never climb on open file drawers.

- ◆ Remove small stools (used to access upper file cabinet drawers) from passageways and safely store them.
- ◆ Wear finger guards to avoid paper cuts.

Other unsafe office procedures include storing pencils with points upward, placing scissors or knives with the point toward the user, using paper cutters without proper guards, and placing glass objects on a desk or table edge.

Employees using lounges and eating areas should follow good housekeeping and safe operating procedures to prevent exposure to microwaves and burns from hot plates and coffee makers.

Emergency Action Plan

As a general recommendation, employers should develop an emergency action plan to address emergencies that the employer can expect in the workplace. Examples of such foreseeable emergencies are fire, toxic chemical releases, hurricanes, tornadoes, blizzards and floods.

Some of the key components of an emergency action plan are the following:

- ◆ Emergency escape procedures and escape routes for employees to follow in the event of an emergency. These procedures should include floor plans that indicate the appropriate evacuation routes.
- ◆ How to account for all employees following evacuation.
- ◆ The rescue and medical duties for those employees, if any, who are to perform them.
- ◆ The preferred means of reporting fires and other emergencies.
- ◆ Names or regular job titles of people responsible for the emergency action plan.

Employers are required to have both an emergency action plan and a fire prevention plan when portable fire extinguishers are provided, even though they are not intended for employee use. The elements of a fire prevention plan are:

- ◆ Identification of the major workplace fire hazards and their proper handling and storage.
- Potential ignition sources (e.g., smoking) and their control procedures and the type of fire protection equipment or systems that can be used to control a fire.
- ◆ Names or regular job titles of personnel responsible for fire suppression equipment or systems.
- ◆ Names or regular job titles of personnel responsible for controlling fuel source hazards.

Indoor Air Pollution

Our awareness about indoor air quality has increased in recent years. Energy conservation programs spawned by world oil shortages resulted in changes to building design and operation. Buildings have been sealed and ventilation rates reduced in an effort to prevent the infiltration of untempered outside air (hot, humid air in the summer and cold, dry air in the winter). These changes were made to reduce operating costs but have had a negative impact on indoor air quality.

Indoor air quality problems are generally classified as “sick building syndrome” (SBS) or “building-related illness” (BRI). Conditions associated with sick building syndrome are not easily traced to a specific substance, but are usually believed to result from some unidentified contaminant or combination of contaminants.

The symptoms associated with SBS include:

- ◆ cough
- ◆ dizziness
- ◆ dry mucous membranes
- ◆ dry skin
- ◆ erythema (skin reddening)
- ◆ eye irritation
- ◆ headache
- ◆ hoarseness
- ◆ irritation of the throat
- ◆ mental fatigue
- ◆ nausea
- ◆ nose irritation
- ◆ respiratory infections
- ◆ wheezing

The symptoms of sick building syndrome are relieved when the employee leaves the building and may be reduced or eliminated by modifying the ventilation system.

“Building-related illness” (BRI) describes specific medical conditions that have a known origin. These illnesses can be severe and, unlike SBS, can often be traced to a single contaminant source such as mold infestation or microbial growth in cooling towers, air handling systems and water-damaged furnishings. Unlike SBS, symptoms may not disappear when the employee leaves the building. Building-related illnesses include:

- ◆ respiratory allergies
- ◆ nosocomial (hospital) infections
- ◆ humidifier fever
- ◆ hypersensitivity pneumonitis
- ◆ Legionnaires’ disease

Signs and symptoms of BRI are characteristic of exposure to chemical and biological substances including:

- ◆ carbon monoxide
- ◆ formaldehyde
- ◆ pesticides
- ◆ endotoxins

Sources of Indoor Air Pollution

Indoor air quality is affected by pollution from inside and outside of buildings and by poor ventilation. Human metabolic activity, smoking, structural components of the building, building contents, biological contamination, office and mechanical equipment, and outside air pollutants that enter the building—all are sources of indoor air pollution.

Inside Air Contaminants

Indoor sources of air pollutants due to chemicals can be attributed to building materials and products used in the building. Formaldehyde vapors can be emitted from urea-formaldehyde foam insulation, particle board, plywood, and some glues and adhesives commonly used during construction. Other contaminants include fibrous glass, various organic solvents from glues and adhesives, and acetic acid used as a curing agent in silicone caulking.

Chemicals and emissions from copying machines also contribute to indoor air pollution. These include, for example, methyl alcohol from spirit duplicators, butyl methacrylate from signature machines, ammonia and acetic acid from blue-print copiers, and ozone from photocopiers. Other inside contaminants include:

- ◆ improperly applied pesticides
- ◆ boiler additives such as N,N-diethylethanolamine
- ◆ improperly diluted cleaning agents such as rug shampoo
- ◆ tobacco smoke of all types (also commonly referred to as environmental tobacco smoke, ETS)
- ◆ combustion gases from sources common to cafeterias and laboratories
- ◆ cross-contamination from poorly ventilated sources that leak into other air zones

Indoor air problems due to biological pollutants often involve some type of microbiological contamination. Three conditions are necessary for microbial contamination to occur: high humidity (over 60 percent), appropriate temperatures and suitable growth media. Such contamination can result from water damage to carpets or furnishings or from standing water in ventilation system components. A respiratory problem known as hypersensitivity pneumonitis can result from bacteria, fungi, protozoa and microbiological products that may originate in ventilation system components.

Outside Air Contaminants

Pollutants from outside the building or office space can also contribute heavily to indoor air problems. Examples of these contaminants are motor vehicle exhaust, boiler gases and previously exhausted air. Major sources are improperly located exhaust and intake vents and periodic changes in wind conditions.

One of the most common contaminants from outside is carbon monoxide gas from basement parking garages, recirculated through the building ventilation system. Other outside contaminants include the by-products of construction or renovation, such as asphalt, solvents and dusts. Gasoline vapors can infiltrate the basement and sewage system and are usually caused by gasoline leaks from ruptured underground tanks at nearby service stations.

Inadequate Ventilation

Inadequate ventilation is a key factor associated with poor indoor air quality. Ventilation problems commonly encountered include:

- ◆ insufficient outdoor air supplied to the office space
- ◆ poor air distribution and mixing, which causes stratification, draftiness and pressure differences between office spaces
- ◆ extremes of fluctuations in temperature and humidity (sometimes caused by poor air distribution)
- ◆ air filtration problems caused by improper or inadequate maintenance to the building ventilation system

In many cases, these ventilation problems have been created or exacerbated by energy conservation measures. Such measures include reducing or eliminating outdoor air; reducing infiltration and exfiltration; lowering thermostats in winter and raising them in summer; eliminating humidification or dehumidification systems; and early shutdown and late start-up of ventilation systems.

Control Strategies

Four control strategies can be implemented to reduce indoor air pollution: education and training; dilution ventilation; modifying processes and equipment; and air cleaning.

Education and Training

The employer should provide all office employees with timely information on the health and physical hazards associated with office products and materials. Employers are required by the OSHA Hazard Communication Standard, 29 CFR 1910.1200, to develop and implement a hazard communication program where any hazardous chemicals are known to be present and to which employees may be exposed. The required hazard communication program details information and training that employees must receive.

Dilution Ventilation

Ventilation systems are designed to supply sufficient oxygen for normal respiration, to dilute contaminants in occupied spaces, to remove contaminants emitted from work areas and to control odors. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) is a private standard setting organization that has developed specific ventilation standards that are often incorporated into building codes. Most ventilation systems meet the design standards set by state and local building codes.

The primary method of controlling air contaminants in most buildings is general ventilation. General dilution ventilation requires a clean air supply to dilute all the contaminants of concern and exhaust openings located near the contaminant source or work area.

Recirculation of exhausts can be avoided by locating the intake and outlet remotely. Reentry of exhaust air can be avoided by discharging exhaust above the roof away from openings and air intakes.

Modifying Processes and Equipment

Pollution emission rates may be reduced by modifying processes and equipment. Polluting substances that are part of the work process may simply be eliminated. Less toxic materials may be available to substitute for contaminating substances. Or the quantity of contaminating substances may be reduced.

Equipment may be subject to modification that would reduce contamination. Using equipment differently or installing barriers may also reduce emissions at their source.

Air Cleaning

This control strategy involves removing air contaminants before the air is recirculated. Filters and electronic air cleaners are common particle removal devices. Adsorption and absorption are removal techniques for pollutant gases. Air conditioning is primarily a comfort device, but some concentrations of pollen and other particulate matter are slightly reduced by air conditioning.

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Office Ergonomics and Computer Station Design

In today's office work environment, personal desktop and laptop computers are as commonplace as the office desk itself. A poorly designed computer workstation and work habits can lead to discomfort and, if continued, can result in chronic pain. By applying sound ergonomic principles, these problems can be avoided.

Ergonomics is the study of how people, their equipment, tools and the environment work together. In the workplace, the goal of ergonomics is to adapt the environment to ensure worker productivity, comfort and safety. The word "ergonomics" is derived from the Greek words *ergon* (work) and *nomos* (laws). In other words, ergonomics means the laws of work.

By working to identify and eliminate certain risk factors, ergonomic principles can be applied to avoid one particular type of injury known as a musculoskeletal disorder (MSD), also often referred to as a cumulative trauma disorder (CTD). Musculoskeletal disorders are disorders of the soft tissues including those of the muscles, tendons and nerves. They are associated with repeated exertions or movements of the body or parts of the body, awkward postures, and extreme force.

Unlike other types of injuries that occur as the result of acute or sudden trauma, MSDs are most often the result of chronic, or long term, exposure to certain risk factors. Some but not all of the risk factors associated with the development of MSDs due to poor computer workstation design include static posture, awkward postures, repetition and individual factors.

Static posture refers to maintaining a stationary position for extended periods of time. Examples include standing in place or holding the arm away from the body.

Awkward posture refers to any fixed or constrained body position other than neutral alignment. Neutral posture occurs when the natural tensions of the muscles are relaxed. If an extreme posture is sustained or combined with high forces, it can place a person at greater risk of injury.

Repetition refers to a high number of similar body part movements. Repetitive motion can combine with fatigue, force and posture to increase the risk of injury.

Individual factors include certain medical conditions and anatomical differences. These have been known to increase the risk of developing a musculoskeletal disorder.

So what can be done to make your workstation comfortable? The following are some of the focus items for evaluating your workstation:

- ◆ *Screen (monitor)*—The top of the screen should be at or just below eye level and approximately 16–22 inches away.
- ◆ *Chair*—Your back should be fully supported and your feet either flat on the floor or on a footrest. Knees should be at approximately 90 degrees to the floor when seated.
- ◆ *Keyboard*—The keyboard should be at a height so that wrists are straight and elbows approximately 90 degrees. If necessary, a wrist rest may be used to provide additional wrist support. Maintain a light touch on the keyboard.
- ◆ *Document holder*—Place the document holder and screen at the same height and distance.
- ◆ *Eye comfort*—Reduce glare on the screen by controlling light from uncovered windows. If possible, set the computer screen at a right angle to the window. Adjust inside lighting or adjust the screen to reduce glare.
- ◆ *Change positions*—Frequently change positions to release tension on the body.
- ◆ *Organize work area*—Keep frequently used items such as the telephone within easy reach.
- ◆ *Exercise*—Take mini-breaks throughout the day to relieve muscle tension and to reenergize the body.

Environmental Considerations in the Office

Temperature

Indoor climate conditions are among the most common complaints from office workers. An uncomfortable atmosphere can cause annoyance and even pain, depending on the degree of heat imbalance.

The effects of improper temperature include fatigue, sweating, respiratory discomfort and changes in pulse rate. Too warm of an atmosphere leads to sleepiness, a decrease in performance and increased chance for error. An atmosphere that is too cool stimulates restlessness and reduces alertness and concentration.

Because productivity is linked to a comfortable climate, it is important to maintain the office at a pleasing temperature. Reflecting individual differences the perception of temperature comfort levels, the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) has developed a voluntary standard (ASHRAE 55-1981) for temperature ranges. Compliance with the standard would yield temperatures satisfactory to 80 percent of the average population. Compliance would require:

- ◆ A range from 73°F to 79°F for an average individual in the summer, and a range from 68°F to 74.5°F in the winter
- ◆ Relative humidity between 30 and 60 percent
- ◆ An average indoor air velocity of 0.25 meters per second or less in the summer, and an average indoor air velocity of 0.15 meters per second or less in the winter.

Preferred air temperature may vary according to air velocity, clothing, muscular activity and metabolism. Situational conditions can also affect comfort levels. Sitting near a glass wall or window on a hot or cold day may be uncomfortable, and sitting near heat producing equipment such as VDTs and copiers may cause discomfort.

Humidity

Office humidity deficiencies can lead to adverse health effects. It has been demonstrated that dry air leads to chronic irritation of the nasal and bronchial passages. Studies have shown that dry mucous membranes in the air ducts can obstruct the flow of mucous over the ciliary tracts, possible leading to diminished resistance to infection.

Relative humidity below 30 percent is thought to create unhygienic conditions. Atmospheric humidity does not measurably affect thermal comfort or the effective temperature, if the temperature and humidity are within the ranges recommended by ASHRAE.

Color

Color in the workplace seems to have a psychological effect on individuals due to optical illusions and emotional experiences that colors trigger. Such emotional experiences may be positive or negative feelings that colors somehow link with earlier experiences.

Generally, dark colors are depressing and tiring while light colors are friendly and cheerful. Room colors must also be considered in light of the nature of the work to be accomplished. Routine work requires more exciting colors. Work requiring close concentration requires restful colors that are not distracting.

Intense colors should be reserved for rooms such as entrance halls, restrooms and corridors. Strong colors may help brighten these areas, making them more cheerful. Particular colors and their effects are summarized below.

Color	Effect
Blue	Restful
Brown	Restful
Green	Very restful
Orange	Exciting
Yellow	Exciting
Red	Very stimulating, not restful
Violet	Aggressive, tiring

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Sources of Help

N.C. Department of Labor

The N.C. Department of Labor's Division of Occupational Safety and Health (OSH Division) administers OSHA rules and regulations in our state. Workers employed in both public and private offices are protected.

Any employee may contact the OSH Division regarding an unsafe or unhealthy condition in his or her workplace. Complaints may be made by calling toll-free 1-800-625-2267 or by calling (919) 807-2796. Any employee making a complaint about such conditions can request to have his or her name kept confidential.

An employer or any employee may contact the OSH Bureau of Education, Training and Technical Assistance regarding questions about OSHA or for other assistance regarding occupational safety and health information. Many publications including the OSHA standards for general industry or for construction, a wide range of industry-specific booklets, and other materials can be ordered through this bureau. See the inside back cover of this guide for the bureau's address and telephone number.

The N.C. Department of Labor Library offers employers and employees a wide range of literature and audiovisuals on labor-related topics. The library's holdings are loaned free of charge to the public. A full-time librarian is on staff to assist patrons in selecting the materials most appropriate to their needs. The address and telephone number for the library is:

N.C. Department of Labor Library
1101 Mail Service Center
Raleigh, NC 27699-1101

Telephone 1-800-625-2267 or (919) 807-2848

Employers may also contact the OSH Bureau of Consultative Services. This bureau conducts programs to assist employers in improving the safety and health conditions of their facilities and programs to recognize those who operate safe and healthy workplaces. Bureau of Consultative Services staff members routinely conduct safety and health consultative visits to worksites at the request of employers. This bureau does not share its information with the OSH compliance bureaus.

The Bureau of Consultative Services also administers the Safety Awards program to recognize and honor those employers who operate safety and healthy workplaces and the Carolina Star program that recognizes employers who have achieved extraordinary safety and health records. Please contact the bureau for more information on any of these services. The Bureau of Consultative Services' address and telephone number are located on the inside back cover of this guide.

Other Organizations, Associations and Agencies

Valuable sources of assistance are present in your own vicinity. For example, the local chapter of the American Red Cross and the American Heart Association can provide assistance in providing training in CPR (cardiopulmonary resuscitation). The local fire department or community college can teach office staff about the different types of fire extinguishers including hands-on training and can provide assistance in developing an emergency response plan for emergencies such as fires.

A sampling of other agencies includes:

Duke Poison Control Center
1-800-672-1697 (24 hours/day)

National Fire Protection Association (NFPA)
1 Batterymarch Park
Quincy, MA 02169-7471
(617) 770-3000

National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
(630) 285-1211

Suggested Readings

Bell Telephone Laboratories Inc. 1983. *Video Display Terminals—Preliminary Guidelines for Selection, Installation and Use*. Short Hills, N.J.

Hazardous Chemicals Right to Know Act, N.C. Gen. Stat. §§95-173–95-218 (1990).

Musselman, Victoria. 1989. *Emergency Planning and Community Right-to-Know*. New York: Von Nostrand Reinhold.

National Safety Council. 1988. *Accident Prevention Manual for Industrial Operations: Administration and Programs*. Chicago.

N.C. Department of Labor. 2008. *A Guide to Emergency Action Planning*. Division of Occupational Safety and Health. Industry Guide #40.

N.C. Department of Labor. 2008. *A Guide to Electrical Safety*. Division of Occupational Safety and Health. Industry Guide #18.

N.C. Department of Labor. 2008. *A Guide to Ergonomics*. Division of Occupational Safety and Health. Industry Guide #9.

N.C. Department of Labor. 2005. *A Guide to OSHA in North Carolina*. Division of Occupational Safety and Health. Industry Guide #4.

N.C. Department of Labor. 2005. *A Guide to Voluntary Training and Training Requirements in OSHA Standards*. Division of Occupational Safety and Health. Industry Guide #8.

N.C. Department of Labor. *North Carolina Occupational Safety and Health Standards for General Industry*.

The following industry guides are available from the N.C. Department of Labor's Division of Occupational Safety and Health:

- #1. *A Guide to Safety in Confined Spaces*
- #2. *A Guide to Procedures of the Safety and Health Review Board of North Carolina* (downloadable PDF **ONLY**)
- #3. *A Guide to Machine Safeguarding*
- #4. *A Guide to OSHA in North Carolina*
- #5. *A Guide for Persons Employed in Cotton Dust Environments* (downloadable PDF **ONLY**)
- #6. *A Guide to Lead Exposure in the Construction Industry* (downloadable PDF **ONLY**)
- #7. *A Guide to Bloodborne Pathogens in the Workplace*
- #8. *A Guide to Voluntary Training and Training Requirements in OSHA Standards*
- #9. *A Guide to Ergonomics*
- #10. *A Guide to Farm Safety and Health* (downloadable PDF **ONLY**)
- #11. *A Guide to Radio Frequency Hazards With Electric Detonators* (downloadable PDF **ONLY**)
- #12. *A Guide to Forklift Operator Training*
- #13. *A Guide to the Safe Storage of Explosive Materials* (downloadable PDF **ONLY**)
- #14. *A Guide to the OSHA Excavations Standard*
- #15. *A Guide to Developing and Maintaining an Effective Hearing Conservation Program*
- #16. *A Guide to Construction Jobsite Safety and Health/Guía de Seguridad y Salud para el Trabajo de Construcción*
- #17. *A Guide to Asbestos for Industry*
- #18. *A Guide to Electrical Safety*
- #19. *A Guide to Occupational Exposure to Wood, Wood Dust and Combustible Dust Hazards*
- #20. *A Guide to Crane Safety*
- #21. *A Guide to School Safety and Health*
- #23. *A Guide to Working With Electricity*
- #25. *A Guide to Personal Protective Equipment*
- #26. *A Guide to Manual Materials Handling and Back Safety*
- #27. *A Guide to the Control of Hazardous Energy (Lockout/Tagout)*
- #28. *A Guide to Eye Wash and Safety Shower Facilities*
- #29. *A Guide to Safety and Health in Feed and Grain Mills*
- #30. *A Guide to Working With Corrosive Substances* (downloadable PDF **ONLY**)
- #31. *A Guide to Formaldehyde* (downloadable PDF **ONLY**)
- #32. *A Guide to Fall Prevention in Industry*
- #32s. *Guía de Protección Contra Caídas en la Industria* (Spanish version of #32)
- #33. *A Guide to Office Safety and Health* (downloadable PDF **ONLY**)
- #34. *A Guide to Safety and Health in the Poultry Industry* (downloadable PDF **ONLY**)
- #35. *A Guide to Preventing Heat Stress*
- #38. *A Guide to Safe Scaffolding*
- #40. *A Guide to Emergency Action Planning*
- #41. *A Guide to OSHA for Small Businesses in North Carolina*
- #41s. *Guía OSHA para Pequeños Negocios en Carolina del Norte* (Spanish version of #41)

Occupational Safety and Health (OSH) Sources of Information

You may call 1-800-NC-LABOR (1-800-625-2267) to reach any division of the N.C. Department of Labor; or visit the NCDOL home page on the World Wide Web: <http://www.nclabor.com>.

N.C. Division of Occupational Safety and Health

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Local Telephone: (919) 807-2900 Fax: (919) 807-2856

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 3rd Floor)

For information concerning education, training and interpretations of occupational safety and health standards contact:

Bureau of Education, Training and Technical Assistance

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: (919) 807-2875 Fax: (919) 807-2876

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 4th Floor)

For information concerning occupational safety and health consultative services and safety awards programs contact:

Bureau of Consultative Services

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: (919) 807-2899 Fax: (919) 807-2902

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 3rd Floor)

For information concerning migrant housing inspections and other related activities contact:

Agricultural Safety and Health Bureau

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: (919) 807-2923 Fax: (919) 807-2924

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 2nd Floor)

For information concerning occupational safety and health compliance contact:

Safety and Health Compliance District Offices

Raleigh District Office (313 Chapanoke Road, Raleigh, NC 27603)

Telephone: (919) 779-8570 Fax: (919) 662-4709

Asheville District Office (204 Charlotte Highway, Suite B, Asheville, NC 28803-8681)

Telephone: (828) 299-8232 Fax: (828) 299-8266

Charlotte District Office (901 Blairhill Road, Suite 200, Charlotte, NC 28217-1578)

Telephone: (704) 665-4341 Fax: (704) 665-4342

Winston-Salem District Office (4964 University Parkway, Suite 202, Winston-Salem, NC 27106-2800)

Telephone: (336) 776-4420 Fax: (336) 776-4422

Wilmington District Office (1200 N. 23rd St., Suite 205, Wilmington, NC 28405-1824)

Telephone: (910) 251-2678 Fax: (910) 251-2654

To make an OSHA Complaint, **OSH Complaint Desk:** (919) 807-2796

For statistical information concerning program activities contact:

Planning, Statistics and Information Management

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: (919) 807-2950 Fax: (919) 807-2951

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 2nd Floor)

For information about books, periodicals, vertical files, videos, films, audio/slide sets and computer databases contact:

N.C. Department of Labor Library

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: (919) 807-2848 Fax: (919) 807-2849

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 5th Floor)

N.C. Department of Labor (Other than OSH)

1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: (919) 733-7166 Fax: (919) 733-6197