

The Work-Study Student's Guide to Workplace Health and Safety



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Please provide email feedback for improving this booklet in the next edition. Submit your ideas, including possible additional topics and/or suggested topic updates or deletions, to franzen@mtco.com or Labsafe@aol.com.

Introduction

Congratulations! You have been hired to take part in a work-study opportunity. Even though you may have experienced the workplace in previous situations, this is more than another temporary job. It is an opportunity to learn something about your chosen field in an authentic, real world context. The quality of this experience depends in large part on the attributes of the participant. Individuals approaching the work-study program with a positive attitude, strong work ethic, and maturity will fare best.

With the potential rewards of a work-study experience come responsibilities for the employee and employer. A clear understanding of these responsibilities, plus a familiarity with workplace hazards and emergency procedures, will help to ensure a positive and enriching experience.

This handbook provides you with the basics of workplace safety. And, it directs you to resources that will offer a deeper understanding of workplace safety issues. You are encouraged to investigate beyond these pages using materials from your employer, OSHA, and the web-based resources provided.

This handbook does NOT take precedence over the rules and regulations of either your workplace or institution. It is imperative that you familiarize yourself with the unique nature of your work environment and adhere to those policies. Most workplaces have no higher priority than the maintenance of a safe and healthful environment.

Remember to use common sense! Always consider the short and long term effects of your actions. Nobody other than YOU can constantly monitor your actions and behaviors. Your responsibility is not only to yourself, but to your co-workers as well.

Responsibilities

Employer

The ultimate responsibility for health and safety issues rests with the administrator in charge of the institution or corporation, passing through him or her to your supervisor via the established hierarchy, and finally to you. The employer must provide the safest environment possible while complying with state and federal regulations. A formal reporting system should be in place to deal with safety hazards. Your employer must respond to safety concerns in a prompt and appropriate manner.

Your employer *may* support a security force authorized to act within the confines of the workplace. If so, this agency has the primary responsibility for general campus security, including: law enforcement, parking control, emergency response, special event security, crime prevention, and various other duties as determined by the campus administration. Members of the security force must command the same respect as any other law enforcement personnel.

Employee

YOU are responsible for safe behavior, adherence to the rules and regulations associated with your assignment, and the prompt reporting of any safety hazards encountered. Know your safety officer/manager or the individual to whom you report code infractions, potential hazards, and/or actual safety related incidents. Understand the appropriate hazard report protocol for your workplace and USE IT. Most workplaces provide forms to note such observations. It is advisable to keep such forms readily available for use.

Do not hesitate to report potential safety issues to the designated individuals.

Remember—your observations may save not only you, but your co-workers as well, from accident and/or injury.

Safety Issues

Emergency Preparedness

Before an Emergency Situation

- KNOW the established emergency protocol for your work area, building, and/or campus.
- KNOW two evacuation routes from your area and the designated evacuation plan for your building and/or campus.
- KNOW the locations of fire alarm pull stations and portable fire extinguishers.
- KNOW how to use the emergency equipment in your area.

- KNOW the risk of any equipment, methods, or materials, and the safety measures that accompany them in your work area, building, and/or campus.
- KNOW where to find the closest first aid kit.

Emergency Evacuation Plan

OSHA requires an individual emergency evacuation plan for every workplace and the areas within it. This plan is supplemental to this handbook and provides building-specific information. The evacuation plan shall contain the following information:

- Emergency telephone numbers
- Evacuation personnel duties
- Designated meeting point, and
- Building information such as whether the building has an automatic sprinkler system, smoke detection, and/or manual alarm pull stations.

If the emergency involves moving to a shelter, know where that shelter is located and, if possible, have a secondary route to that shelter in mind. Know the primary exit routes from your building as well as an alternate route. Know where to meet after you have vacated an area.

If your workplace has a lockout/tagout policy, familiarize yourself with the protocol for securing your area and reporting to your designated safety contact or manager after the evacuation.

Practice the designated and alternate emergency routes.

There should be a designated building manager and/or safety committee who serve as the key communication contact during an emergency.

Reporting an Emergency

Know the location of the emergency numbers and/or emergency protocol for your job site. When reporting an emergency, provide the operator or contact person with the following information as clearly and succinctly as possible and stay on the line until you are certain that no more information is needed:

1. The nature of the emergency
2. The location
3. Your name
4. Any further information requested by the operator/contact person

Alarm Sounds

Alarm sounds communicate the location (indoors or outdoors), type of emergency (fire, severe weather, national emergency, etc.), and action required (evacuate building, move to a shelter, etc.). These sounds may take the form of sirens and alarms of varying modulations or simply be voice instructions from an authorized individual. Familiarize yourself with the alarm sounds at your job site. Recognize that the alarm sounds may differ indoors from outdoors.

Hazard Warning Lights

Common warning lights include:

1. **RED**, indicating **DANGER**. Stop. Do NOT enter and/or do NOT touch without authorization.
2. **YELLOW** or **ORANGE**, indicating **CAUTION**. Some hazard is present. Take care in this situation.
3. **GREEN**, indicating **CLEAR**. However, just because the green light indicates no apparent threat, use ordinary caution.

Hazard warning lights vary from workplace to workplace. For example, **BLUE** may indicate the presence of a flammable or otherwise dangerous gas requiring cautious behavior in the area. Examine the safety guidelines of your job site carefully for the appropriate interpretation of colored hazard lights.

Fire Safety

Fire is often preventable with conscientious, ongoing, generally SIMPLE precautions.

Fire Precautions

You can help prevent fires by acquiring and maintaining these habits:

- Keep a neat, clean workspace.
- Do NOT accumulate clutter in your work area. Place extra flammable items such as paper boxes in a designated storage area.
- Store flammable and/or combustible materials in approved containers. When practical, store these items in a designated area away from your workspace.
- Keep flammable and/or combustible materials at least 18 inches away from potential ignition appliances such as coffee makers, space heaters, etc.
- If your job requires the use of fire or intense heat (laboratory apparatus, welding, etc.), complete the tasks with the full knowledge and, where indicated, supervision of your overseer.
- Observe all “No Smoking” signs.

Fire Protocol

- **REPORT** any fire related hazard and/or incident immediately.
- If a fire has started, **WALK** quickly to a safe location, avoiding elevators, escalators, or any other electrically operated exit. A fire may quickly and permanently disable the electrical system. Elevator chutes are notorious for collecting and transferring smoke and heat.
- When a fire alarm sounds, evacuation is mandated. This means **EVERYONE!**
- Shut down equipment while evacuating.
- Close all windows, doors, and fire doors, but do NOT venture into a fire to accomplish these tasks.
- If the fire is in an unoccupied room, try to close the door to retard the spread of smoke and heat, but do not take any unnecessary risk in doing this.
- Only if the fire is small and you have received training in fire extinguisher operation should you attempt to extinguish the fire, but do not take any unnecessary risk.
- Leave the building and move away from it to a prearranged meeting area, keeping walks and drives open for arriving fire fighters.
- Pull a fire alarm if you pass one en route.

After sounding the fire alarm, call 911 from a safe location. Provide the building name, floor, room number and any known special hazards at the location. Do not assume that someone else has called.

- When security and/or fire fighters arrive, direct them to the fire.
- Only security and/or the fire fighters can sound the “All Clear” alarm. Fire can disable the automated alarm system, creating an illusion of safety.
- Follow the orders of the security, fire, and police departments.

Evacuation of Persons with Disabilities

Persons with disabilities must develop an awareness of the features of each building they are in, including hallways, stairways, exits, phone locations, and elevator procedures. At certain times, assistance from others may be needed. This need should be made clear to colleagues and coworkers. Prior to an emergency state, individuals with a disability should establish an escort plan.

Fire Extinguishers

OSHA dictates that fire extinguishers must be found throughout a building in hallways, laboratories, mechanical rooms, and other areas, either in cabinets or mounted on wall brackets.

- KNOW the location and type of the nearest fire extinguisher.
- Report missing, discharged, or damaged fire extinguishers to your building manager or safety officer as soon as possible.
- If you use a fire extinguisher, do not return it to its cabinet or bracket. It must be replaced.
- Only individuals trained by the workplace in using fire extinguishers should use them.
- Information and training on fire extinguishers should be made available from your employer.

Fire Doors

Fire doors and frames are constructed to resist fire for a particular length of time. They are commonly found at stairways, in corridors, and at openings in firewalls to stop the spread of smoke, heat, and fire. Fire doors must always be kept closed to be effective. Some fire doors are held open by magnetic devices that release the doors to close when the fire alarm is activated and remain open. Check to make certain they are not obstructed. *Fire doors must not be propped open.*

Stairways

Stairways are essential pathways during a fire. Stairway doors must not be propped open as this can cause the stairwell to act as a flue and spread a fire more quickly. Check that stairway doors automatically close and latch. If a door does not close completely and latch, promptly report it to your building manager, supervisor, or safety officer.

In some buildings, the stairway doors may be locked from the stairway side. In this circumstance, exit may be only to the street level. Be sure to check the stairways in your building prior to an evacuation emergency!

Clothing Fires

Clothing fires may occur in laboratory settings where an open flame is in use. Always wear protective clothing and/or flame resistant lab coats when working with fire, as many commercial clothing fibers are flammable.

Remember these tips if your clothing ignites:

- DO NOT RUN!
- If a safety shower is immediately nearby, get under the shower and let the water flow over the burned area until medical help arrives.
- If no shower is nearby, STOP, DROP, and ROLL. Immediately drop to the floor and roll until the flames are extinguished. Hold your hands over your face to protect it from flames.

Medical

Even in the best of situations, accidents and illnesses may occur. Most accidents and many illnesses can be prevented with the proper precautions.

Accidents

Report ALL accidents, no matter how minor the injury. If medical care is needed, know the medical emergency number and/or protocol for your workplace. Examples of a life-threatening circumstance are severe chest pains, severe burns, hemorrhaging, severe head injuries, open (compound) fractures, etc.

All Types of Injuries

- If possible, call for someone else to contact help.
- Keep the victim as comfortable as possible.
- Observe the victim's condition, noting any complaints made by the victim.
- Do not move the victim any more than is necessary for his/her safety.
- Never administer liquids to an unconscious victim.
- Do not move objects that may be embedded in the victim's skin.
- All injuries and illnesses must be reported to your supervisor.

Cuts and Burns

Your workplace should be equipped with a first aid kit that is accessible to all employees.

- Follow general practices for first aid as described in the kit.
- Clean up after the incident in the prescribed manner.
- Report the incident as soon as possible to the appropriate agent.
- Follow through with the medical office at your workplace and/or your family doctor as needed.
- Replenish the first aid kit after materials are used.

NOTE: Inspect the First Aid Kit monthly to confirm that it is fully stocked and has not been subject to tampering. Disinfecting solutions and other supplies may expire over time. Discard old supplies and replenish the kit appropriately.

Illnesses

If you are too ill to report to work, follow the policy set by your workplace to report your absence. If a contagious condition is apparent, inform your contact person so that your coworkers are aware of potential risk.

If you become ill at work, follow the procedure of your workplace. If your workplace has a medical office, seek assistance there first. It is wise to have a coworker accompany you if you leave your job site. Do not attempt to drive home without assurance that you can safely make the trip.

Personal Hygiene

Common sense dictates that your personal hygiene is a priority. ALWAYS wash hands after visiting the restroom or working with chemicals, bathe regularly, and report for work neat and clean. Cleanliness helps to maintain your health and that of your coworkers.

Bomb Threat

Bomb threats MUST be appropriately handled.

- Bomb threats are serious; report it immediately to your supervisor and/or Security. They will determine what action to take.
- If you receive a telephoned bomb threat, document the exact time of the call and the exact words of the caller to the best of your recollection.
- Ask the caller to repeat information. This may prolong the call long enough to trace it.
- Obtain as much information as possible by asking for details such as the time the bomb is set to explode, the type of bomb, the bomb's location, and a description of the bomb.
- Signal another person and write a note explaining that the call is a bomb threat. Tell other person to alert Security.
- If you receive a written bomb threat, place it in an envelope to preserve possible evidence such as fingerprints. Do NOT handle the note more than is necessary.
- Give all of the information you obtain to Security.

Suspicious Persons

Suspicious persons seen in the building or on the property should be reported immediately to Security. You should provide as much of the following as possible:

- The last known location of the suspicious person
- A complete description of the person, including clothing and anything he/she is carrying
- What the person was doing at the time
- The direction of the person relative to a known landmark

Theft, Missing Property

Theft or missing property should be immediately reported to Security and your supervisor. A report of the loss and of the circumstances surrounding the loss will be taken. Keep all valuables within your sight and safely secured when you leave your workspace. Do NOT bring unnecessary valuables to the workplace!

Weather

Weather systems can disrupt the normal work routine. Never underestimate the power of storms. Maintain weather vigilance on the worksite.

Tornado/Severe Thunderstorm

A *Severe Thunderstorm Watch* is given when conditions are favorable for severe thunderstorms. Continue normal activities but monitor the situation and notify others in the building if storm conditions change and a thunderstorm warning is issued.

A *Severe Thunderstorm Warning* is issued when severe thunderstorms are occurring in the area.

- Prepare to move to a place of shelter.
- With or without a severe thunderstorm or tornado warning, seek shelter immediately if large hail falls. Hail is sometimes a precursor of tornadoes.
- Stay indoors away from windows until the storm passes.

A *Tornado Watch* is given when conditions are favorable for tornadoes to form. Continue normal activities but monitor the situation. Notify others in the building if storm conditions change and a tornado warning is issued.

A *Tornado Warning* is issued when a tornado is sited in the immediate area.

- Seek shelter promptly!
If you are inside a building, proceed to an interior hallway, bathroom, or other enclosed area on a lower floor. If possible, crawl beneath a heavy desk or table if a tornado is eminent.
- STAY AWAY from windows.
- Avoid auditoriums, gymnasiums or other large rooms where roof collapse may be more likely.
- If you are outside or in a vehicle, seek shelter.

Hurricane

Using sophisticated weather systems, hurricanes are generally well monitored. Appropriate warnings are provided well in advance of an approaching storm. You should follow evacuation procedures according to plan.

Natural Disasters

Not all parts of the world are prone to natural disasters. If your workplace is near a fault line and/or an active volcano, follow the established protocol provided by your employer.

Earthquake

- When you first feel shaking, immediately take cover under something sturdy, for example your desk or a conference table. Earthquakes typically allow little time to react.
- If you cannot reach cover, use your arms and legs to brace yourself in an interior doorway or crouch in an interior corner. Avoid windows and anything with loose objects such as shelves or cabinets.
- Stay indoors!
- If you are outside at the time of the earthquake, seek an open area. Move away from the sides of buildings, overhead wires, or other potential hazards.

- If you are driving, pull over to the side of the road and stop, avoiding overpasses and power lines. Remain inside the vehicle until the shaking is over.
- Prepare for aftershocks.

Volcano

In the unlikely circumstance that you are working near an active volcano, vacate immediately if conditions become ripe for an eruption. Typically, enough advance warning is provided for a safe retreat from the site.

Personal Protective Equipment (PPE)

Your workplace may provide personal protective equipment. USE these items! If you are unsure of the safety issues for which a particular type of PPE is intended or its proper use, ask your supervisor. These items may include:

- Aprons
- Shields
- Clothing
- Ear Muffs and Plugs
- Face Shields
- Glasses
- Gloves
- Goggles
- Hats
- Respirators (“dust” masks)
- Shoes

Safety Apparatus

Your work area may also provide specialized safety apparatus. If you are unsure of the safety issues for which a particular type of safety apparatus is intended or its proper use, ask your supervisor. These items may include:

- Showers
- Eyewash basins
- Blankets
- First aid kits
- Automatic sprinkler systems

The Work Environment

Confined Workspace

Workers whose tasks involve time in close quarters may experience a variety of annoyances. These may include, but are not limited to ventilation, temperature, boredom, distractions, annoying habits of co-workers, etc. Some of these issues may be easily addressed, such as requesting the temperature to be raised or lowered. Others may not be so easily managed.

To offset the problems associated with an enclosed workspace, consider these tips:

- Take advantage of your breaks and lunch to physically leave the workspace. Go outdoors if possible.
- Discuss distractions with your supervisor and work together to reduce them.
- Request a fan, space heater, or other device to make your work area more comfortable.
- Communicate with your coworkers to help establish a friendly and productive work area.

Unconfined Workspace

An unconfined workspace includes vast areas with widely structured parameters such as outdoors. If you find yourself in an unconventional workspace:

- Know the parameters of the area so that you do not wander into restricted areas
- Familiarize yourself with communication protocol
- Understand the dimensions of your task and do not proceed beyond your assignment without supervision
- Do not leave your assigned area without the knowledge of your supervisor.
- **REMAIN ON TASK!**

Pollutants

Pollutants are an issue in any confined and unconfined workspace. Indoors and out, you must remain vigilant. If you sense an odor, feel ill, note particulates in the air or water, or observe any change from the ordinary in the work environment, report it immediately to your supervisor. If you are issued detectors for specific pollutants, as with radiation detectors, you must utilize them.

Training

Depending on your job responsibilities, specialized training may be required. For example, anyone who works with hazardous chemicals must receive Hazard Communication, Chemical Hygiene, and/or Right-To-Know training. Certain equipment requires specialized training as well. Ask your supervisor if you need training in the Hazard Communications or Laboratory Standard, methods to recognize hazards, hazard evaluation, interpreting labels and Material Safety Data Sheets (MSDS), common measures to prevent and control chemical exposure, the use and function of personal protective equipment, general emergency and spill clean-up procedures, or specialized equipment training.

DO NOT touch hazardous chemicals or unfamiliar equipment if you are not authorized to handle them!

Your supervisor will explain the training program and provide an overview of the potential health and safety risks of hazardous chemicals and/or equipment you may be exposed to or use in the course of your work. Your supervisor will also inform you as to the required personal protective equipment for protection against chemical exposure and/or injury. It is *your responsibility* to inform your supervisor if you do not understand the protocols and feel more clarification and/or training is needed.

Workplace Hazards

Chemical

General Information

Every chemical, even the most common household and office agents, poses an inherent hazard that must be respected. These hazards include: reactivity, flammability, corrosivity and toxicity. Treat ALL chemicals with caution. When the hazards of the chemical are noted, defined, and clearly understood, they are most likely to be handled in a safe manner. Whether in your kitchen, garage, or the workplace, it is to your advantage to know which chemicals are potentially hazardous alone or in combination with other agents.

A hazardous chemical is any substance or mixture of substances having properties capable of producing adverse effects on your health and safety. Health hazards include illnesses and/or other health problems. They range from relatively minor and short-term effects including headaches, dizziness, and skin irritation to chronic, long-term health effects such as cancer, emphysema, and organ damage.

Make it part of your job responsibilities to find the answers to these questions:

- What chemical substances are present in your workplace?
- What physical hazards may result from improper handling?
- Are you sensitive, even on a minor level, to any of these substances?
- What health hazards may be caused by overexposure to the chemicals in your workplace?
- Are there any precautions you can take to minimize these risks? (Protective clothing and gear?)

Material Safety Data Sheets (MSDS)

Chemical manufacturers, distributors, and importers must include a Material Safety Data Sheets (MSDS) with each first order or shipment of a hazardous chemical. Familiarize yourself with the MSDS for the substances you encounter.

These sheets outline in detail

- the chemical's properties
- the specific handling procedures (including storage, clean up for spills, and disposal)
- hazards
- appropriate protective gear, and
- emergency actions for that chemical.

An MSDS for each hazardous chemical handled or stored in the workplace must be readily accessible to you in your workplace at all times.

Pesticides and other "Common" Chemicals

Many chemicals found at the job site are the same as the ones you may have in your home. Pesticides, cleaning compounds, copy machine toner, and other common chemical substances are not without risk.

- Read the package label and box instructions carefully before use.
- As with laboratory chemicals, keep these substances in their original containers with the material information clearly legible.

- Never, EVER combine chemicals without a clear understanding of the potential outcomes. The potential for chemical reactions such as noxious gas, extreme heat, and even fire is great with everyday products!

Chemical Common Sense

Common sense dictates many safety precautions. Simple “cause and effect” considerations include:

- Wear the appropriate protective garments provided. If you are working with potentially hazardous chemicals and are not issued protective gear, request it.
- ALWAYS wash your hands thoroughly before you eat, drink, or smoke.
- Read the information provided on the MSDS or package label BEFORE working with the substance.
- Never use a chemical that is not in its original container without consulting your supervisor. Never, EVER use a substance that is not clearly labeled!
- NEVER leave a chemical out after use. Dispose of it properly.
- NEVER put a chemical back into the original container. Contamination can occur that could result in degradation of the chemical and present a serious hazard to yourself and others.

Biological

Contamination of Workspace and/or Projects

Biological contamination can ruin a project and/or cause discomfort, illness, and even death. Follow the guidelines established by your workplace AND appropriate laboratory measures if you are working with biological samples to help ensure a safe work environment. Remember—in a biological laboratory, the mess you leave may not be visibly apparent to the next worker!

Contact with Biological Agents (Pathogens, poisonous plants, etc.)

If you believe you have come into contact with a pathogen, poisonous plant, or any other potentially harmful agent, contact your supervisor immediately and seek medical assistance. Follow the protocol established by your workplace.

Bloodborne Pathogens

The dangers of bloodborne pathogens such as Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) are well documented. HIV and HBV are typically transmitted via body fluids, especially through sexual contact and infected needles. However, blood is also a potential threat. Therefore, do NOT attempt to clean up other people’s blood or any potentially infectious spill unless you are specifically trained to perform such a task. ALWAYS use appropriate clean up materials, gloves, and any other protective gear provided. Dispose of the waste in a safe manner as prescribed by your workplace. Generally, specially labeled bags are provided for this purpose.

Labeling

All containers of hazardous materials must arrive with the label of the manufacturer, importer, or distributor of the product. This label MUST supply the following information: the identity of the hazardous chemical(s); hazard warnings in words, pictures, or

symbols; and the name, address, and any other contact information of the manufacturer, distributor, or importer. If any of this information is lacking, the shipment should be refused.

Consider the following:

- The hazardous material container's label must not be defaced or removed.
- If the hazardous material is transferred from its original container to another, the new container must be labeled with the following information: the identity of the hazardous chemical(s), hazard warnings, and the name and address of the manufacturer, importer, or distributor.
- Hazardous chemicals from a labeled container to a portable container intended for your use that same day do not need to be labeled as previously described. However, if you leave some of the hazardous chemical in the portable container at the end of the day, you must appropriately label the container as previously indicated.
- NEVER return any leftover chemical to the original labeled container. Dispose of leftover chemicals in the manner prescribed on the MSDS. Measure conservatively to avoid waste.
- Anyone who works with hazardous chemicals must receive Hazard Communication training.

Hazardous Materials Release

If you discover a hazardous biological, chemical, or radioactive release or spill, alert coworkers and immediately evacuate the area. Call the emergency number provided by your workplace to report the hazardous material release or spill.

Waste Disposal

All laboratory and/or chemical/biological/radioactive waste must be assessed for appropriate disposal. State and Federal (EPA) regulations must be followed.

- Material Safety Data Sheets (MSDS) include directions for the proper disposal of chemicals and containers.
- Common chemicals found in the workplace generally have labels with disposal instructions. READ the labels before disposing of the substance OR the container.
- Biological waste requires similar caution. Consult with your supervisor before discarding ANY biological waste, including seemingly innocent medical waste from a bandage or an absorbent tissue.
- Follow your institution's waste disposal protocols and consult with the Environment, Health, and Safety department or your supervisor whenever there are questions.

Physical Hazards

Physical hazards include sharps, ergonomics, lifting, and housekeeping. Caution is required in laboratory, office, and industrial sites walking and tripping hazards may exist. Follow the protocol of your workplace to avoid physical hazards.

Safe Lifting

Back injuries are costly—to you and the workplace. It is essential that you protect yourself from this generally preventable injury.

- NEVER lift more than you can comfortably handle.

- Use back safety belts whenever possible, but do NOT think that they offer complete protection from back injury!
- Think about how you will lift, move, and deposit the object. Do you have a clear path? Can you see over and around the load?
- Get a firm hold of the object and lift with your legs by straightening your knees. Never, EVER twist while lifting or depositing a load!
- Remember—the size of the lifter is not the gauge of how much he/she can safely lift. Know your body's limits!

Housekeeping

It is the responsibility of every worker to keep the workspace neat and clean. Many accidental injuries occur because of clutter and disarray.

Consider these tips:

- Keep your workspace organized and accessible.
- Use waste receptacles appropriately. Do NOT dispose of any potentially dangerous substances in the general waste can. Determine the appropriate protocol for the disposal of chemicals, flammable materials, medical waste, and any other such substance.
- Keep aisles, stairways, and floors clear of litter and/or obstacles.
- Put all tools and supplies away after use.
- Clean up non-hazardous spills—even if you did not make the mess. If the spill is too large to handle, know who to call for assistance. NEVER attempt to clean up an unknown spill without your safety officer/manager's knowledge.
- Clean up your area at the end of your workday and after each project.

Ladders and Scaffolds

Occupational Safety and Health Administration (OSHA) has rigid guidelines regarding ladders and scaffolds. If your job responsibilities involve ladders and scaffolds, you are advised to check these guidelines (see Safety Resources).

Common sense dictates these basic rules:

- Select the correct ladder and/or scaffold for the job
- Arrange for materials to be delivered to you AFTER you have climbed or are hoisted to position. Keep your hands free for climbing and/or stability.
- Work no more than an arm's length away. Do NOT stretch or move from your center of gravity to reach a spot further than comfortable
- Remove equipment at the end of the day or after the job is completed unless otherwise advised.
- Visually check equipment for damage or defects BEFORE you use it!
- Do not use improvised ladders or scaffolds (chairs, barrels, planks, desks, etc.).
- Select firm footing!
- NO horseplay!

Mechanical

- Exercise caution while operating, or when in the presence, of industrial machines. The operation, adjustment, and repair of machinery are restricted to trained personnel.

- Eye protection is mandatory when operating, or in the presence, of most industrial machinery.
- NEVER leave machinery running. If you must leave a running machine, an experienced, sanctioned operator must maintain the status of the machine until you return.
- Many industrial machines are designed with proper grounding and machine guards. Tampering with these safety features is strictly prohibited.

Vehicle Use and Traffic Safety

Whether you are permitted to drive vehicles owned by your workplace or have your own vehicle, it is essential that you follow the rules of the road for your state and use common sense. Your safety and that of everyone on the site depends on your careful consideration when behind the wheel.

Consider these tips:

- Some workplaces such as government facilities have their own traffic rules. Learn and follow them!
- Remember the driving basics: hands appropriately positioned on the steering wheel at all times (avoid eating, drinking, and cell phones, etc.), proper positioning of mirrors and seat, and avoiding distractions within the vehicle (boisterous behavior, too many passengers, etc.)
- Communicate to other drivers using signals to indicate your intent.
- Drive defensively! Remember, danger lies not only with other vehicles. Children and/or animals can quickly dart into your path.
- Take into consideration road conditions. Rain, sleet, snow, and ice greatly impact driving safety.
- Use special caution when driving into the sun.
- Adjust your speed according to traffic. Accidents are especially likely when one vehicle is traveling faster or slower than the rest of the traffic.
- Pedestrians ALWAYS have the right of way!
- Make certain that you have proper insurance. You may be required to show proof of insurance whether you are using your own vehicle or that of the employer.

Noise

Noise manifests itself in many forms from shrill emergency sirens to the deafening blasts of a jackhammer to the nearly subliminal hum of computers. Your workplace may expose you to a wide variety of sounds, the majority of which are not of sufficient intensity or duration to cause hearing problems.

Continuous sound can become annoying and make communication difficult, however. Each individual has a slightly different level of tolerable noise. However, everyone should take care to protect against noise. Use earplugs and/or earmuffs, especially if the noise level exceeds 85 dBA, when verbal communication is difficult at a distance of one foot (approximately 30 cm).

Continuous exposure to noise at this level over a period of eight hours is enough to cause hearing damage.

Do not believe the common misconception that the ear will “toughen up” and become less sensitive to the noise level. In reality, you may be losing your hearing. USE protection. Check with your safety officer or manager to secure ear protection.

OSHA requires many employers to have hearing conservation programs when noise level rise above 85dBA.

Electrical

The workplace should conform to the latest edition of The National Electric Code (see Safety Resources). The standards of nationally respected testing agencies, such as the Underwriters Laboratory (see Safety Resources), must be a priority when considering employee welfare and safety.

As with all safety considerations, however, the employee must exercise caution when working with and on electrical equipment. Many workplaces provide special training for employees working with electricity on a regular basis.

Power Outage

In the event of a power outage, expect that communication via telephones, intercom, etc., may not work. Intra-building transportation such as elevators and escalators will be inoperative.

Have an alternative light source in case of an emergency. In the event of a power outage many buildings have generators or batteries that will provide power to the fire alarm system and emergency lighting. However, it may be difficult to see well enough to maneuver. Keep a flashlight located where it can be easily found in the dark or use a plug-in battery operated emergency light.

Elevator Problems

Most elevators are equipped with an emergency telephone that is directly connected to Security. If you are trapped in an elevator, pick up the emergency telephone. It will ring automatically at Security or building maintenance. To assist in locating you and to restart the elevator, look for the number generally located on the panel above the telephone.

If an elevator does not seem to be operating properly, report it to the proper department. A phone number and/or contact information should be posted in the elevator.

Electric Shock

- Follow manufacturer directions and workplace policy when working with electrical equipment.
- NEVER operate electrical equipment that is sparking, smoking, or appearing unnaturally hot.
- Refrain from “tinkering” with electrical equipment. If you must repair electrical equipment, make certain that the electrical source is disengaged. Unplug and/or remove batteries.
- Most metals conduct electricity. Use caution when selecting equipment for electrical tasks. For example, a metal ladder used to access a faulty electrical connection is ill advised.

- Remember that water can conduct electricity. Never allow a piece of live electrical equipment not designed to be operated in and/or around water near a water source or reservoir.
- Use only grounded tools and equipment in the workplace.
- Use ground fault interrupters whenever both electricity and water may be present.
- OSHA prohibits the use of extension cords for permanent installations.

Building Shutdown

In the event of a building shutdown, remember that electrical equipment must be shut down in an appropriate manner before you leave the premises. If the power is out, check the off/on switch to confirm that the equipment is off. Do NOT use elevators and escalators during a building shutdown unless you are directed to do so.

Stress, Boredom, and Fatigue

Among the most significant of workplace safety issues are stress, boredom, and fatigue. You must manage these issues appropriately or risk higher incidences of accidents and injury.

Stress arises from a variety of sources including workload, coworkers, family, and/or personal issues. The first weapon in combating stress is identifying the source. If your supervisor is able to help the situation, you should bring the issue(s) to him/her, recognizing that some issues are not easily resolvable.

Boredom and fatigue are more easily remedied. Fatigue is often the product of boredom. These tips may help counter boredom and fatigue:

- Drink plenty of water. Water tends to stimulate metabolism and helps keep you alert.
- MOVE around. Even if you are at a desk job or other singular position task, you can shift position regularly. Get up occasionally and move around your workspace.
- Offer to run errands or perform tasks that will change your environment and pace.
- Eat a balanced breakfast and enjoy nutritious snacks throughout the day. High sugar snacks tend to raise your blood sugar, giving you a “quick energy rush,” but the effects quickly leave and you may drop into a low energy slump.
- Whenever possible, take your breaks outdoors and enjoy some fresh air!
- Request a cooler workplace temperature if it is too warm. A warm and humid environment is typically not as productive as a *comfortably* cool area.

The topic of stress also includes psychological stress. Pressure to get work completed. Pressure to achieve. Pressure from outside sources (family or personal relationships). All of these can add stress to the workplace and the worker. If you are feeling stressed, it's important to talk about it with your supervisor. Most institutions have programs to help workers deal with personal stress.

High/Lo Pressure

Pressurized and/or Liquefied Gasses

The use of compressed air and other gasses carries the risk of accidental injection of air under the skin.

Compressed air is NOT appropriate for cleaning clothing, nor should it EVER be directed toward another person. Insist upon regular inspection of all compressed air connections and use protective eyewear as mandated by your employer.

If your workplace engages in tasks requiring pressurized or liquefied gasses, the potential for accident and injury is increased. In these states, the toxicity, flammability, and reactivity of a gas may be markedly higher. Most liquefied gasses are extremely cold, presenting the danger of frostbite.

When working with pressurized or liquefied gasses, remember these considerations:

- An explosion of pressurized and/or liquefied gas can result in projectile debris.
- The presence of a flame in areas housing or using pressurized and/or liquefied gas can result in an explosion. Never smoke in these areas!
- Use pressurized and/or liquefied gas only in well-ventilated areas.
- Consult the appropriate Materials Safety Data Sheets (MSDS) for specific information about pressurized and/or liquefied gas.

Vacuum Systems

Another workplace consideration involves vacuums. Job sites with large vacuum systems present the hazard of oxygen deficiency. A faulty containment structure for a vacuum system could result in a swift intake of air. This can result in an influx of objects (including humans) nearby.

Radiation

Laser light

In some workplaces, the use of laser light is common. Protective eyewear is helpful but not completely safe, especially with class III and IV lasers. Do NOT attempt to use these lasers without direct supervision of a certified laser operator, heed warning signs, and lock the laser when not in use.

If lasers are used in your work area, familiarize yourself with the class of lasers used and note the hazards in the chart provided

Laser Class	Hazard	Caution Required
I	No significant hazard	Minimal
II	Possible eye injury after prolonged direct exposure	Use ordinary caution
III	Capable of causing eye injury before the individual can react	Use extra caution; most workplaces require a special medical exam and training to operate these lasers
IV	Capable of causing skin injury; indirect contact can cause eye injury.	Use extreme caution; most workplaces require a special medical exam and training to operate these lasers

Ionizing Radiation

Radiation and radioactive elements are present in some laboratory and industrial sites. Check with your employer to see if and where these sites exist at your job location. If radioactivity is a hazard in your job, your employer will instruct you as to the accessibility protocol, protective clothing, and emergency strategies for these areas.

Remember that some types of laboratory and industrial activities result in removable radioactivity that can adhere as dust, rust, or grease to clothing, hands, and shoes. These areas are typically posted CONTAMINATION AREAS and should be accessed ONLY with the expressed consent of your supervisor. If radiation is a safety issue at your workplace, you may be issued a radiation badge. Follow the training steps provided by your employer and properly display this badge.

Since you may not be aware of the effects of radioactive contamination until the damage is done, it is imperative that you follow the guidelines of your workplace explicitly. Serious injury and even death may result from excess radioactive contamination.

Report any radiation incident—real or suspected—to your supervisor immediately!

Magnetic Fields

Some industrial sites and laboratories use magnets that may create a significant magnetic force. Generally, this does not pose a problem for workers. However, a rotational and/or attractive force may affect items with ferrous (iron) content. Also, if you have active sickle cell anemia, pacemaker, metallic implants or prostheses, or other medical electronic device, and your workspace presents a magnetic field exceeding 10 gauss, consult your doctor.

Computers

Video Display

Video Display Terminals (VDTs) do not emit a significant amount of radiation to be considered dangerous. However, individuals working at VDTs for prolonged periods of time frequently suffer from eyestrain, backache, and sore muscles in the neck and shoulders. This leads to fatigue, which can impair work performance and, in some cases, lead to safety issues. Keep these tips in mind when setting up a VDT work area:

- Guard against reflections on the screen.
- Allow nothing brighter than the screen in the area of the VDT.
- Maintain a viewing distance of 18-20 inches.
- Tilt the screen slightly upward, not to exceed approximately 20°.
- Change positions and s-t-r-e-t-c-h!

Keyboarding

Individuals employed in a position involving excessive keyboarding risk job related problems such as carpal tunnel syndrome. To minimize the risk of such maladies, consider varying tasks to break up the continuous time at the

keyboard, exercises to relieve the stress in the fingers, hands, and arms, and ergonomically designed devices.

Ergonomics

Webster defines ergonomics as “an applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely—called also *human engineering*.”

Basic principles of ergonomics include:

- Everything within easy reach
- Reduction of excessive forces
- Allow for adjustment and change of posture position
- Maintaining good posture
- Reduction of excessive repetition

Sit up straight and use an ergonomically designed chair, keyboard, and mouse whenever practical. Support for the back and forearms significantly improved worker comfort and eases stress and fatigue.

For tedious, repetitive, and/or continuous effort in a prolonged position such as computer work, ergonomics is an important science!

Environmental Protection (See Safety Resources)

Your workplace is bound by law to maintain or improve the quality of the environment. Therefore, the release of harmful agents into the environment through the air, water, soil, waste disposal, or any other means is strictly prohibited. Use extreme caution when working with any potentially harmful materials. Your responsibility is not only to yourself and your coworkers, but it extends to the community surrounding your workplace.

Furthermore, conservation of natural resources is always a concern. Wasteful use of water, electricity, and any other resource is discouraged.

Conclusion

Your work-study experience is designed to help you learn something about your chosen field in an authentic, real world context. We hope that your work-study opportunity is a rewarding, SAFE experience! The quality of this experience depends on your active, yet safety conscious, involvement in the program. Remember to approach the work-study program with a positive attitude, strong work ethic, and maturity.

The goals of this handbook are to familiarize you with workplace hazards and emergency procedures to help ensure a positive and enriching experience. It is your responsibility to familiarize yourself with the unique nature of your work environment and adhere first to those policies, keeping the practical suggestions offered in this handbook in mind.

Remember that this handbook does NOT take precedence over the rules and regulations of your workplace.

Please provide email feedback for improving this booklet in the next edition. Submit your ideas, including possible additional topics and/or suggested topic updates or deletions, to franzen@mtco.com or Labsafe@aol.com.

Appendices

OSHA

The Occupational Safety and Health Administration (OSHA) was formed to protect the worker in the workplace and serve as an advocate for safe working conditions. It also serves to protect the public from the adverse effects of industry and enterprises within the community. Check out the OSHA website provided in the Safety Resources section of this handbook for more information.

OSHA's Mission

The mission of the Occupational Safety and Health Administration (OSHA) is to save lives, prevent injuries and protect the health of America's workers. To accomplish this, federal and state governments must work in partnership with the more than 100 million working men and women and their six and a half million employers who are covered by the Occupational Safety and Health Act of 1970.

Our Services

OSHA and its state partners have approximately 2100 inspectors, plus complaint discrimination investigators, engineers, physicians, educators, standards writers, and other technical and support personnel spread over more than 200 offices throughout the country. This staff establishes protective standards, enforces those standards, and reaches out to employers and employees through technical assistance and consultation programs.

The Public We Serve

Nearly every working man and woman in the nation comes under OSHA's jurisdiction (with some exceptions such as miners, transportation workers, many public employees, and the self-employed). Other users and recipients of OSHA services include: occupational safety and health professionals, the academic community, lawyers, journalists, and personnel of other government entities.

Service Improvement Plan

OSHA is determined to use its limited resources effectively to stimulate management commitment and employee participation in comprehensive workplace safety and health programs.

Surveying Our Public

At OSHA, we are dedicated to improving the quality of our efforts and know that to be successful we must become an agency that is driven by commitment to public service. The first step is for OSHA to listen and respond to its customers. Accordingly, we conducted a survey to learn more about what employers and employees think of OSHA's services.

Because workplace inspections are one of OSHA's principal activities and because voluntary efforts to improve working conditions ultimately depend on strong enforcement, our survey focused primarily on the inspection process. We asked a random sample of employees and employers who had recently experienced an OSHA inspection what they thought of the inspection, in particular, and of OSHA's standards and educational and other assistance activities in general.

We based OSHA's new standards for public service on what we learned from the survey, from meetings with employee and employer groups, and from focus group discussions with workers from many plants and industries across the country.

Our public service improvement program will be an ongoing one. We will continue to gather information on the quality of our performance in delivering services in areas not included in this year's survey, particularly in the construction sector. Next year, too, we plan to learn more about public response to our assistance and consultation programs.

Safety Resources

Workplace Resources

Communication – Emergency Phones

Many workplaces provide emergency telephones that dial automatically when the receiver is lifted. Know the location of these phones as well as the emergency numbers used from conventional phones.

Facilities Management

Your workplace has a facilities management system that maintains the basic infrastructure of building facilities. These include safety equipment such as fire extinguishers, fire hoses, building alarm systems, ventilation systems, and the building electrical and piping systems. Facilities management personnel respond to emergencies to help as needed in evacuation and handling building services and equipment. A large part of their job, however, is to maintain all of the buildings in such a manner that defective and/or outdated equipment is overhauled and/or replaced on a regular basis. You can assist them in these tasks by reporting equipment in need of attention *before* a problem arises.

Website Resources

American Chemical Society (ACS)

<http://www.chemistry.org/portal/a/c/s/1/home.html>

ACS is a professional organization for chemists and related occupations. The ACS Homepage offers free registration as a non-member and provides a robust search engine about chemicals and their uses, hazards, interactions, etc. Visit the news center to find ACS Chemical & Physical Sciences News, Headlines, and Publications.

Clean Water Act (Environmental Protection Agency – EPA)

<http://www.epa.gov/region5/water/cwa.htm>

Some work-study programs include activities that could impact the environment if not carefully monitored. Access the aspects of the Clean Water Act, instituted originally in 1972, and consider its implications to your work-study situation.

Code of Federal Regulations

<http://www.access.gpo.gov/nara/cfr/>

Virtually every code enacted by the United States Government is accessible via this comprehensive search engine.

Environmental Protection Agency (EPA)

<http://www.epa.gov/>

EPA's mission is to protect human health and to safeguard the natural environment — air, water, and land — upon which life depends. For 30 years, EPA has been working for a cleaner, healthier environment for the American people. View the EPA's complete Mission Statement, Strategic Plan, annual report, and policy resources on this rich site.

Laboratory Safety Institute

<http://www.labsafety.org>

The nation's only non-profit organization dedicated to safety in science and science education

National Institute for Occupational Safety and Health

<http://www.cdc.gov/niosh/homepage.html>

This inclusive site offers a wealth of information! *The Pocket Guide to Chemical Hazards*, an online resource, presents a rich database through which you can access detailed information about most chemicals

NEC Digest

<http://www.nfpa.org/nec/nechome.asp>

necdigest™ is the official source for information about NFPA's National Electrical Code®.

NFPA Online

<http://www.nfpa.org/catalog/home/index.asp>

Visit the National Fire Protection Association (NFPA) homepage for fire safety information and links.

OSHA Act of 1970

http://government.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fwww.osha-slc.gov%2FOshAct_data%2FOSHACT.html

Peruse Public Law 91-596, 91st Congress, S.2193, December 29, 1970, which outlines in detail your right to a safe workplace.

Toxic Substances Control Act

<http://www.epa.gov/region5/defs/html/tsca.htm>

The Toxic Substances Control Act (TSCA) of 1976 was enacted by Congress to give EPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. Check out this rich site for information about toxic chemicals and their impact.

Biotechnology under the Toxic Substances Control Act

<http://www.epa.gov/opptintr/biotech/>

Follow the links to Prevention, Pesticides & Toxic Substances and Pollution Prevention & Toxics on this website.

Underwriters Laboratory

<http://www.ul.com/>

Underwriters Laboratory is a not-for-profit product safety and testing agency. Search their site for results from specific industries and products.

United States Department of Labor

<http://www.dol.gov/>

The Department of Labor fosters and promotes the welfare of the job seekers, wage earners, and retirees of the United States. You may access information about Federal Labor Laws and other pertinent information on this official site.

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