# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Physical Plant Safety Manual</td>
<td>1</td>
</tr>
<tr>
<td>Introduction to Safety</td>
<td>2</td>
</tr>
<tr>
<td>General Work Habits</td>
<td>3</td>
</tr>
<tr>
<td>Emergency Guidelines</td>
<td>4</td>
</tr>
<tr>
<td>Work Area Safety Awareness</td>
<td>7</td>
</tr>
<tr>
<td>Work Area Housekeeping</td>
<td>9</td>
</tr>
<tr>
<td>Back Safety</td>
<td>10</td>
</tr>
<tr>
<td>Trash Handling Guidelines</td>
<td>14</td>
</tr>
<tr>
<td>Asbestos Awareness</td>
<td>17</td>
</tr>
<tr>
<td>Vehicle Safety</td>
<td>20</td>
</tr>
<tr>
<td>Fire Protection</td>
<td>23</td>
</tr>
<tr>
<td>Clothing and Personal Protective Equipment</td>
<td>24</td>
</tr>
<tr>
<td>Hand and Power Tools</td>
<td>25</td>
</tr>
<tr>
<td>Ladders and Scaffolding</td>
<td>26</td>
</tr>
<tr>
<td>Electrical Safety</td>
<td>28</td>
</tr>
<tr>
<td>Tag-Out Guidelines</td>
<td>30</td>
</tr>
<tr>
<td>Construction Safety</td>
<td>32</td>
</tr>
<tr>
<td>Welding Safety</td>
<td>34</td>
</tr>
<tr>
<td>Compressed Gas Cylinders</td>
<td>35</td>
</tr>
<tr>
<td>Off-The-Job Safety</td>
<td>36</td>
</tr>
</tbody>
</table>
Accident prevention and efficient production go hand-in-hand. The Physical Plant Services management considers no phase of operation or administration as being of greater importance than accident prevention. All levels of management and all employees have a primary responsibility for the safety and well-being of all employees and students.

The mission of the Physical Plant Services is to strive to provide and maintain safe and healthful working conditions and to follow operating practices that will safeguard our employees, faculty, staff, students and visitors at the West Virginia School of Osteopathic Medicine.
Introduction to Safety

An accident is any unforeseen or unexpected event that may or may not result in injury or damage to property or equipment.

The ultimate goal in accident prevention is "zero" disabling injuries and no lost work time. However, there are many barriers to achieving this goal, the most important of which is the human attitude. Most people feel that "it won't happen to me" or "it couldn't happen here." You can do more to protect yourself and your fellow worker by constantly thinking and practicing accident prevention than you can by memorizing all of the rules, regulations, and safeguards ever written or invented. You must THINK before you act.

This manual contains some practical and useful safety guidelines to serve as habits and rules that will help you to achieve a safer attitude and a safer work environment.

FACT: In the time it took you to read this page, about 20 Americans suffered DISABLING injuries in accidents.
General Work Habits

* Reducing accidents means reporting to work physically and mentally rested, prepared to perform your job safely and properly.

* Always report any unsafe condition or unsafe act to your supervisor or to the Safety Compliance Officer as soon as possible.

* Whenever you're performing your job, keep your mind on your work. Always keep your temper and thoughts under control.

* Report any injury to your supervisor as soon as possible.

* If you are taking a prescribed drug that may have a side effect, inform your supervisor before beginning the day's work.

* Use of illegal drugs or intoxicating beverages while at work (or reporting to work under the influence of these substances) may be cause for your dismissal.

---

**FACT:** One of every eight hospital beds is occupied by an accident victim.
Emergency Guidelines

If an on-the-job injury requires professional medical attention, call 911 if necessary, then notify your supervisor right away. If the injury requires non-emergency medical attention, go to MedExpress at 1560 Jefferson St North. If MedExpress is closed, go to Robert C. Byrd Clinic at 1464 Jefferson St North. If MedExpress and Robert C. Byrd Clinic are both closed, you may go to the Greenbrier Valley Medical Center ER at 202 Maplewood Ave, Ronceverte WV 24970.

Accidents involving *personal injury* or property damage must be reported to your supervisor as soon as possible because he/she is required to file an accident report within 24 hours.

Medical Emergencies

In any accident where the person injured is unconscious, do not move the person unless it is absolutely necessary.

The following procedures are the most basic first aid steps that are vital to know. Study, understand, and remember these life-saving steps:

**CHEMICAL BURNS**
Flush the affected area with water for 10 to 15 minutes and remove or cut away clothing.
Get victim to medical help.

**BLEEDING**
Proper steps are required to control excessive bleeding.

1. Direct Pressure: Cover wound with clean cloth (if available) or your bare hand and apply direct pressure on the wound. Add bandages (more cloth) if blood soaks through, but do not take off any of the blood-soaked bandages. Keep a firm pressure on the bandage(s) until the person is transferred to someone more qualified.
2. Elevation: If other emergency care is necessary, while still applying pressure to the wound, try to elevate wounded limbs above the heart if you are sure there is no bone fracture.
3. A tourniquet should be used only as a last resort for critical emergencies such as an amputation.
HEART ATTACK SYMPTOMS

A person having a heart attack is often awake and can talk to you but feels chest pain or pressure. The most common symptom of a heart attack is severe pain or pressure in the center of the chest.

- The pain or pressure has been described as a feeling of fullness, squeezing or heaviness.
- The pain usually lasts for several minutes. Sharp, stabbing pain that lasts only a second or two is rarely heart attack pain.
- Other symptoms may include breathlessness, nausea, clammy perspiration, dizziness, or back pain between the shoulder blades.

FIRE

When the fire alarm goes off, you must leave the building immediately! Use the stairs—not the elevator. No one will be allowed to re-enter a building without the permission of an Administrator, Police Officer or Fire Department personnel. Building evacuation during a fire alarm is required by WVSOM as well as State Law. No one is authorized to halt an evacuation already in progress. If you are found in the building during a fire alarm, you will be told to leave. When you leave a building during a fire alarm, report to the designated area assembly point.

If you notice smoke or something on fire and there is no alarm, go ahead and activate the alarm by pulling the fire alarm pull box (usually located in the hallway just inside the building entrance).

If you are on an upper floor and in a wheelchair or would have extreme difficulty going down the stairs, go ahead and take refuge in the stairwell landing on your floor and tell someone to notify emergency response personnel of your location. (And if you see someone in that situation, go ahead and offer to make that notification.)
Actions to Take

**SMOKE ODOR** -- Call 911
**VISIBLE FIRE** or **SMOKE INSIDE BUILDING** -- Pull nearest fire alarm pull box.

**WHEN FIRE ALARM SOUNDS:**

Evacuate the building immediately via nearest exit.
Do not use elevators, use building stairwells.
Close all doors as you leave - do not lock doors.
If fire is small, attempt to extinguish it, but don't take chances.

**FIRE OUTSIDE THE BUILDING** - Call 911

Give the following information:

1. Your name, and that you wish to report a fire
2. The exact location of the fire
3. What is burning
4. Do not hang up until released by the operator.

**FIRE EXTINGUISHERS**

Fire extinguishers are labeled as to the kind of fire they will be effective against. You must read the label to be sure you have the appropriate equipment to extinguish the fire. Labels will indicate:

Class A - wood, paper, grass, cloth
Class B - grease, oil, flammable liquids
Class C - energized electrical equipment

**Extinguisher Use Instructions:**

1. Check label and carry extinguisher to vicinity of fire
2. Remove the ring pin by pulling
3. Squeeze discharge lever
4. Direct discharge nozzle at base of the fire
5. Be sure all fire is out before stopping discharge
6. Back away from extinguished fire
7. Report to the Safety Compliance Officer (304-793-6808) as soon as possible about the fire and the need for extinguisher recharge. (After hours and on weekends, call 304-667-7345).
Work Area Safety Awareness

- When entering different or unfamiliar work areas, be aware of work being done around you and familiarize yourself with any required safety precautions.

- Before opening valves, turning on switches, or starting machinery, check the locations and safety of others in the area. Have all safety guards and covers attached.

- You should be sure that the walking surface is secured before stepping onto it. Be careful around slippery spots, loose objects, or jagged edges.

- All electrical cords, ropes, hoses, etc., shall be placed to avoid hazards such as tripping or damage from oil, grease, water, or moving equipment.

- Having adequate lights on all work areas, stairways, and in basements is very important.

- When swinging sledge hammers, elevated loads, or other materials, make sure the area involved is clear. If your work causes hazardous conditions for others, place adequate barricades and/or signs to warn of the danger (e.g., manhole barricade guards).

- Watch for wet floors, open file drawers, forgotten boxes, wrinkled floor mats, oddly spaced steps, and other hazards that may cause trips or falls (this can protect you). Do what you can to correct these hazards (this can protect others).
Work Area Housekeeping

- Good Housekeeping is an essential part of every job. Work areas, aisles, walkways, and equipment shall be kept clear of loose materials, tools, and scraps.

- Materials such as lumber and pipe shall be stored in an orderly and secure manner.

- Spills such as grease, water, or oil shall be cleaned up as soon as possible. A delay could result in an accident to you or a fellow worker.

- A safe access shall be maintained to work areas. Short cuts should be avoided. Never block aisles, traffic lanes, or fire exits with equipment or materials.
Back Safety

According to the Bureau of Labor Statistics, more than one million workers suffer back injuries each year, and back injuries account for one of every five workplace injuries.

The amount of force placed on your back under certain conditions can be surprising. Anytime you bend or lean over to pick something up without bending your knees, you put tremendous pressure on your lower back.

Think of your back as a lever. With the fulcrum in the center of the lever, it only takes ten pounds of pressure to lift a ten pound object.

However, if you shift the fulcrum to one side, it takes much more force to lift the same object. Your waist actually acts like the fulcrum in a lever system, and it is not centered. In fact, it operates on a 10:1 ratio. Lifting a ten pound object actually puts 100 pounds of pressure on your lower back.

When you add in the 105 pounds of the average human upper torso, you see that lifting a ten pound object actually puts 1,150 pounds of pressure on the lower back.
Given these figures, it is easy to see how repetitive lifting and bending can quickly cause back problems. Even leaning forward while sitting at a desk or table can eventually lead to back-related problems.

**Avoid Lifting and Bending Whenever You Can!**

Place objects up off the floor. If you can set something down on a table or other elevated surface instead of on the floor, you won't have to reach down to pick it up again.

**Use carts and dollies to move objects instead of carrying them yourself. (It is better on your back to push carts than it is to pull them.)**

Raise/lower shelves. The best zone for lifting is between your shoulders and your waist. Put heavier objects on shelves at waist level and lighter objects on lower or higher shelves.

Use cranes, hoists, lift tables and other lift-assist devices whenever you can.

Avoid lifting over your head, and avoid reaching across a table or out the back of a truck.

Avoid working in awkward, uncomfortable positions on tasks that require you to bend over for long periods of time (i.e., gardening). Also avoid sitting or standing for too long without shifting.

**Proper Lifting**

Over 250,000 industrial workers, housewives, and office workers injure themselves each year through poor lifting techniques.

**The practice of stooping over from the waist to lift, accompanied with the added factors of uneven footing, poor balance, or awkward positioning is a direct invitation to eventual injury, because undue strain is thrown on the back and abdominal muscles.**
The following rules should be observed for safe lifting:

- Determine if you need help--consider the distance and the object's weight.
- Look over the pick-up and delivery area for (1) tripping hazards, (2) slippery spots, (3) small doors, (4) sharp corners, (5) blind spots, etc.
- Inspect the object for sharp corners, wet surfaces, slivers, etc.
- Place feet correctly--one foot close to the side of the object to provide stability--and one directly behind the object to provide lift or thrust.
- Keep the object close to your body.
- Get a correct grip or hold on the object by using a full grip--not just your fingers.
- Keep your back straight--this does not mean vertical--just aligned from head to pelvis.
- You should tuck in your chin when lifting to insure alignment from head to pelvis.
- Do the actual lifting with your legs only.
- Just as important as lifting correctly is the ACT OF LOWERING CORRECTLY. You should lower objects in the same manner as you lifted them. This is essential!
- The body should never be turned or twisted while under the stress of heavy weight. Instead, you should turn your whole body if you desire to change your position after you have made the lift.
- When team-lifting large, awkward, or heavy loads, one person should inform all others--prior to lifting--of the safe, correct method of lifting and transportation to be used.
- Only one pre-designated person shall give commands.
Trash Handling Guidelines

Safety of all Custodial Staff is important at WVSOM. Use lifting methods taught during safety training meetings. Use proper body mechanics and a safety-conscious attitude while performing your work tasks.

Laboratory Trash Disposal

Custodial Staff should not empty bags containing chemicals or chemical bottles.

Custodial Staff shall not dispose of RED Biohazard bags. Properly prepared RED Biohazard material bags for disposal will be concealed in an opaque bag and have a label attached to the opaque bag identifying its contents. Departments generating Biohazard materials are responsible for preparing material for disposal in accordance with established Safety Regulations. Bags containing animal tissue and waste are considered a Biohazard and are not to be disposed of until properly prepared by the department personnel responsible for Biohazard disposal preparation.

Bags in waste cans containing syringes, needles, broken pipettes/glassware will be handled as "sharp" material. All sharps will be boxed. Departments generating material considered as sharps are required to box all sharps material before disposal by Custodial staff. Bags will not be used to dispose of materials considered as "sharps."

If you have questions concerning items not specifically labeled trash or garbage, or if you believe items may have been placed in a trash collection area by accident, call your supervisor.

Personal Protective Equipment (PPE)

Latex or rubber gloves will be worn during trash disposal. If other gloves (cloth or leather-palmed) are needed for trash collection, request these gloves from your supervisor. Safety glasses will be worn during both trash collection and trash disposal.

Trash Collection and Disposal

When collecting trash, fill 60-gallon liners only half-full; tie off this bag and begin with a new liner to continue trash collection. To avoid possible injury, do not pack trash with your hands. Collected trash should not weigh more than 50 pounds.
After the trash collection barrel is full, push the barrel to the disposal area. Collection barrels must be placed on their sides to allow the vacuum to be reduced; this will allow the filled bags to be removed as easily as possible. Be aware of your surrounding environment to reduce possible trips, falls or other injury-causing events.

**Trash Disposal at the Dumpster**

Do not pick up the collection barrel to dump the collected trash. After removing filled trash bags from your collection barrel, do not use a twisting motion to place bags in the dumpster. Your body and feet should be facing the dumpster opening when placing collected trash in the dumpster.

Use the side doors of the dumpster for trash bag disposal at tall dumpsters. If any dumpster is full, place bagged trash at the side of the dumpster, not in front. When using top-fill dumpsters, make sure the lid is propped open completely so you can use both hands while placing collected trash in the dumpster.

When opening lids, use extreme care during windy days. High winds may cause the lid to become uncontrollable and cause you injury. When closing dumpster lids after disposing of collected trash, make sure your hands, arms, and other parts of your body are clear of the closing lid.
Asbestos Awareness

Asbestos is the name applied to six naturally occurring minerals that are mined from the earth. They tend to break into very tiny fibers so small that many must be identified using a microscope. They are so small that once they are released into the air, they may stay suspended for hours or even days.

All removal and abatement of asbestos is conducted according to rules and regulations set forth by the West Virginia Department of Labor. These regulations require that only asbestos workers, licensed by the state, are permitted to remove asbestos. Never try to take a sample yourself.

Asbestos is abated only when required for renovation, remodeling or maintenance. Not every pipe and ceiling tile contains asbestos, but whether it does or not cannot be determined at a glance. Every sample is positive until proven otherwise.

At WVSOM, asbestos is most likely to be found in:

- Sprayed-on insulation in mechanical rooms, on steel reinforcing beams, and some ceilings in older buildings
- Ceiling tiles in buildings built prior to 1981.
- Most 9" and a few 12" floor tiles in buildings built prior to 1981 as well as the glue or mastic
- Insulation around pipes and boilers
- Interiors of fire doors

Buildings that have asbestos-containing materials in them will have notices posted near the main entrances, frequently near the fire alarm panel.

Pipe and boiler insulation that contains asbestos will be labeled with identifying stickers and placards.

Asbestos-containing ceiling tiles will not be labeled or marked. These tiles cannot be differentiated from other tile by visual means--they must be analyzed by a laboratory test.

When is it dangerous?

The most common way for asbestos fibers to enter the body is through breathing. In fact, asbestos-containing material is not generally considered to be harmful unless it is releasing...
dust or fibers into the air where they can be inhaled or ingested. Many of the fibers will become trapped in the membranes of the nose and throat where they can be removed, but some may pass deep into the lungs, or if swallowed, into the digestive tract. Once they are trapped in the body, the fibers can cause health problems. Symptoms of asbestos-related diseases may not occur until 20 or 40 years after exposure.

Asbestos-containing ceiling tiles, floor tiles, undamaged laboratory cabinet tops, shingles, fire doors, siding shingles, etc. will not release asbestos fibers unless they are disturbed or damaged in some way. If an asbestos ceiling tile is drilled or broken, for example, it may release fibers into the air. If it is left alone and not disturbed, no fibers will be released.

Asbestos pipe and boiler insulation is not hazardous unless the protective canvas covering is cut or damaged and the asbestos underneath is actually exposed to the air.

Water damage, constant vibration, aging and such physical acts as drilling, grinding, buffing, cutting, sawing or striking can break the materials down making it more likely that asbestos fibers will be released.

**Housekeeping**

Housekeepers and custodians should never sand or dry-buff asbestos-containing floor tiles, and only wet stripping methods may be used during stripping operations. Low abrasion pads should be used at speeds below 300 rpm.

Broken and fallen ceiling tiles should be left in place until identified. Only after they have been identified as safe may they be removed. Asbestos abatement workers will remove asbestos tiles.

Asbestos workers must also be the ones to remove broken and damaged asbestos floor tiles. Report any suspect broken tiles to the Physical Plant at ext. 6203.

If you are ever accidentally exposed to asbestos, you must file an Employee Exposure Report form within 24 hours (or as soon as possible) with the Office of Campus Safety.

It is important to immediately report any damaged asbestos-containing materials to the Physical Plant at ext. 6203. **Do not attempt to clean up spills yourself!**
**Vehicle Safety**

It is your responsibility to closely follow the laws set forth by the WV Dept. of Motor Vehicles Driving Manual as your rules of the road. It is also your responsibility to provide maintenance to the vehicle for which you are responsible. This means notifying Motor Pool of braking or steering problems, lights or horns that have quit working, etc., as soon as the problem is discovered.

If you are in an accident while driving a state vehicle, follow the directions on the information packet in the glove box. Also notify your supervisor.

Motor vehicle traffic mixing with bicycle and pedestrian traffic is a major concern on campus. Even though bicyclists are required to follow the rules of the road, (the same as motor vehicles) many bicycle operators fail to obey stop signs or signal when making turns. Likewise, pedestrians are apt to step off a curb and cross the street at any location.

In either case, civil law favors the bicyclist or pedestrian because of the chance of serious injury being incurred by either when involved in an accident with a motor vehicle.

Drivers of motor vehicles should never park or travel in a bicycle path or on a sidewalk and should always look for a bicyclist that may be passing on the right.

Motor vehicle drivers should always stop for pedestrians on a campus street—particularly those pedestrians in a crosswalk. Drivers of motor vehicles in a pedestrian-traffic area not only have a responsibility to be legal in regard to statutory rules of the road, but also have a responsibility to "exercise due care to avoid colliding with any pedestrian upon any roadway."

Another rule of the road is that following too closely is unsafe at any speed, on any road, in any vehicle.

Materials or equipment to be moved on trucks shall be strapped or held down by ropes—not by workers. Never allow workers to ride on top of materials to keep them in place.

Red flags measuring 1 foot square must be placed on the end of loads that extend 4 feet or more past the end of the truck.
When transporting people in a truck, it is the driver's responsibility to insure that all of the people arrive safely.

- A safe number of people should ride in the cab of the truck, and any others shall be seated in the bed of the truck. (Riding in the bed of a truck is strongly discouraged.)
- Do not sit on the edge of a truck tailgate and do not ride on any truck with your legs outside of the bed.
- *Never* transport people while they are standing in the truck.
- Never ride on a piece of equipment if there is no place specifically designed for that purpose. Examples of this would be riding on a tractor fender, working out of a front-end loader bucket, etc.

Most non-collision deaths in the U.S. in 1994 were caused by falls due to swerving, braking or rough roads. In one-third of these cases, the victim was standing up, sitting on the tailgate or "horsing around."

When a trailer is to be pulled by a motor vehicle (including tractors) be sure the ball and hitch are sized for use together.

- The safety chains *must* be attached in the appropriate manner by crossing them under the tongue.
- When available, hook up the circuitry for the lights and check them after each hook-up to insure they are functioning properly before going into traffic.
- Place the heaviest part of a trailer load in the front of a trailer or above the axles, if possible.

![Wrong vs Right](image)

To reduce the chances of swaying, large or heavy masses should not be placed at the ends of the trailer.

- Never allow anyone to be transported while in a trailer.
- Use a red flag on the end of a load that extends 4 feet or more past the end of the trailer.
- Practice backing the trailer in an isolated area and test trailer brakes, if available, before going into traffic.
- Learn to start slowly, avoid jerking, watch your speed, and avoid "fishtailing."
- Increase following distance and anticipate stops to permit deceleration without hazard.
- Avoid tailgating.
Fire Protection

Learning the location of fire extinguishing equipment and fire alarms in your work areas is important. Do not cover or hide fire protection equipment and fire alarms from view.

Sources of ignition, such as matches, portable heating equipment, unguarded light bulbs, etc., are prohibited in areas where explosives, flammable liquids or gases, or other combustibles exist (i.e., near chemical exhaust outlets, flammable liquid storage areas, sump pump areas, and refueling areas).

Never check for possible natural gas leaks with an open flame.

Flammable liquids shall be kept in approved safety cans for use in small amounts and for transportation. These containers shall be clearly labeled and stored in a separate, protected area.

Refueling a small engine that is running or is hot can be dangerous and should be avoided. Always clean up spills that occur during refueling before re-starting engines.

Rags that contain oils or solvents shall be kept in covered metal containers until they can be safety disposed of.
Clothing & Personal Protective Equipment

Various items are used to protect the body from physical harm. Depending on the nature of your work, you may be required to wear personal protective equipment while you perform certain tasks.

According to the Occupational Safety & Health Administration (OSHA), a significant number of workers are injured each year because they fail to wear appropriate protective equipment.

With the exception of steel-toed footwear and prescription eyeglasses, if you are required to wear protective equipment on your job, it will be provided to you at no cost. Handle this equipment with care— *it may protect you from injury.*

| Safety Equipment is available at the Safety Center located (1st Floor-Maintenance Building) |

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoes</td>
<td>It is recommended that approved safety shoes be worn to protect your feet.</td>
</tr>
<tr>
<td>Hard Hats</td>
<td>Hard hats shall be worn in all designated areas and construction areas. <em>Visitors are included in this requirement.</em></td>
</tr>
<tr>
<td>Eye Protection</td>
<td>Proper eye protection must be worn when the nature of the operation presents a potential eye or face injury. Examples of these hazards include: Flying objects, dust, hot or splashing metals, harmful rays, caustics or acids.</td>
</tr>
<tr>
<td>Gloves</td>
<td>Appropriate gloves and aprons shall be worn when handling hazardous chemicals and abrasive materials. Gloves should be replaced when the signs of wear are apparent.</td>
</tr>
<tr>
<td>Respiratory Equipment</td>
<td>Approved respiratory equipment shall be worn when the worker is exposed to toxic chemicals or dusts, spray painting, or other inhalation hazards.</td>
</tr>
<tr>
<td>Jewelry</td>
<td>The wearing of rings or other jewelry is not recommended on the job, particularly if working around moving or rotating parts.</td>
</tr>
</tbody>
</table>
Hand & Power Tools

Always know how to properly use hand and power tools before starting the job by following operating instructions and using the proper accessories. If you are unfamiliar with how a tool operates or is to be used, get the advice and instruction of your supervisor.

- Tools should not be used for other than their intended use.
- Keep all cutting tools sharp.
- Tools shall be kept in a safe condition without broken or damaged parts.
- Never use tools that have burred or mushroomed heads and never carry loose tools in your pockets.
- If tools or equipment are found to be faulty, report them to your supervisor and return the equipment to the Tool Room and tagged “Out of Service for repair.
- When possible, pull on a hand tool rather than push since it can slip and cause a serious cut or bruise.
- Never leave hand tools lying around loose where they may fall on someone below.
- Non-sparking, non-magnetic tools are provided for your use. They shall be used in areas such as grain storage, sewers, steam tunnels, spray-paint booths, radar unit locations, and rooms with electromagnets.

Remember--use the right tool for the job.
Ladders and Scaffolding

Although there is always a risk in working on elevated areas, it is a fact that the vast majority of accidents involving ladders result from the failure to exercise care. Proper training, as well as routine inspections and maintenance, can substantially reduce the number of ladder-related injuries.

Do not use any make-shift means of getting to an area that is out-of-reach. This includes such things as boxes, chairs, overturned buckets, file cabinets, etc. Always use a ladder or step stool.

On any job requiring a ladder, use only approved sturdy ladders that you can place on a firm base. Inspect the ladder prior to EVERY use. Maintain ladders free of oil, grease and other hazards. Do not use ladders with structural defects; properly tag with "Do Not Use" and withdraw from service.

Use a ladder only for the purpose for which it was designed (refer to manufacturer's labeling and recommendations). Use only non-conductive side rails around live electrical equipment. Wear protective clothing and rubber-soled shoes.

**Carry ladders parallel to the ground. Tie ladders down securely when transporting.**

Barricade traffic areas in the vicinity of ladder use, and lock, barricade or guard doorways in which a ladder is placed. Keep the area around the top and bottom of the ladder clear. Whenever possible, angle out the top one-fourth of the ladder's working length. The ladder should reach at least three feet above the landing.

Extension ladders shall be kept from slipping or tipping by tying off the ladder at the top and securing the ladder at the bottom. Portable ladders in use shall be tied, blocked or otherwise secured to prevent their being displaced.

Face the ladder while climbing and use both hands. Lift equipment and materials with a rope specifically for that purpose--don't carry the equipment up a ladder with one hand. Carry smaller tools in pouches around the waist.

Never stand on the top two steps of any ladder or the top cap of a step ladder. This could cause you to become off-balance resulting in a fall. Do not stand on the back cross bracing. Always maintain at least three points of contact with the ladder (2 feet and 1 hand, or 2 hands and 1 foot should be in contact with the ladder at all times). Do not over-extend sideways; use the belt buckle rule: Keep your belt buckle positioned between the side rails at all times--this will maintain your center of gravity in the proper position. Do not move, shift, or extend the ladder while you are standing on it. Never "walk" a ladder.

Maintain ladders free of oil, grease and other hazards.
Do not load the ladder beyond its maximum intended load. Never allow more than one worker on the ladder at a time.

**Scaffolding should be used if solid footing or a safe ladder is not available.** Caster brakes should be set before an employee gets on a scaffold. If no brakes are available, another employee should be in position to secure the scaffold.

Scaffolding shall be secured at intervals of 15 feet to a solid support. Securing will be by wire, cable, chain or rope.

Ladders, boxes, etc. should not be set on scaffolds to increase working heights.

Scaffolds should not be moved with employee(s) or materials on the scaffold. Scaffolding shall not be moved until its height is reduced below 15 feet. Sufficient help shall be used to move the scaffold. A "watcher" shall be posted to watch for overhead obstructions as well as holes, etc., at ground level.

Guard rails and toe boards are required on any scaffold over five feet high.

Flooring shall be solid from side-to-side and secured in place with cleats.

It is your responsibility to keep all tools and materials away from the edges of the scaffold and platform openings.

Scaffolding over 50 feet high shall be inspected by the Safety Compliance Officer.
Electrical Safety

It takes very little electric current to kill--less than one-tenth of an ampere. With good contact, 115 volts is sufficient voltage to cause death. There have been fatal electric shocks where voltage as low as 60 to 70 volts was involved.

No electrical work should be performed "hot" when it can be done "cold."

Switches, fuses, circuit breakers, and other control devices in areas where explosives or other flammable liquids or gasses exist shall be the type designed for use in these areas.

All electrical equipment should be periodically inspected.

Suitable means should be provided for identifying all electrical equipment and circuits, especially if two or more voltages are used on the same job.

All electrical tools and equipment should be properly grounded or be of the double-insulated type.

Spliced or damaged electrical cords shall not be used until properly repaired. Electrical cords on power tools and extension cords shall have heavy-duty rubber insulation.

You should never use electrical equipment when standing in or near water. In places such as bathrooms, kitchens, laundries, and out-of-doors, where a person having wet hands or standing on a wet surface is likely to touch objects that may be energized, a ground-fault circuit interrupter (GFI) shall be installed in the circuit to prevent electrical shock. Always use portable ground-fault circuit interrupters when working in wet environments.

All exposed electrical wires should be considered "hot" or "live" until checked by the Electrical Department. Electrical repairs or electrical installations shall be made only by the Physical Plant Electrical Department.

Standing on metal ladders or wearing metal hard hats near high voltage electrical power can result in death or serious injury.
Tag-Out Standard

A lockout device and universal "Danger" tag shall be placed on all energy-activating devices of machines or tools needing repair, or receiving routine maintenance.

The responsible trade person should write the reason(s) the machine is not operable on the tag and sign it before placing the tag on the equipment.

Before starting maintenance or repair, the equipment should be checked to make sure all energy has been released or disconnected.

Each trade should remove its tag after the equipment is repaired and notify affected personnel. When more than one trade is involved in repair or maintenance of such equipment, a compound locking device shall be used. Each trade involved shall apply their own lock and personal tag.

A lockout device and tag shall be placed on the junction box of stationary permanently-wired equipment with the energy activating device placed in the "off" position. This lockout/tagout procedure should reduce accidents caused by the unexpected start-up or release of energy.

The equipment shall not be put back in service until after the last trade removes its lock and tag.
**Construction Safety**

**When working on or near construction or renovation projects, always wear the proper personal protective equipment (i.e., hardhat, goggles, and gloves).**

Prior to the start of construction or renovation, all areas should be inspected for the presence of asbestos and lead, and all sources of potentially hazardous energy in the area should be located.

Supervisors should ensure employees receive training in the proper use of tools and protective equipment. If a respirator is required, only those employees who have had a physical examination and fit test shall be allowed in the area.

**Excavations and trenches more than four feet deep shall have proper sloping or shoring. Employees should never enter a cave-in site in an attempt to rescue another worker without shoring in place.**

**General Excavation Safety Tips:**

- Underground utilities must be located and marked.
- Trenches over 4 feet deep must have a safe exit such as a ramp or ladder within 25' of every worker.
- Trenches 5 feet or deeper will be inspected daily by the Safety Compliance Officer.
- Excavated material and other objects must be kept at least 2 feet from a trench opening.
- No one works on the sides of sloped or benched excavations above other employees unless the lower worker is protected from falling material.
- Station a Top Person outside the trench to detect moving ground and warn workers to leave a trench.
- Any excavating under the base or footing of a foundation or wall requires a support system designed by a registered professional engineer.

Construction or renovation projects may require the placement of barricades, guardrails, or toe boards for employee protection. If barricades are left in place at night, adequate safety-flasher lighting is necessary.

Special precautions must be taken when constructing or repairing roofs. Refer to OSHA 1910.21(f)(25) **Roofing bracket** (Subpart D – Walking-Working Surfaces)
**Welding Safety**

*Welding operations require that approved eye protection, welding shields and gloves be worn.*

Acetylene and oxygen tanks shall be securely fastened to a dolly or stand to prevent their falling or being knocked over. Acetylene tanks shall only be used while in an upright position.

*Welding and cutting operations shall be performed only by authorized personnel under proper supervision.*

Proper fire extinguishers shall be immediately available. Localized ventilation shall be used when necessary.

Always use soapy water instead of matches to check for leaks in hoses, fittings, and valves in welding equipment.

Proper eye protection shall be worn when observing welding or cutting operations, also when chipping slag.

Material that has been recently welded should be marked *HOT* to avoid burns.

Oxygen acetylene torch units shall be lit with proper ignition equipment and not with matches or lighters.

Oil in any form shall be kept away from sources of oxygen.
Compressed Gas Cylinders

Gas cylinders may contain up to 3,000 psi pressure. Accidents have occurred when the heads of these cylinders were broken off.

Valve caps must be in place on cylinders when not in use. Storage of empty or full compressed gas cylinders shall involve the securing of every cylinder by an approved chain or webbing. Empty and full cylinders should be stored in separate areas or be separated by a fire wall.

Those cylinders in use shall be properly secured in an upright position and shall be transported only on cylinder carts. A cylinder valve should be opened slowly to avoid valve damage.

Off-The-Job Safety
Would you believe that more than one-half of the injuries suffered by workers occur off the job? Someone once said that your home is your castle. If this is true, castles are very dangerous places.

Approximately 24,000 individuals are killed each year in home accidents--an average of about 65 deaths per day. The National Safety Council reports that about 3.6 million people are injured in home accidents, which means that one person in 60 was disabled for one or more days in a home accident. About 100,000 of these injuries resulted in some permanent impairment.

With these statistics, it cannot be over emphasized that what you do away from your job is vitally important. At home, we become all too familiar with our environment. Then, to our surprise, we have an accident and wonder why it didn't happen sooner. Falls and burns by gas or electrical equipment lead the list.

In 1982, over 1,036,500 fires in homes claimed more than 5,000 lives and caused $6.4 billion dollars worth of damage. More than twice as many fires occurred in homes than in any other occupancy put together, including restaurants, hotels, schools, manufacturing plants, etc.

You're protected at work and in public places by fire codes and laws that require early warning devices (smoke and heat detectors) and fire extinguishers. It is highly recommended that you obtain the appropriate fire protection equipment for your home as soon as possible. It is the cheapest form of life and fire insurance possible. Smoke detectors of an approved type are a good investment to provide early warning of a fire in the home.

Good Housekeeping should be practiced throughout the home. Avoid using the basement, attic or utility room for a dumping ground, especially for combustible materials.

The yard should be kept clear of broken glass, nail-studded boards, and other litter. Electric utensils or tools should be properly grounded if they are not of the "double insulated" type and should always be disconnected when not in use.

You should always tag and identify your main gas and water valves and electrical cut-offs. Be sure that others in your family know where they are located and how to cut the supply in the event of an emergency.
Fuses or circuit breakers should be labeled to identify outlets and fixtures they protect. Good lighting should be available for work areas, stairways, and in the bedrooms of children and elderly persons. Keep emergency phone numbers handy (utilities, doctors, poison control, etc.).

Falls are the greatest killers in the home. Always have non-skid backing on small rugs and avoid using them at the top of stairs.

Use a step stool or utility ladder--never a chair or table--when reaching into high cupboards or shelves. Keep ladders in good condition by replacing loose rungs, worn ladder shoes, and frayed ropes on extension ladders.

Replace cracked or frayed electrical appliance and extension cords.

Don't use aerosols near open flames or while smoking.

Keep firearms secure in a locked rack or cabinet and ammunition stored separately from the firearms.

Always use the right tool for the job and always get help from a neighbor or friend for heavy or difficult jobs.

Prepare and practice a family escape plan in case of a fire that might occur during the day or night. This plan should include two ways out of every area and a pre-determined meeting place outside of the home.

Motor-vehicle accidents are the #1 accidental killers of our children ages 5 and under. Using a child safety seat is estimated to be 80 to 90 percent effective in preventing fatalities.

**Kitchen-Bathroom-Utility**

Look for the UL label whenever you buy appliances.
Wipe up liquid spills immediately.

Turn hot handles away from the stove front so they don't tempt little children, but don't place them over another burner.

Keep in mind that water should never be poured on a grease fire.

Washers and dryers should be electrically grounded.

Always keep household cleaners, disinfectants, insecticides, drain openers, and medicines in their original labeled containers--separate from food--and preferably locked up and out of reach of small children.

Read the label before taking any medicine.

Keep emergency phone numbers like police, fire, doctors, utilities, handy by your telephone.

**Garage-Workshop**

Keep all tools properly guarded and out of reach of small children.

Flammable paint thinners and solvents should be kept in metal cans. Their vapors will travel along the ground, so it is important to keep them stored away from gas hot-water tanks, heaters, or other sources of ignition.

When operating a power mower, keep children and pets a safe distance away. Always shut off the mower and make sure the blades are stopped before adjusting the blade or emptying the grass catcher.

Keep the garage door open while running the car engine inside to avoid asphyxiation.