

Safety Guidelines



July 2024

**Metropolitan Government of Nashville and Davidson County
Occupational Safety and Health Division, Human Resources**

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SAFETY POLICY STATEMENT

Safety program organization may be defined as a method employed by management to share and assign responsibility for injury and illness prevention and to ensure performance under that responsibility. A safety program is not something that is imposed on the organization. Safety must be built into every process and into every operation. It must be an integral part of the Metropolitan Government of Nashville and Davidson County (Metro) operations.

This manual provides general guidelines and standards to be followed by each department of Metro in order to implement and maintain an effective safety program. All Metro employees are expected to participate in a safety program that satisfies these minimum standards.

The prevention of occupational injury and illness is achieved through control of the working environment and control of workers' actions. Only management can implement such control. A department that has an effective safety program will have a working environment in which operations can be conducted economically, efficiently, and safely. The Metropolitan Government of Nashville and Davidson County will not sacrifice safety for expediency.




Mayor



Director of Human Resources



Safety Administrator



Date

HEALTH AND SAFETY POLICY GOALS

The Metropolitan Government of Nashville & Davidson County (Metro) is committed to the establishment and maintenance of a safe and healthful workplace. Established work practices at each department are in place to prevent the occurrence of harmful working conditions. A concentrated effort by management and personnel is required to assure success in this endeavor.

The Metro Safety Administrator, department Safety Coordinators, and department supervisors will keep abreast of and disseminate information pertaining to current laws, regulations, and standards regarding the health and safety of Metro employees exposed to hazardous work conditions. The steps necessary to recognize, evaluate, and control those situations likely to produce exposure to hazardous work activities will be taken through the diligent review of this Safety Program at each department. Safety training will be continually provided and will be administered and updated to assure the welfare of each affected employee. The Safety Administrator, management of each Department, and the Safety Coordinators for each department will be responsible for responding to questions and promptly investigating any complaints.

Metro employees are expected to accept personal responsibility for the health and safety of themselves, fellow workers, contractors, and visitors. This will be accomplished by complying with federal and state regulations, Metro health and safety programs, policies, and guidelines, including training programs.

Any employee who fails to comply with established regulations, health and safety programs, policies, and guidelines will be subject to disciplinary action in accordance with rules established by that Department and any Civil Service rules that may apply. Questions or violations shall be reported to supervisors and the department's Safety Coordinator for immediate follow-up.

POLICY GOALS

To reduce the risk to any employee, visitor, or person residing or working near Metro work locations subjected to any unusual health or safety risk. To achieve this goal, Metro will adhere to the following:

- Metro departments will maintain ongoing health and safety programs at all levels and identify personal health and safety risks.
- Metro departments will see that all employees clearly understand all facets of the health and safety programs and policies that directly affect them and their duties.
- Metro departments will prioritize the control and elimination of health and safety risks in all financial and business plans and budgets. The Metro government provides the necessary funds to implement health and safety programs and policies.
- Metro departments will control and reduce personal exposure to all known or clearly suspected occupational health and safety risks, and attempt to eliminate hazards as quickly as governmental regulations, technology, and economic feasibility allow.
- Provide incentive programs to encourage employees to identify, control and eliminate occupational health and safety risks.
- Plan, design and construct all Metro work locations to provide the safest and healthiest working environment possible.
- Basic responsibility for employee health and safety rests with the individual. It is a condition of employment for all employees to conduct their work in as safe and healthy a manner as possible.

ORGANIZATION AND RESPONSIBILITIES

ORGANIZATION

The Metropolitan Government of Nashville & Davidson County (Metro) Health and Safety Program is comprised of the Metro Safety Division, Metropolitan Safety Advisory Board, Department Directors, Department Safety Coordinators, Department Managers and Supervisors, and all Metro employees.

RESPONSIBILITIES

Metro Safety Division

The Metro Safety Division of the Metro Human Resources Department is responsible for administering the City's Health and Safety Program in association with the Mayor, Department Directors, and Safety Coordinators. Responsibilities include:

- Development of compliance strategies
- Establishment of city-wide guidelines for health and safety matters where needed.
- Serve as a resource to department Safety Coordinators providing health and safety training opportunities.
- Providing support to department Safety Coordinators for all aspects of health and safety.
- Auditing work locations for hazards and health and safety violations.
- Counseling and/or recommending retraining or disciplinary actions for those who violate health and safety programs or policies.
- Reviewing accident reports and discussing with the Departmental Safety Coordinators the appropriate actions to be taken.
- Visiting departments periodically to discuss health and safety concerns with personnel.
- Safety liaison with the Department of Law.
- Safety liaison with Tennessee OSHA.
- Help motivate employees to be aware of safety

Department Directors

The Department Director is ultimately responsible for the design, administration, and implementation of the work plans applicable to the department. The Department Director consults with the Safety Coordinator regarding all field operations for health and safety concerns and must approve any alteration of the work plan as a result of health and safety concerns.

Safety Coordinator

The Safety Coordinator administers the Health and Safety Program for their department and is responsible for ensuring all program elements are in place. They review job-specific Health and Safety Plans with the Department Supervisors and are responsible for the management of on-site health and safety programs. The Safety Coordinator bears the responsibility for ensuring compliance with all site-specific health and safety regulations.

Department Manager/Supervisor

The Department Manager/Supervisor will:

- Ensure that workers in their area comply with all safety rules and regulations
- Be on the alert for near-miss incidents and unanticipated hazards
- Take the initiative to make corrections wherever he/she has such authority
- Report to the Safety Coordinator any unsafe conditions or employee practice that could result in injury or illness

The Department Manager/Supervisor must be convinced that accidents are caused; they don't just happen. An act of negligence, disregard for established rules or procedures, rushing projects, improperly guarded machinery, lack of or improper maintenance, all can cause an injury or illness. The Department Manager/Supervisor must also be convinced that an injury or illness does not affect the employee alone. Incidents cost money and have a direct impact on the City's ability to perform its obligation to the citizens of Nashville & Davidson County. Incidents also affect production and directly reflect on the efficiency of the department.

To make the program effective, every member of management shall ensure that:

- 1) Hazardous work or work located in a hazardous area is not assigned until all steps have been taken to abate the hazards.
- 2) All employees have received proper training on health and safety rules and regulations and job-specific topics.
- 3) Work areas are regularly and frequently inspected to ensure that the workplace is safe and healthful and that employees are working in a safe manner.
- 4) All safety and health deficiencies are corrected promptly and not repeated.
- 5) Incidents are investigated and corrective action is implemented.
- 6) Any equipment that is not working properly must be taken out of service and immediately reported to the supervisor.
- 7) Safety reports (i.e., IOD Form 101) are filled out completely and promptly submitted.

Metro Personnel

All Metro personnel are required to comply with the Metropolitan Government of Nashville & Davidson County Health and Safety Program. Additional responsibilities include the following:

- Immediately report health and safety violations to your Supervisor and Safety Coordinator.
- Be aware of their role in emergency response activities.
- Immediately report injuries, illnesses, or near-misses to your Supervisor and Safety Coordinator.
- Employees should notify a supervisor, manager, or the Appointing Authority if they have knowledge that the actions of one or more employees allegedly creates an increased risk of death or injury to persons or a significant loss of property, even if no specific rule or policy violation is known to have occurred.

Every employee has a specific role in our Safety Program. Each employee is expected to participate actively in the Program and observe all established rules, policies, and regulations.

Remember: A written health and safety program is only effective if it is implemented!

HEALTH AND SAFETY PROGRAM COMPLIANCE

PURPOSE

Compliance does not mean punishment. It simply means ensuring that all Metro employees follow safe work practices. Observation, inspections, and discipline are the main tools Management will use to ensure these practices are followed.

OBSERVATION

The Department Directors, Safety Coordinators, and Supervisors shall observe employees while performing work duties. Awareness of safe work practices for position responsibilities shall be reviewed during routine safety meetings.

INSPECTIONS

Regular and frequent inspections shall be performed to uncover hazards that may exist with a procedure or piece of equipment. This will emphasize the importance of safety to personnel.

Random site visits by the Safety Coordinator and the Metro Safety Administrator Division will help to ensure compliance with all Metro policies, procedures, and safety standards.

DISCIPLINE

If any employee fails to follow safety rules and regulations, departments shall initiate progressive discipline consistent with departmental practice and Civil Service Rules and Policies when they apply. The Metropolitan Government of Nashville & Davidson County will not let poor or dangerous habits get started.

ACCIDENT REPORTING AND INVESTIGATION

Metro's occupational injury program is a self-insured program. Metro's program is not workers' compensation and is not subject to workers' compensation regulatory requirements.

No payment shall be made when personal injuries were due to the employee's willful misconduct, intentional self-inflicted injury, intoxication, or willful failure/refusal to use a safety appliance or perform a duty required by law.

IOD: Injury Reporting Procedures

How to Report Cases

All injuries should be reported to Metro's third party administrator, Davies Claims Solutions (Davies) as soon as possible. Prompt reporting of cases is critical to proper program management. All injury reports should be reported to Davies within **24 hours of the employee advising the employer that he/she has sustained a work-related injury.**

Any cases that result in immediate lost time for the injured employee should be emailed / faxed / called into the Davies office *as soon as possible*, but no later than the required 24 hours.

Email: metroclaims@ascrisk.com

Fax: 615-515-4838

Phone: 615-360-2800

Please keep the following in mind when reporting a case:

1. Cases involving broken bones, serious burns, dismemberment, and death should be reported immediately.
2. Complete a 101 form as soon as an injury is reported, and submit the form to Davies. The timeliness of this report will facilitate a proper investigation and commencement of benefits for compensable cases.
3. Communication between the employer and the **Davies** adjusters is crucial. Any factors that could impact the case should be brought to the adjusters' attention as soon as possible.
4. Send the completed/signed 101 form to:
Davies Claims Solutions
c/o Metro IOD Program
P. O. Box 291587
Nashville, TN 37229-1587
5. Once a case is received, it will be assigned to the appropriate adjuster. Assignment will be based on the severity of the case (report only, medical only, or lost time) as well as the expertise of the adjuster.

AERIAL & SCISSOR LIFTS

This guideline is intended to prescribe rules and establish minimum requirements for the care, and use of the common types of aerial and scissor lifts in order to ensure safety under normal conditions of usage. Aerial lifts operations are covered under OSHA regulations laid out in 29 CFR 1926.451 and 1926.453. Scissor lifts are considered mobile scaffolds by OSHA and operation of these type lifts shall comply with the requirements of 29 CFR Part 1926.452(w) and 1926.454.

Basic safety rules for working on elevated work platforms include daily inspections, removal of defective equipment from service, and regular housekeeping efforts in order to keep the slip, trip and fall hazards on the platform and tipping hazards on the lifts travel surface to a minimum. As with all heavy equipment, a supervisor must determine that the operator is qualified by training or experience to operate the equipment safely. All safety instructions in the operator's manual and on the equipment warning labels must be followed. Operators must be familiar and competent with the basket controls and designated ground personnel must be familiar and competent with the lower controls. Lift Controls must be tested daily. Modifications may not be made without written manufacturer approval.

Aerial lifts and scissor lifts must not be loaded beyond the manufacturer's specified capacity and the lifts may not be used as a hoist. All safety instructions in the operator's manual and on the equipment warning labels must be followed.

Lift occupants must be aware of crushing hazards when booming up or moving side to side. A safe working distance from overhead power lines must be maintained, which starts at ten feet (10') and increases incrementally when working near lines > 50kV.

Workers must not use the lift until a documented inspection has been completed. A sample form is included in this section.

AERIAL LIFTS

1. Body harnesses with lanyards must be used.
2. Tying off to an adjacent pole, structure, or equipment while working from an aerial lift is prohibited.
3. Employees must always stand firmly on the floor of the basket, and may not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
4. Brakes must be set; outriggers must be used if so equipped; and wheels chocked if on incline. The supervisor must evaluate the appropriateness of a particular type of lift based on the work and the terrain.
5. Unless so designed, aerial lift trucks may not be moved when the boom is elevated in a working position with workers in the basket.
6. Upper and lower controls are required and must be plainly marked.
7. The vehicle has a reverse signal alarm audible above the surrounding noise level or the vehicle is backed up only when an observer signals that it is safe to do so.

SCISSOR LIFTS

Scissor lifts are regulated by OSHA as a mobile scaffold rather than an aerial lift, and are covered by the same “competent person” and training requirements for scaffolds. Hard hats are always required on scissor lifts, but body harnesses and lanyards are highly recommended when manufacturer tie off points are provided, or if an employee cannot work within the confines of the guardrail system.

Ladders, crates, walk-boards, upside-down buckets or any other device for working above the surface of the lift’s platform are prohibited. If a higher platform is needed, then a taller lift must be used.

Movement of scissor lifts is regulated as follows:

1. Mobile scaffolds shall be stabilized to prevent tipping during movement.
2. Systems used to propel mobile scaffolds must be designed for that purpose. Forklifts, trucks, motor vehicles, or add-on motors must not be used to propel scaffolds unless the scaffold is designed for them.
3. Employees are not allowed to ride on scaffolds unless:
 - a. The surface on which the scaffold is being moved is within 3 degrees of level;
 - b. The surface is free of pits, holes, and obstructions; and
 - c. The height to base width ratio of the scaffold during movement is 2:1 or less.
4. Outrigger frames, when used, must be set on both sides of the scaffold;
5. The propelling force must be applied directly to the wheels, and may not produce a speed in excess of 1 foot per second.
6. No employee may occupy any part of the scaffold that extends beyond the wheels, casters, or other supports.
7. Before a scaffold is moved, each employee on the scaffold must be made aware of the move.

FORKLIFT PLATFORMS

Temporary work platforms on the front of a forklift are prohibited.

TRAINING SUMMARY

1. All lifts must be inspected before each use.
2. Good housekeeping practices must be followed in the lift basket and also on the surface where the lift will be used. Areas where lifts are in use should be barricaded to prevent unauthorized entry.
3. As with all heavy equipment, a supervisor must determine that the operator is qualified by training or experience to operate the equipment safely.
4. All safety instructions in the operator's manual and on the equipment warning labels must be followed.
5. Operators must be familiar and competent with the basket controls and designated ground personnel must be familiar and competent with the lower controls.
6. Lift controls must be tested daily.
7. Aerial lifts and scissor lifts must not be loaded beyond the manufacturer's specified capacity and the lifts may not be used as a hoist.
8. Lift occupants must be aware of crushing hazards when booming up or moving side to side.
9. A safe working distance from overhead power lines must be maintained, which starts at ten feet (10') and increases incrementally when working near lines $\geq 50\text{kV}$.

Aerial Lifts

1. Employees must work within the basket.
2. Body harnesses with lanyards, connected to an approved point on the lift, must be used.
3. Brakes must be set; outriggers must be used if so equipped; and wheels chocked if on an incline.
4. Unless so designed, aerial lift trucks may not be moved when the boom is elevated in a working position with workers in the basket.

Scissor Lifts

1. Scissor lifts are regulated by OSHA as a mobile scaffold rather than an aerial lift, and are covered by the same "competent person" and training requirements for scaffolds.
2. Hard hats are always required.
3. Body harnesses and lanyards are required when manufacturer tie off points are provided, or if an employee cannot work within the confines of the guardrail system.
4. Ladders, crates, walk-boards, upside-down buckets or any other device for working above the surface of the lift's platform are prohibited.
5. Employees are not allowed to ride on scaffolds unless:
 - a. The surface on which the scaffold is being moved is within 3 degrees of level;
 - b. The surface is free of pits, holes, and obstructions; and
 - c. The height to base width ratio of the scaffold during movement is 2:1 or less.

AERIAL LIFT/SCISSOR LIFT INSPECTION (PER SHIFT)

Date	
Equipment Type	
Unit Number	

Location	
Job Number	
Inspected By	
Company	

	VISUAL CHECK	OK	Operator Repaired/ Replaced	Taken Out- of-Service	NA
1	Fuel				
2	Engine Oil				
3	Hydraulics (level, visible leaks)				
4	Battery (water level, condition, charge)				
5	Tires (inflation, damage)				
6	Platform (structure, condition, housekeeping)				
7	Warning/Instruction Labels (posted, legible)				
8	Fire Extinguisher				
9	Eye Wash				
10	Tilt Alarm				

	GROUND CONTROLS CHECK	OK	Operator Repaired/ Replaced	Taken Out- of-Service	NA
1	Raise and lower platform/boom with controls				
2	Using auxiliary power				
3	Using manual bleed valves				
4	Telescope out and in				
5	Swing platform left and right				

	PLATFORM CHECK	OK	Operator Repaired/ Replaced	Taken Out- of-Service	NA
1	Fasten safety harness				
2	Telescope out and in				
3	Raise and lower platform/boom				
4	Using auxiliary power				
5	Swing left and right				
6	Extend outriggers				
7	Drive machine forward, reverse, left, right				

DEFECTS/DEFICIENCIES MUST BE REPAIRED/REPLACED PRIOR TO EQUIPMENT USE.
KEEP THIS REPORT WITH THE MACHINE DURING SHIFT.

Signature of Person Completing Inspection

Name of Person Completing Repairs

Signature

Date Repaired

BACK SAFETY

Back pain and injuries are among the most common causes of work absenteeism and long-term disabilities. Hundreds of thousands of people suffer disabling back injuries on the job every year. Lifting objects alone that are heavier than 50 pounds creates excessive compressive and shear forces and increases the risk of low-back injury.

According to the Bureau of Labor Statistics (BLS), back injuries account for **one of every five** injuries and illnesses in the workplace. Improper lifting is considered a major cause of back injury and pain. Training in proper lifting techniques can go a long way in preventing back injuries.

Safe Lifting

A program to reduce back injuries and strain should begin by looking for ways to reduce the amount of lifting, both by limiting the number of lifting tasks and the weight and size of the loads that are lifted. You can reduce the need for lifting by:

- Locating and organizing the work area to eliminate lifting where possible
- Using mechanical equipment such as hoists, racks, hand trucks, dollies, and forklifts to minimize the need for manual lifting
- Using boxes and containers of manageable size and weight

Of course, you cannot eliminate all lifting. But you can improve lifting safety by training all workers how to lift correctly. Also, keep in mind that people often overestimate their strength and physical condition. People in general do not like to ask for help. When you assign employees to lifting jobs, do not encourage them to take on more than they can handle. When possible, assign two (2) people to encourage “team lifting.”

Unlike the legs and arms which can easily do extra work, the back is designed to carry only the weight of your body. When you lift an object the wrong way, you are asking your back to do too much. Sooner or later, something will give. The goal of proper lifting is to reduce the work the back must do by using the arms and legs to do the work.

Pre-lift Planning

Like most jobs, proper lifting starts with good planning. Here are some tips on what to do before picking up a load.

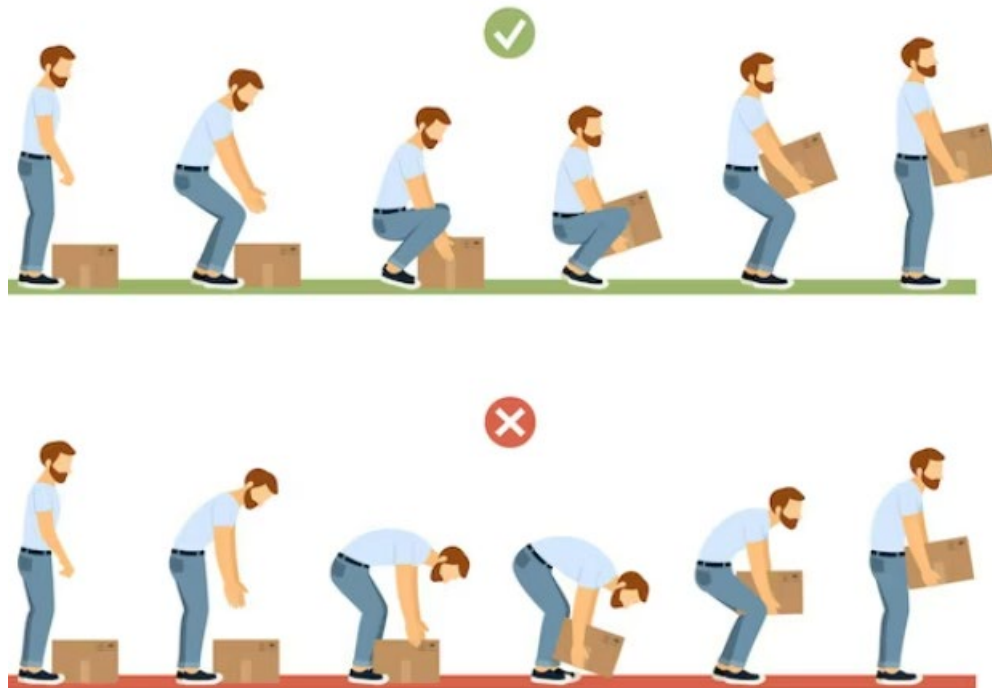
- Check the load for rough or jagged edges and uneven weight distribution.
- Lift a corner of the load to check its weight and stability. If it cannot be carried comfortably, **get help**.
- Some loads are light, but too awkward for one person to carry or for the carrier to see over.
- Wear tight-fitting gloves for a better grip, and safety shoes with reinforced toes and non-skid soles.
- Plan the route you will follow when carrying. A straight, flat, unobstructed route is the best choice, even if it is not the shortest.
- Remove any objects you could trip over.
- Look for places to stop and rest along the way.
- Make sure the unloading area is clear.

Lifting Correctly

Avoid lifting an object over 50 pounds without the help of another person or mechanical aid. To protect the back, follow these steps:

- Face the object and place one foot behind it and the other foot beside it.
- Bend knees without straining them and but keep the back as straight as possible. Your spine and back muscles are put under strain from the weight of your upper body along with the weight of the object being lifted when you don't bend with your knees
- Grip the object firmly with both hands.
- Bring the object close to the body and keep chin, elbows, arms tucked in tight.
- Keep body weight directly over feet.
 - If the object cannot be held and carried in front of the body at the center, then use human or mechanical help such as pallet jacks, hand trucks, and forklifts.
 - Carrying an object on the shoulder or side requires the muscles on one side of your body to do more work. If other options are not available, distribute weight equally by carrying objects on both sides.
- Lift with the leg muscles and remember to breathe out when lifting.
- Do the same process in reverse when setting the object down.
- Do not twist from side to side. Your body can stay in alignment when moving forwards, backwards or even side to side. The top part of the body and the bottom part of the body should **always** be facing in the same direction.

Examples of a correct lift and incorrect lift



Unloading Properly

There is a proper way to unload, too. When you get to the planned unloading place, lower the object you are carrying slowly, bending your knees and letting your legs do the work. Make sure your fingers do not get caught under the load. Place it carefully on the edge of the surface, then slide it into place.

Special Lifting Situations

Because improper lifting is such a common cause of injury, a great deal of research has been done on proper techniques for non-standard lifts as well as more “normal” ones.

Awkward shapes – Squat, with your feet spread, next to the object. Then grip the top outside corner and bottom inside corner and follow standard lifting procedures.

Awkward locations – Get as close as possible to objects tucked in places that are difficult to reach. Then, with back straight, stomach muscles tight, and bending slightly forward at the hips, bend your knees, grip the object and use the leg, stomach and buttock muscles to lift.

Objects in high places – Be sure to have a sturdy ladder for these jobs; you will also often need a second person.

Before you lower something from a high shelf or other surface, push up on it to see how heavy and stable it is. If you can move it alone, slide it as close as possible to your body before you lift it. Then, gripping it firmly, slide it down.

If you want to place an object in a high place, first lift it waist high and rest the edge on a lower shelf or your hip. Then bend your knees and lift; straighten out once the object is lifted.

Two-person lift – The two lifters should be about the same height and one person should be responsible for saying when to move and where. At the signal, both lift and raise at the same time. Once the load is lifted, the two carriers should keep it at the same level and move together, then unload at the same time. Of course, both should follow the proper procedures for planning, lifting, and unloading.

Material-handling equipment – The danger of back injury is reduced if you use material-handling equipment as an aid. The best technique is to keep a firm grip on the equipment, with the load close to your body. With back straight and knees bent, lean in the direction you are going and let your legs and body, not your back, do the work. You will get more power if you push instead of pull.

Here are a few other points about proper lifting that are worth emphasizing:

- *Break a large load into several small ones whenever possible.
- *Push heavy objects instead of pulling them.
- *Do not lift something heavy above your waist. Even a light load should not be lifted above your shoulders. If you have to place it any higher, use a ladder.
- *Be careful of loose clothing that could get in your way.
- *Warm up with gentle bends or stretches before you lift.
- *Keep the work area neat and uncluttered to prevent tripping or falling hazards.
- *Do not overdo it. Get help, mechanical or human, when you need it.

Ergonomics/Avoiding Back Strain

Lifting is not the only activity that causes back injuries. Most people put unnecessary strain on their backs in a variety of everyday ways. Many are unconscious habits that, once they are noticed, can be changed. Help your workers to learn and follow good habits in order to avoid back strains.

Poor posture is a major cause of back strain. When you slouch forward, the ligaments, rather than the muscles, are forced to do the work of supporting the body. This puts pressure on the backbone.

Sitting straight keeps the spine in balanced alignment. The best posture is to sit close to the desk or table, with the back resting against the chair back. The feet should be on the floor with the knees slightly higher than the hips. When reading, hold the pages upright to maintain good posture. If you have to sit for long periods, shift positions and get up and move around periodically.

Standing straight, with head up, chin tucked in, buttocks tucked under so your spine is in its natural curve. Again, shift positions frequently.

Hold the telephone so it is not cradled in the neck. The easiest position is to keep the elbow on a surface for support.

Drive with your back straight against the seat and knees bent, higher than hips.

Sleep on a firm mattress, preferably on your side, with knees bent, or on your back with a pillow under the knees.

Shovel by lifting with your legs. Keep hands far apart, knees bent, back straight.

Do not jump from platforms or other short heights. The shock can hurt your back. Use a ladder.

Exercising strengthens the back, reduces stress, and increases flexibility. However, consult with your doctor before starting an exercise program.

Limit bending and twisting actions. Place objects on tables or other surfaces rather than the floor so you do not have to bend and lift.

Do not ignore back pain or injury, see a doctor.

Training Summary: Preventing Back Injuries

Awareness / Adjustment

- Be **aware** of repetitive motions and **adjust** the duration through breaks and job rotation.
- Be **aware** of body posture and **adjust** to a neutral position as frequently as possible.
- Be **aware** of physical signals of strain and **adjust** to the other hand/arm to avoid muscle fatigue.

Posture / Alignment

- Keep posture in **alignment** as much as possible. Imagine a plumb line running through the center of the body from the top of the head down to the feet.
- When portions of full body alignment must give, try to maintain segmented alignment (i.e. head over shoulders, or shoulders over hips, or hips over knees, or knees over ankles) as much as possible during the work activity.
- Stretch legs, arms, neck and back before work, during breaks, and after work.
- Familiarize yourself with the effects of any prescription or over-the-counter medicines that could impact the body's response to exertion, temperature extremes, and even injury and follow the manufacturer's instructions.
- Use your breaks at work to actually rest.
- Know your limits!

Manual Lifting

- Face the object and place one foot behind it and the other foot beside it.
- Bend knees without straining them and but keep the back as straight as possible.
- Grip the object firmly with both hands.
- Bring the object close to the body and keep chin, elbows, arms tucked in tight.
- Keep body weight directly over feet.
- Lift with the leg muscles.
- Do the same process in reverse when setting the object down.
- Avoid twisting motions.
- Use mechanical means, such as a hand-truck, whenever possible and do not be reluctant to ask another worker to help.

COMPRESSED GASSES

The specific hazards that gas pressure systems present to Metropolitan Government employees, property, and the public must be considered in the design, installation, and use of these systems. Such hazards include mechanical injury, toxicity, fire, explosion, and suffocation. This guideline outlines policies and required procedures for mitigating hazards that occur with installation, operation, and maintenance of pressure systems.

RECOGNITION AND RISK ASSESSMENT

A compressed gas is a gas that is stored and used at pressures greater than nominal atmospheric pressure (15 psi at sea level). Compressed gases are supplied in cylinders or through piping systems.

All pressure systems, including compressed gas systems, should be designed, fabricated, installed, tested, inspected, and operated in compliance with national codes and national consensus standards. Pressure system piping design, installation, and testing should meet the requirements of the Pressure Piping Code, American National Standards Institute (ANSI) B31 series and the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Sections I through XI. More information can be obtained from the Handbook of Compressed Gases, Matheson Gas Data Book and the National Fire Codes and Standards.

Only personnel who are trained and familiar with pressure systems, including compressed gas pressure systems should design, fabricate, install, operate, inspect, test, and/or maintain pressure systems.

PREVENTION AND PROTECTION PROGRAM

Safe Handling Procedures for Transporting Compressed Gas Cylinders

- Before moving, be certain all cylinder valves are closed, the regulator removed, and the protective cap installed.
- When possible, use a hand truck for moving single cylinders. Do not drag or slide containers.
- Take care not to drop cylinders or permit them to strike each other or other surfaces violently.
- Never use protective cap as a lifting point for moving a cylinder from one vertical position to another.

- When transporting by truck, make sure cylinders are upright and well secured to prevent bumping. Do not transport in a closed vehicle.

Safe Handling Rules - Pipes, Tubes, and Hoses

- Use metal pipe and tubing with a maximum allowable working pressure (MAWP) rated at or above system MAWP.
- Secure pipes and tubes to a firm foundation.
- Use flexible tubing or hose only when metal piping and tubing cannot be used.
- Keep hose lengths as short as possible.
- Chain hose ends (not fittings) together or substantially anchor the ends to prevent whipping if the hose or hose fitting fails.
- If a run of hose or other flexible material must be used, it must be secured to the ground or to other fixed surfaces to minimize whipping in the event of a break. Special fittings are available for this purpose.
- Avoid sharp hose bends; follow the hose manufacturer's recommendations.
- PVC and other brittle materials must not be used in a pressurized gas system.

Safe Handling Rules - Gauges

The bourdon tube in a pressure gauge is a typical point of failure. The tube can fail when a gauge is new or after an indeterminate number of cycles. When the tube fails, the sudden burst of high pressure can blow the gauge face, hands, or cover into the faces of operators and passers-by.

A safety-type gauge should be selected when available and the requisitions for such gauges should specify a) safety types; b) full-size blowout backs; c) integral sides and front design to protect the operator in event of failure; and d) either plastic or double-laminated safety glass gauge face cover.

A non-safety-type gauge shall be replaced or have a gauge guard installed. The guard shall have appropriate standoffs and shall be made of at least 3/8 inch-thick polycarbonate or 5/8 inch acrylic plastic. It shall be undamaged and free of gripper marks, or any other stress risers.

Safe Handling Rules - Installing a Regulator

- Be certain to obtain the proper regulator for the specific gas cylinder being used.

- Visually inspect the cylinder valve and regulator to make certain they are free of foreign material.
- A pressure manifold from a gas cylinder to a closed pressure system must contain a vent valve, a fill valve, and a relief device unless these features are integral parts of the pressure system.
- A regulator is required if the operating pressure of the system is less than the pressure of a filled bottle.
- A gauge is required unless the system is provided with a gauge indicating system pressure.
- Whenever possible, a proper two-stage regulator should be used for efficiency and safety. Specialty gas and regulator supplier catalogs are good references for regulator selection.
- Incompatible gases must not be connected to a common purge manifold.
- Never use a regulator for oxygen service unless it is clearly specified and marked for oxygen use.
- Turn the delivery pressure adjusting "tee" counterclockwise until it turns freely.
- Install the regulator on the cylinder valve. Open the cylinder valve slowly until cylinder pressure registers on the regulator.
- With the flow control valve at the outlet of the regulator closed, turn the delivery pressure adjusting "tee" clockwise until the desired pressure is read.
- To remove the regulator, be certain that the cylinder valve is tightly closed.

Safe Handling for Opening a Gas Cylinder

- Open compressed gas cylinders slightly at first, then all the way.
- Stand to one side and look away from the regulator and gauge face when opening the cylinder valve. Valve outlets should be pointed away from yourself and others.
- On cylinders equipped with hand valves use only your hands to open the cylinder valve; never use a hammer or wrench. If the cylinder will not open with hand pressure, have it returned to the supplier.

Safe Handling Procedures for Storing Cylinders of Compressed Gas

- Valve protection caps should be in place when compressed gas cylinders are transported, moved or stored.

- Cylinder valves should be closed when work is finished, and when cylinders are emptied or are moved.
- Compressed gas cylinders should be secured (chained or strapped) in an upright position at all times, except if necessary for short periods of time when cylinders are actually being hoisted or carried.
- Cylinders should be kept at a safe distance or shielded from welding or cutting operations. Cylinders should be placed where they cannot become part of an electrical circuit.
- Cylinders should not be taken into confined spaces, except for SCBAs or airline supplied air respirator (SAR) emergency egress cylinders.
- Protect cylinders against the possibility of being struck by large passing or falling objects.
- Store cylinders in dry, well-ventilated areas. If practicable, the area should be resistant to fire.
- Keep storage area temperature below 125° F.
- Store cylinders away from heat sources and combustible materials.
- Protect cylinders stored in the open from the weather, dampness, and direct sunlight. Protect cylinders from corrosion; never store cylinders directly on the ground
- Oxygen and acetylene (or other fuel gas) cylinders in storage should be separated from each other by 20 feet or by a five-foot high barrier with a one-half-hour fire-resistance rating.

General Requirements for Safe Handling of Compressed Gas Cylinders in General Use

- Do not use containers not bearing a legible label identifying the contents.
- Keep caps on cylinders at all times except when the cylinder is in use.
- If a leaking cylinder cannot be simply remedied, close the valve, tag, and remove to the outdoors or a well-ventilated location.
- Discontinue use of high-pressure cylinders when the pressure approaches 30 psig, and then it is to be clearly marked **EMPTY**.

SPECIAL HANDLING PROCEDURES FOR SPECIAL GASES

Oxygen

Oxygen containers, valves, regulators, hose and other oxygen apparatus should be kept free from oil or grease and should not be handled with oily hands, oily gloves, or with greasy equipment.

Oxygen and fuel gas regulators should be in proper working order while in use.

Oxygen containers in storage should be separated from flammable-gas containers or combustible materials (especially oil or grease) by a minimum distance of 20 feet.

Acetylene

Keep acetylene away from any open flame or sources of heat as well as other combustible materials. Acetylene can explode with extreme violence if ignited.

Acetylene must never be used at more than 15 psig, since it may spontaneously decompose with explosive force. **Note the red warning area on acetylene regulators.**

Never use unalloyed copper pipe or fittings on acetylene systems. Fittings with more than 65% copper can react to form explosive, shock-sensitive acetylides.

Always store and use acetylene cylinders in an upright position in order to avoid separation of the acetylene/acetone solution.

CONFINED SPACES

OVERVIEW: The purpose of this program is to ensure the safety of personnel required to enter and conduct work in confined spaces. The program contained herein describes reasonable and necessary policies and procedures for departments, facilities, and individuals who will be conducting confined space entry operations.

OBJECTIVE: The goal of the Metropolitan Government of Nashville and Davidson County is to provide its employees with the safest work environment possible. The purpose of this program is to protect all Metropolitan Government personnel when entering and working in confined spaces may be a part of their assigned duties. This program is based on the OSHA Confined Spaces Standard, Title 29 CFR 1910.146.

DOES THIS PROGRAM APPLY TO YOUR DEPARTMENT?

If you answer “YES” to any of the following questions, you need to have a Confined Space program in place for your work site.

a) Are your employees required to work in a space that is not primarily designed or intended for human occupancy?

YES NO

b) Are the employees required to enter an area that can only be accessed by a ladder or only has one entry point?

YES NO

c) Are the employees required to enter ditches and trenches where access or egress is limited?

YES NO

e) Will the employee be required to enter any of the following? Manholes, exhaust ducts, boilers, sub-cellars, culverts, silos, vats, hoppers, utility vaults, tanks, sewers, pipes, access shafts, truck or rail tank cars, aircraft wings.

YES NO

If you need assistance in determining whether the program applies to you, contact the Metro Safety Division.

TRAINING

All employees required to enter into confined or enclosed spaces must first be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required. Additional training is required prior to a change in assigned duties related to confined space entry and also if a new hazard has been created or special deviations have occurred related to confined space entry. Training documentation must be certified with the employee name, trainer signature/initials, and dates of the training.

SAFETY PROCEDURES

1. Before entry into any confined or enclosed space, the atmosphere must first be tested. Repeat tests must be conducted as often as necessary to ensure that the conditions remain safe while employees occupy the confined or enclosed space. The employee that performs the test, as well as the gas detector that is used, must be approved by a supervisor.
2. Ventilation and fresh air blowers are the only permissible means for controlling hazardous or oxygen-deficient atmospheres.
3. Employees are not permitted to enter any space in which the flammable gas concentration cannot be maintained at a level no more than ten percent (10%) of the lower flammable limit.
4. Employees are not permitted to enter any space that requires a respirator to control the breathing hazards unless they are participating in an OSHA-compliant respiratory protection program.
5. Under no circumstances are employees allowed to enter any space that has been classified as immediately dangerous to life or health (IDLH).
6. All other potential confined space hazards must be evaluated and controlled, including unexpected energization of electrical, mechanical, hydraulic, and other systems and external pedestrian/vehicle hazards that could harm the entrants. A confined space entry permit (*following this chapter*) shall be used to identify specific entry procedures to help ensure that all potential hazards have been considered and controlled for the duration of the entry.
7. Additionally, provisions must be made for protection against external hazards, such as the use of barriers to control pedestrians and vehicles in proximity to the space. These hazards and controls should be identified on the entry permit and must remain in place for the duration of the entry.

RESCUE

The appropriate emergency rescue equipment must be provided for any confined or enclosed space entry (e.g., body harness and lifeline attached to a tripod-mounted hoist). Assistance with the selection of such equipment is available through managers and supervisors.

Employees are not permitted to enter a confined space to rescue another employee who has been affected by a confined space hazard.

In the event that an employee is so affected, the Department shall rely on its emergency action procedures for summoning the local emergency services department (911).

PERMIT-REQUIRED ENTRY

In many situations, hazards may be better controlled by complying with 29 CFR 1910.146 Permit-Required Confined Spaces in the general industry standards (Subpart J), the requirements for which are outlined in the following pages. When the work being performed is considered maintenance rather than construction, these standards are mandatory.

The employer shall evaluate the workplace to determine if any spaces are permit-required confined spaces.

The employer shall post danger signs at the location of permit-required spaces.

Note: A sign reading "DANGER - PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" or using other similar language would satisfy the requirement for a sign.

Definitions

A confined space is defined by OSHA as a space that:

- Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- Has limited or restricted means for entry or exit; and
- Is not designed for continuous employee occupancy.

Confined space hazards include the accumulation of toxic or flammable gases, depleted oxygen levels, entrapment, or injury by moving parts or energy sources, and engulfment. Confined space hazards may exist in tanks, ventilation ducts, pipelines, manholes, vaults, and many other locations that may meet the OSHA definition of a confined space.

A "permit-required confined space" means an enclosed space that:

- Contains or may contain a hazardous atmosphere;
- Contains the potential for engulfment by loose particles;
- Has an internal layout such that someone entering could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard.

These areas shall be clearly marked as permit-required spaces.

A Confined Space Entry Permit follows this chapter.

A "non-permit confined space" means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. If atmospheric hazards are the only hazards

identified, and the space can be maintained in a safe condition for entry by continuous forced air ventilation alone, then it may be permissible to enter without a permit or attendant. There are still several procedures that must be followed, so all confined spaces should be treated as “permit required” unless there is a consensus between the managers, supervisors, and/or department safety coordinator.

OSHA’S “PERMIT-REQUIRED CONFINED SPACE DECISION FLOW CHART”, included in this chapter (Appendix A), will be used in making this determination.

EMPLOYEE DUTIES

Only designated employees with the appropriate training may perform the following duties:

Authorized Entrants

1. Know space hazards, including information on the mode of exposure (e.g., inhalation or dermal absorption), signs or symptoms, and consequences of the exposure;
2. Use appropriate personal protective equipment properly (e.g., face and eye protection, and other forms of barrier protection such as gloves, aprons, and coveralls);
3. As necessary, maintain communication (i.e., telephone, radio, visual observation) with attendants to enable the attendant to monitor the entrant's status as well as to alert the entrant to evacuate;
4. Exit from permit space as soon as possible when ordered by an authorized person, when the entrant recognizes the warning signs or symptoms of exposure exist, when a prohibited condition exists, or when an automatic alarm is activated; and
5. Alert the attendant when a prohibited condition exists or warning signs/symptoms exist.

Attendants

1. Remain outside permit space during entry operations unless relieved by another authorized attendant;
2. Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences of the exposure, and their physiological effects;
3. Maintain communication with and keep an accurate account of those workers entering the permit-required space;
4. Order evacuation of the permit space when: the attendant must leave the workstation; when a prohibited condition exists; when a worker shows signs of physiological effects of hazardous exposure; when an emergency outside the confined space exists; or when the attendant cannot effectively and safely perform required duties;
5. Summon rescue and other services during an emergency;
6. Perform non-entry rescues;
7. Ensure that unauthorized persons stay away from permit spaces or exit immediately if they have entered the permit space;
8. Inform authorized entrants and entry supervisor of entry by unauthorized persons; and
9. Perform no other duties that interfere with the attendant's primary duties.

Entry Supervisors

1. Know space hazards, including information on the mode of exposure, signs, or symptoms and consequences of exposure;
2. Verify emergency plans and specified entry conditions such as permits, tests, procedures, and equipment before allowing entry;
3. Terminate entry and cancel permits when entry operations are completed or if a new condition exists;
4. Take appropriate measures to remove unauthorized entrants; and
5. Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.

TRAINING

1. Confined space awareness training must be given to any employee who may work around confined space environments and must specifically include a prohibition on entry into a confined space without proper training, equipment, and authorization.
2. Additionally, specific training for directly affected employees must be conducted that provides the understanding, knowledge, and skills necessary for safe performance of the various confined space duties, including entry, attendance, supervision, and rescue, which are described on the following pages. This training shall be provided:
 - a. before the employee is assigned any of these duties; and
 - b. before there is a change in assigned duties; and
 - c. whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained; and
 - d. whenever there is reason to believe either that there are deviations from proper entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.
3. The training shall establish employee proficiency in the assigned duties and shall introduce new or revised procedures as necessary.
4. The training must be certified in writing and include the employee's name, the signatures or initials of the trainers, and the dates of training.

PROCEDURE

Initial Evaluation

1. Before work begins in a confined space, the entry crew must review the department's confined space entry procedures with the job supervisors and any contractors who may enter or be affected by the space. Procedures, based on the location and configuration of the space and its attendant hazards as identified on the entry permit, will be identified for coordinating entry operations so that employees of one employer do not endanger the employees of any other employer.

2. The surrounding area shall be surveyed to avoid hazards such as drifting vapors from tanks, piping, or sewers. Any existing or potential atmospheric, engulfment, entrapment, mechanical, electrical, heat and burn, fire and explosion, chemical, slip and trip, and fall from height hazards related to the confined space must be evaluated.
3. Methods and procedures for controlling the hazards must be identified, documented, and implemented. These include, but are not necessarily limited to, air testing and monitoring, ventilation, personal protective equipment, and lock-out/tag-out of energy sources.

Ongoing Evaluation

At any point that these entry procedures prove to be inadequate for addressing the hazards of a particular space, or that unauthorized entry occurs, the entry must be interrupted for the period of time it takes to review the program, make appropriate modifications, and communicate the modifications to the affected personnel.

Certification

1. Any employee required or permitted to pre-check or enter a permit-required confined space shall have successfully completed, as a minimum, the training described in this chapter.
2. The completed Confined Space Entry Permit must be approved by the entry supervisor before entry. This permit shall be kept at the job site for the duration of the job. If circumstances cause an interruption in the work or a change in the alarm conditions for which entry was approved, a new Confined Space Entry Permit must be completed.
3. Permits must be cancelled in writing according to the procedures identified for the specific entry in the entry permit. All permits must be kept on file for the remainder of the calendar year in which they were issued, and upon conclusion of that year reviewed and evaluated for their completeness and effectiveness.

Testing

The confined space atmosphere shall be tested to determine whether dangerous air contamination and/or oxygen deficiency exists. A direct reading gas monitor shall be used. Testing shall be performed only by personnel who have successfully completed the gas detector training for the monitor used. A written record of the pre-entry test results shall be made and kept at the work site for the duration of the job. Affected employees shall be able to review the results. Re-evaluation is required when warranted or requested.

The normal atmosphere contains between 20.8% and 21% oxygen and 79% nitrogen. An atmosphere containing less than 19.5% oxygen shall be considered oxygen-deficient. Oxygen enriched atmosphere contains more than 22%.

Ventilation

Mechanical ventilation systems, where applicable, shall be set at 100% outside air. Where possible, additional covers shall be opened to increase air circulation. Portable blowers shall be used to augment natural circulation if needed. After a suitable

ventilating period, the testing shall be repeated. Entry may not begin until testing has demonstrated that a hazardous atmosphere has been eliminated.

Flammable & Toxic Gases

1. Fire and fume hazards must be controlled. Careful site preparation, such as cleaning the area within 4 inches of all welding or torch cutting operations, and proper ventilation are the preferred controls. All relevant welding and cutting regulations must be followed, which often will include the use of an additional permit for hot work. Proper ventilation may be achieved by local exhaust ventilation, or the use of portable ventilation fans, or a combination of the two practices.
2. Atmospheric hazards shall be controlled by forced air ventilation sufficient to keep the atmospheric concentration of flammable materials below 10% of the lower flammable limit (LFL), which is sometimes referred to as the lower explosive limit (LEL). If respiratory protection is required, then respirators must be used in accordance with the rules in 29 CFR 1910.134.

Other Hazards

Appropriate steps must be taken to protect against hazards from energy sources, mechanical equipment, heat stress and burns, falls, and any other potential hazard in the space.

ENTRY

1. If there are no non-atmospheric hazards present and if the pre-entry tests show there is no dangerous air contamination and/or oxygen deficiency within the space and there is no reason to believe that any is likely to develop, and all other potential hazards have been adequately controlled according to the permit, then entry into and work within may proceed.
2. Continuous testing of the atmosphere in the immediate vicinity of the workers within the space shall be conducted whenever there is the likelihood that atmospheric conditions will change, such as during welding and cutting.
3. The workers will immediately leave the permit space when any of the gas monitor alarm set points are reached as defined. Workers will not return to the area until a SUPERVISOR who has completed the gas detector training has used a direct reading gas detector to evaluate the situation and has determined that it is safe to enter.
4. Employees are NOT permitted to enter spaces that require self-contained breathing apparatus without the approval of managers and supervisors, or as outlined in 1910.134.
5. Employees are never permitted to enter a space with an IDLH atmosphere (immediately dangerous to life or health).

Communication and Observation

Communications between attendant and entrant(s) shall be maintained throughout entry. Methods of communication shall be specified in the permit and may include voice, voice powered radio, tapping or rapping codes on tank walls, signaling tugs on a rope, and the attendant's observation that work activities such as chipping, grinding, welding, spraying,

etc., which require deliberate operator control, continue normally. These activities often generate so much noise that the necessary hearing protection makes communication by voice difficult.

Emergency Rescue

1. Employees are **NOT** authorized to enter a confined space in order to rescue another worker and are prohibited from doing so. Instead, the appropriate emergency rescue service, which must be identified and documented as part of the pre-entry process for permit spaces, must be called immediately in the event of an emergency.
2. Additionally, the manager, job supervisor, and/or safety coordinator must identify the appropriate non-entry rescue equipment and determine how it will be provided. The equipment must be incorporated in the entry procedures and employees must be trained in its proper selection and use for the conditions and configuration of the space. This equipment and training must be approved by managers and supervisors before entry.
3. Attendants will facilitate the non-entry rescue per the steps identified on the entry permit and will authorize other workers to assist as needed. Non-authorized workers should be kept clear of the confined space during any rescue attempt.

ENTRY REVIEW

A review of entry operations conducted under the permit entry requirements in 29 CFR 1910.146 must be conducted:

For Cause

Entry procedures must be reviewed whenever there is reason to believe that the measures taken under the permit space program may not protect employees, and the procedures must then be revised to correct any deficiencies found to exist before subsequent entries are authorized.

NOTE: Examples of circumstances requiring the review of the permit space program are: Any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

Annually

The canceled permits retained as required by 29 CFR 1910.146 must be reviewed within one (1) year after each entry, and the procedures must then be revised as necessary to ensure that employees participating in entry operations are protected from permit space hazards.

NOTE: A single annual review may be performed covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

PERSONNEL RESPONSIBILITIES: Everyone involved in a confined-space entry project has certain responsibilities and requires a certain amount of training. It is very important that every individual is familiar with his/her responsibilities. This section outlines the responsibilities of each individual involved in a project.

Department Directors

- ◆ Provide resources to effectively implement this program within the department.
- ◆ Establish systems to ensure departmental compliance associated with confined spaces entry program.
- ◆ Ensure that training for confined space entry is available to all affected employees.

Safety Coordinator

- ◆ Assisting Supervisors with the identification of confined spaces.
- ◆ Providing training as set forth in the program.
- ◆ Assist managers and supervisors with labeling Permit-Required Spaces.

Supervisors

- ◆ Identifying confined spaces within facilities or areas under their control.
- ◆ Identifying hazards within a confined space under their control.
- ◆ Documenting that all training requirements for confined space entry have been met.

RESULTS MEASUREMENT

To determine whether your department is in compliance with Metro's Confined Space Entry Program and OSHA regulation 29 CFR 1910.146, fill out the **Entering Confined Space Checklist** below (Appendix B). If you need assistance to bring your department into compliance, contact the Metro Safety Division.

REFERENCES & AUTHORITY

1. Title 29 of the Code of Federal Regulations Part 1910.146 - Permit-Required Confined Spaces. U.S. Government Printing Office.
3. N.I.O.S.H. Training and Resource Manual - Safety and Health in Confined Workspaces for the Construction Industry.
4. N.I.O.S.H. 87-113 - A Guide to Safety in Confined Spaces.
5. Title 29 of the Code of Federal Regulations Part 1926.652 - Requirements for Protective Systems.

6. Title 29 of the Code of Federal Regulations Part 1910.147 - The Control of Hazardous Energy.
7. Title 29 of the Code of Federal Regulations Part 1910.134 - Respiratory Protection.

GLOSSARY OF TERMS

- a. Attendant - A person designated to remain outside the confined space and to be in constant communication with the personnel working inside the confined space.
- b. Authorized Entrant - an employee who is authorized by the employer to enter a confined space and perform duties. Confined Space - (see page 3).
- c. Entry - The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.
- d. Entry Permit - The written or printed document that is provided by the employer to allow and control entry into a permit space and that contains information needed for safe entry. (Sec 08.1)
- e. Entry Supervisor - Department supervisor or the designated representative (such as the foreman or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this program.
 - Note: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this program for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of entry operation.
- f. Hazardous Atmosphere - An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more causes.
- g. Hot Work - Any work involving burning, welding, or similar fire-producing operations. Also, any work that produces a source of ignition, such as grinding, drilling, or heating.
- h. Hot Work Permit - The employer's written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.
- i. Immediately Dangerous to Life or Health (IDLH) - An atmosphere that poses an immediate threat of loss of life: May result in irreversible or immediate severe health effects; may result in eye damage/irritation; or other condition that could impair escape from a confined space.

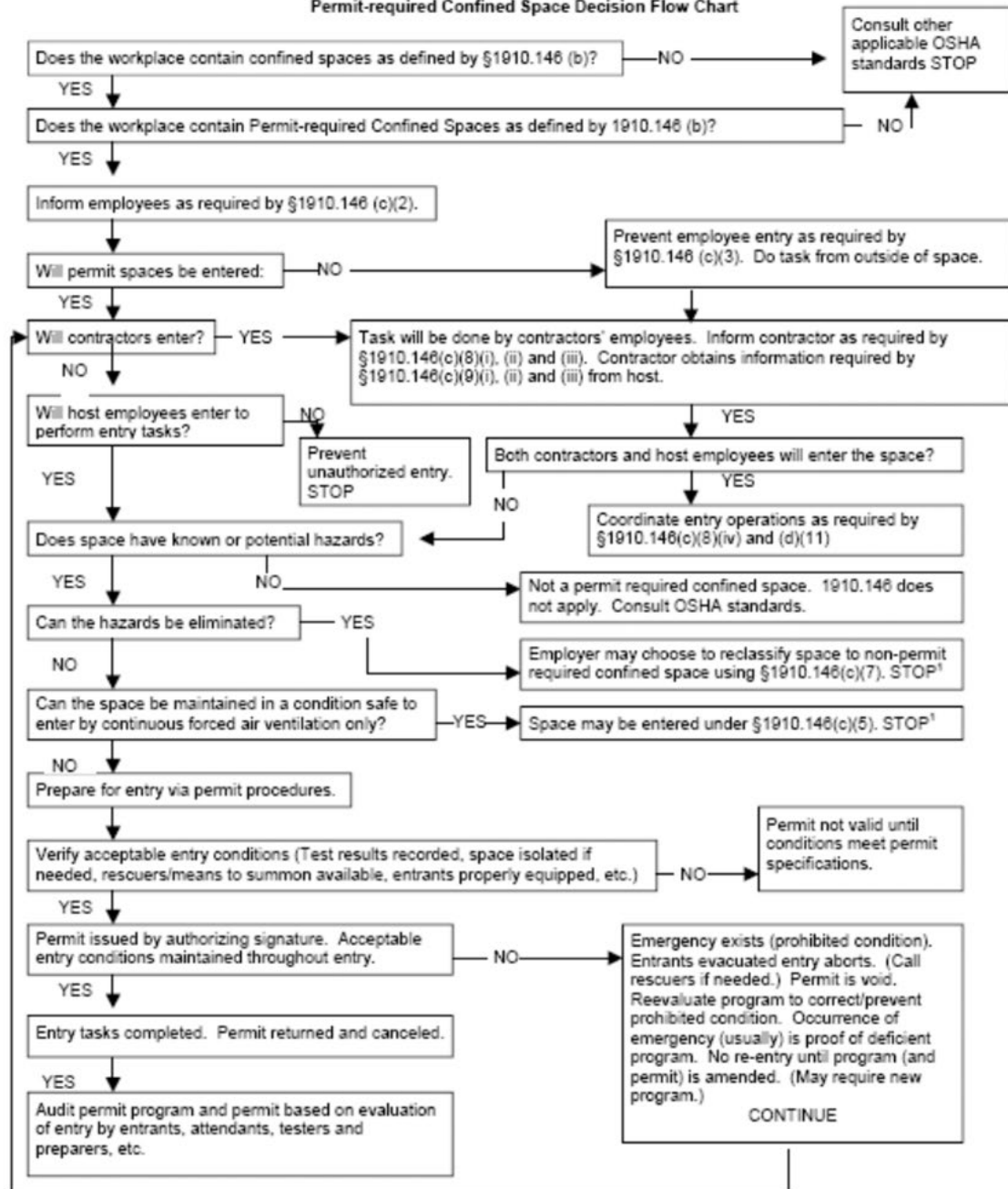
- j. Lower Explosive Limit (LEL) - The minimum concentration of a combustible gas or vapor in air that will ignite if an ignition source is introduced.
- k. Non-Permit Required Confined Space - (see page 3)
- l. Oxygen-Deficient Atmosphere - An atmosphere that contains an oxygen concentration of less than 19.5% by volume.
- m. Oxygen-Enriched Atmosphere - An atmosphere that contains an oxygen concentration greater than 22% by volume.
- n. PPE - Personal Protective Equipment: Any devices or clothing worn by the worker to protect against hazards in the environment. Examples are respirators, gloves, and chemical splash goggles.
- o. PEL - Permissible Exposure Level: - Concentration of a substance to which an individual may be exposed repeatedly without adverse effect.
- p. Permit Required Confined Space - (see page 3)
- q. Purging - The removal of gases or vapors from a confined space by the process of displacement.

Appendix A

APPENDICES TO SECTION 1910.146 – PERMIT-REQUIRED CONFINED SPACES

NOTE: Appendices A through F serve to provide information and non-mandatory guidelines to assist employers and employees in complying with the appropriate requirements of this section.

Appendix A
Permit-required Confined Space Decision Flow Chart



¹Spaces may have to be evacuated and re-evaluated if hazards arise during entry

Appendix B

ENTERING CONFINED SPACE CHECKLIST

- Are confined spaces thoroughly emptied of any corrosive or hazardous substances, such as acids or caustics before entry?
- Are all lines to a confined space containing inert, toxic, flammable or corrosive materials valve off and blanked or disconnected and separated before entry?
- Is either natural or mechanical ventilation provided prior to confined space entry?
- Are appropriate atmospheric test performed to check for oxygen deficiency, toxic substances and explosive concentrations in the confined space before entry?
- Is adequate light provided for the work to be performed in the confined space?
- Is there an assigned safety standby employee outside of the confined space, when required, whose sole responsibility is to watch the work in progress and render assistance if necessary?
- Is the standby employee prohibited from entering the confined space with out a lifeline and respiratory equipment?
- Is all the electrical equipment used in the confined space grounded and insulated, or equipped with ground fault protection?
- If the employee will be using oxygen consuming equipment such as torches, furnaces, etc. in a confined space, is sufficient air provided to assure combustion without reducing the oxygen concentration below 19.5 % by volume?
- Whenever combustion type equipment is used in a confined space, are provisions made to ensure the exhaust gasses are vented outside of the enclosure?
- Is each confined space checked for decaying vegetation or animal matter which may produce methane?

CONFINED SPACE ENTRY PERMIT

Space Location
 Physical Address
 City, State, Zip Code

Facility
 Entry Supervisor
Print *Signature*

Space Description
 Purpose of Entry

Authorization Date Authorized Duration Expiration Date Expiration Time

Authorized Entrant(s) & Company Name - PRINT

Attendant(s) & Company Name - PRINT

Description of **Communication Procedures** between entrants and attendants
 (e.g. verbal/visual, radio, CCTV, signals, etc.)

PHYSICAL HAZARDS	Evaluated by <input style="width: 100px;" type="text"/> on <input style="width: 60px;" type="text"/> at <input style="width: 60px;" type="text"/>												
	<i>name</i> <i>date</i> <i>time</i>												
<p>Check All That Apply</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;"><input type="checkbox"/> Engulfment</td> <td style="width: 25%;"><input type="checkbox"/> Electrical</td> <td style="width: 25%;"><input type="checkbox"/> Hot/Cold Extremes</td> <td style="width: 25%;"><input type="checkbox"/> External Hazards</td> </tr> <tr> <td><input type="checkbox"/> Entrapment</td> <td><input type="checkbox"/> Mechanical</td> <td><input type="checkbox"/> Noise</td> <td>(Pedestrian, Vehicle, etc.)</td> </tr> <tr> <td><input type="checkbox"/> Process Chemical</td> <td><input type="checkbox"/> Hydraulic</td> <td><input type="checkbox"/> Other (Describe) <input style="width: 100px;" type="text"/></td> <td></td> </tr> </table>	<input type="checkbox"/> Engulfment	<input type="checkbox"/> Electrical	<input type="checkbox"/> Hot/Cold Extremes	<input type="checkbox"/> External Hazards	<input type="checkbox"/> Entrapment	<input type="checkbox"/> Mechanical	<input type="checkbox"/> Noise	(Pedestrian, Vehicle, etc.)	<input type="checkbox"/> Process Chemical	<input type="checkbox"/> Hydraulic	<input type="checkbox"/> Other (Describe) <input style="width: 100px;" type="text"/>		
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<input type="checkbox"/> Entrapment	<input type="checkbox"/> Mechanical	<input type="checkbox"/> Noise	(Pedestrian, Vehicle, etc.)										
<input type="checkbox"/> Process Chemical	<input type="checkbox"/> Hydraulic	<input type="checkbox"/> Other (Describe) <input style="width: 100px;" type="text"/>											
<p>Measures Taken To Isolate Physical Hazards (check all that must be used)</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td><input type="checkbox"/> Pump</td></tr> <tr><td><input type="checkbox"/> Purge and Flush</td></tr> <tr><td><input type="checkbox"/> Line Blanking or Blinding</td></tr> <tr><td><input type="checkbox"/> Line Removal or Misalignment</td></tr> <tr><td><input type="checkbox"/> Double Block and Bleed</td></tr> <tr><td><input type="checkbox"/> Lock-Out or Tag-Out of Energy Source</td></tr> <tr><td><input type="checkbox"/> Disconnecting Mechanical Linkage</td></tr> <tr><td><input type="checkbox"/> Other Method (describe) <input style="width: 200px;" type="text"/></td></tr> <tr><td>Hot Work Permit Required <input type="checkbox"/></td></tr> <tr><td>Other Permit Required <input type="checkbox"/> identify <input style="width: 100px;" type="text"/></td></tr> </table>	<input type="checkbox"/> Pump	<input type="checkbox"/> Purge and Flush	<input type="checkbox"/> Line Blanking or Blinding	<input type="checkbox"/> Line Removal or Misalignment	<input type="checkbox"/> Double Block and Bleed	<input type="checkbox"/> Lock-Out or Tag-Out of Energy Source	<input type="checkbox"/> Disconnecting Mechanical Linkage	<input type="checkbox"/> Other Method (describe) <input style="width: 200px;" type="text"/>	Hot Work Permit Required <input type="checkbox"/>	Other Permit Required <input type="checkbox"/> identify <input style="width: 100px;" type="text"/>	<p>If space cannot be effectively isolated, explain why (e.g. large size of space, part of continuous sewer system, etc.)</p> <p>And describe alternate hazard controls to be used: (e.g. pre-entry testing, continuous monitoring)</p> <p>Alternate hazard controls approved by entry supervisor <input style="width: 100px;" type="text"/> <i>initials</i></p>		
<input type="checkbox"/> Pump													
<input type="checkbox"/> Purge and Flush													
<input type="checkbox"/> Line Blanking or Blinding													
<input type="checkbox"/> Line Removal or Misalignment													
<input type="checkbox"/> Double Block and Bleed													
<input type="checkbox"/> Lock-Out or Tag-Out of Energy Source													
<input type="checkbox"/> Disconnecting Mechanical Linkage													
<input type="checkbox"/> Other Method (describe) <input style="width: 200px;" type="text"/>													
Hot Work Permit Required <input type="checkbox"/>													
Other Permit Required <input type="checkbox"/> identify <input style="width: 100px;" type="text"/>													

ATMOSPHERIC HAZARDS							
Initial Check By <input style="width: 100%;" type="text"/>	on <input style="width: 100%;" type="text"/> at <input style="width: 100%;" type="text"/>						
<small>name</small>	<small>date</small>						
<small>time</small>							
Oxygen (O ₂) <input style="width: 50px;" type="text"/> Content <input style="width: 50px;" type="text"/> Safe?(Y/N) <input style="width: 50px;" type="text"/>	Carbon Monoxide (CO) <input style="width: 50px;" type="text"/> Content <input style="width: 50px;" type="text"/> Safe?(Y/N) <input style="width: 50px;" type="text"/>						
	Hydrogen Sulfide (H ₂ S) <input style="width: 50px;" type="text"/> Content <input style="width: 50px;" type="text"/> Safe?(Y/N) <input style="width: 50px;" type="text"/>						
	LEL <input style="width: 50px;" type="text"/> Content <input style="width: 50px;" type="text"/> Safe?(Y/N) <input style="width: 50px;" type="text"/>						
Measures Taken to Make Atmosphere Safe (check all that must be used)							
<input type="checkbox"/>	Equipment Approved for Explosive Atmosphere						
<input type="checkbox"/>	Pre-Entry Air Check						
<input type="checkbox"/>	Natural Ventilation						
<input type="checkbox"/>	Forced Air Ventilation						
<input type="checkbox"/>	Air-Purifying Respirator						
<input type="checkbox"/>	Atmosphere-Supplying Respirator						
<input type="checkbox"/>	Source of Ignition Elimination						
<input type="checkbox"/>	Hot-Work Permit						
Continuous Monitoring Required (generally, this is mandatory, but periodic monitoring may be permitted - consult safety representative).							
or Periodic Monitor Recordings Required At Every (enter time interval) <input style="width: 100%;" type="text"/>							
Use only for periodic monitoring. Add additional pages if necessary.	Date	Time	Content	Content	Content	Content	Measured By
			O ₂	CO	H ₂ S	LEL	
			O ₃	CO	H ₂ S	LEL	
			O ₄	CO	H ₂ S	LEL	
			O ₅	CO	H ₂ S	LEL	
			O ₆	CO	H ₂ S	LEL	
			O ₇	CO	H ₂ S	LEL	
EMERGENCY RESCUE							
Equipment on site to be used for <u>non-entry</u> rescue							
	<input type="checkbox"/> Body Harness/ Vertical Lifeline						
	<input type="checkbox"/> Wristlets/Anklets/Horizontal Lifeline						
	<input type="checkbox"/> Hoist/Winch						
	<input type="checkbox"/> Other (describe) <input style="width: 100%;" type="text"/>						
Non-Entry -rescue for this specific space practiced by all affected parties (entrants, attendants, and supervisor) prior to entry being performed under this permit.							
	<input type="checkbox"/> YES <input type="checkbox"/> NO						
Entry -Rescue by Employee Attendant Permitted?							
	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO						
Name and Contact Information for Emergency Service To Be Called for Entry Rescue							
	911						
Date/Time/Name notified of entry at: <input style="width: 100%;" type="text"/>							
PERMIT CANCELLATION							
Check appropriate box and write " CANCELLED " across front of permit							
PEMIT EXPIRED <input style="width: 50px;" type="text"/>	WORK COMPLETED <input style="width: 50px;" type="text"/>						
CANCELED BY NAME <input style="width: 100%;" type="text"/>	UNSAFE FOR CONTINUED WORK <input style="width: 50px;" type="text"/>						
DATE <input style="width: 50px;" type="text"/>	TIME <input style="width: 50px;" type="text"/>						
CANCELED PERMIT REVIEW							
completed by Entry Supervisor, Authorized Entrant(s) and Attendant(s), which determined that the hazards for this particular space:							
<input type="checkbox"/> "WERE" effectively controlled and no further action is necessary at this time; or							
<input type="checkbox"/> "WERE NOT" effectively controlled and subsequent entries are prohibited until the program provisions related to this space are suitably revised.							

EMERGENCY ACTION PLAN

OVERVIEW: The Emergency Action Plan equips departments with the resources needed to respond effectively to emergencies.

OBJECTIVE: The objective of the Metro Government Emergency Action Plan is to protect employees and Metropolitan Government property in the event of fire or other emergency. This program is based on the Occupational Safety and Health Administration's (OSHA) Emergency Action Plan Standard, 29 CFR 1910.38.

DOES THIS PROGRAM APPLY TO YOUR DEPARTMENT? All departments shall have an Emergency Action Plan. If a department has more than ten employees, the plan must be in writing. The following plan should be used as a **guide** to help your department comply with the OSHA rules laid out in 29 CFR 1910.38.

WHAT DOES IT INVOLVE? Each department will be responsible for the implementation and administration of this program. Following each fire drill, responsible management shall evaluate the drill for effectiveness and weaknesses in the plan, and shall implement changes to improve it. Copies of this written program should be placed in the same location as departmental safety information. The master copy will be with the department Safety Coordinator.

The Emergency Action Plan will contain the following elements:

- Procedure to report fires (and other emergencies).
- Methods of informing employees of emergencies (i.g, distinctive alarms and/or push notifications).
- Assignments & responsibilities of personnel will take a leadership role in an emergency.
- Evacuation Routes & Evacuation Procedures
- Methods to secure property & equipment
- Drills
- Procedure to account for all employees after evacuation is complete
- Location and use of Fire Extinguishers
- Training & plan evaluation

PLAN IMPLEMENTATION

Informing Metro Employees of Fires and Emergency Situations: In the event of a fire or emergency situation, supervisors shall ensure that all employees are notified as soon as possible using the building alarm system (which includes both audible and visual alarms 24 hours a day).

- If a fire or emergency situation occurs after normal business hours, departmental supervisors and/or management shall contact all employees not on shift of future work status, depending on the nature of the situation.

Emergency Contact Information: Each department shall maintain a list of all employees' personal emergency contact information and shall keep the list in a designated area for easy access in the event of an emergency.

Evacuation Routes: The following procedures represent acceptable guidelines for ensuring the safe and orderly evacuation of building occupants.

- Emergency evacuation escape route plans (see Appendix A) are to be posted throughout Metro facilities.
- In the event that a fire/emergency alarm is sounded or instructions for evacuation are given, all employees (except those noted in the *Securing Property and Equipment* section of this plan) shall immediately exit the building(s) at the nearest exits as shown in the escape route plans, and shall meet as soon as possible in a designated area. Employees with offices shall close the doors (unlocked) as they exit the area.
- Mobility impaired employees and their assigned assistants will gather at a designated area within the building to ensure safe evacuation in the pre-determined fashion.

Under no circumstances shall an employee attempt to fight a fire that has passed the incipient stage (that which can be put out with a fire extinguisher), nor shall any employee attempt to enter a burning building to conduct search and rescue. These actions shall be left to emergency services professionals who have the necessary training, equipment, and experience (such as the fire department or emergency medical professionals). Untrained individuals may endanger themselves and/or those they are trying to rescue.

Securing Property and Equipment: In the event that evacuation of the premises is necessary, some items may need to be secured to prevent further detriment to the facility and personnel on hand (such as securing confidential/irreplaceable records, or shutting down equipment to prevent release of hazardous materials). Only individuals identified in the plan may remain in the building for the prescribed amount of time to secure the property and equipment to which they have been assigned.

- All individuals remaining behind to shut down critical systems or utilities shall ensure that a safe escape route remains available.
- Once the property and/or equipment has been secured, or the situation becomes too dangerous to remain, those individuals shall exit the building by the nearest escape route as soon as possible and meet the remainder of the employees at the designated assembly area.

Accounting for Employees/Visitors After Evacuation: Once an evacuation has occurred, each employee is responsible for reporting to the appropriate supervisor or employee in lead position so an accurate head count can be made.

Re-entry: Once the building has been evacuated, no one shall re-enter the building for any reason, except for designated and properly trained rescue personnel (such as fire department or emergency medical professionals). Untrained individuals may endanger themselves and/or those they are trying to rescue.

- All employees shall remain at the designated assembly area until the fire department or other emergency response agency notifies building occupants that either:
 - The building is safe for re-entry, in which case personnel shall return to their workstations; or
 - The building is not safe, in which case personnel shall be instructed by their supervisors on how/when to vacate the premises.

Sheltering in Place: In the event that chemical, biological, or radiological contaminants are released into the environment, authorities may determine that is safer to remain indoors rather than to evacuate employees. The responding personnel shall announce Shelter in Place status by public address system or other means of immediate notification available at worksite.

- If there are customers, clients, or visitors in the building, they shall be advised to stay in the building for their safety.
- Unless there is an imminent threat, employees, customers, clients, and visitors may call their emergency contacts to let them know where they are and that they are safe.
- The recording for voice mail or automated attendant shall be changed to indicate that the facility is closed, and that staff and visitors will be remaining in the building until authorities advise that it is safe to leave.
- Designated personnel shall quickly lock exterior doors and close windows, air vents, and fireplace dampers. Building occupants familiar with the building's mechanical systems shall turn off, seal, or disable all fans, heating and air conditioning systems, and clothes dryers, especially those systems that automatically provide for exchange of inside air with outside air. If there is a danger of explosion, close the window shades, blinds, or curtains.

- All employees, customers, and visitors shall move immediately to the designated shelter in place location(s) within the building.
- Supervisors or employees in lead positions shall write down the names of everyone in the room, and call the designated emergency contact outside of the building to report who is in the room, and their affiliations with Metro (employee, visitor, client, customer).

TRAINING & PLAN EVALUATION All employees shall receive instruction on the Emergency Action Plan as part of their new employee orientation upon hire or:

- when there are any changes to the plan and/or facility;
- when an employee's responsibilities change; and
- annually as refresher training.

Items to be reviewed during the training include:

- who will be in authority and will make decisions related to evacuation, oversee emergency procedures, coordinate with outside emergency services, and direct shutdown of operations;
- the types of emergencies that may occur;
- fire extinguisher locations, usage, and limitations;
- how employees will be notified of an emergency;
- individual responsibilities;
- escape routes and procedures;
- emergency shut-down procedures;
- procedures for accounting for employees and visitors;
- sheltering in place;
- severe weather procedures;
- Emergency Action Plan availability;
- proper housekeeping; and
- fire prevention practices.

Fire/Evacuation Drills Fire/Evacuation drills shall be conducted at least annually, and shall be conducted in coordination with local police and fire departments. Additional drills shall be conducted if physical properties of the business change, processes change, or as otherwise deemed necessary.

Training Records Departmental supervisors shall document all training pertaining to this plan and shall maintain records with other safety data.

Plan Evaluation To determine whether your department is in compliance with Metro's Emergency Action Plan and OSHA regulation 29 CFR.1910.38, fill out the **Emergency Action Plan Checklist** (see Appendix A.) If you need assistance to bring your department into compliance, contact the Metro Safety Division at 862- 6640 . **PLAN EVALUATION**

Appendix A

Emergency Action Plan Checklist

[Courtesy of the Occupational Safety and Health Administration (OSHA)]

II. GENERAL ISSUES	
<input type="checkbox"/> 1. Does the plan consider all potential natural or man-made emergencies that could disrupt your workplace?	Common sources of emergencies identified in emergency action plans include - fires, explosions, floods, hurricanes, tornadoes, toxic material releases, radiological and biological accidents, civil disturbances and workplace violence.
<input type="checkbox"/> 2. Does the plan consider all potential internal sources of emergencies that could disrupt your workplace?	Conduct a hazard assessment of the workplace to identify any physical or chemical hazards that may exist and could cause an emergency.
<input type="checkbox"/> 3. Does the plan consider the impact of these internal and external emergencies on the workplace's operations and is the response tailored to the workplace?	Brainstorm worst case scenarios asking yourself what you would do and what would be the likely impact on your operation and devise appropriate responses.
<input type="checkbox"/> 4. Does the plan contain a list of key personnel with contact information as well as contact information for local emergency responders, agencies and contractors?	Keep your list of key contacts current and make provisions for an emergency communications system such as a cellular phone, a portable radio unit, or other means so that contact with local law enforcement, the fire department, and others can be swift.
<input type="checkbox"/> 5. Does the plan contain the names, titles, departments, and telephone numbers of individuals to contact for additional information or an explanation of duties and responsibilities under the plan?	List names and contact information for individuals responsible for implementation of the plan.
<input type="checkbox"/> 6. Does the plan address how rescue operations will be performed?	Unless you are a large employer handling hazardous materials and processes or have employees regularly working in hazardous situations, you will probably choose to rely on local public resources, such as the fire department, who are trained, equipped, and certified to conduct rescues. Make sure any external department or agency identified in your plan is prepared to respond as outlined in your plan. Untrained individuals may endanger themselves and

II. GENERAL ISSUES	
	those they are trying to rescue.
<input type="checkbox"/> 7. Does the plan address how medical assistance will be provided?	Most small employers do not have a formal internal medical program and make arrangements with medical clinics or facilities close by to handle emergency cases and provide medical and first-aid services to their employees. If an infirmary, clinic, or hospital is not close to your workplace, ensure that onsite person(s) have adequate training in first aid. The American Red Cross, some insurance providers, local safety councils, fire departments, or other resources may be able to provide this training. Treatment of a serious injury should begin within 3 to 4 minutes of the accident. Consult with a physician to order appropriate first-aid supplies for emergencies. Establish a relationship with a local ambulance service so transportation is readily available for emergencies.
<input type="checkbox"/> 8. Does the plan identify how or where personal information on employees can be obtained in an emergency?	In the event of an emergency, it could be important to have ready access to important personal information about your employees. This includes their home telephone numbers, the names and telephone numbers of their next of kin, and medical information.
III. EVACUATION POLICY AND PROCEDURES	
<input type="checkbox"/> 1. Does the plan identify the conditions under which an evacuation would be necessary?	The plan should identify the different types of situations that will require an evacuation of the workplace. This might include a fire, earthquake, or chemical spill. The extent of evacuation may be different for different types of hazards.
<input type="checkbox"/> 2. Does the plan identify a clear chain of command and designate a person authorized to order an evacuation or shutdown of operations?	It is common practice to select a responsible individual to lead and coordinate your emergency plan and evacuation. It is critical that employees know who the coordinator is and understand that this person has the authority to make decisions during emergencies. The coordinator should be responsible for assessing the situation to determine whether an emergency exists requiring activation of the emergency procedures, overseeing emergency procedures, notifying and coordinating with outside emergency services, and directing shutdown of utilities or plant operations if necessary.
<input type="checkbox"/> 3. Does the plan address the types of actions expected of	The plan may specify different actions for employees depending on the emergency. For example,

III. EVACUATION POLICY AND PROCEDURES	
different employees for the various types of potential emergencies?	employers may want to have employees assemble in one area of the workplace if it is threatened by a tornado or earthquake but evacuate to an exterior location during a fire.
<input type="checkbox"/> 4. Does the plan designate who, if anyone, will stay to shut down critical operations during an evacuation?	You may want to include in your plan locations where utilities (such as electrical and gas utilities) can be shut down for all or part of the facility. All individuals remaining behind to shut down critical systems or utilities must be capable of recognizing when to abandon the operation or task and evacuate themselves.
<input type="checkbox"/> 5. Does the plan outline specific evacuation routes and exits and are these posted in the workplace where they are easily accessible to all employees?	Most employers create maps from floor diagrams with arrows that designate the exit route assignments. These maps should include locations of exits, assembly points and equipment (such as fire extinguishers, first aid kits, spill kits) that may be needed in an emergency. Exit routes should be clearly marked and well lit, wide enough to accommodate the number of evacuating personnel, unobstructed and clear of debris at all times, and unlikely to expose evacuating personnel to additional hazards.
<input type="checkbox"/> 6. Does the plan address procedures for assisting people during evacuations, particularly those with disabilities or who do not speak English?	Many employers designate individuals as evacuation wardens to help move employees from danger to safe areas during an emergency. Generally, one warden for every 20 employees should be adequate, and the appropriate number of wardens should be available at all times during working hours. Wardens may be responsible for checking offices and bathrooms before being the last person to exit an area as well as ensuring that fire doors are closed when exiting. Employees designated to assist in emergency evacuation procedures should be trained in the complete workplace layout and various alternative escape routes. Employees designated to assist in emergencies should be made aware of employees with special needs (who may require extra assistance during an evacuation), how to use the buddy system, and any hazardous areas to avoid during an emergency evacuation.
<input type="checkbox"/> 7. Does the plan identify one or more assembly areas (as necessary for different types of emergencies) where employees will gather and a method for	Accounting for all employees following an evacuation is critical. Confusion in the assembly areas can lead to delays in rescuing anyone trapped in the building, or unnecessary and dangerous search-and-rescue operations. To ensure the fastest, most accurate accounting of your employees, consider taking a head

III. EVACUATION POLICY AND PROCEDURES	
accounting for all employees?	count after the evacuation. The names and last known locations of anyone not accounted for should be passed on to the official in charge.
<input type="checkbox"/> 8. Does the plan address how visitors will be assisted in evacuation and accounted for?	Some employers have all visitors and contractors sign in when entering the workplace. The hosts and/or area wardens, if established, are often tasked with assisting these individuals evacuate safely.
IV. REPORTING EMERGENCIES AND ALERTING EMPLOYEES IN AN EMERGENCY	
<input type="checkbox"/> 1. Does the plan identify a preferred method for reporting fires and other emergencies?	Dialing 911 is a common method for reporting emergencies if external responders are utilized. Internal numbers may be used. Internal numbers are sometimes connected to intercom systems so that coded announcements may be made. In some cases employees are requested to activate manual pull stations or other alarm systems.
<input type="checkbox"/> 2. Does the plan describe the method to be used to alert employees, including disabled workers, to evacuate or take other action?	Make sure alarms are distinctive and recognized by all employees as a signal to evacuate the work area or perform other actions identified in your plan. Sequences of horn blows or different types of alarms (bells, horns, etc.) can be used to signal different responses or actions from employees. Consider making available an emergency communications system, such as a public address system, for broadcasting emergency information to employees. Ideally alarms will be able to be heard, seen, or otherwise perceived by everyone in the workplace including those that may be blind or deaf. Otherwise floor wardens or others must be tasked with ensuring all employees are notified. You might want to consider providing an auxiliary power supply in the event of an electrical failure.
V. EMPLOYEE TRAINING AND DRILLS	
<input type="checkbox"/> 1. Does the plan identify how and when employees will be trained so that they understand the types of emergencies that may occur, their responsibilities and actions as outlined in the plan?	<p>Training should be offered employees when you develop your initial plan and when new employees are hired. Employees should be retrained when your plan changes due to a change in the layout or design of the facility, when new equipment, hazardous materials, or processes are introduced that affect evacuation routes, or when new types of hazards are introduced that require special actions. General training for your employees should address the following:</p> <ul style="list-style-type: none"> ▪ Individual roles and responsibilities.

V. EMPLOYEE TRAINING AND DRILLS	
	<ul style="list-style-type: none"> ▪ Threats, hazards, and protective actions. ▪ Notification, warning, and communications procedures. ▪ Emergency response procedures. ▪ Evacuation, shelter, and accountability procedures. ▪ Location and use of common emergency equipment. ▪ Emergency shutdown procedures. <p>You may also need to provide additional training to your employees (i.e. first-aid procedures, portable fire extinguisher use, etc.) depending on the responsibilities allocated employees in your plan.</p>
<input type="checkbox"/> 2. Does the plan address how and when retraining will be conducted?	<p>If training is not reinforced it will be forgotten. Consider retaining employees annually.</p>
<input type="checkbox"/> 3. Does the plan address if and how often drills will be conducted?	<p>Once you have reviewed your emergency action plan with your employees and everyone has had the proper training, it is a good idea to hold practice drills as often as necessary to keep employees prepared. Include outside resources such as fire and police departments when possible. After each drill, gather management and employees to evaluate the effectiveness of the drill. Identify the strengths and weaknesses of your plan and work to improve it.</p>

EXCAVATION/TRENCHING PROGRAM

This guideline aims to ensure compliance with the OSHA Excavation Standard 29 CFR 1926-Subpart "P" and the Safety Program and Training requirements of 29 CFR 1926 - Subpart "C".

GENERAL:

Several hundred people die and ten times that many are injured every year in trenches. Trenching is the most hazardous construction work in America today. Strict adherence to 29 CFR 1926-Subpart "P" is essential to ensure workers' safety. A competent person will never allow workers to be exposed to unsafe trench conditions, no matter how short the exposure will be!

DUTIES OF DEPARTMENTS THAT EXCAVATE:

1. Will maintain a copy of 29 CFR 1926- Subpart "P" and have a comprehensive knowledge of OSHA's Excavation Standards. In addition, competent persons shall have a general knowledge of all applicable construction standards.
2. Conduct pre-job site review to develop a job plan that ensures a safe, efficient job process. A competent person will evaluate difficult sloping and shoring problems prior to commencing the work.
3. Perform inspections of equipment and trench conditions at the start of each shift or as needed by changing conditions.
4. Competent person has the duty and responsibility to remove all employees from hazardous conditions and effect all changes necessary to ensure safety.
5. Categorize soil conditions and conduct visual and manual tests to determine stability of soil and surrounding trench conditions. NOTE: If visual and manual tests are not performed, soils shall be classified as type "C".
7. Determine the appropriate protection system to be used and oversee installation. Maintain on-site records (Appendix A).
9. Competent person shall verify proper design of structural equipment ramps and walkways, or shall contact a registered professional engineer (RPE) to design structural equipment ramps and walkways in accordance with OSHA standards.

10. Hold tailgate safety meetings with all crew members prior to trenching and shoring operations. Subsequent meetings shall be held as conditions warrant.
11. A competent person shall be on-site at all times during excavation/trenching operations.
12. Assure that an appropriate emergency rescue plan has been discussed prior to excavation/trenching operations.
13. Monitor use of water removal equipment.
14. Spoil piles may be placed no closer than two feet (2') from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. It should be placed so that it channels rainwater and other run-off water away from the excavation and so that it cannot accidentally run, slide, or fall back into the excavation.
15. Test for oxygen presence and air quality in excavations greater than four (4) feet deep. Competent persons shall be qualified in identifying confined/hazardous spaces due to the presence of flammable/combustible gases, toxins, oxygen deficiency and oxygen-enriched environments.
- 16.. Competent person shall consult with RPE for trenches over 20', specially designed shoring bracing or underpinning or when excavation endangers nearby structures.

NOTE: Competent persons shall ensure that all trenches are properly classified, sloped, or shored in accordance with the appendices of 29 CFR 1926- Subpart "P", or in accordance with manufacturers tabulated data. Furthermore, competent persons shall consult with a RPE to obtain written guidance whenever the work exceeds 20 feet in depth, or the work will require control measures not specified in the standard.

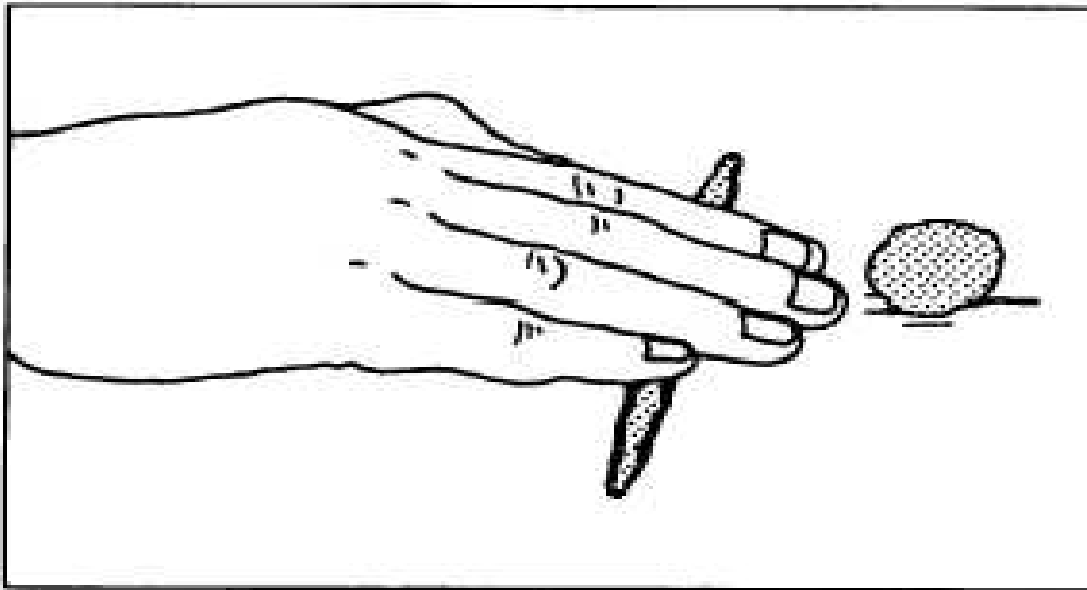
STEPS FOR DETERMINING SOILS CLASSIFICATION:

1. Visually inspect spoil pile and trench for indication of cohesive or granular soils. If soil appears to be cohesive, conduct plasticity test. If soils are cohesive classify soils by thumb penetration, shear vane, or pocket penetrometer. If soils do not pass plasticity test, classify granular soils by sedimentation test. NOTE: Other visual and manual tests are authorized in appendix A to 29 CFR 1926- Subpart "P".

2. Determine if soil is cohesive (plasticity test). The following provides a couple of examples for cohesive soil testing:

A. Roll or Thread test: Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8" in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch length of 1/8" in diameter thread can be held on one end without tearing the soil is cohesive.

NOTE: Only use material passing a No.40 sieve.



ROLL OR THREAD TEST

B. Ribbon Test: Form a roll of moist soil about 1/2" to 3/4" in diameter. Cohesive material can be successfully rolled into 1/2" to 3/4" ribbon without crumbling. For example, if at least 3" to 5" in length can be held on one end without tearing the soil is cohesive.

NOTE : Only use material passing a No. 40 sieve.

3. If plasticity test(s) proves that soils have cohesive qualities, determine the type of soil (A,B,C by using the following test methods:

NOTE: Soil testing equipment shall be used in accordance with manufactures specifications.

- A. Thumb penetration (cohesive soils only):
 - Type "A": 1/4" or less
 - Type "B": 1/4" to 1"
 - Type "C": 1" or more

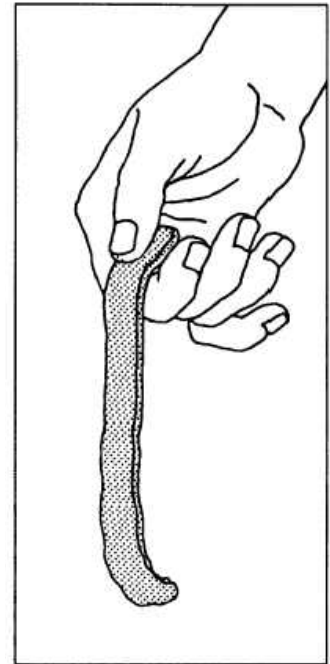


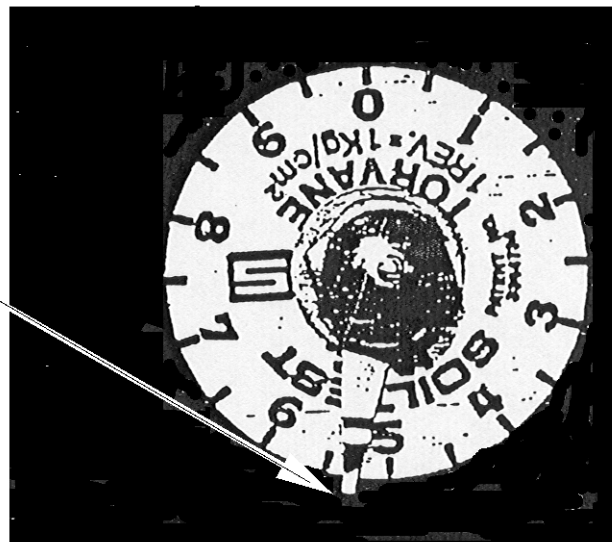
Figure 1 - Ribbon Test

B. Determining Shear Strength (cohesive soils only): By using a hand held vane shear device, the soil condition for cohesive soils can be determined. The following provides an example of the application of the vane shear:

Actual face of a
Soiltest, Inc.
Torvane device

Consistency,
or shear strength,
is 0.53 KG/CM2

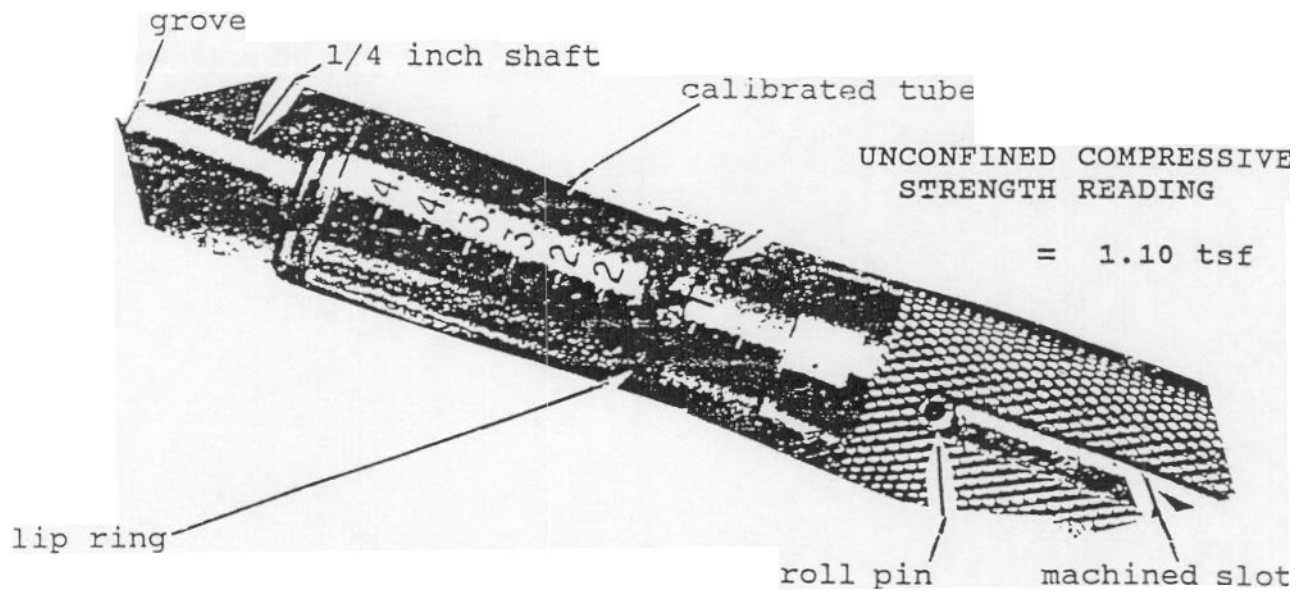
The equivalent unconfined
compressive strength
would be:
 $2 \times 0.53 =$ (cohesive 1.06 tsf
or 2120 psf)



NOTE: This example illustrates a Type "B" soil condition.

C. Determining unconfined compressive strength (cohesive soils only): By using a hand held pocket penetrometer, the soil condition for cohesive soils can be determined. The following provides an example of the application of the pocket penetrometer:

PHOTOGRAPH OF A SOILTEST, INC. POCKET PENETROMETER:



NOTE: Pocket penetrometer is only pushed into the soil until the groove line on the 1/4" shaft penetrates the soil.

4. If soil does not have cohesive qualities (granular soils), use the sedimentation test to determine if soils are a type "B" or "C" soil.

SEDIMENTATION TEST

A. The Sedimentation Test is the hydrometer analysis adapted for field use. Larger particles are the first to settle out of a soil-water suspension. It is used to determine the amount of sand in a sample taken in the field and is used only on soils that are obviously sands or very sandy. To run the sedimentation test, a representative sample of the soil is taken from the spoil pile. Great care must be taken to insure that the sample represents the soil in the trench or excavation; otherwise the test will not be accurate.

B. The soil sample, after the gravel is removed, needs to be large enough to fill a glass jar to a depth of approximately 1-1/2". The soil is placed in a tall straight-sided glass jar so that there is at least 5" of water on top of the soil. The jar should have a flat bottom and must be at least 6 1/2" inches tall (olive jars work well) .

C. The gravel may be removed by spreading a representative sample of the soil on a flat surface and hand picking the gravel, or by using a number 10 sieve or a piece of 1/8" hardware cloth. The 1/8" hardware cloth will pass some of the smaller gravel particles; they will need to be hand picked. All cohesive aggregations must be broken up so that all particles fall as individuals in the soil water suspension. Use clean water for the test. Place the lid on the jar and thoroughly shake the mixture. After the particles have been completely dispersed and the suspension is uniform,

set the jar down and give it slight twist. The larger particles will begin to settle out immediately. The twist levels out the largest particles so that a level surface is generated. All of the sand will have settled out 30 seconds after you set the jar down. Make a mark on the side of the jar. File folder labels work well for marking because they stick well to a damp jar.

D. The particles will continue to settle out of the suspension until nearly clear water remains above the layered soil. Most of the silt will have settled out in an hour. Make a second mark. Seldom is it necessary to wait over an hour. This test is good only for those soils that have a very high percentage of sands. The soil must be thoroughly dispersed because any small clods of silt and clay remaining unbroken up will act like sand.

E. All soil material below the first mark is sand. The material between the lines is silt and most of the clay. Allowing for the thickness of the glass jar bottom, determine the total height of the soil and the height of the sand. Divide the height of the sand by the total height of the soil and multiply by 100; the result will be the percentage of sand in the sample.

F. If the silt-clay mixture settles out rather quickly, mostly silt is indicated. If the suspended solids above the sand settle out slowly, mostly clay is indicated.

G. Recall that if silt is the primary fine material present, the soil can be called a loamy sand, even though it has only 70% sand by this test. If clay is the primary fine material, there must be 85% sand to call the material a loamy sand.

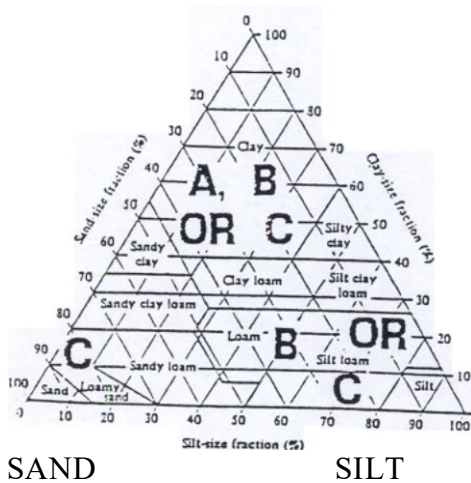
4. Textural Classification -Percentages of sand, silt, and clay. The following chart will aid in soil classification:

TEXTURAL NAME (SOIL CLASS)	OSHA SOIL TYPE	RANGE IN PERCENT		
		SAND	SILT	CLAY
SAND	C	85-100	0-15	0-10
LOAMY SAND	C	70-90	0-30	0-15
SANDY LOAM	B	43-80	0-50	0-20
LOAM	B	23-52	28-50	7-27
SILT LOAM	B	0-50	50-80	0-27
SILT	B	0-20	80-100	0-12
SAND CLAY LOAM	*	45-80	0-28	20-35
CLAY LOAM	*	20-45	15-53	27-40
SILTY CLAY LOAM	*	0-20	40-73	27-40
SANDY CLAY	*	45-65	0-20	35-55
SILTY CLAY	*	0-20	40-60	40-60
CLAY	*	0-45	0-40	40-100

*** DENOTES: A, B, OR C DEPENDING UPON UNCONFINED COMPRESSION STRENGTH AND VISUAL INSPECTION OF TRENCH/EXCAVATION.**

The following provides the above information in a graphical geometric form:

CLAY



NOTE: As a general rule of thumb, you can classify 80% sand or greater as a type "C" soil.

COMPETENT PERSON DOCUMENTATION:

Competent person shall maintain the Daily Inspection Checklist (Appendix A) for each trench/excavation. The documentation shall include Job Site Description; Trench/Excavation Inspection Comments; Employee & Public Safety Inspection; Protection System Selected; Soil Conditions; and Construction Design and Comments.

TRAINING:

Competent persons for trenching and excavation work shall be trained in the following objectives:

1. DEFINE SELECTED TERMINOLOGY: Competent persons shall be knowledgeable in the following terms:

- Support system
- Trench
- Excavation
- Registered Professional Engineer (RPE)
- Trench shield/box
- Sloping
- Hydraulic shoring
- Protective system
- Uprights
- Failure

2. IDENTIFY DUTIES OF "COMPETENT PERSON" USING DAILY INSPECTION CHECKLIST: Competent persons shall be knowledgeable in the elements of the Daily Inspection Checklist to identify duties.

3. DOCUMENT TRENCHES/EXCAVATIONS USING THE DAILY INSPECTION CHECKLIST: Competent persons shall be trained to complete the checklist identifying the Job Site Description; Trench/Excavation Inspection Comments; Employee & Public Safety Inspection; Protection System Selected; Soil Conditions; and Construction Design and Comments.

4. DEFINE SELECTED SOIL TERMINOLOGY: Competent person shall be able to identify the following soil conditions:

- Fissures
- Granular
- Saturated
- Clay
- Multiple soil types
- Moist soil
- Caliche
- Cohesive
- Plastic

5. HANDS-ON SOIL TESTING: Competent person training shall include hands on soil classification. Competent person training shall require competent person candidate to classify cohesive (clay) soil (commercial clay or play dough may be used as a substitute), and granular soils.

6. INTERPRET DESCRIPTIONS OF SOIL CONDITIONS AND IDENTIFY TYPES REQUIRING SHORING: Competent persons shall be able to identify conditions that will effect soil classifications, such as: fissures, vibration, previous excavations, blasting, above water table, rock above soil layers, layers tilting in at 4:1 slope or steeper, water freely seeping from side of trench, etc.

7. IDENTIFY CAUSES OF TRENCH CAVE-INS: Competent person shall be able to identify cause of trench cave-in, such as: inadequate support systems, inadequate sloping, surcharge loading, etc.

8. IDENTIFY HYDRAULIC SHORING REQUIREMENTS: Competent person shall be knowledgeable in the manufacturer's tabulated data, as well as the application of Appendix D to Subpart p (29 CFR 1926). Competent persons shall be able to identify proper installation techniques and limitation of hydraulic shoring, depending upon the depth and soil type. Competent person shall know:

- Maximum horizontal distances between shores,
- Distance from the top cylinder to soil's top edge,
- Maximum trench width and depth allowed without consulting an RPE,
- Thickness of Finn Form Sheeting for Type "B" soil,

- Number of inches the Finn Form Sheeting should extend above the vertical side of a compound trench and,
- The amount the sheeting may be raised from the bottom of the trench, provided the first cylinder is not higher than 4' from the trench floor to the middle of the first cylinder.

9. IDENTIFY TECHNICAL CHANGES IN SLOPING AND BENCHING SPECIFICATION AND RECOGNIZE SLOPING REQUIREMENTS: Competent person shall be able to identify the slope required for the following soil classifications:

- A - short term - less than 24 hours
- A - long term
- B - long term
- C - long term

In addition, competent persons shall be able to determine when benching is authorized for cohesive soils only.

10. IDENTIFY SAFETY REQUIREMENTS FOR USING A TRENCH SHIELD: Competent person shall be able to identify when end plates are required, how to safely stack shield sections, access and egress requirements, shield construction requirements, material handling requirements (tag line, sling safety, etc.), and lateral support requirements.

11. IDENTIFY SAFETY REQUIREMENTS FOR A TRENCH WITH SURFACE ENCUMBRANCES: Competent person shall be able to identify appropriate methods in bracing or removing surface encumbrances, including when such bracing should be designed by an RPE.

At the completion of the above training, competent person candidates will demonstrate their proficiency under the supervision of competent company officials prior to being designated as a "competent person" for trenching and excavation work.

Appendix A

Daily Inspection Checklist

**TRENCHING/EXCAVATION
DAILY INSPECTION CHECKLIST**

COMPETENT PERSON: _____ DATE:

USE ONE OR MORE OF THE FOLLOWING: a " check mark" to indicate yes, comment codes listed below, or fill in blank with applicable information or description.

COMMENT CODES

SOIL TYPE:	ROCK, STABLE ROCK, "A" "B" "C"
HYDROSTATIC CONDITIONS:	(M} MOIST (D} DRY (R) RAINSTORM (SA} SATURATED (PS) PARTIAL SATURATION

JOB SITE DESCRIPTION

Location: _____ Area Congested:
 Right-Of-Way And Clearance Ok:
 Trench/Excavation Depth: _____ Length:
 Location Of Underground Utilities Verified: _____ Date:
 Location Of Underground Utilities Marked: _____ Date:
 Crossing Trench/Excavation: Lines: _____ Road/ Alley:
 Parallel To Trench/ Lines: _____ Road / Alley: _____ Building(S):
 Excavation:
 Pole Bracing: _____ Overhead Lines: _____ Structural Bracing:
 Open Date/Time: _____ Job #:
 Registered Professional Engineer: _____ Reason:

TRENCH/EXCAVATION INSPECTION COMMENTS

Soil Type: _____ Times Inspected:
 Describe Any Changing Conditions, Plans, Or Shoring Equipment Damage In Space Below:

EMPLOYEE & PUBLIC SAFETY INSPECTIONS

Ladders: _____ Ramp For Employees: _____ Ramp For Equipment:
 Emergency Equipment: _____ Air Quality Testing: _____ Water Removal :
 Lighted Barricades: _____ Barricade Tape: _____ Cones: _____ Fencing:
 Flaggers: _____ Weekend Protection: _____ Steel Plating:
 Spoil Pile/Other Material Effectively Removed:

PROTECTION SYSTEM SELECTED

Hydraulic Shores (Size): _____ Sheeting Thickness: _____ No.:
Horizontal Walers (Size): _____ Timber Shores:
Slope: ½:1 _____ ¾:1 _____ 1:1 _____ 1 ½:1
Benching: _____ Unsupported Wall Height:

SOIL CONDITION -SOIL TYPE

NOTE: If one manual & visual test for each is not done, soil must be classified as Type "C".

MANUAL TESTS :

COHESIVE SOILS - RECORD RESULTS:

GRANULAR SOILS - RECORD RESULTS:

VISUAL TESTS:

FISSURES -TRENCH SIDE (CRACKS OR SPALLS):

FISSURES -TOP OF TRENCH (CRACKS OR OPENINGS):

SOIL LAYERS SLOPE INTO TRENCH 4:1 OR STEEPER:

ROCK LAYER ABOVE SOIL LAYER

SEEPAGE INTO TRENCH FROM SIDES _____, SURFACE _____, BOTTOM

VIBRATION SOURCES THAT MAY EFFECT TRENCH STABILITY.

PRIOR OF EXISTING EXCAVATION CROSSING TRENCH: ____ PARALLEL

ADDITIONAL COMMENTS/NOTES:

EXPOSURE CONTROL PLAN

OVERVIEW: The purpose of this program is to eliminate or minimize occupational exposure to the Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV) and other pathogens that employees may encounter in their workplace. The program components follow the OSHA Bloodborne Pathogens Standard, Title 29 Code of Federal Regulations 1910.1030; and TOSHA Chapter 0800-1-10, Sharps Injury Prevention. Each department is expected to adapt this Exposure Control Program to the needs of their employees.

OSHA determined that employees face a significant health risk as the result of occupational exposure to blood and other potentially infectious materials (OPIM) because they may contain bloodborne pathogens. These pathogens include but are not limited to HBV, which causes hepatitis B; HIV, which can lead to acquired immunodeficiency syndrome (AIDS); hepatitis C virus; human T-lymphotrophic virus Type 1; and pathogens causing malaria, syphilis, babesiosis, brucellosis, leptospirosis, arboviral infections, relapsing fever, Creutzfeldt-Jakob disease, and viral hemorrhagic fever. The agency further concludes that these hazards can be minimized or eliminated by using a combination of engineering and work practice controls, personal protective clothing and equipment, training, medical surveillance, hepatitis B vaccination, signs and labels, and other provisions.

OBJECTIVE: To protect employees who work in occupations where there is a risk of exposure to blood or other potentially infectious materials.

DOES THIS PROGRAM APPLY TO THE EMPLOYEES IN MY DEPARTMENT?

The Bloodborne Pathogens Program applies to any employee who could **reasonably** be expected to be exposed to skin, eye, mucous membrane, blood or other potentially infectious human fluids during the performance of their job and whose position description specifically describes the duties involving an occupational exposure.

Each department must determine which, if any, employees have a reasonable risk of occupational exposure to bloodborne pathogens. The answers to the questions below will help a department identify those employees with a risk. **If the answer to ANY of these questions is “Yes” for a worker, that worker is considered to be at occupational risk of contracting bloodborne pathogens.**

Employees are at occupational risk if their job description requires or if they ever:

(a) Handle human blood products, such as whole blood, plasma, serum, platelets, or white cells? YES NO

- (b) Handle human body fluids such as semen, cerebrospinal fluid, vaginal secretions, joint fluid, pleural fluid, peritoneal fluid, pericardial fluid, or amniotic fluid? YES NO
- (c) Work with animals, such as primates that are infected with hepatitis B or other bloodborne pathogens OR perform tasks where such animals are housed? YES NO
- (d) Handle unfixed human tissue or organs? (Tissues and organs soaked in chemical preservatives such as alcohol or formaldehyde are "fixed") YES NO
- (e) Work with HIV, hepatitis B or C virus or other bloodborne pathogens or with preparations, such as liquid solutions or powders containing the these pathogens? YES NO
- (f) Handle blood, blood products, body fluids or unfixed tissues or organs of animals infected with the HIV, hepatitis B or C virus or other bloodborne pathogens? YES NO
- (g) Handle sharp instruments such as knives, needles, scalpels, or scissors which have been used by others working with human blood or other potentially infectious materials to include human organs, tissue or body fluids OR used by others working with similar body parts and fluids from animals infected with the hepatitis B virus or other bloodborne pathogens? YES NO
- (h) Enter areas where other individuals work with human or animal blood, body fluid, tissues or organs which are infected with the HIV, hepatitis B or C virus or other bloodborne pathogens AND perform tasks where any of the aforementioned body substances may come into contact with the worker's unbroken skin, broken skin, or mucous membranes? YES NO
- (i) Perform tasks which may potentially result in the workers exposed skin or mucous membranes coming in contact with human or animal blood, body fluids, organs, or tissues which are infected with the HIV, hepatitis B or C virus or other bloodborne pathogens? YES NO
- (j) Are a designated first aid responder REQUIRED to perform first aid as part of their job description? YES NO

IF YES, WHAT DOES THE DEPARTMENT NEED TO DO?

Departments shall implement the following elements:

- Training
- Use of *Universal Precautions*
- Implementation of *Engineering Controls*
- Implementation of Work Practice Controls
- Use of *Personal Protective Equipment*
- Appropriate Housekeeping Procedures
- Communicate hazards with labels and signs
- Maintain appropriate records
- Process for Post-Exposure Incident Evaluation
- Vaccination Program
- Compliance Measurement

Training: All employees who are at occupational risk of exposure to bloodborne pathogens shall be trained so that they know:

- the potential risks of bloodborne, airborne, and waterborne diseases
- recognition of tasks that may involve exposure to potentially infectious materials
- methods that minimize exposure to bloodborne pathogens,
- procedures for safe handling and disposal of sharp instruments,
- appropriate use of Personal Protective Equipment
- requirements of the State of Tennessee, Sharps Injury Prevention Standard 0800-1-10
- proper procedures for disposal of contaminated materials
- Information about Hepatitis vaccinations, including their safety and effectiveness.
- Contents of OSHA Standard 29 CFR 1910.1030.
- the difference between occupational exposure and an exposure incident and proper procedures to be followed for each

Training will occur for employees who are at occupational risk of exposure to bloodborne pathogens when:

- when they are initially assigned to tasks with the potential for exposure,
- annually to keep their knowledge "up-to-date,"
- any time an employee's work practices deviate from the requirements of the bloodborne program,
- when new or modified tasks and procedures are implemented which affect the occupational exposure of employees
- when employees' jobs are revised in ways that result in new exposures to bloodborne pathogens
- any time Metro establishes new functional positions that will have exposure to bloodborne pathogens

Universal Precautions will be observed by all employees in order to prevent

contact with blood or Other Potentially Infectious Material (OPIM). All blood or OPIM will be considered infectious regardless of the perceived status of the source individual. Simply stated, employees should consider all encounters with body fluids as potentially hazardous.

Engineering Controls shall be utilized to eliminate or minimize exposure to all employees. Engineering Controls are procedures that isolate or remove the bloodborne pathogens hazard from the workplace (e.g., sharps disposal containers, self-sheathing needles). The following controls shall be used:

- Hand washing facilities (or antiseptic hand cleaners and towels or antiseptic towelettes) shall be readily accessible to all employees who have the potential for exposure
- Containers for contaminated reusable sharps, specimen containers and secondary containers shall be provided and have the following characteristics:
 - (29 CFR 1910.1030 (d4) (iii) (A)) compliant
 - Closeable
 - Puncture-resistant
 - Color-coded or labeled with a biohazard warning label
 - Leak-proof on the sides and bottom
 - All sharps containers will be inspected by the department and will be maintained or replaced as needed to prevent overfilling.
- Available sharps injury protection devices as listed with the State of Tennessee, TOSHA, will be used whenever feasible.
 - A list of engineered sharps injury protection devices in use will be maintained by the Department as part of this program.
- Departments shall periodically (not less than yearly) review IOD reports, Safety Committee activities and new device information to identify the need for changes in engineering controls

Work Practice Controls: The following practices shall be required:

- Employees wash their hands immediately, or as soon as feasible, after removal of potentially contaminated gloves or other personal protective equipment.
- Following any contact of body areas with blood or any other infectious materials, employees wash their hands and any other exposed skin with soap and water as soon as possible. They also flush exposed mucous membranes with water for at least 20 seconds.
- Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses is prohibited in work areas where there is potential for exposure to bloodborne pathogens.
- Food and drink is not kept in refrigerators, freezers, on countertops or in other storage areas where blood or other potentially infectious materials are present.
- Mouth pipetting/suctioning of blood or other infectious materials is prohibited.

Personal Protective Equipment (PPE) is the employees' "last line of defense" against bloodborne pathogens. PPE is designed to protect employees from serious workplace injuries or illnesses resulting from contact with blood, bodily fluid, chemical, or other workplace hazards. Departments will provide their employees PPE needed to help protect them from bloodborne pathogen exposure at no cost to the employee. This equipment includes, but is not limited to:

- Gloves
- Safety Glasses
- Goggles
- Face Shields/Masks
- Gowns
- Respirators (e.g. SCBA and N95 for TB or SARS)
- Hypoallergenic gloves, glove liners, and similar alternatives for employees who are allergic to the gloves.

Employees should be trained regarding the location and use of the appropriate PPE for their job classifications and specific tasks they perform. Additional training will be provided, when necessary, if an employee is assigned a new position or new job functions are added to their job description.

To ensure that personal protective equipment is not contaminated and is in the appropriate condition to protect employees from potential exposure, the following practices shall be used:

- Periodic inspection of all personal protective equipment and repair or replacement as needed to maintain its effectiveness.
- Reusable personal protective equipment is cleaned, laundered, and decontaminated as needed.
- Single-use personal protective equipment (or equipment that cannot, for whatever reason, be decontaminated) is disposed of in containers provided in departments which have employees with occupational exposure.

The following work practices shall be implemented to ensure the effectiveness of PPE:

- Remove garments penetrated by blood or other infectious materials immediately, or as soon as feasible in such a way that avoids contact with the outer surface.
- Remove all potentially contaminated personal protective equipment prior to leaving a work area.
- Gloves must be worn when it is reasonably anticipated that there may be contact with blood or other potentially infectious materials.
- Disposable gloves must be replaced as soon as practical after contamination or if they are torn, punctured, or otherwise lose their ability to function as an "exposure barrier." Never wash or decontaminate disposable gloves.
- Utility Gloves may be decontaminated for reuse if their integrity is not compromised. Discard utility gloves if they show signs of cracking, peeling, tearing or deterioration.

- Masks and eye protection must be used whenever splashes or sprays may generate droplets.
- Employees must wear protective clothing whenever potential exposure to the body is anticipated.
- Employee must wash hands as soon as possible after removing gloves or other PPE.
- Make disposable CPR micro shields available in the glove compartment of Metro vehicles used by employees covered by Bloodborne Pathogen program. These are to be used to protect the person administering CPR from salivary transmission of infectious diseases, respiratory secretions and potential regurgitation.
- Dispose of PPE in appropriate containers.
- Laundering non-PPE garments that are contaminated at home is prohibited by the standard. Departments must address the cleaning and decontamination of such garments in their department plans.

Housekeeping (maintaining affected work areas in a clean and sanitary condition) is an important part of the Bloodborne Pathogens Standard Program and includes the following procedures:

- Clean and decontaminate all equipment and surfaces after contact with blood or other potentially infectious materials such as:
 - After the completion of medical procedures
 - When surfaces are overtly contaminated as soon as feasible
 - After any spill of blood or infectious materials.
 - At the end of the work shift, if the surface may have been contaminated during that shift.
- Remove and replace protective coverings such as plastic trash bags, aluminum foil, or absorbent paper as soon as it is feasible when overtly contaminated or at the end of the work shift, if they may have been contaminated during the shift.
- Inspect, clean and decontaminate all trash containers, pails, bins and other receptacles intended for use routinely as soon as possible if visibly contaminated.
- Pick up potentially contaminated broken glassware using mechanical means such as dustpan and brush, tongs or forceps.
- Use the following procedures when handling regulated waste (liquid or semi-liquid blood or other potentially infectious materials, contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed, items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling, contaminated sharps and pathological or microbiological)
 - Discard or “bag” in containers that are:
 - Closeable and puncture-resistant if the discarded materials have the potential to penetrate the container.
 - Leak-proof if the potential for fluid spill or leakage exists
 - Red in color and labeled with the appropriate biohazard warning label.
 - Waste containers are maintained upright, routinely replaced and not

- allowed to overfill. They must be leak-proof, closable, constructed to hold all contents and appropriately labeled.
- Contaminated laundry is handled as little as possible and is not stored or rinsed where it is used. Place contaminated laundry in leak- proof labeled or color coded containers before transport.
 - When employees move containers of regulated waste from one area to another the containers are immediately closed and placed inside an appropriate secondary container if leakage is possible from the first container.

Communicate hazards with Bio Hazard Labels and Signs and red “color-coded” containers. The following items shall be labeled:

- Containers of regulated waste
- Refrigerators/freezers containing blood or other potentially infectious materials
- Sharps disposable containers
- Other containers used to store, transport or ship blood and other infectious materials
- Laundry bags and containers
- Contaminated equipment

Labels must include the international legend for bio-hazard. They must be fluorescent orange or orange red and they must be affixed in such a manner that prevents loss or unintentional removal.

Each department shall maintain appropriate records in accordance to 29 CFR 1910.1020. (e.g. Vaccination and Training)

29 CFR 1910.1030(h)(5) requires the employer to establish and maintain a confidential sharps injury log for employees injured by contaminated sharps. It must include at a minimum:

- The type and brand of device involved
- The work area where the exposure incident occurred
- An explanation of how the incident occurred

A Vaccination Program provides protection to employees from Hepatitis B infections. Employees who have been determined to be at high risk shall be entitled to receive the Hepatitis B series.

Vaccinations are available, at no cost, to employees who have been determined to be in a high risk occupation. The vaccination program consists of a series of inoculations performed under the supervision of a physician.

If an employee declines to accept the Hepatitis B vaccination, the department must obtain a signed copy of the Refusal Form (see Attachment A) from the employee and place this form in the employee’s permanent health record.

Process for Post-Exposure Incident Evaluation An *Exposure Incident* means an incident where an employee has a specific eye, mouth, other mucous membrane or non-intact skin contact with blood or other potentially infectious materials that results from the performance of their duties. If any Metro employee is involved in an exposure incident, there are three things that the department should do:

1. Investigate the circumstances surrounding the exposure incident and complete an **Exposure Incident Form** (see example Attachment B). This form should accompany the employee to the examining medical facility. The supervisor/department should also complete and forward the standard **Metro Record of Occupational Injury /Illness Form - 101** to Metro Government's claims administrator Alternative Service Concepts.
2. Ensure that medical consultation and treatment (if required) is available to the employee as expeditiously as possible.
3. Metro Government's claims administrator, Davies Group, will obtain all necessary medical reports from the physician conducting the post-exposure evaluation, including the Physicians Written Opinion for Post-Exposure Evaluation (Form 401).

As with all information in these areas, it is important to keep the information in these medical records confidential. Metro shall not disclose or report this information to anyone without the affected employee's written consent (except as required by law).

Once these procedures have been completed, an appointment is made with a qualified healthcare professional to discuss the employee's medical status. This includes an evaluation of any reported illnesses, as well as any recommended treatment.

Compliance Measurement If your department has employees that fall under the Bloodborne Pathogen standard, please inspect your job site or facility annually using the **Bloodborne Pathogens Exposure Plan Checklist** (see attachment C). This should help ensure that your facility remains in compliance. If you need assistance to bring your department into compliance, contact the Metro Safety Division at 862-6640.

RESPONSIBILITIES:

Department Heads

- Provide resources to effectively implement this program through the department.
- Establish systems to ensure departmental compliance associated with the Exposure Control Plan.
- Ensure that information regarding training and information on the Exposure Control Plan is available to employees.

Safety Coordinator / Designated Exposure Control Officer

- The Exposure Control Plan shall be reviewed and updated at least annually and whenever necessary to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure.
1910.1030(c)(1)(iv)
The review and update of such plans shall also:
 - Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens; and
 - Document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.
- Review operations with supervisors to determine with which bloodborne pathogens or OPIM employees under their supervision may come in contact.
- Follow-up to ensure supervisors are carrying out prescribed Exposure Control requirements.
- Maintain a current list of all job categories that identified as possible exposure risks.
- Periodically review work areas for compliance with policy.
- Provide training to employees on the Exposure Control Plan to the employees that may potentially be at risk of exposure

Supervisors

- Ensure that there is compliance with the program throughout the group supervised.
- Notify the Safety Coordinator of any operating changes affecting the employee's risk of exposure.
- Identify all jobs that of a reasonable risk of exposure to bloodborne pathogens or OPIM and list them.
- Periodically inspect engineering controls and personnel protective equipment.
- Make routine surveys of the work area to ensure safe practices are being followed.
- Ensure employee access to a current copy of the Exposure Control Plan.

Employees

- Learn and apply Metro's Exposure Control guidelines and procedures.
- Use personal protective equipment as required by Metro's procedures and policies.
- Inform your supervisor of :
 1. Any exposure that may possibly be related to bloodborne, airborne, and waterborne diseases or OPIM;
 2. Missing labels on containers;
 3. Malfunctioning safety equipment.
- Use approved labels on the containers. Do not remove existing labels.
- Use only approved containers for sharps instruments and waste materials.
- Know the location of emergency equipment, e.g., first aid supplies, emergency eye wash, showers, etc.
- Know your role in emergency procedures.
- Report unsafe conditions.
- Suggest improvements.

Metro Safety Administrator

At least once per year, the Metro Safety Administrator will review and update, if applicable, the Exposure Control Guidelines. The evaluation will be done with the assistance of department Safety Coordinators. The review and/or update will consist of the following elements:

- Assessment of applicable regulations
- Written program guidelines
- Designated employee accountability

Hepatitis B Declination Form

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee signature: _____

Date: _____

Exposure Incident Form

In the event of an exposure incident, two forms must be completed: (1) *the Metro Record of Occupational Injury /Illness Form -101*, and (2) the information on this form. The information provided below is intended to assist in evaluating the control methods used and to prevent future employee exposures.

Name of Person _____ Department _____

Incident Date _____ Time _____

Report prepared by: _____

Incident: Mark in each column, as appropriate

<i>Incident:</i>	<i>Injury type:</i>	<i>Body Part Injured:</i>
<input type="checkbox"/> Cut:	<input type="checkbox"/> Abrasion	<input type="checkbox"/> Eye
	<input type="checkbox"/> Abrasion <input type="checkbox"/> Finger	
<input type="checkbox"/> Exposure:	<input type="checkbox"/> Laceration	<input type="checkbox"/> Hand/Finger
<input type="checkbox"/> Body Fluids	<input type="checkbox"/> Puncture	<input type="checkbox"/> Arm
<input type="checkbox"/> Infectious Material	<input type="checkbox"/> Mucous Membrane	
<input type="checkbox"/> Airborne		
<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____

Description of incident:

Protective equipment used:

<input type="checkbox"/> Gloves	<input type="checkbox"/> Protective Sleeves	<input type="checkbox"/> Other
<input type="checkbox"/> Goggles	<input type="checkbox"/> Lab Coat	
<input type="checkbox"/> Face Mask/shield	<input type="checkbox"/> Gown	

Seen by:

- Emergency Treatment Center
- No Medical Treatment sought
- Other

What changes need to be made to prevent reoccurrence?

Attachment C

Bloodborne Pathogen Exposure Plan Checklist		
Section I: General Information		
1. Name of Principle Investigator or Supervisor		
2. Location & Department		
3. Procedures and Tasks Involving Human Blood or Other Infectious Material		
<input type="checkbox"/>	a. Preparing, dissecting, cutting, or otherwise handling human tissue.	
<input type="checkbox"/>	b. Handling tubes or other containers of human blood fluid or tissue.	
<input type="checkbox"/>	c. Cleaning up spills of human blood or other body fluids.	
<input type="checkbox"/>	d. Basic first aid with human blood or fluid exposure.	
<input type="checkbox"/>	e. Performing cardiopulmonary resuscitation (CPR).	
<input type="checkbox"/>	f. Injections into humans.	
4. Job Classifications with Occupational Exposure		
Job Classification	All Employees Have Exposure	Some Employees Have Exposure
a.	<input type="checkbox"/>	<input type="checkbox"/>
b.	<input type="checkbox"/>	<input type="checkbox"/>
c.	<input type="checkbox"/>	<input type="checkbox"/>
d.	<input type="checkbox"/>	<input type="checkbox"/>
e.	<input type="checkbox"/>	<input type="checkbox"/>
f.	<input type="checkbox"/>	<input type="checkbox"/>
g. Other Title :	<input type="checkbox"/>	<input type="checkbox"/>

Section II. Sharps Management

1. List Special Sharps Procedures Currently Being Used

Procedure	Mechanical Devices Used (needles, blades, microscope slides, etc.)	Self- sheathing needles	Retractable	Decontaminate	Other
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section III. Equipment Decontamination

1. List Instructions and Schedule for Decontaminating and Maintaining Equipment

Equipment	Decontamination Instructions	Date to be Checked	Date Checked

Section IV. Personal Protective Equipment (PPE)

1. List how PPEs are used, decontaminated and disposed.

Type of Personal Protective Equipment	Tasks Requiring Use	Disposal Instructions	Decontamination Instructions
Disposable Gloves			
Utility Gloves			
Laboratory Coats			
Safety Glasses			
Aprons or gowns			
Face Shields and Masks			
Other			

Fall Protection

This guide specifies the procedures and training for the safety of all Metro Nashville employees while working on elevated surfaces and ladders. This guide applies to all Metro employees that perform any duties on an elevated work surface where there is a fall hazard of 4 feet or more to a lower level.

1. Guideline Description

The purpose of this guideline is to specify procedures and training for the safety of Metro Government employees while working on an unprotected side or edge. Affected employees who work at heights of four (4) feet or greater are required to attend training on fall protection. Additionally, those employees working on aerial platforms, scissor lifts or other elevated platform equipment must receive training on the use of such equipment.

2. Scope

This guideline applies to all Metro employees that perform any duties on an elevated work surface where there is a fall hazard of 4 feet or more to a lower level. Employees will not be allowed to perform any duties that require the employee to get closer than 15 feet with a warning line to an unprotected edge, platform, walkway, or utilize elevated equipment unless the employee is properly secured from falling.

Exceptions: Employees may work without fall protection:

- At the working sides of loading docks
- At the exposed perimeters of theater stages
- When using portable ladders up to 60 feet in length
- When working on scaffolds up to 10 feet in height.
- (Add in Section 18 of manual)When working on the edge of an excavation up to 6 feet in depth
- If an employee is on a low slope roof for inspection or observation purposes only.

Additionally, this guideline shall apply to all employees in order to minimize slips, trips and falls on the same elevation. All employees shall control fall hazards in their work area by maintaining good housekeeping and shall report conditions to their immediate supervisor that may lead to slips, trips, and falls.

Contractors working onsite are required to comply with all applicable OSHA workplace safety regulations and shall have their own fall protection program. Contractor's safety programs shall be available for review upon request.

3. Definitions

Aerial lift device: Equipment such as powered platforms, vehicle-mounted elevated and rotating work platforms, extensible boom platforms, aerial ladders, articulating boom platforms, vertical towers and powered industrial truck platforms.

Anchor point: A secure point of attachment for lifelines, lanyards or deceleration (grabbing) devices.

Body harness (also referred as Full-body harness): An interconnected set of straps that may be secured about a person in a manner that distributes the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with a means for attaching the harness to other components of a personal fall arrest system.

Deceleration device: Any mechanism, such as a rope, grabbing device, rip-stitch lanyard, specially woven lanyard or automatic self-retracting lifeline/lanyard, which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limits the energy imposed on an employee during fall arrest.

Deceleration distance: The additional vertical distance a falling person travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which a deceleration device begins to operate.

Designated area: A space which has a perimeter barrier erected to warn employees when they approach an unprotected side or edge, and serves also to designate an area where work may be performed without additional fall protection.

Fixed ladder: A ladder, including an individual rung ladder, which is permanently attached to a structure, building, or equipment.

Guardrail: A barrier at least 42 inches high erected to prevent personnel from falling from working levels more than 30 inches above the floor, ground, or other working areas of a building.

Hole: A void or gap 2 inches or more in its least dimension in a floor, roof, or other walking/working surface.

Ladder: A device typically used to gain access to a different elevation consisting of two or more structural members crossed by rungs, steps, or cleats.

Lanyard: A flexible line of rope or strap that generally has a connector at each end for connecting the body harness to a deceleration device, lifeline or anchor point.

Lifeline: A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline). This serves as a means for connecting other components of a personal fall arrest system to the anchorage.

Low Slope Roof: A roof having a slope of less than or equal to 4 in 12 (vertical to horizontal). A roof with approximately a 19.5 degree slope or less.

Lower Levels: Those areas or surfaces to which an employee can fall. Such areas include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits tanks, material, water, equipment, structures, or portions thereof.

Opening: A gap or void 30 inches or more high and 18 inches or more wide in a wall or partition, through which personnel can fall to a lower level.

Positioning device system: A body harness system rigged to allow an employee to be supported on an elevated vertical surface such as a wall and work with both hands free while leaning.

Personal fall arrest system: A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, and body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

Restraint line: A device, which is attached between the employee and an anchorage to prevent the employee from walking or falling off an elevated surface.

Roof: Exterior surface on the top of a building.

Rope grab (grabbing device): A deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest a fall.

Scaffold: Any temporary elevated or suspended platform, and its supporting structures, used for supporting employees or materials or both.

Self-retracting lifeline/lanyard: A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under minimal tension during normal movement and which, after onset of a fall, automatically locks the drum and arrests the fall (usually within two feet or less).

Standard railing: A vertical barrier erected along exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent falls of persons.

Snap hook: A connector consisting of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released automatically closes to retain the object. Only locking snap hooks are permitted at UCI.

Toe board: A low protective barrier that prevents material and equipment from falling to lower levels and which protects personnel from falling.

Tie-Off: A procedure of connecting directly or indirectly to an anchorage point.

Unprotected sides and edges: Any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 42 inches high.

Vertical Lifeline: A component consisting of a vertically hanging flexible line for connection to an anchor point at one end that serves as a means for connecting other components of a personal fall arrest system to the anchor point.

Walking/working surface: Any surface, whether horizontal or vertical, on which an employee walks or works including, but not limited to floors, roofs, ramps, bridges and, runways.

Work area: That portion of a walking/working surface where job duties are being performed.

4. Responsibilities

Managers and Supervisors

- Responsible for ensuring that all requirements listed in the written guidelines for fall protection are met
- Responsible for ensuring new and existing employees receive fall protection training as applicable to their job duties.
- **Responsible for conducting periodic visits to elevated work locations.**

Employees whose duties involve work activities at elevated locations are required to comply with the rules of operations and accepted safety practices outlined within this written guideline.

5. Program Components

5.1 The following work situations are covered by Metro's guidelines for fall protection:

Ladders - fixed, free standing, temporary, or roll away type
Elevating Personal Platforms – scaffolds, aerial platforms, scissors lifts, forklift-mounted platforms, cherry pickers, etc.

Elevated Surfaces – roofs (closer than 6 feet to the edge), catwalks, skylights, boilers, chillers, etc.

Vertical Opening - ground level entry into excavations, trenches, holes, pits, vessels, and other confined spaces.

5.2 Fall protection is required whenever work is performed in an area 4 feet above its surroundings and can generally be provided through the use of fall protection systems including:

Guardrails - Standard guardrails consist of a top rail, located 42 inches above the floor, and a mid-rail. Screens and mesh may be used to replace the mid-rail, so long as they extend from the top rail to the floor.

Personal Fall Arresting Systems - Components of a personal fall arresting system include a body harness, lanyard, lifeline, connector, and an anchorage point capable of supporting at least 5000 pounds.

Positioning Device Systems - Positioning device systems consist of a body belt or harness rigged to allow work on a vertical surface, such as a wall, with both hands free.

Warning Line Systems - Warning line systems are made up of lines or ropes installed around a work area on a roof. These act as a barrier to prevent those working on the roof from approaching its edges.

Covers - Covers are fastened over holes in the working surface to prevent falls.

Where it can be clearly demonstrated that the use of these systems is infeasible or creates a greater hazard, alternative fall protection measures may be implemented.

5.3 The following are guidelines for affected Metro employees using specific equipment:

5.3.1 Employees who work on ladders with a working height of 4 feet or more shall be knowledgeable of the following:

- How to inspect ladders for visible defects
- How to use ladders properly
- Additional information on ladder safety can be found in the Ladder Safety Program.

5.3.2 Employees who use personal fall arresting systems to control fall hazards in their work area shall be knowledgeable of the following:

- The limits of the equipment
- The proper hook-up, anchoring and tie-off techniques including determination of elongation and deceleration distance
- Methods of use, inspection, and storage of equipment
- Personal fall arrest components including harnesses and lanyards shall be inspected prior to each use for mildew, wear, damage, and other deterioration. Defective components shall be removed from service and reported to your supervisor (*Inspection sheet follows this chapter*).
- Fall arrest systems including harnesses shall be inspected at least twice each year or according to manufacturers' recommendations. The date of the most current semi-annual inspection shall be recorded on an inspection tag which shall be attached to the harness. In addition, records shall be kept and maintained showing date of purchase, dates when attachments were renewed, and dates when the entire harness assembly was inspected and by whom.

5.3.3 Employees who use aerial lifts shall be knowledgeable of the following:

- The location of the manufacturer's operating manual
- Pre-start inspection of the lift
- Inspection of the work area for dangerous conditions such as uneven surfaces, overhead obstructions such as power lines, or other hazards
- Load capacities of the equipment
- How to safely move the equipment
- How to prevent falls and use appropriate fall protection personal protective equipment
- Minimum safe approach distances to energized power lines

5.3.4 All affected employees who work on scaffolds shall be knowledgeable of the following:

- The nature of any electrical hazards, fall hazards, and falling object hazards in the work area
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used

- The proper use of the scaffold, and the proper handling of materials on the scaffold
- The maximum intended load and the load carrying capacities of the scaffolds

5.3.5 All affected employees should be aware of guidelines to minimize slips, trips and falls on the same elevation of walking/working surfaces.

- To prevent slipping, tripping and falling, all work environments including passageways, storerooms, and service areas must be kept clean, orderly and in a sanitary condition
- The floor of every work area will be maintained in a clean and, so far as possible, dry condition
- Where wet processes are used, drainage will be maintained and false floors, platforms, mats, or other dry standing places are provided

6. Reporting Requirements

Constant awareness of and respect for fall protection procedures and compliance with all applicable Metro safety rules is mandatory.

Supervisors may issue warnings and implement disciplinary actions up to and including termination for failure to follow the guidelines of this program.

Employees shall report any safety concerns to their supervisor.

7. Training Requirements and Competency Assessment

Under no circumstances will any affected employee work in areas of high fall hazards, perform work requiring fall protection devices, or use fall protection devices until he/she has attended training in fall protection. This includes all new employees regardless of previous experience.

The training program provided shall include classroom instruction and operational training on specific fall hazards.

Employees will require retraining under any of the following conditions:

- Changes in the workplace render previous training obsolete
- Changes in the types of fall protection systems or equipment to be used render previous training obsolete
- Inadequacies in an employee's knowledge of use of fall protection systems or equipment or observed behavior indicate that the employee has not retained the required training

8. Information and External References

29 CFR 1926 Subpart M – Fall Protection

American National Standards Institute (ANSI), Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components (ANSI Z359.1-1992)

INSPECTION FORM : Full Body Harness

OSHA 1926.502(d)(21)

Personal fall arrest systems SHALL be inspected prior to each use for wear, damage, and other deterioration, and defective components SHALL be removed from service.

ANSI 6.1 Inspection

6.1.1 Equipment SHALL be inspected by the user before each use and, additionally, by a competent person other than the user at intervals of no more than one year.

Manufacturer of equipment:

Name of Manufacturer: _____

Serial#: _____ Model# _____

Date of Manufacture: __/__/____

Inspection:

Date: __/__/____

Name of competent person:

Name of user (authorized person):



LOOK AT:

- ① HARDWARE ② WEBBING
③ STITCHING ④ LABELS/TAGS

		PASS	FAIL
1	HARDWARE	✓	✗
	Rust/corrosion		
	Deformed/bent		
	Burrs/cracks		
	Weld spots/slag		
	Missing rivets		
	Springs		
	Functionality		
	Other		

2	WEBBING	✓	✗
	Cuts/burns/holes		
	Excessive wear		
	Excessive UV damage		
	Chemical attack		
	Other		

3	STITCHING	✓	✗
	Missing		
	Loose		
	Broken		
	Other		

4	LABELS/TAGS	✓	✗
	Intact		
	Readable		
	Dates		
	Other		

✓ ✗
PASS FAIL

Fire Prevention Plan

OVERVIEW: The purpose of this program is to prevent or minimize the possibility of a fire emergency. The program is based on the OSHA Fire Prevention Standard, 29 CFR 1910.39.

OBJECTIVE: To protect Metro employees and property from the dangers associated with fire.

DOES THIS PROGRAM APPLY TO THE EMPLOYEES IN YOUR DEPARTMENT? OSHA requires that all employers with ten (10) or more employees have a fire prevention plan in writing, kept in the workplace, and be made available to employees for review. If you still need assistance in determining whether this program applies to you, contact the Metro Safety Division.

IF YES, WHAT DOES YOUR DEPARTMENT NEED TO DO?

Each Department must have a written fire prevention plan at each facility. The fire prevention plan must contain the following elements:

- A list of major workplace fire hazards.
- Implement the use of the Hot Work Permit System and Fire Sprinkler Tag System.
- Procedures to control accumulations of flammable and combustible waste.
- Designate the name or job title of the personnel responsible for maintenance of fire and emergency equipment.
- Designate the name or job title of the personnel responsible for control of fuel hazards and for maintaining equipment to prevent or control sources of ignition or fires.
- Training on all aspects of the Fire Prevention Plan.

MAJOR WORKPLACE FIRE HAZARDS: Major workplace fire hazards are listed below, along with their proper handling and storage procedures. Use this chart to start a list of fire hazards particular to your facility or work area.

Workplace Fire Hazards	Handling and Storage Procedures
Fuel	Fuels may be handled and stored in workplaces only according to TOSHA and NFPA Standards.
Piped natural gas	Natural gas piping is installed in accordance with TOSHA, NFPA Standards.

Flammable liquids	Flammable liquids may be used and stored in workplaces only according to TOSHA and NFPA standards.
Flammable gases	Flammable gases may be used and stored in workplaces only according to TOSHA and NFPA standards.
Open Flames Smoking Hot work (e.g., welding, soldering, cutting, braising, heating metal, etc.) Electrical equipment & circuit panels	Open flames (like candles) in workplace areas and offices are a source of ignition. Open flames can also contribute to indoor air pollution. Confine smoking to designated areas. Metro distributes fire safety precautions and permits for hot work. Keep all combustible storage 3 feet away from electrical panels and any possible ignition source. Avoid overloading electric outlets or using extension cords on a long-term basis.

USE OF A FIRE SPRINKLER TAG SYSTEM & HOT WORK PERMIT SYSTEM

Fire Sprinkler Tag System: The purpose of the Fire Sprinkler Tag System is to ensure that if the fire sprinkler system is impaired, and a control valve has to be closed, there is a tag placed on the valve that notes:

- when the valve was closed;
- when it is to be re-opened
- who closed the valve; and
- why the valve was closed.



Example: Fire Sprinkler Tag

Hot Work Permit System: Hot work consists of any operation that produces flames, sparks, or heat. Cutting, welding, brazing, and grinding are all examples of “hot work” that would require the use of a hot work permit system.

Because combustible products ignite from hot work in just about any setting, offices, storage, maintenance, and repair, it is critical that each Metro department enforce strict guidelines and follow every precaution to reduce the risks associated with this type of work. A hot work permit system allows managers and supervisors to control the activities of personnel performing the work before, during, and after the job is complete.

In order to properly implement a hot work program, it must be in writing and distributed to all personnel involved in the hot work process, including contractors. All affected personnel shall receive training on how to follow the hot work precautions. An example of a hot work permit is at the end of this chapter (Appendix A).

The hot work permit must contain the following information:

- Name of the person completing the work
- Name of the company or department that employee is employed by
- Location of the building and floor
- The nature of the job
- A signature line for the operations supervisor or fire safety supervisor, ensuring that all of the required precautions have been taken to prevent fire. This will act as authorization that permission has been given to begin the work.

The following required precautions should be included on the hot work permit form:

- Available sprinklers, hose streams, and fire extinguishers are in service and operable.
- Hot Work equipment is in good repair

Requirements within 35 feet (11 meters) of work:

- Flammable liquids, dust, lint, and oily deposits are removed
- Explosive atmosphere in area is eliminated
- Floors are swept clean.
- Combustible floors are wet down and covered with damp or fire-resistive sheets.
- Other combustibles are removed when possible. Otherwise, fire-resistive tarpaulins or metal shields are used.
- All wall and floor openings are covered.
- Fire resistive tarpaulins are suspended beneath work.

Work on walls or ceilings:

- Construction is noncombustible and without combustible covering or insulation.
- Combustibles on other side of walls are moved away.

Work on enclosed equipment:

- Enclosed equipment is cleaned of all combustibles.
- Containers have been purged of flammable liquids/vapors

Fire Watch/Hot work area monitoring:

- Fire Watch will be provided during and for at least 30 minutes after work, including any breaks
- Fire Watch is supplied with suitable fire extinguishers and firefighting equipment including communication equipment.
Fire Watch is trained in the use of fire extinguishing equipment and in sounding emergency alarm.

FIRE PREVENTION RESPONSIBILITIES OF DEPARTMENTAL PERSONNEL

Use this form as a guide to designate personnel or departmental position that will assume the following responsibilities.

Personnel Responsibilities		1st Shift	2nd Shift
A. Person in Charge of Shift	Regular		
	Alternate		
B. Name of Sprinkler Control Person	Regular		
	Alternate		
C. Name of Employee Responsible for Calling Fire Service	Regular		
	Alternate		
D. Name of Person in charge of maintaining the Sprinkler system	Regular		
	Alternate		
E. Personnel responsible for the control of possible fuel hazards.	Regular		
	Alternate		

RESPONSIBILITIES FOR THE FIRE PREVENTION PROGRAM

Department Heads:

- Provide resources to effectively implement this program through the department.
- Establish systems to ensure departmental compliance associated with the Fire Prevention Plan.
- Ensure that information regarding training and information on the Fire Prevention Plan is available to employees.

Safety Coordinator:

- Follow-up to ensure supervisors are carrying out prescribed Fire Prevention requirements.
- Maintain a current list of all job categories and personnel that have been assigned certain responsibilities for fire prevention.
- Periodically review work areas for compliance with policy.
- Provide training on the Fire Prevention Plan to employees that may potentially be at risk of exposure

Supervisors

- Ensure that there is compliance with the program throughout the group supervised.
- Notify the Safety Coordinator of any operating changes affecting the employee's risk or responsibilities.
- Make routine surveys of the work area to ensure safe practices are being followed.

Employees

- Learn and apply Metro's Fire Prevention Plan.
- Know the location of emergency equipment
- Know your role in emergency procedures.
- Report unsafe conditions.
- Suggest improvements

RESULTS MEASUREMENT

Please inspect your job site or facility annually using the **Flammable & Combustible Material Checklist** (see Appendix B). This should help ensure that your facility remains in compliance. If you need assistance to bring your department into compliance, contact the Metro Safety Division.

Appendix A

HOT WORK PERMIT

This hot work permit is for any operation involving open flame or producing heat and/or sparks. This includes, but is not limited to, welding, brazing, cutting, grinding, soldering, thawing pipe, torch-applied roofing, or chemical welding.

DATE HOT WORK BY FACILITY EMPLOYEE
 CONTRACTOR

LOCATION COMPANY

FACILITY NAME BLDG NAME FLOOR PERSON PERFORMING ACTUAL HOT WORK

NAME Signature

WORK DESCRIPTION

PERMIT AUTHORIZING INDIVIDUAL (PAI) VERIFYING THAT THE SPECIFIED LOCATION HAS BEEN EXAMINED, THAT THE PRECAUTIONS IDENTIFIED ON THE FOLLOWING CHECKLIST(S) HAVE BEEN TAKEN, AND PERMISSION HAS BEEN GRANTED.

PAI NAME TITLE

WORK START TIME END TIME PAI Signature

PERMIT EXPIRES 12 HOURS FROM START TIME

TO INDICATE PRECAUTION VERIFIED OR WRITE 'NA' IF NOT APPLICABLE

Available sprinklers, hose streams, and extinguishers are in service and operable.

Hot work equipment is in good working condition in accordance with manufacturer's specifications.

Special permission obtained to conduct hot work on metal vessels or piping lined with rubber or plastic.

Requirements Within Thirty Five Feet (35') of Hot Work

Flammable liquid, oily deposits, and all combustible dust/lint removed (NOTE: Various processes and materials have potential to produce combustible dust.)

Explosive atmosphere in area eliminated.

Floors swept clean and trash removed.

Combustible floors wet down or covered with damp sand or fire-resistive/noncombustible materials or equivalent.

Personnel protected from electrical shock when floors are wet.

Other combustible storage material removed or covered with listed or approved materials (welding pads, blankets, or curtains; fire-resistant tarpaulins), metal shields, or noncombustible materials.

All wall and floor openings covered and all open spouts sealed or plugged.

Ducts and conveyors that might carry sparks to distant combustibles/flammables covered, protected, or shut down.

Requirements For Hot Work On Walls, Ceilings, or Roofs

Construction is noncombustible and without combustible coverings or insulation.

Combustible material on other side of walls, ceilings, or roofs is moved away.

Requirements For Hot Work On Enclosed Equipment

Enclosed equipment is cleaned of all combustibles.

Containers are purged of flammable liquid/vapors.

Pressurized vessels, piping, and equipment removed from service, isolated, and vented.

Requirements For Hot Work Fire Watch And Fire Monitoring

Fire watch is provided during and for a minimum of thirty (30) minutes after hot work, including any work breaks.

Fire watch is provided with suitable extinguishers and, where practical, a charged small hose.

Fire watch is trained in use of equipment and in sounding alarm.

Fire watch can be required in adjoining areas, above and below.

Monitoring time for hot work area extended beyond thirty minutes. Specify time:

Additional Requirements For Hot Work When There Is Potential For Combustible Dust

Spark-producing portable power tools and propellant-actuated tools prohibited where dust hazard is present.

Combustible dust or flammable vapor-producing machinery or operations in the area shut down and cleaned.

Fire watch is provided during and for a minimum of sixty (60) minutes after hot work, including any work breaks.

Monitoring time for hot work area extended beyond sixty minutes. Specify time:

Appendix B

FLAMMABLE AND COMBUSTIBLE MATERIALS CHECKLIST

Use the following check list to ensure your work area is free of fire hazards.

- Are combustible scrap, debris, and waste materials (oily rags, etc.) stored in covered metal receptacles and promptly removed from the worksite?
- Is proper storage practiced to minimize the risk of fire, including spontaneous combustion?
- Are approved containers, flammable safety cabinets, and tanks used to store and handle flammable and combustible liquids?
- Are all flammable liquids kept in closed containers when not in use (e.g., parts cleaning tanks, pans, etc.)?
- Is liquefied petroleum gas stored, handled, and used in accordance with safe practices and standards?
- Are “NO SMOKING” signs posted on liquid petroleum gas tanks and in areas where flammable or combustible materials are used or stored?
- Are all solvent wastes and flammable liquids kept in fire-resistant, covered containers until they are removed from the worksite?
- Are fuel gas cylinders and oxygen cylinders separated by a distance of 20 feet and/or a 30-minute fire-resistant barrier while in storage?
- Are appropriate fire extinguishers mounted within 75 feet (22.86 meters) of outside areas containing flammable liquids and within 10 feet (3.048 meters) of any inside storage area for such materials?
- Are extinguishers free from obstructions or blockage?
- Are all extinguishers serviced, maintained, and tagged at intervals not to exceed one year?
- Are all extinguishers fully charged and in their designated places?
- Where sprinkler systems are permanently installed, are the nozzle heads so directed or arranged that water will not be sprayed into operating electrical switchboards and equipment?
- Are all spills of flammable or combustible liquids cleaned up promptly?

HOT WORK PERMIT

This hot work permit is for any operation involving open flame or producing heat and/or sparks. This includes, but is not limited to, welding, brazing, cutting, grinding, soldering, thawing pipe, torch-applied roofing, or chemical welding.

DATE

HOT WORK BY FACILITY EMPLOYEE
 CONTRACTOR

LOCATION

FACILITY NAME	BLDG NAME	FLOOR
---------------	-----------	-------

COMPANY

PERSON PERFORMING ACTUAL HOT WORK

NAME	<i>Signature</i>
------	------------------

WORK DESCRIPTION

PERMIT AUTHORIZING INDIVIDUAL (PAI) VERIFYING THAT THE SPECIFIED LOCATION HAS BEEN EXAMINED, THAT THE PRECAUTIONS IDENTIFIED ON THE FOLLOWING CHECKLIST(S) HAVE BEEN TAKEN, AND PERMISSION HAS BEEN GRANTED.

WORK START TIME	END TIME	PAI <i>Signature</i> <input style="width: 100%; height: 20px;" type="text"/>
-----------------	----------	--

PERMIT EXPIRES 12 HOURS FROM START TIME

TO INDICATE PRECAUTION VERIFIED OR WRITE 'NA' IF NOT APPLICABLE

Available sprinklers, hose streams, and extinguishers are in service and operable.

Hot work equipment is in good working condition in accordance with manufacturer's specifications.

Special permission obtained to conduct hot work on metal vessels or piping lined with rubber or plastic.

Requirements Within Thirty Five Feet (35') of Hot Work

Flammable liquid, oily deposits, and all combustible dust/lint removed (NOTE: Various processes and materials have potential to produce combustible dust.)

Explosive atmosphere in area eliminated.

Floors swept clean and trash removed.

Combustible floors wet down or covered with damp sand or fire-resistive/noncombustible materials or equivalent.

Personnel protected from electrical shock when floors are wet.

Other combustible storage material removed or covered with listed or approved materials (welding pads, blankets, or curtains; fire-resistant tarpaulins), metal shields, or noncombustible materials.

All wall and floor openings covered and all open spouts sealed or plugged.

Ducts and conveyors that might carry sparks to distant combustibles/flammables covered, protected, or shut down.

Requirements For Hot Work On Walls, Ceilings, or Roofs

Construction is noncombustible and without combustible coverings or insulation.

Combustible material on other side of walls, ceilings, or roofs is moved away.

Requirements For Hot Work On Enclosed Equipment

Enclosed equipment is cleaned of all combustibles.

Containers are purged of flammable liquid/vapors.

Pressurized vessels, piping, and equipment removed from service, isolated, and vented.

Requirements For Hot Work Fire Watch And Fire Monitoring

Fire watch is provided during and for a minimum of thirty (30) minutes after hot work, including any work breaks.

Fire watch is provided with suitable extinguishers and, where practical, a charged small hose.

Fire watch is trained in use of equipment and in sounding alarm.

Fire watch can be required in adjoining areas, above and below.

Monitoring time for hot work area extended beyond thirty minutes. Specify time:

Additional Requirements For Hot Work When There Is Potential For Combustible Dust

Spark-producing portable power tools and propellant-actuated tools prohibited where dust hazard is present.

Combustible dust or flammable vapor-producing machinery or operations in the area shut down and cleaned.

Fire watch is provided during and for a minimum of sixty (60) minutes after hot work, including any work breaks.

Monitoring time for hot work area extended beyond sixty minutes. Specify time:

FIRST AID/AED-CPR

This guideline is developed in accordance with provisions as outlined in OSHA standard 29 CFR 1910.151 (First Aid Standard).

This guide establishes training and operational procedures that will be followed to ensure prompt and knowledgeable treatment of injured employees, which will prevent minor injuries from becoming severe.

The OSHA First Aid standard (29 CFR 1910.151) requires trained first-aid providers at all workplaces of any size if there is no “infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees.” While the standards do not prescribe a number of minutes, OSHA has long interpreted the term "near proximity" to mean that emergency care must be available within no more than 3-4 minutes from the workplace. OSHA recognizes that a somewhat longer response time of up to 15 minutes may be reasonable in workplaces, such as offices, where the possibility of such serious work-related injuries is more remote.

In addition to first-aid requirements of 29 CFR 1910.151, several OSHA standards also require training in cardiopulmonary resuscitation (CPR) because sudden cardiac arrest from asphyxiation, electrocution, or exertion may occur. CPR may keep the victim alive until EMS arrives to provide the next level of medical care.

The OSHA standards requiring CPR training are:

- 1910.146 Permit-required Confined Spaces
- 1910.266 Appendix B: Logging Operations – First-Aid and CPR Training
- 1910.269 Electric Power Generation, Transmission, and Distribution

Responsibilities

The following responsibilities apply to various levels within Metro:

Department Director will:

- Require the full application and integration of this guide into daily operations, as applicable, in all areas of responsibility and with all direct reports.
- Assess managers and supervisors on their ability to apply this guide in their areas of responsibility.

Department Safety Coordinators will administer all aspects of this guide to include:

- Maintaining and updating a written program if required.
- Coordinating necessary training for all affected employees.
- Providing necessary technical assistance to managers and supervisors.

- Periodically assessing the effectiveness of this program and its implementation in all affected areas of the department.

Managers and supervisors will:

- Know how this guide applies to their areas, and know which employees are trained to be first responders and when they require retraining.
- Decide where it is necessary and appropriate to place first aid kits in their areas and ensure that the kits are available, periodically inspected, and restocked as needed.
- Integrate and enforce the provisions of this guide in their areas of responsibility.
- Periodically audit the effectiveness of this guide in their areas of responsibility.
- Coordinate training for all affected employees, including those that will become first responders.
- Provide appropriate coaching and corrective action when necessary to ensure this guide is fully integrated.

All affected employees will:

- Seek care when injured and report all work-related injuries to their supervisor even when treatment is not needed.
- Follow all training, instructions and directives relative to this guide.
- Seek clarification whenever there are questions concerning the application of this guide into daily operations.

If a co-worker is trained in first aid, it is permissible to provide care using the nearest first aid kit. If untrained or uncomfortable providing care, co-workers should help locate another first responder on the premises. Co-workers may consider assisting the injured employee in getting transportation, seeking help or notifying management. When in doubt, co-workers should contact supervisors, first responders and emergency medical care.

First Aid Supplies

First aid supplies will be regularly stocked and monitored to ensure availability in the event of an emergency. Department Safety Coordinators will be responsible for choosing types and amounts of first-aid supplies and maintaining those supplies. The supplies will be adequate and will reflect the most common injuries in the facility. Typical first aid kits are equipped with gauze, bandages, large and small Band-Aids, scissors, pocket face mask, rubber gloves and other materials required to stop bleeding and cover wounded areas. First aid cabinets or kits will be maintained in accessible places. Appendix A – First Aid Cabinet Checklist/Classes of First Aid Kits and Quantities.

For the protection of any injured person or persons, and to avoid the potential for personal or administrative liability, the following first aid guidelines are in effect for the Metropolitan Government of Nashville & Davidson County.

- In no case shall ointments, salves, disinfectants or oral medicine be rendered except on advice of a physician.
- Staff that require over-the-counter or prescription medication shall provide for and administer their own medication.
- In no case shall any person or persons render first aid to a degree above that for which they are trained and certified.
-

Medical Emergency

In the event of a medical emergency, the following actions will be taken:

- Specifically identify a person to initiate the 911 notification system (Do Not shout “someone call 911”)
- Evaluate scene safety – if there is any concern, all personnel should stay at a safe distance away from the scene
- Do not move the ill/injured person (unless s/he is in danger from their surroundings)
- Avoid all contact with blood and other bodily fluids
- Never attempt to provide first aid unless you are trained and equipped to do so
- A calm employee may stay with the ill/injured person to provide comfort
- The supervisor will assign at least two employees to wait for the EMS responders at the parking lot entrance and guide the responders to the scene of the emergency
- All uninvolved personnel should clear the area
- If there has been any blood or bodily fluid release, trained personnel will clean and sanitize the area after the emergency phase has concluded

Transportation by Car

There may be cases in which injured employees needing professional medical attention can be transported to the hospital or medical facility by car. However, in other cases, transportation by ambulance may be necessary. If there is any doubt about the appropriate mode of transportation, an employee must call an ambulance. The following are some examples of conditions that necessitate an ambulance:

- Employee is unconscious or in shock
- Hemorrhaging
- Severe abdominal cramps and/or vomiting
- An apparent fracture
- Other symptoms of internal injury

AED-CPR

With recent advances in technology, automated external defibrillators (AEDs) are now widely available, safe, effective, portable, and easy to use. They provide the critical and necessary treatment for sudden cardiac arrest (SCA) caused by ventricular fibrillation, the uncoordinated beating of the heart leading to collapse and death. Using AEDs as soon as possible after sudden cardiac arrest, within 3-4 minutes, can lead to a 60% survival rate. CPR is of value because it supports the circulation and ventilation of the victim until an electric shock delivered by an AED can restore the fibrillating heart to normal.

All worksites are potential candidates for AED programs because of the possibility of SCA and the need for timely defibrillation. Each workplace should assess its own requirements for an AED program as part of its first-aid response.

A number of issues should be considered in setting up a worksite AED program: physician oversight; compliance with the Tennessee AED Law; coordination with local EMS; a quality assurance program; and a periodic review, among others.

All Metro departments that provide AEDs must do so in accordance with the Tennessee AED Law – Tennessee Code Title 68, Ch. 140 Part 7.

The provisions of 68-140-704 – 68-140-710, shall only apply to situations involving emergency use of an AED and in no case shall it apply where there is a duty to provide care.

Program for use of AEDs. (68-140-704)

In order for an entity to use or allow the use of an automated external defibrillator, the entity shall:

- (1) Establish a program for the use of an AED that includes a written plan that complies with subdivisions (2)-(6) and the rules adopted by the department of health. The plan must specify:
 - (A) Where the AED will be placed;
 - (B) The individuals who are authorized to operate the AED;
 - (C) How the AED will be coordinated with an emergency medical service providing services in the area where the AED is located;
 - (D) The maintenance and testing that will be performed on the AED;
 - (E) Records that will be kept by the program;
 - (F) Reports that will be made of AED use;
 - (G) Other matters as specified by the department; and
 - (H) A plan of action for proper usage of the AED;
- (2) Adhere to the written plan required by subdivision (1);

- (3) Ensure that before using the AED, expected users receive appropriate training approved by the department in cardiopulmonary resuscitation and the proper use of an AED;
- (4) Maintain, test, and operate the AED according to the manufacturer's guidelines and maintain written records of all maintenance and testing performed on the AED;
- (5) Each time an AED is used for an individual in cardiac arrest, require that an emergency medical service is summoned to provide assistance as soon as possible and that the AED use is reported to the supervising physician or the person designated by the physician and to the department as required by the written plan; and
- (6) Before allowing any use of an AED, provide to the emergency communications district or the primary provider of emergency medical services where the defibrillator is located:
 - (A) A copy of the plan prepared pursuant to this section; and
 - (B) Written notice, in a format prescribed by department rules, stating:
 - (i) That an AED program is established by the entity;
 - (ii) Where the AED is located; and
 - (iii) How the use of the AED is to be coordinated with the local emergency medical service system.

Appendix - A

ANSI First Aid Cabinet Checklists

ANSI Z308.1-2021 includes several notable updates. A foil blanket has been added to Class A and B kits. Additionally, the quantity of hand sanitizer for both Class A and Class B kits has increased. For the Class B kit, more specificity on the type of tourniquet required has been outlined to distinguish them from those types of bands used to draw blood, which are not as effective in preventing blood loss, as intended.

In deciding which class is more appropriate for your workplace, you should consider the following

- Potential severity and the likelihood of occurrence
- Whether multiple first aid kits are needed based on the number of employees
- Physical layout of the work environment
- The remoteness of your worksite to emergency services

What Size First Aid Kit Do I Need?

Class A kits/Low level hazard: recommended for common workplace injuries, such as minor cuts, abrasions, and sprains. Typical industries include an office, libraries, warehouses, light assembly or packaging.

- **Small size kit:** less than 25 employees.
- **Medium size kit:** 25-100 employees.
- **1 large kit per 100 employees:** more than 100 employees.

Class B kits/High level hazard: recommended for more complex injuries or high-risk environments. Typical industries include industrial manufacturing, welding, woodworking, fabrication or any business that requires employees to work with dangerous machinery or sharp instruments.

- **Small size kit:** less than 5 employees.
- **Medium size kit:** 5-25 employees.
- **1 large kit per 25 employees:** more than 25 employees.

Appendix - A cont.

Classes of First Aid Kits and Quantities

First Aid Supply	Minimum Quantity		Minimum Size or Volume (US)
	Class A Kits	Class B Kits	
Adhesive Bandage	16	50	1 x 3 in.
Adhesive Tape	1	2	2.5 yd (total)
Antibiotic Application	10	25	1/57 oz
Antiseptic	10	50	1/57 oz
CPR Breathing Barrier	1	1	
Burn Dressing (gel soaked)	1	2	4 x 4 in.
Burn Treatment	10	25	1/32 oz
Cold Pack	1	2	4 x 5 in.
Eye Covering, with means of attachment	2	2	2.9 sq. in
Eye Wash	1 fl oz total		
		4 fl oz total	
First Aid Guide	1	1	N/A
Hand Sanitizer	10	20	1/32 oz
Medical Exam Gloves	2 pair	4 pair	N/A
Gauze - 2 inch	1	2	2in. x 4yd
Gauze - 4 inch	0	1	4 in. x 4yd
Scissors	1	1	N/A
Splint	0	1	4.0 x 24 in.
Sterile Pad	2	4	3 x 3in.
Tourniquet	0	1	N/A
Trauma Pad	2	4	5 x 9 in.
Triangular Bandage	1	2	40 x 40 x 56 in.
Foil Blanket	1	1	52 x 84in

TENNESSEE AED LAW

Tennessee Code Annotated

68-140-701. Legislative intent.

It is the intent of the general assembly that an automated external defibrillator (AED) may be used in accordance with the provisions of § 68-140-703 for the purpose of saving the life of another person in cardiac arrest.

68-140-702. Part definitions.

As used in this part, unless the context otherwise requires:

- (1) "AED" or "defibrillator" means an automated external defibrillator;
and
- (2) "Automated external defibrillator (AED)" means a medical device heart monitor and defibrillator that:
 - (A) Has received approval of its premarket notification, filed pursuant to 21 U.S.C. §360(R), from the United States Food and Drug Administration;
 - (B) Is capable of recognizing the presence or absence of ventricular fibrillation or rapid ventricular tachycardia, and is capable of determining, without intervention by an operator, whether defibrillation should be performed; and
 - (C) Upon determining that defibrillation should be performed, automatically charges and requests delivery of an electrical impulse to an individual's heart.

68-140-703. Use of AED devices - Training - Maintenance - Registration encouraged.

In order to ensure public health and safety:

- (1) A person or entity who acquires an automated external defibrillator (AED) shall ensure that:
 - (A) Expected defibrillator users receive American Heart Association CPR and AED or an equivalent nationally recognized course in defibrillator use and cardiopulmonary resuscitation;
 - (B) The defibrillator is maintained and tested according to the manufacturer's operational guidelines; and
 - (C) Any person who renders emergency care or treatment on a person in cardiac arrest by using an AED activates the emergency medical services system as soon as possible.

- (2) Any person or entity who acquires an AED shall, within a reasonable time after the placement of an AED, register the existence and location of the defibrillator with the emergency communications district or the ambulance dispatch center of the primary provider of the emergency medical services where the AED is to be located.

68-140-704. Program for use of AEDs.

In order for an entity to use or allow the use of an automated external defibrillator, the entity shall:

- (1) Establish a program for the use of an AED that includes a written plan that complies with subdivisions (2)-(6) and the rules adopted by the department of health. The plan must specify:
 - (A) Where the AED will be placed;
 - (B) The individuals who are authorized to operate the AED;
 - (C) How the AED will be coordinated with an emergency medical service providing services in the area where the AED is located;
 - (D) The maintenance and testing that will be performed on the AED;
 - (E) Records that will be kept by the program;
 - (F) Reports that will be made of AED use;
 - (G) Other matters as specified by the department; and
 - (H) A plan of action for proper usage of the AED;

- (2) Adhere to the written plan required by subdivision (1);
- (3) Ensure that before using the AED, expected users receive appropriate training approved by the department in cardiopulmonary resuscitation and the proper use of an AED;
- (4) Maintain, test, and operate the AED according to the manufacturer's guidelines and maintain written records of all maintenance and testing performed on the AED;
- (5) Each time an AED is used for an individual in cardiac arrest, require that an emergency medical service is summoned to provide assistance as soon as possible and that the AED use is reported to the supervising physician or the person designated by the physician and to the department as required by the written plan; and
- (6) Before allowing any use of an AED, provide to the emergency communications district or the primary provider of emergency medical services where the defibrillator is located:
 - (A) A copy of the plan prepared pursuant to this section; and
 - (B) Written notice, in a format prescribed by department rules, stating:
 - (i) That an AED program is established by the entity;
 - (ii) Where the AED is located; and
 - (iii) How the use of the AED is to be coordinated with the local emergency medical service system.

68-140-705. Rules relating to AEDs – Adoption – Scope and contents.

The department of health shall adopt rules specifying the following:

- (1) The contents of the written notice required by § 68-140-704;
- (2) Reporting requirements for each use of an AED;

- (3) The contents of a plan prepared in accordance with § 68-140-704 and requirements applicable to the subject matter of the plan;
- (4) Training requirements in cardiopulmonary resuscitation and AED use that are consistent with the scientific guidelines of the American Heart Association for any individual authorized by an AED program plan to use an AED;
- (5) Requirements for medical supervision of an AED program;
- (6) Performance requirements for an AED in order for the AED to be used in an AED program; and
- (7) A list of the AED training programs approved by the department.

68-140-706. Limitation on liability of entity responsible for program.

The entity responsible for the AED program shall not be liable for any civil liability for any personal injury that results from an act or omission that does not amount to willful or wanton misconduct or gross negligence if the applicable provisions and program established under § 68-140-704 and the rules adopted by the department pursuant to § 68-140-705 have been met by the entity and have been followed by the individuals using the AED.

68-140-707. Limitation on liability of trainers.

An individual providing training to others in an approved program on the use of an AED shall be held harmless by the employer of the trainer for damages caused by training that was negligent.

68-140-708. Training and demonstration of competence in CPR and use of AED.

For purposes of §§ 68-140-704 - 68-140-710, expected AED users shall complete training and demonstrate competence in CPR and the use of an AED through a course of instruction approved by the Tennessee emergency medical services board.

68-140-709. Applicability of §§ 68-140-702, 68-140-704 - 68-140-709.

The provisions of §§ 68-140-704 - 68-140-710, shall only apply to situations involving emergency use of an AED and in no case shall it apply where there is a duty to provide care. Nor shall it apply where a doctor has prescribed use of an AED for a patient's use in the patient's private home.

68-140-710. [Transferred]

Hand Tools / Portable Power Tools / Chainsaws

The purpose of these guidelines is to promote the safe use of, and to reduce the likelihood of injuries involving the use of hand or power tools. These requirements apply to all Metro departments and their employees where hand and power tools are in use or will be used. This will most notably apply to employees involved in industrial, maintenance, construction, and manual labor positions.

HAND TOOLS

- 1) Employees shall use only **approved** tools and equipment that are in safe condition. The Supervisor shall be notified if proper and safe tools or equipment are not available.
- 2) Hand tools and similar equipment shall be inspected frequently and maintained in safe condition. Those that are found to be unsafe shall be removed from service, tagged, and not used again until repaired.
- 3) Tools and equipment shall not be misused by unsafe practices, such as substituting a screwdriver for a hammer or chisel or substituting a knife for a screwdriver or chisel.
- 4) Impact tools, such as chisels, drills, hammers, and wedges with mushroomed heads shall not be used until they have been reconditioned. Pneumatic tool bits shall be used only in pneumatic tools and shall not be used as hand tools.
- 5) Hammers, axes, shovels, and similar tools shall not be used if the handles are loose, cracked, splintered, or taped.
- 6) Defective wrenches, such as open-end and adjustable wrenches with sprung jaws, or pipe wrenches with dull teeth shall not be used. Shims shall not be used to make a wrench fit. Adjustable wrenches shall be kept properly adjusted while being used.
- 7) Pipe, or other extensions, should not be used on a wrench handle to increase the leverage unless the wrench is specifically designed for use of such extension.
- 8) Metal rules, metal tape lines, or tape lines containing wires shall not be used near energized electric conductors or equipment.
- 9) Sharp-edged or pointed tools shall be kept sharp. A sharp tool is safer and more efficient than a dull one.
- 10) Files, or other tools with pointed tangs, shall be equipped with suitable handles.

- 11) Chisels, drills, pipes, etc. should be held with suitable holders or tongs (not with hands) while being struck with a hammer by another employee.
- 12) When using a screwdriver, knife, or other tool, employees shall place themselves in such a position that they will avoid injury if the tool slips.
- 13) Tools and material shall not be thrown from one employee to another, nor from one location to another. A suitable container should be used for raising or lowering small equipment or tools between different elevations.
- 14) Tools shall not be placed on ladders, stairs, balconies, or other elevated places from which they might create a stumbling hazard or become dislodged and fall.
- 15) Only non-sparking tools shall be used in locations where sources of ignition may cause a fire or explosion.
- 16) When axes or scythes are used on a slope, the employee using these tools should be below or down slope from the work area. A safe distance shall be maintained between employees engaged in hand-cutting work.

PORTABLE POWER TOOLS

- 1) Employees shall be instructed by their supervisor in the proper use and care of power tools, equipment, and machinery before use.
- 2) When power-operated tools are designed to accommodate guards, they shall be equipped with such guards when in use. Guards shall be regularly inspected and maintained in safe working condition.
- 3) Power tools shall be inspected, tested, and determined to be in a safe operating condition prior to use.
- 4) Power-activated tools shall be operated only by qualified personnel.
- 5) Appropriate personal protective equipment (PPE) shall be worn when using hand tools and portable power tools. **If you are unsure of the appropriate PPE to be used get with your supervisor.**
- 6) The following rules shall be observed when operating an electric drill:
 - a. The employee shall adequately secure the work by using a clamp, jig, or vise, and shall not hold small work in his or her hands.
 - b. Employees shall not sweep away chips with their bare hands.
 - c. Eye protection shall be utilized whenever a drill is in use, especially when the work is near head level or overhead.
 - d. Employees shall be sure that the chuck key or drift has been removed from the chuck before a drill is started.

- 7) The following rules shall be observed when using portable electric cords:
 - a. Electric cords shall be maintained in safe condition. Worn or defective plugs shall be repaired by a qualified individual or replaced.
 - b. Electric cords shall be disconnected by pulling on the plug and not the cord.
 - c. Extension cord hand lamps used in an explosive -type dust or gaseous atmosphere shall be of the explosion-proof type.
 - d. Extension cord hand lamps shall be of the molded composition type or other type approved for the purpose. Brass-shell, paper-lined lamp holders shall not be used. Hand lamps shall be equipped with a handle and a substantial guard over the bulb. Metallic bulb guards shall be grounded.
 - e. When a portable hand lamp is used near energized electrical equipment or circuits, special precautions shall be taken to prevent accidental electrical contact.
 - f. Extension cords used with portable electric tools and appliances shall be of the three-wire grounding type.
- 8) Portable electric tools, equipment, and appliances shall meet one or more of the following requirements:
 - a. The exposed noncurrent-carrying metal parts of portable or plug-connected equipment which may become energized shall be grounded.
 - b. Be of the approved double-insulated type and be conspicuously marked as such. □ (double insulated symbol)
 - c. Be completely self-contained and battery-operated.
- 9) Impact wrenches shall be provided with a locking device for retaining the socket.
 - a. Pressure shall be shut off and exhausted from the line before disconnecting the line from any pneumatic tools or connection.
 - b. Manufacturer's safe operating pressures for hydraulic hoses, valves, pipes, filters, and other fittings shall not be exceeded. Defective hose shall be removed from service.
 - c. Only approved hydraulic fluid power tools shall be used.
 - d. All hydraulic or pneumatic tools which are used on or around energized lines or equipment shall have non-conducting hoses having adequate strength for the normal operating pressures.

CHAIN SAWS

- 1) Only qualified, properly trained employees shall operate chain saws.
- 2) When starting a chain saw, it shall be placed on or against a solid support. The saw bumper shall be against the tree or limb before starting a cut. To prevent

- accidents, stand with your weight evenly distributed on both feet. Hold saw firmly with both hands. The proper grip will protect you if the saw kicks.
- 3) Always stop engine and pull the spark plug wire off before working on the saw.
 - 4) Never set a saw down while the blade is engaged/spinning.
 - 5) Never refuel while the engine is running. Always move away from fueling spot before starting the engine. Do not smoke while refueling.
 - 6) Prepare immediate cutting area by cleaning out undergrowth likely to interfere with operator or saw.
 - 7) Remove dead material, which could cause a fire, from cutting area.
 - 8) Chain saws shall not be operated above shoulder level.
 - 9) Barricade the work area to keep all bystanders away.
 - 10) Other workers should remain within hailing distance in case you need help.
 - 11) Select a clear path of safe retreat when felling trees.
 - 12) Employees must wear appropriate PPE, see below. Employees must not wear jewelry, scarfs or loose-fitting clothing. Open-toe shoes, tennis shoes, etc. do not give adequate protection and must not be worn.
 - a. Head protection (hard hat)
 - i. ANSI Z89.1
 - ii. With mesh screen
 - b. Eye protection
 - i. ANSI Z87.1 / Fogging resistant
 - c. Hearing protection
 - i. Adequate but not excessive
 - d. Chainsaw chaps/pants
 - e. Suitable footwear and gloves

HAZARD COMMUNICATION (The Right to Know)

OVERVIEW: Hazardous chemicals may be found in any workplace. To protect employees the Metropolitan Government has established this program to provide identification and information on hazardous chemicals to affected employees.

The program is to ensure that the hazards of all chemicals in the workplace are classified, and that information concerning the classified hazards is transmitted to employers and employees. The requirements of OSHA 1910.1200 are intended to be consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets (SDS) and employee training.

OBJECTIVE: To protect the health and safety of employees by providing any and all information to employees about the dangers of hazardous chemicals and properly identifying and labeling hazardous substances.

DOES THIS APPLY TO THE EMPLOYEES IN YOUR DEPARTMENT? The Hazard Communication Program (HazCom) applies to all Metro operations where employees may be exposed to hazardous substances under normal working conditions or in an emergency. Each department must determine which, if any, employees may be exposed to hazardous substances. The answers to the questions below will help a department identify those employees. **If ANY of these questions is “Yes” for a worker, that worker is considered to be at occupational risk.**

Does the employee ever:

(a) Use potentially hazardous chemicals (this includes even common chemicals such as oil, solvents, paints, alcohol, acetone, etc.)?

YES NO

(b) Supervise those who use potentially hazardous chemicals?

YES NO

(c) Use oil from a single container or reservoir in quantities greater than 55 gallons?

- YES NO

(d) Use hydrofluoric acid?

- YES NO

(e) Use a respirator?

- YES NO

(f) Ship or prepare to ship potentially hazardous chemicals?

- YES NO


IF YES, WHAT DOES YOUR DEPARTMENT NEED TO DO?

If the Hazard Communication program applies to the employees in your department, you should:

- Compile and maintain inventory of hazardous chemicals in department's workplaces.
- Label containers of hazardous chemicals in workplaces.
- Maintain Safety Data Sheets (SDS) and ensure that they are accessible to employees and others who may be in the department.
- Train employees on the hazardous communication program.
- Prepare plans to deal with hazardous chemical emergencies.

HAZARDOUS CHEMICALS INVENTORY: Each department with chemicals in the workplace shall be responsible for the identification, storage, and handling of all chemicals it uses. The Department Safety Coordinator will prepare and maintain an inventory of all hazardous chemicals used by the department in its usual work practices and update the inventory as new chemicals are obtained. This inventory will be in alphabetical order. A master list of these chemicals with an SDS for each chemical will be maintained and updated by the departments. A Hazardous Chemical List and Index of SDS form is located in Appendix A of this section.

CONTAINER LABELING: All original and secondary containers of hazardous materials shall be clearly labeled so that the contents of the container can be clearly identified. The labels on containers of hazardous chemicals shall not be removed or defaced. All labels are required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised Hazard Communications Standard (HCS) label, identifying the required label elements, is shown below. Supplemental information can also be provided on the label as needed.

SAMPLE LABEL	
<p style="text-align: center; color: blue;">PRODUCT IDENTIFIER</p> <p>CODE _____ Product Name _____</p> <p style="text-align: center; color: blue;">SUPPLIER IDENTIFICATION</p> <p>Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____</p> <p style="text-align: center; color: blue;">PRECAUTIONARY STATEMENTS</p> <p>Keep container tightly closed. Store in cool, well ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measure against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear Protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified.</p> <p>In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO₂) fire extinguisher to extinguish.</p> <p>First Aid If exposed call Poison Center. If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.</p>	<p style="text-align: center; color: blue;">HAZARD PICTOGRAMS</p> <div style="text-align: center;">  </div> <p style="text-align: center; color: blue;">SIGNAL WORD Danger</p> <p style="text-align: center; color: blue;">HAZARD STATEMENT</p> <p>Highly flammable liquid and vapor. May cause liver and kidney damage.</p> <p style="text-align: center; color: blue;">SUPPLEMENTAL INFORMATION</p> <p>Directions for use _____ _____ _____</p> <p>Fill weight: _____ Lot Number _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____</p>

MAINTAIN SAFETY DATA SHEETS (SDS): The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. SDSs are organized into a 16 section uniform format, and include the section numbers, the headings, and associated information under the headings below:

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/ effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information

Section 13, Disposal considerations

Section 14, Transport information

Section 15, Regulatory information

Section 16, Other information, includes the date of preparation or last revision.

An SDS provides specific hazard and precautionary information on the hazardous chemical listed. Departments shall maintain copies of the most current SDS supplied by the chemical manufacturer or distributor for each substance on the department's "Hazardous Chemicals Inventory." Departments shall ensure that SDSs are accessible to all employees, their representatives, and contractors for viewing or copying during normal work hours at designated locations. SDSs may be stored on a computer hard drive, but the computer must be available and non-password protected..

If additional information is needed or if a manufacturer or distributor does not automatically provide a complete SDS with the chemical purchased, the department shall contact the chemical manufacturer or distributor

The Department shall review SDSs for completeness. If an SDS is missing or is incomplete, a new SDS will be obtained from the manufacturer before the chemical is put into use. The material will not be used until a proper SDS is on-site.

The Department shall review all incoming Safety Data Sheets for new and relevant health and safety information. The Department shall be responsible for communicating new information within 30 days of receipt of new or revised SDS's to all employees affected by the usage of a new chemical. This information should indicate any change in risks to health and safety and measures necessary for employees to protect themselves.

TRAINING: The Department shall provide their employees with documented training on hazardous substances to which they may be exposed upon initial assignment, annually, upon reassignment and whenever a new substance is introduced into the work area. Training content shall be reviewed each year and updated as necessary to include additional content on new hazards. When new products are introduced into the work environment, employees will receive the chemical Safety Data Sheets (SDS) and training associated with the chemical, before it is used. When employees are required to perform hazardous non-routine tasks, a special training session will be conducted to inform them of the hazardous chemicals that they may be exposed to and the proper precautions to protect themselves. Training will include the following:

- Information on any operations in their work area where hazardous substances are present,
- Summary of the Hazard Communications Standard 29 CFR 1910.1200 and the department's written program and location.
- Information on the physical and health effects of hazardous chemicals in the workplace,
- Methods that can be used to detect the presence or release of hazardous substances in the workplace (e.g., smell, appearance, monitor alarms);
- Measures employees can take to protect themselves from the hazardous chemicals in their workplaces including proper hygiene practices, personal protective equipment and emergency procedures;
- Emergency and first aid measures to be taken if an employee is exposed to a hazardous substance,
- Explanation of Department's hazardous chemical inventory, how to read and interpret the information on SDSs, where SDSs are located in the department, and how to obtain additional information on hazardous chemicals.

- The training should emphasize the fact that employees have the right to receive or have their personal physician receive information contained in the SDS.
- No discriminatory action may be taken against them if they exercise this right.
- Requirements for primary and secondary container labels.

CONTRACTOR'S EMPLOYEES: Departments will advise outside contractors of any chemical hazards that they might encounter in the normal course of their work on the department's premises, the labeling system in use, the protective measures to be taken, and the safe handling procedures to be used. The Department will notify these individuals of the location and availability of the Safety Data Sheets.

In addition, every contractor bringing chemicals onto the department's property must have the chemical approved by the department and provide appropriate hazard information with regard to the substances, including the SDS, labels, and precautionary measures to be taken in working with these chemicals.

VENDORS shall furnish all Safety Sheets (SDS) with each order of chemicals delivered to The Metropolitan Government of Nashville and Davidson County. Containers shall be affixed with labels that meet the labeling requirements of 29 CFR 1910.1200 upon delivery. If labels cannot be affixed prior to delivery, the vendor shall supply the appropriate labels for Metro personnel to place on the containers. Shipments that show damage/leak/or spill are to be refused.

RECORDKEEPING: SDSs must be retained for the duration of employment plus 30 years for all employees exposed to the chemical in question. If an employee has been exposed to a hazardous chemical, an SDS on that chemical shall be added to the employee's permanent medical record. An annual review of onsite SDSs will be conducted to ensure accuracy and compliance.

EMERGENCY PLANS: Each department shall prepare an emergency response plan that includes specified locations for first aid supplies and assignment of responsibilities in the event of an emergency. Information on the departments emergency response plan shall be included in hazard communication training. This plan shall be reviewed and updated annually.

HAZARD REPORTING

When any employee observes a hazardous condition that may cause injury, property damage, or interferes with Metropolitan Government services, he or she shall immediately report it to the Supervisor. In an emergency, a trained employee shall guard or isolate the hazard.

RESPONSIBILITIES: **Department Heads**

- Provide resources to effectively implement this program.
- Establish systems to ensure departmental compliance associated with chemicals to which they may potentially be exposed.
- Ensure that SDS's for all hazardous chemicals in the worksite are available to employees.
- Assign responsibility for (1) evaluating labels on incoming containers to verify they are labeled properly and (2) ensuring that the department has received an SDS for each chemical that comes into the department.

Safety Coordinator

- Determine what chemicals employees may come into contact with by reviewing operations with supervisors.
- Follow-up to ensure supervisors are carrying out prescribed Hazard Communication Program requirements.
- Maintain a current chemical inventory list of all hazardous chemicals in a central location.
- Periodically review work areas for compliance with policy.
- Ensure training is provided to employees on the hazardous materials associated with chemicals to which the employees may potentially be exposed; (new employees, annually, or when new chemical is introduced.)

Supervisors

- Ensure that there is compliance with the program throughout the group supervised.
- Notify the department's Safety Coordinator of any operating changes affecting the hazardous materials being used.
- Identify all jobs requiring the use of hazardous chemicals and list those chemicals.
- Periodically inspect engineering controls and personal protective equipment.
- Make routine surveys of the work area to ensure safe practices are being followed.
- Ensure that all containers of hazardous materials are properly labeled.
- Ensure employee access to a current SDS for each hazardous substance used in the workplace.

Employees

- Learn and apply the department's Hazard Communication Policy and Procedures.
- Use personal protective equipment as required by the department's procedures and policies.
- Inform your supervisor of :
 1. Any symptoms of over-exposure that may possibly be related to hazardous chemicals;
 2. Missing labels on containers;
 3. Malfunctioning safety equipment.

- Use approved labels on the containers. Do not remove existing labels.
- Review hazardous chemical Safety Data Sheets (SDS) for chemicals in your workplace.
- Use only approved containers for hazardous materials and ensure they are properly labeled.
- Know the location of emergency equipment, e.g., first aid supplies, emergency eye wash, showers, etc.
- Know your role in emergency procedures.
- Report unsafe conditions.
- Suggest improvements.

Metro Safety Division At least once per year, the Metro Safety Division of the Human Resources Department will review and update, if applicable, the basic Hazard Communication Program. The evaluation will be done with the assistance of department Safety Coordinators. The update will consist of the following elements:

- Assessment of applicable regulations
- Written program
- Designated employee accountability
- Hazard assessment

RESULTS MEASUREMENT: To determine whether your department is in compliance with Metro's Hazard Communication Program and OSHA regulation 29 CFR.1910.1200, fill out the **Hazard Communication Checklist** below. If you need assistance to bring your department into compliance, contact the Metro Safety Division of the Human Resources Department at 862-6640.

Hazard Self Inspection Checklist

A. Communication of Program

Circle One

- | | | | |
|--|-----|----|-----|
| 1. Has a written hazard communication program been developed, implemented, and maintained at the worksites in your department? | Yes | No | N/A |
| 2. Has a list of known hazardous chemicals at your facility been prepared and a copy sent to the Department Safety Coordinator ? | Yes | No | N/A |
| 3. Have methods been developed to inform employees of the hazards of non-routine tasks such as emergency response or equipment repair? | Yes | No | N/A |
| 4. Does the department communicate hazards to outside contractors or vendors who may be exposed to hazardous chemicals at your worksite? | Yes | No | N/A |

B. Container Labels

- | | | | |
|--|-----|----|-----|
| 5. Are all containers of hazardous chemicals in the workplace labeled, tagged, or marked with the following information? | | | |
| • pictograms, | Yes | No | N/A |
| • a signal word, | Yes | No | N/A |
| • hazard and precautionary statements, | Yes | No | N/A |
| • the product identifier, and | Yes | No | N/A |
| • supplier identification | Yes | No | N/A |

The following hazardous chemicals are exempt from this labeling requirement, although subject to other labeling requirements: pesticides, foods, food additives, color additives, drugs, cosmetics, medical devices, alcoholic beverages, consumer products, hazardous waste, tobacco products, and wood products.

6. Is removal or defacing of labels on incoming containers of hazardous chemicals prohibited? Yes No N/A

7. Are labels or other forms of warnings legible, in English, and prominently displayed? Yes No N/A

C. Safety Data Sheets

8. Are safety data sheets on hand for each hazardous chemical used and identified on the hazardous chemicals list? Yes No N/A

9. If a hazardous chemical is delivered without a safety data sheet, does the department obtain one from the chemical manufacturer or distributor before the chemical is used? Yes No N/A

10. Are safety data sheets for the hazardous chemicals maintained in a central location and made readily accessible to employees? Yes No N/A

D. Information and Training

11. Is information and training on hazardous chemicals in the worksite provided on initial assignment and whenever new physical hazards or health hazards are introduced into the work area? Yes No N/A

12. Does the information and training include the requirements of OSHA standard (29CFR 1910.1200), as well as the following?

- The operations at the worksite where hazardous chemicals are present Yes No N/A

- The location and availability of the written hazard communication program, including the list of hazardous chemicals and safety data sheets Yes No N/A

13. Does the training provided include information about the following?

- | | | | |
|--|-----|----|-----|
| • Methods to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc) | Yes | No | N/A |
| • The physical hazards and health hazards of the chemicals in the work area | Yes | No | N/A |
| • The measures employees can take to protect themselves from these hazards, including procedures the employer has implemented to protect employees from exposures to hazardous chemicals (appropriate work practices, emergency procedures, and personal protective equipment) | Yes | No | N/A |
| • The details of the hazard communication program developed by the employer, including explanations of the labeling system, safety data sheets, and how employees can obtain and use the appropriate hazard information. | Yes | No | N/A |

HAZARDOUS SUBSTANCE INVENTORY

Manufacturer	Product Name	Quantity	CAS #	Location	Emergency Contact Number (#)

Completed By: _____ Date: _____

Hearing Conservation Program

A. Purpose

To protect employees of the Metropolitan Government of Nashville & Davidson County from noise hazards and to establish a procedure for the selection, use, care and maintenance of hearing protection.

B. Definitions

Action level. An 8-hour time weighted average noise level of 85 dBA or, equivalently, a noise dose of 50 percent, at which affected employees shall be provided hearing protection and placed in an audiometric testing program. Reference: OSHA 29 CFR 1910.95 Appendix-A

Area monitoring. Measuring noise levels with a sound level meter at different locations in the workplace and at different times during the work shift sufficient to make reliable estimates of employee noise exposures.

Audiogram. A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

Continuous noise. Noise that is relatively constant for a long period of time (e.g., fan or motor).

dBA. Sound level in decibels read on the A scale of a sound level meter. The A scale discriminates against the low frequencies of an acoustic signal.

Decibel (dB). A dimensionless unit related to the logarithm of the ratio of a measured quantity to a reference quantity. It is commonly used to describe levels of sound power, sound pressure, electric voltage, electric power, etc.

Hertz (Hz). Unit of measurement of frequency numerically equal to cycles per second (cps); 1 Hz = 1 cps.

Impulse noise. Noise that is characterized by a sharp rise in sound pressure level to a high peak followed by a rapid decay (e.g., sledgehammer or gunshot).

Intermittent noise. Noise that ceases or subsides between events (e.g., aircraft flyovers).

Noise dosimeter (audiotosimeter). A device, usually worn by an employee, that integrates a function of sound pressure over a period of time in such a manner that it directly indicates the accumulated exposure (dose).

Personal monitoring. Measuring employee noise exposure with a noise dosimeter mounted on the employee and the dosimeter microphone positioned near the employee's ear.

Qualified audiometric technician. A technician who has been certified by the Council for Accreditation in Occupational Hearing Conservation, or one who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining, and checking calibration and proper functioning of the audiometers being used. The audiometric technician must be responsible to an audiologist, otolaryngologist, or physician.

Sound pressure level. The level, in decibels, that is 20 times the common logarithm of the ratio of the square of a measured sound pressure to the square of the reference sound pressure of 20 micronewtons per square meter (uN/m²).

Sound power level. The level, in decibels, that is 10 times the common logarithm of the ratio of a given power to a reference power.

Sound level. The weighted sound pressure level obtained by the use of the A, B, or C frequency weighting networks of a sound level meter.

Timeweight average (TWA) sound level. That sound level which, if constant over an 8-hour exposure, would result in the same noise dose as is measured.

C. Responsibilities

The department Director where hearing protection is needed will be responsible for ensuring the implementation of the Hearing Conservation Program. The Safety Coordinator shall develop a written Hearing Conservation Program specific to their department.

Department heads shall ensure that hearing protectors are available to employees in the Hearing Conservation Program, that employees are trained in their use and care, and that they are worn. The department head will also ensure that affected employees receive audiometric evaluations annually and all documentation is completed. Department heads shall be responsible for ensuring that a record of the audiometric evaluation is kept in the affected employee's personnel file.

The Metro Safety Division will provide guidance and consultation to the department on matters pertaining to the Hearing Conservation Program. The department Safety Coordinator will coordinate with managers and supervisors to provide training, audiometric testing, noise monitoring and hazard investigation. The Metro Safety Administrator will conduct evaluations of the Hearing Conservation Program to ensure the program is properly implemented. The Metro Safety Division will regularly consult with employees required to use hearing protection to assess employees' views on program effectiveness and to identify problems.

D. Procurement

When purchasing new equipment, a noise level specification of 85dBA or less should be included in the Invitation to Bid.

E. Employee Training

Employees who are in the Hearing Conservation Program shall receive training at least annually in the effects of noise; the purpose, advantages, and disadvantages of various types of hearing protectors; the selection, fitting, and care of protectors; and the purpose and procedures of audiometric testing.

F. Procedure

Department heads shall identify high noise areas and request noise monitoring to be performed by Safety Coordinators assigned to that department or obtain noise monitoring services from an outside source.

Occupational noise exposure levels shall be monitored in a manner that will identify employees who are exposed to levels equal to or greater than:

1. The 90 dBA, 8-hour TWA (or 100 per cent dose) PEL, and/or
2. The 85 dBA, 8-hour TWA (or 50 per cent dose) action level.

The exposure measurements shall include all continuous, intermittent, and impulsive noise ranging from 80 to 140 dB and must be representative of the occupational exposure. Although area monitoring is permitted, personal monitoring is preferred. It can be accomplished best by using noise dosimeters (audiometers) to determine 8hour TWA exposures. Employees shall be permitted to observe monitoring procedures and shall be notified of the results.

When monitoring reveals that the 8hour TWA exposure level is:

1. Less than 85 dBA (or 50 per cent dose); no further action is required.
2. Equal to or greater than the action level, 85 dBA (or 50 percent dose), the employee(s) affected shall be provided hearing protection and placed in an audiometric testing program.
3. Equal to or greater than the Permissible Exposure Limit, 90 dBA (or 100 per cent dose), the employee(s) affected shall be provided hearing protection (mandatory use) and placed in an audiometric testing program, and feasible administrative and/or engineering controls shall be utilized to reduce the noise to acceptable levels.

G. Audiometric Testing

Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including, as a minimum, 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests of each frequency shall be run separately for each ear. Details of testing equipment and procedures are contained in the OSHA standard, 29CFR1910.95.

H. Hearing Protection

Hearing protectors shall be made available to all employees in the Hearing Conservation Program. They shall be worn by employees who are exposed to noise equal to or greater than the action level and by employees who have incurred standard threshold shifts. Earplugs that are inserted in the ear canal or ear muffs that cover the external ear may be worn provided that they supply the required noise attenuation. The method to be used in estimating the adequacy of hearing protector attenuation is contained in the OSHA standard, 29CFR1910.95, Appendix B.

I. Record Keeping

Noise exposure measurement records shall be retained in the department Safety Coordinator's office for no less than 2 years. Audiometric test records shall be retained in the employee's medical file for the duration of the affected employee's employment. The audiometric record shall include:

1. Name and job classification of the employee.
2. Date of the audiogram.
3. Examiner's name
4. Date of the last acoustic or exhaustive calibration of the audiometer.
5. Employee's most recent noise exposure assessment.
6. Date of the last hearing conservation training and the name of the person conducting the training.

All acoustic and audiometric records of individual employees shall be provided upon request to that individual employee or former employee, representatives designated by the employee, and OSHA.

LADDERS and SCAFFOLDS

This guideline is intended to prescribe rules and establish minimum requirements for the care and use of the common types of ladders and scaffolds in order to ensure safety under normal conditions of usage. Construction type activities that require scaffolding shall comply with the requirements of 29 CFR 1926.450 to 1926.454 and 1910.28 as promulgated by the Occupational Safety and Health Administration (OSHA).

LADDERS

Ladder Specifications

1. Ladders shall be inspected at frequent intervals and shall be properly maintained. Damaged or defective ladders shall be tagged and removed from service.
2. Portable ladders made of metal, fiberglass, epoxy, or other synthetic material shall equal or exceed the strength requirement of approved wood ladders.
3. Wood ladders should be given a suitable protective coating, such as clear varnish, shellac, or linseed oil. Metallic paint or other electrically conductive coating shall not be used because it hinders detection of defects. Identification markings may be painted or branded on ladder rails.
4. Wood ladders shall not be stored outdoors or in areas subject to excess heat or dampness.
5. Portable ladders for general use shall be equipped with approved safety feet. Portable straight ladders shall be equipped with a top tie-off rope before being used. When using portable ladders, they shall be securely placed (which may include being held by another employee at the bottom or by tying off at the bottom) to prevent slipping. The tops of ladders shall be tied off whenever practicable.

Ladder Use

1. Ladders placed near doorways, in passageways, or in driveways shall be protected by barricades or guards against being struck by doors or traffic. They shall not be left unattended. Ladders shall be removed when not in use or attended.
2. The feet of a portable ladder shall be placed on a substantial base to prevent sinking or shifting. The base of the ladder should be placed about $\frac{1}{4}$ of its working length from a wall or support. *Standing with their feet at the base of the ladder a person should be able to extend their arm fully and touch a rung. (see fig. 1)*
3. The side rails shall extend at least 3 feet above the landing. When this is not practicable grab rails, which provide a secure grip for an employee moving to or from the point of access, shall be installed.
4. To prevent collapse of extension ladders, the minimum overlap of each section shall be:
 - a. Three feet (3') on ladders up to and including 36 feet.

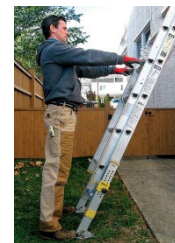


Fig. 1

- b. Four feet (4') on ladders over 36 feet, up to and including 48 feet.
 - c. Five feet (5') on ladders over 48 feet, up to and including 60 feet
5. Extension ladders should be equipped with positive stops which will ensure the overlap specified above. Extension ladders should be adjusted from the base before use.
6. Portable metal or conductive ladders shall not be used for electrical work or where they may contact electrical conductors [29 CFR 1926.955(c)].
7. When using ladders employees shall:
 - a. Use the correct size ladder for the job. Do not splice two ladders together.
 - b. Place the ladder as close to the work as practicable to prevent over-reaching.
 - c. Be sure that a stepladder is fully opened before using.
 - d. Face the ladder, use both hands, and use each rung when going up or down the ladder.
 - e. **Do Not** climb higher than the third rung from the top on straight or extension ladders or the second tread from the top on ordinary stepladders.
8. Personnel, tools and material shall be removed from portable ladders or manually propelled mobile scaffolds before they are moved.
9. Only one person should be on a ladder at one time.
10. Ladders shall not be used in a horizontal position as platforms, runways, or scaffolds unless they have been designed for such use.
11. Ladders carried on vehicles shall be adequately supported and secured.

SCAFFOLDS

1. Scaffolds shall be of sound material, securely fastened, and be capable of supporting four times the combined weight of workers and materials without failure.
2. Wood materials used in scaffolds shall be approved for scaffolding. Planking should be not less than 10 inches wide and 2 inches thick (full dimension) and shall not extend beyond the outer supports more than 12 inches nor less than 6 inches, and shall be overlapped a minimum of 18 inches, unless securely fastened down. These special grade lumber materials are not to be used for other purposes. They shall be properly stored and maintained. These materials shall not be painted, but may be given a suitable protective coating, such as clear varnish or linseed oil. The edges of scaffold boards may be painted or marked for identification.
3. Guard rails, mid-rails, and toe boards shall be installed on open sides and ends of scaffolds which are 10 feet or more in height, and on scaffolds immediately adjacent to excavations, deep water, machinery, or other sources of danger. Screens shall be installed, as required, between the toe board and guard rail, where persons work or pass under the scaffold.

HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

The purpose of this program is to establish procedures to prevent unexpected energization, start-up, or release of stored energy to prevent injury to employees. The program is based on OSHA Standard 29 CFR 1910.147 The Control of Hazardous Energy.

The objective of this guideline is to protect all Metro employees that may have to service, maintain, or utilize machinery or equipment that is subject to the unexpected energizing, start up, or release of stored energy.

DOES THIS PROGRAM APPLY TO MY DEPARTMENT? The OSHA

Lockout/Tagout standard applies when employees are exposed to electrical and or hazardous energy while servicing and maintaining equipment and machinery. Other employees, such as management employees, need to receive awareness training on lockout/tagout and the prohibition against removing lockout locks and tags from energy isolating devices or attempting to operate locked out equipment.

IF YES, WHAT DOES THE DEPARTMENT NEED TO DO? OSHA requires that affected Departments must establish an energy-control program to ensure that employees isolate machines from their energy sources and render them inoperative before any employee services or maintains them. The Energy Control Program must:

- Establish written procedures for isolating the energy supply from machines.
- Identify appropriate lockout/ tagout devices.
- Address concerns regarding stored energy.
- Provide training on the energy control program.
- Allow for the annual review and updating of the program.

ESTABLISHING THE LOCKOUT/TAGOUT PROGRAM: A department supervisor may authorize the use of this program by any facilities and individuals associated with the control of hazardous energy. Department Directors will implement the program and ensure that the personnel under their supervision are trained in accordance with the procedures established herein. This responsibility may be delegated to another person or persons within the department providing it is done so in writing and the designated person is qualified and competent. This person will authorize employees to implement the lockout/tagout procedure.

An appropriately authorized employee shall implement the lockout/tagout procedure before servicing or maintenance of machinery or equipment.

Identifying Appropriate Lockout/Tagout Devices: Each department utilizing the Metro program for the control of hazardous energy shall establish and document site

specific procedures for energy isolation. Specialized lockout devices shall be obtained and kept within the department for its use.

If an energy-isolating device is capable of being locked out, the authorized employee shall utilize lockout, unless the department head or their designee can demonstrate that utilization of a tagout system will provide full employee protection. When a tagout device is used on an energy-isolating device which is capable of being locked out, the device shall be attached at the same location that the lockout device would have been attached.

Lockout devices used for the implementation of this program shall be accompanied by a standard tag as suggested by the illustration in Figure 1. These devices shall be used for no other purpose than lockout, and shall be substantial enough to prevent removal without the use of excessive force or unusual techniques.



Figure 1

The Department's Safety Coordinator or his/her designated representative shall conduct periodic inspections of the energy control program at least annually to ensure that the procedures and the requirements of 29 CFR 1910.147 are being followed.

Implementation: The lockout system shall be performed only by authorized employees. Affected employees shall be notified by the department head, or their designee, of the application and removal of lockout or tagout devices. Notification shall be given before the controls are applied, after they are removed from the machine or equipment.

The established procedure for the application of energy control shall cover the following elements and actions and shall be done in the following sequence:

1. Preparation for shutdown: Before an authorized or affected employee turns off a machine or piece of equipment, they shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.

2. Machine or equipment shutdown: An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of equipment de-energization.
3. Machine or equipment isolation: All energy-isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).
4. Lockout or tagout device application: Lockout or tagout devices shall be affixed to each energy-isolating device by authorized employees. Lockout devices, where used, shall be affixed in a manner that will hold the energy in a "safe" or "off" position. Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy-isolating devices from the "safe" or "off" position is prohibited.

When a tagout device is used on an energy-isolating device which is capable of being locked out, the device shall be attached at the same location that the lockout device would have been attached.

Where a tag cannot be affixed directly to the energy-isolating device, the tag shall be located as close as possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

5. Stored Energy: Following the application of lockout or tagout devices to energy-isolating devices, all potentially hazardous stored energy shall be rendered safe.
6. Verification of Isolation: Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and de-energization of the machine or equipment has been accomplished.
7. Release from Lockout or Tagout: Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures shall be followed, and actions taken by the authorized employee(s) to ensure the following:
 - The Machine or Equipment: The work area shall be inspected to ensure that nonessential items have been removed and that machine or equipment components are operationally intact.
 - Employees: The work area shall be checked to ensure that all employees have been safely positioned or removed. Before lockout or tagout devices are removed and before machines or equipment are energized, affected employees shall be notified.
8. Lockout or Tagout Device Removal: Each lockout or tagout device shall be removed from each energy-isolating device by the employee who applied the device.

Exception: When the authorized employee who applied the lockout or tagout device (installer) is not available to remove it, that device may be removed under the direction of the installer or the installer's immediate supervisor. Specific training and procedures for such removal shall be provided by each department involved in lockout or tagout operations. The procedures and training shall be documented. The documentation shall demonstrate that safety equivalent to the original process of having only the installer remove the device is maintained. The specific procedure shall include at least the following elements:

- Verification by the immediate supervisor that the employee who applied the device is not at the facility,
- Making all reasonable efforts to contact the authorized employee to inform them that his/her lockout or tagout device has been removed, and
- Ensuring that the authorized employee has this knowledge before they resume work at the facility

9. Testing or Positioning of machines, equipment, or components thereof: In situations where lockout or tagout devices must be temporarily removed from the energy- isolating device and the machine or equipment energized to test or position the equipment or component thereof, the following sequence of actions shall be followed:

- Clear the machine or equipment of tools and materials.
- Remove employees from the machine or equipment area.
- Remove the lockout or tagout devices.
- Energize and proceed with testing or positioning.
- De-energize all systems and reapply energy control measures to continue the servicing and/or maintenance.

10. Outside Personnel (contractors, etc.): Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this program, the designated Metro representative of the department securing the service and the outside employer shall inform each other of their respective lockout or tagout procedures. The designated Metro representative shall ensure that his/her personnel understand and comply with restrictions and prohibitions of the outside employer's energy control procedures. If the outside employer has no documented lockout or tagout procedures, they shall ensure that their personnel understand and comply with the procedures established in this program.

11. Group Lockout or Tagout: When servicing and/or maintenance is performed by a crew or department, they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. This shall be accomplished by:

- The application of a multi-lock accepting device by the primary authorized employee to the energy-isolating device.
- The primary authorized employee attaching his/her lock to the multi-accepting device.

- Each authorized employee shall affix a personal lockout or tagout device to the multi-lock accepting device when they begin work, and shall remove those devices when they stop working on the machine or equipment being serviced or maintained.
- The primary authorized employee will remove his/her lock and the multi-lock accepting device when all service or maintenance has been completed.

12. Shift or Personnel Changes: To ensure the orderly transfer of lockout or tagout devices between off-going and on-coming employees and minimize exposure to hazards from unexpected energization, start-up of the machine or equipment, or release of stored energy, these procedures shall be followed:

- The on-coming personnel shall notify the off-going personnel that they are ready to begin work on the machine or equipment.
- All lockout and/or tagout devices attached to the machine or equipment by the off-going personnel shall be removed and immediately replaced with like devices by the on-coming authorized personnel.
- The primary authorized employee shall ensure that all pertinent coordination between off-going and on-coming personnel has been completed before the on-coming authorized personnel begin work on the machine or equipment and that all necessary energy has been rendered safe.

TRAINING: The department Director or their designee are required to provide **annual training** to ensure that the purpose and function of the energy control program are understood by affected employees. Through training, employees will be required to possess the knowledge and skills required for safe application, usage, and removal of energy controls.

Training shall include the following:

- Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- Each affected employee shall be instructed in the purpose and use of the energy control procedure.
- All other employees whose work operations are or may be in the area where energy control procedures may be utilized, shall be instructed about the procedure, and the prohibition in relation to attempts to restart or re-energize machines or equipment which are locked-out or tagged-out.

When tagout systems are used, employees shall also be trained in the following limitation of tags:

- Tags are essentially warning devices affixed to energy-isolating devices, and do not provide the physical restraint on those devices that is provided by lockout.
- When a tag is attached to an energy-isolating means, it is not to be removed without the authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
- Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, to be effective.
- Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
- Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
- Tags must be securely attached to energy-isolating devices so that they can not be inadvertently or accidentally detached during use.

Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or process that presents a new hazard, or when there is a change in energy control procedures. Retraining shall establish employee proficiency and introduce new or revised control methods and procedures as necessary. Each department shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training. For more information on training see the OSHA website:

Lockout-Tagout Interactive Training Program

GLOSSARY OF TERMS

- Affected Employee: An employee whose job requires them to operate or use a machine or piece of equipment on which servicing is being performed under lockout or tagout, or whose job requires them to work in an area in which such servicing or maintenance is being performed.
- Authorized Employee: A person who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing the maintenance or service on a machine or piece of equipment which must be locked, or a tagout system implemented.
- Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.
- Lockout: The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy-isolating device and equipment being controlled cannot be operated until the lockout device is removed.

- Lockout Device: A device that utilizes a positive means, such as a lock, to hold an energy-isolating device in the safe position and prevent the energizing of a machine or piece of equipment.
- Normal Production Operations: The utilization of a machine or piece of equipment to perform its intended production function.
- Primary Authorization Employee: The authorized employee who has been vested with responsibility for a set number or employees performing service or maintenance on machines or equipment subject to lockout or tagout procedures.
- Servicing and/or Maintenance: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and or servicing machines equipment. These activities include lubrication, cleaning or un-jamming of machines or equipment and making adjustments to tool changes where the employee may be exposed to unexpected energization or start up of the equipment or release of hazardous energy.
- Tagout: The placement of a tagout device on a energy isolation device, in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the target device is removed.

RESPONSIBILITIES FOR LOCK OUT TAG OUT PROGRAM

Department Heads

- Provide resources to effectively implement this program through the department.
- Establish systems to ensure departmental compliance associated with the lockout tagout program.
- Ensure that training on lockout tagout procedures are available to supervisors and employees.

Safety Coordinator

- Develop, revise, and annually review the departmental safety rules and regulations as it pertains to the department's lockout tagout program.
- Provide training to supervisory personnel, or direct them to training that will allow them to properly train and supervise their employees.
- Implement a departmental self- safety inspection and documentation of the use of the lockout tagout program.
- Review operations with supervisors to determine with which employees are considered Affected Employees under this program.
- Follow-up to ensure supervisors are carrying out prescribed Lockout Tagout requirements.
- Periodically review work areas for compliance with policy.

Supervisors

- Ensure that there is compliance with the program throughout the group supervised.
- Notify the Safety Coordinator of any operating changes affecting the use or need for a lockout tagout program.
- Identify all departmental jobs requiring the maintenance or servicing of equipment.
- Make routine surveys of the work area to ensure safe practices are being followed.
- Ensure that lockout and tagout devices are available to affected employees.

Employees

- Learn and apply Metro's Lockout Tagout Policy and Procedures.
- Inform your supervisor of:
 1. Any situations that may possibly result in injury due to stored energy.
 2. Missing lockout devices or tags.
 3. Malfunctioning safety equipment.
- Know the location of emergency equipment, e.g., first aid supplies, emergency eye wash, showers, etc.
- Know your role in emergency procedures.
- Report unsafe conditions.
- Suggest improvements.

The Safety Division At least once per year, the Safety Division of the Human Resources Department will review and update, if applicable, the Hazardous Energy Program. The evaluation will be done with the assistance of department Safety Coordinators. The update will consist of the following elements:

- Assessment of applicable regulations
- Written program
- Designated employee accountability.

RESULTS MEASUREMENT: To determine whether your department is in compliance with Metro's Hazardous Energy Program and OSHA regulation 29 CFR 1910.147, fill out the **Lockout Tagout Compliance Checklist** below. If you need assistance to bring your department into compliance, contact the Safety Division Office at 862-6640.

Lockout/Tagout Compliance Checklist

Department/Facility: _____

Date: _____ **Contact Person:** _____

Phone Number: _____

1. Equipment, machinery and personnel:	Yes	NO
A list of equipment and machines that needs to be locked out has been developed.		
All new machinery has the ability to accept a lockout device		
Specific <u>written</u> procedures are developed and used for each piece of equipment.		
A list of all <u>authorized</u> employees has been developed.		
A list of all <u>affected</u> employees has been developed.		
2. Energy Control Program:		
A <u>written</u> Energy Control Program has been developed.		
Does the <u>written</u> program state the methods of compliance?		
Does it include steps for shut down, isolating, blocking and securing energy?		
Does it include steps for placement, removal, and transfer of lockout/tagout devices?		
Are there requirements for testing to verify effectiveness of the lockout/tagout program?		
Are lockout/tagout devices provided? (locks, hasps, tags, etc.).		
Lockout devices are singularly identified, durable, standardized, substantial and employee identifiable?		
Lockout devices are used <u>only</u> for energy control?		

A tagout system is used only if a isolating device cannot be locked o		
Tagout devices warn against hazardous conditions such as Do Not St Do not Open		
Energy isolation is performed ONLY by authorized employees.		
Affected employees are notified before and after lockout/tagout.		
Group lockout/tagout procedures are used <u>when needed</u> .		
Information about each others' lockout program is exchanged with contractors.		
3. Training requirements:		
Are <u>Authorized employees</u> trained in the recognition of energy sources, type and magnitude of energy and methods and procedures necessary for isolation and control?		
Are <u>Affected employees</u> trained in the purpose and use of energy control procedures?		
Are other employees instructed on the locked or tagged out procedures?		
Training on the lockout tagout program takes place annually.		
Are employees retrained when there is a change in job, assignment, equipment, process, procedure or the result of an inspection?		

PERSONAL PROTECTIVE EQUIPMENT

PURPOSE

The Department provides all employees with required PPE, Personal Protective Equipment, to suit the task and known hazards. This Chapter covers the requirements for PPE with the exception of PPE used for hearing conservation and respiratory protection or PPE required for hazardous material response to spills or releases, which are covered under separate programs.

GENERAL POLICY

Engineering controls shall be the primary methods used to eliminate or minimize hazard exposure in the workplace. When such controls are not practical or applicable, personal protective equipment shall be employed to reduce or eliminate personnel exposure to hazards. Personal protective equipment (PPE) will be provided, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injuries and/or illnesses.

RESPONSIBILITIES

Manager/Supervisors

- Conduct hazard assessments to identify specific PPE for specific tasks
- Train employees in the selection, use, inspection, storage, cleaning, and limitations of specific PPE
- Monitor use of PPE through regular worksite inspections
- Provide replacement PPE when needed
- Identify any new hazards that would require the use of PPE

Employees

- Properly use and care for assigned PPE
- Immediately inform supervisor if PPE is damaged or not effective

GENERAL RULES

Design.

All personal protective clothing and equipment will be of safe design and construction for the work to be performed. Only those items of protective clothing and equipment that meet National

Institute of Occupational Safety and Health (NIOSH) or American National Standards Institute (ANSI) standards will be procured or accepted for use.

Hazard assessment and equipment selection.

Hazard analysis procedures shall be used to assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). (Refer to Sec 25.1 for Hazard Assessment Table.) If such hazards are present, or likely to be present, the following actions will be taken:

- Select, and have each affected employee use, the proper PPE
- Communicate selection decisions to each affected employee
- Select PPE that properly fits each affected employee.

Defective and damaged equipment.

Defective or damaged personal protective equipment shall not be used.

TRAINING

All Employees who are required to use PPE shall be trained to know at least the following:

- When PPE is necessary;
- What PPE is necessary;
- How to properly don, remove, adjust, and wear PPE;
- The limitations of the PPE
- The proper care, maintenance, useful life and disposal of the PPE.

Each affected Employee shall demonstrate an understanding of the training and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

Certification of training for PPE is required by OSHA and shall be accomplished by documented training, i.e. signed roster, to verify that each affected employee has received and understood the required PPE training.

PPE SELECTION

Controlling hazards.

PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering controls, and sound manufacturing practices.

Selection guidelines.

The general procedure for selection of protective equipment is to:

- a) become familiar with the potential hazards and the type of protective equipment that is available, and what it can do; i.e., splash protection, impact protection, etc.;
- b) compare the hazards associated with the environment; i.e., impact velocities, masses, projectile shape, radiation intensities, with the capabilities of the available protective equipment;
- c) select the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards
- d) fit the user with the protective device and give instructions on care and use of the PPE. It is very important that end users be made aware of all warning labels for and limitations of their PPE.

Fitting the Device

Careful consideration must be given to comfort and fit. PPE that fits poorly will not afford the necessary protection. Continued wearing of the device is more likely if it fits the wearer comfortably. Protective devices are generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

Devices with adjustable features.

Adjustments should be made on an individual basis for a comfortable fit that will maintain the protective device in the proper position. Particular care should be taken in fitting devices for eye protection against dust and chemical splash to ensure that the devices are sealed to the face. In addition, proper fitting of helmets is important to ensure that it will not fall off during work operations. In some cases a chin strap may be necessary to keep the helmet on an employee's head. (Chin straps should break at a reasonably low force, however, so as to prevent a strangulation hazard). Where manufacturer's instructions are available, they should be followed carefully.

EYE AND FACE PROTECTION

The majority of occupational eye injuries can be prevented by the use of suitable/approved safety spectacles, goggles, or shields. Approved eye and face protection shall be worn when there is a reasonable possibility of personal injury.

- Each employee shall use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.
- Each employee shall use eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors are acceptable.
- Each employee who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in

its design, or shall wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

- Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer.
- Each employee shall use equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation.

Typical hazards that can cause eye and face injury are:

- Splashes of toxic or corrosive chemicals, hot liquids, and molten metals;
- Flying objects, such as chips of wood, metal, and stone dust;
- Fumes, gases, and mists of toxic or corrosive chemicals; and
- Aerosols of biological substances.

Prevention of eye accidents requires that all persons who may be in eye hazard areas wear protective eyewear. This includes employees, visitors, contractors, or others passing through an identified eye hazardous area. To provide protection for these personnel, activities shall procure a sufficient quantity of heavy duty goggles and/or plastic eye protectors which afford the maximum amount of protection possible. If these personnel wear personal glasses, they shall be provided with a suitable eye protector to wear over them.

Eye / Face Protection Specifications

Eye and face protectors procured, issued to, and used by employees, contractors and visitors must conform to the following design and performance standards:

- a) Provide adequate protection against the particular hazards for which they are designed
- b) Fit properly and offer the least possible resistance to movement and cause minimal discomfort while in use.
- c) Be durable.
- d) Be easily cleaned or disinfected for or by the wearer.
- e) Be clearly marked to identify the manufacturer.
- f) Persons who require corrective lenses for normal vision, and who are required to wear eye protection, must wear goggles or spectacles of one of the following types:
 - 1) Spectacles with protective lenses which provide optical correction.
 - 2) Goggles that can be worn over spectacles without disturbing the adjustment of the spectacles.

3) Goggles that incorporate corrective lenses mounted behind the protective lenses.

EYE & FACE PROTECTION USE

Safety Spectacles. Protective eye glasses are made with safety frames, tempered glass or plastic lenses, temples and side shields which provide eye protection from moderate impact and particles encountered in job tasks such as carpentry, woodworking, grinding, scaling, etc.

Single Lens Goggles. Vinyl framed goggles of soft pliable body design provide adequate eye protection from many hazards. These goggles are available with clear or tinted lenses, perforated, port vented, or non-vented frames. Single lens goggles provide similar protection to spectacles and may be worn in combination with spectacles or corrective lenses to insure protection along with proper vision.

Welders/Chippers Goggles. These goggles are available in rigid and soft frames to accommodate single or two eye piece lenses.

- 1) Welders goggles provide protection from sparking, scaling or splashing metals and harmful light rays. Lenses are impact resistant and are available in graduated shades of filtration.
- 2) Chippers/grinders goggles provide eye protection from flying particles. The dual protective eye cups house impact resistant clear lenses with individual cover plates.

Face Shields. These normally consist of an adjustable headgear and face shield of tinted/transparent acetate or polycarbonate materials, or wire screen. Face shields are available in various sizes, tensile strength, impact/heat resistance and light ray filtering capacity. Face shields will be used in operations when the entire face needs protection and should be worn to protect eyes and face against flying particles, metal sparks, and chemical/ biological splash.

Welding Shields. These shield assemblies consist of vulcanized fiber or glass fiber body, a ratchet/button type adjustable headgear or cap attachment and a filter and cover plate holder. These shields will be provided to protect workers' eyes and face from infrared or radiant light burns, flying sparks, metal spatter and slag chips encountered during welding, brazing, soldering, resistance welding, bare or shielded electric arc welding and oxyacetylene welding and cutting operations.

<i>Filter Lenses for Protection Against Radiant Energy</i>			
Operations	Electrode Size 1/32 in	Arc Current	Protective Shade
Shielded metal arc welding	Less than 3	Less than 60	7
	3-5	60-160	8
	5-8	160-250	10
	More than 8	250-550	11
Torch brazing			3

Torch soldering			2
<p>Note: as a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.</p>			

HEAD PROTECTION

Hard hats, safety helmet and bump caps have been designed and manufactured to provide workers protection from impact, heat, electrical and fire hazards. These protectors consist of the shell and the suspension combined as a protective system. Safety hats and caps will be of nonconductive, fire and water resistant materials. Bump caps or skull guards are constructed of lightweight materials and are designed to provide minimal protection against hazards when working in congested areas.

Head protection will be furnished to, and used by, all employees and contractors engaged in construction and other miscellaneous work in head-hazard areas. Head protection will also be required to be worn by engineers, inspectors, and visitors at sites where head protection is required. Bump caps/skull guards will be issued to and worn for protection against scalp lacerations from contact with sharp objects. They will not be worn as substitutes for hardhats because they do not afford protection from high impact forces or penetration by falling objects.

Selection guidelines for head protection

All head protection is designed to provide protection from impact and penetration hazards caused by falling objects. Head protection is also available which provides protection from electric shock and burn. When selecting head protection, knowledge of potential electrical hazards is important. Class A hardhats, in addition to impact and penetration resistance, provide electrical protection from low-voltage conductors (they are proof tested to 2,200 volts). Class B helmets, in addition to impact and penetration resistance, provide electrical protection from high-voltage conductors (they are proof tested to 20,000 volts). Class C helmets provide impact and penetration resistance (they are usually made of aluminum which conducts electricity), and should not be used around electrical hazards.

Where falling object hazards are present, hardhats must be worn. Some examples include: working below other workers who are using tools and materials which could fall; working around or under conveyor belts which are carrying parts or materials; working below machinery or processes which might cause material or objects to fall; and working on exposed energized conductors.

FOOT PROTECTION

General requirements

Each affected employee shall wear protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where employee's feet are exposed to electrical hazards.

Selection guidelines for foot protection

Safety shoes and boots provide both impact and compression protection. Where necessary, safety shoes can be obtained which provide puncture protection. In some work situations, metatarsal protection should be provided, and in other special situations electrical conductive or insulating safety shoes would be appropriate. Safety shoes or boots with impact protection would be required for carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and, for other activities where objects might fall onto the feet. Safety shoes or boots with compression protection would be required for work activities involving skid trucks (manual material handling carts) around bulk rolls (such as paper rolls) and around heavy pipes, all of which could potentially roll over an employee's feet. Safety shoes or boots with puncture protection would be required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.

HAND PROTECTION

General Requirements

Hand protection is required when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

Skin contact is a potential source of exposure to toxic materials; it is important that the proper steps be taken to prevent such contact. Gloves should be selected on the basis of the material being handled, the particular hazard involved, and their suitability for the operation being conducted. One type of glove will not work in all situations.

Most accidents involving hands and arms can be classified under four main hazard categories: chemicals, abrasions, cutting, and heat. There are gloves available that can protect workers from any of these individual hazards or combination of hazards.

Gloves should be replaced periodically, depending on frequency of use and permeability to the substance(s) handled. Gloves overtly contaminated should be rinsed and then carefully removed after use.

Gloves should also be worn whenever it is necessary to handle rough or sharp-edged objects, and very hot or very cold materials. The type of glove materials to be used in these situations include leather, welder's gloves, aluminum-backed gloves, and other types of insulated glove materials.

Careful attention must be given to protecting your hands when working with tools and machinery. Power tools and machinery must have guards installed or incorporated into their design that prevent the hands from contacting the point of operation, power train, or other moving parts. To protect the hands from injury due to contact with moving parts, it is important to:

- Ensure that guards are always in place and used.
- Always lock out machines or tools and/or disconnect the power before making repairs.

- Treat a machine without a guard as inoperative; and
- Do not wear gloves around moving machinery, such as drill presses, mills, lathes, and grinders.

Selection guidelines for hand protection

Selection of hand PPE shall be based on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified. Gloves are often relied upon to prevent cuts, abrasions, burns, and skin contact with chemicals that are capable of causing local or systemic effects following dermal exposure. There is no glove that provides protection against all potential hand hazards, and commonly available glove materials provide only limited protection against many chemicals. Therefore, it is important to select the most appropriate glove for a particular application and to determine how long it can be worn, and whether it can be reused. It is also important to know the performance characteristics of gloves relative to the specific hazard anticipated; e.g., chemical hazards, cut hazards, flame hazards, etc. Before purchasing gloves, request documentation from the manufacturer that the gloves meet the appropriate test standard(s) for the hazard(s) anticipated. Other factors to be considered for glove selection in general include:

(A) As long as the performance characteristics are acceptable, in certain circumstances, it may be more cost effective to regularly change cheaper gloves than to reuse more expensive types.

(B) The work activities of the employee should be studied to determine the degree of dexterity required, the duration, frequency, and degree of exposure of the hazard, and the physical stresses that will be applied.

Selection of gloves for chemical hazards

The first consideration in the selection of gloves for use against chemicals is to determine, if possible, the exact nature of the substances to be encountered. Read instructions and warnings on chemical container labels and SDSs before working with any chemical. Recommended glove types are often listed in the section for personal protective equipment.

All glove materials are eventually permeated by chemicals. However, they can be used safely for limited time periods if specific use and glove characteristics (i.e., thickness and permeation rate and time) are known. The safety office can assist in determining the specific type of glove material that should be worn for a particular chemical.

(A) The toxic properties of the chemical(s) must be determined; in particular, the ability of the chemical to cause local effects on the skin and/or to pass through the skin and cause systemic effects.

(B) Generally, any "chemical resistant" glove can be used for dry powders;

(C) For mixtures and formulated products (unless specific test data are available), a glove should be selected on the basis of the chemical component with the shortest breakthrough time, since it is possible for solvents to carry active ingredients through polymeric materials.

(D) Employees must be able to remove the gloves in such a manner as to prevent skin contamination.

PPE Hazard Assessment Table

ACTIVITY	INJURY EXPOSURE	REQUIRED PPE
Shop work around surfaces that can become slick from water or spills.	Slip/Trip/Fall	Sturdy work-shoes w/slip resistant soles
Shop or job site work that could require climbing on and off materials and equipment or walking on uneven terrain.	Ankle Sprain, Slip/Trip/Fall	Sturdy work-boots w/slip resistant soles and minimum six-inch (6") ankle support
Work with heavy objects or loads that cause a crushing foot injury if dropped.	Contusion, laceration, fracture	Safety toed work boots
Work around material and equipment being lifted or hoisted, work from scaffolds and scissor lifts, work around ladders, and work around any other overhead hazards.	Head	Hard Hat
Cutting and grinding tools.	Eye, Face	Safety glasses <i>and</i> face shield; or goggles
Welding and torch cutting.	Eye, Face	Welder's hood with shaded lens
Handling caustics/corrosives/skin irritants or other hazardous chemicals.	Eye & Face, Hand & Arm	Clear face shield, rubber gloves and/or coveralls – always consult SDS
Handling rough/sharp edges.	Hand, Fingers	Leather work gloves
Working from vehicle-mounted elevating work platforms (e.g. aerial lift, bucket truck).	Multiple	Body harness attached with lanyard for fall restraint
Working from unprotected heights above those identified in the relevant standards (cf. Fall Protection) and/or customer policies.	Multiple	Personal fall arrest system (PFAS) or fall restraint system
Working in atmospheres where harmful particles, fumes, or vapors exceed the permissible exposure limit (PEL); or, where required by customer policy.	Acute or chronic illnesses induced by inhalation.	Hazard specific respirators to be determined through evaluation of the particular exposure. Note: in the case of dust mask type respirators only, employees may voluntarily use such respirator for additional comfort even though the hazards are below the PEL
Working around noise that exceeds 85 db measured on an 8-hour time weighted average (TWA); or, where required by customer policy.	Hearing loss.	Hearing protection, primarily in the form of inserts. Note: customer policies that are not based on noise measurements in excess of the 85 db TWA threshold do not require enrollment in the hearing conservation program
Working near vehicular traffic in roadway work zones.	Multiple	Reflect vest (ANSI class II or III)
Working over or near water where the possibility of drowning exists.	Drowning	Coast-guard approved PFD and a ring buoy with at least ninety feet (90') of line

Note: The above table may not cover every activity and type of personal protective equipment (PPE) required per department policies and procedures.

POWERED INDUSTRIAL TRUCKS/FORKLIFTS

GENERAL REQUIREMENTS

Forklifts are regulated in 29 CFR 1910.178 and are interchangeably referred to as fork trucks, powered industrial trucks or just trucks. The forks and other load engaging means, such as boom attachments, are interchangeably referred to as forks. All nameplates and markings must be in place and are maintained in a legible condition. Modifications and additions which affect capacity and safe operation may not be performed on forklifts without the manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals must be changed according to any modifications or additions that are made. If the truck is equipped with front-end attachments other than factory installed attachments, the user must request that the truck be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with load laterally centered.

PURPOSE

This guideline outlines safety procedures for employees who operate Powered Industrial Trucks (PITs), also known as Forklifts, as part of their job duties. It is the responsibility of the Department to protect employees, clients, citizens, and any other individuals from hazards associated with forklift and powered burden carrier operations, to train and evaluate the performance of operators, and to comply with all regulatory requirements for the safe operation of such equipment.

ROLES AND RESPONSIBILITIES

Department Director

The Department Director's role is to provide resources to effectively implement this program within the department. They should establish systems to ensure departmental compliance associated with the Powered Industrial Truck program. They ensure that training for forklift operation is available to all affected employees.

Safety Coordinator

The Safety Coordinator ensures that a written program is in place for the safe operation of powered industrial trucks. The program is reviewed periodically to ensure compliance with this program. The Safety Coordinator is responsible for coordinating training for applicable employees on PIT safety and ensuring the training documentation is maintained.

Manager/Supervisor

The manager/supervisor ensures that only authorized and trained employees operate PITs, and that operators comply with the procedures in this program. The manager/supervisor ensures that designated employees successfully complete the qualification procedures outlined in this program prior to operating any equipment.

Employees

Employees who operate PITs are responsible for complying with this program. Staff are also responsible for reporting equipment defects and discontinuing PIT operations when unsafe conditions exist.



Class I: [Electric Motor Rider Trucks](#)



Class II: [Electric Motor Narrow Aisle Trucks](#)



Class III: [Electric Motor Hand Trucks or Hand/Rider Trucks](#)



Class IV: [Internal Combustion Engine Trucks \(Solid/Cushion Tires\)](#)



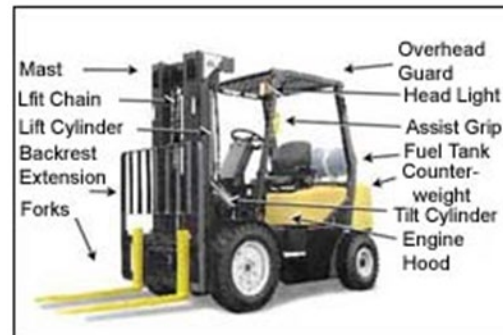
Class V: [Internal Combustion Engine Trucks \(Pneumatic Tires\)](#)



Class VI: [Electric and Internal Combustion Engine Tractors](#)



Class VII: [Rough Terrain Forklift Trucks](#)



STANDARD SAFETY EQUIPMENT

- Seatbelts are installed and **utilized** on each forklift.
- Forklifts must have a functional horn and fire extinguisher; and all installed lights, cameras, etc. are operational.
- Forklifts have a nameplate listing lift category, load rating, and load center prominently affixed.
- Forklifts have a driver cage installed to protect the operator from falling materials.

HAZARDOUS LOCATIONS

1. The atmosphere or location where forklift trucks are to be used must first be classified, using Table N-1 in 29 CFR 1910.178, as to whether it is hazardous or nonhazardous. A forklift with the appropriate designation, as specified in Table N-1 and paragraphs 178(b) – 178(d), must be selected for the atmosphere or location.
2. Concentration levels of carbon monoxide gas created by powered industrial truck operations may not exceed the levels specified in 1910.1000. This includes the areas inside of trailers.
3. A carbon monoxide warning sign should be posted in each area where there is a potential for carbon monoxide gas exposure to workers.

INSPECTION AND MAINTENANCE

- Each powered industrial truck will be inspected before each daily shift (*forms follow this chapter*).
- Daily inspection records shall be kept on file with the supervisor of the power industrial truck for thirty (30) day intervals.
 1. To ensure all essential features of the truck are inspected routinely.
 2. To provide documentation that inspections are occurring as required.
- A maintenance log will be kept that identifies repair needs and corrective actions taken for each powered industrial truck. Documentation shall be kept with the supervisor onsite of the powered industrial truck.
- If repairs are required on a powered industrial truck such that it cannot be safely operated, it must be tagged “Out of Service” and taken out of service until the repairs have been completed.
- Maintenance or repair activities are to be performed by a qualified service technician only.
- After repairs have been completed, the powered industrial truck will be operated to inspect that repairs have been completed and the equipment is safe for normal operation.
- Powered industrial trucks will be kept in clean condition, free of dirt, excess oil, and grease.
- Additional counterweighting of fork trucks is prohibited unless approved by the truck manufacturer.

FUEL AND BATTERY HAZARDS

1. All liquid fuels, such as gasoline and diesel, and all liquefied petroleum gas (LPG) must be handled and stored according to applicable Fire Protection & Prevention regulations.
2. Fuel tanks may not be filled while the engine is running and spillage must be avoided.
3. Spillage of oil or fuel must be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.

4. No truck may be operated with a leak in the fuel system until the leak has been corrected.
5. Battery charging installations must be located in areas designated for that purpose and facilities must be provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of fumes from gassing batteries.
6. Employees charging and changing batteries shall be authorized to do the work, trained in proper handling practices, and required to wear protective clothing, including face shields, long sleeves, rubber boots, aprons, and gloves.
7. Open flames may not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.

DOCKBOARDS AND BRIDGE PLATES

1. The brakes of highway trucks must be set and wheel chocks must be placed under the rear wheels to prevent the trucks from rolling while they are boarded with forklifts.
2. Fixed jacks, or nose-stands, may be necessary to support a semitrailer and prevent upending during the loading or unloading when the trailer is not coupled to a tractor, especially on the shorter, 28' vans.
3. Wheel stops or other recognized positive protection must be provided to prevent railroad cars from moving during loading or unloading operations and to prevent them from being moved while dockboards or bridge plates are in position.
4. Dockboards or bridge plates must be properly secured before they are crossed and their rated capacity may never be exceeded.

OPERATION

1. Forklifts may not be driven up to anyone standing in front of a bench or other fixed object.
2. No one may stand or pass under the elevated portion of any forklift, whether loaded or empty.
3. If a forklift is not designed by the manufacturer to provide a safe and secure position for passengers, then no passenger is allowed to ride.
4. Arms or legs must be kept inside the confines of the roll-over protective structure of the forklift at all times. The operator may not reach between the uprights of the mast or outside the running lines of the truck.
5. Before dismounting a forklift, the operator must always fully lower the forks, shift to neutral, and engage the parking brake. If, after dismounting, the operator will move twenty-five feet (25') or more away from the forklift, or if the operator will move any distance that will take the forklift out of view, then the power must also be turned off.
6. A forklift must never be left on an incline without first chocking the wheels.

7. Operators must maintain a safe distance from the edge of ramps or platforms while on any elevated dock, or platform or freight car.
8. Forklifts may not be used for opening or closing freight doors.
9. The flooring of trucks, trailers, and railroad cars must be checked for breaks and weakness before they are entered with a forklift.
10. In all areas where a forklift is to be operated, there must be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc.
11. Fire aisles, access to stairways, exits, and fire equipment must be kept clear.
12. The overhead guard must be kept in place as protection against falling objects and a load backrest extension must be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.
13. All traffic regulations must be observed, including authorized facility speed limits.
14. A safe distance must be maintained approximately three truck lengths from the truck ahead, and the truck must be kept under control at all times.
15. Right of way must be yielded to ambulances, fire trucks, or other vehicles in emergency situations.
16. Other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations may not be passed.
17. The driver must slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver must travel with the load trailing.
18. Railroad tracks must be crossed diagonally wherever possible. Parking closer than eight feet (8') from the center of railroad tracks is prohibited.
19. The driver must look in the direction of, and keep a clear view of, the path of travel.
20. Grades must be ascended or descended slowly. When ascending or descending grades in excess of ten percent (10%), loaded forklifts must be driven with the load upgrade. On all grades the load and load engaging means must be tilted back if applicable and raised only as far as necessary to clear the road surface.
21. Under all travel conditions the truck must be operated at a speed that will permit it to be brought to a stop in a safe manner.
22. Stunt driving and horseplay are prohibited.
23. The driver must slow down for wet and slippery floors.
24. Dockboards and bridgeplates must be crossed slowly and carefully.
25. Elevators must be approached slowly, and then entered squarely after the elevator car is properly leveled. Once on the elevator, the forklift controls must be neutralized, the power must be shut off, and the brakes must be set.
26. Motorized hand trucks must enter elevators or other confined areas with load end forward.

27. Running over loose objects on the roadway surface must be avoided.

28. While negotiating turns, speed must be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel must be turned at a moderate, even rate.

LOADING

1. Only stable or safely arranged loads may be handled. Caution must be exercised when handling off-center loads that cannot be centered.

2. Only loads within the rated capacity of the truck may be handled.

3. The long or high (including multiple-tiered) loads that may affect capacity must be adjusted.

4. Trucks equipped with attachments must be operated as partially loaded trucks when not handling a load.

5. A load engaging means must be placed under the load as far as possible and the mast must be carefully tilted backward to stabilize the load.

6. Extreme care is required when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated is prohibited except to pick up a load. An elevated load may not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

TRAINING

Any employee who may have occasion to operate a forklift must undergo OSHA compliant forklift safety training, which includes formal instruction, practical exercises, and a workplace evaluation. The training must cover topics related to the forklift itself and topics related to the work environment where the forklift is to be operated. This training is required regardless of the extent of an operator's experience. However, if an employee has undergone similar training in the past, some of the formal instruction may not need to be repeated. The training must be conducted by a person with knowledge, training and forklift experience. The training must be documented to show that the formal instruction, practical demonstrations, and workplace evaluations have all taken place. The documentation must also include the name of the operator, the name of the trainer, and the date(s) of the training. Workplace evaluations must be repeated at least every three years. Refresher training, including formal instruction, practical demonstration, and workplace evaluation, is required if and when: the operator has been observed operating in an unsafe manner; the operator has been involved in an accident or a near-miss incident; the operator is assigned to drive a different type of forklift; or workplace conditions change.

Truck-Related Topics

- ◆ Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;
- ◆ Differences between the truck and the automobile;

- ◆ Truck controls and instrumentation: where they are located, what they do, and how they work;
- ◆ Engine or motor operation;
- ◆ Steering and maneuvering;
- ◆ Visibility (including restrictions due to loading);
- ◆ Fork and attachment adaptation, operation, and use limitations;
- ◆ Vehicle capacity;
- ◆ Vehicle stability;
- ◆ Any vehicle inspection and maintenance that the operator will be required to perform;
- ◆ Refueling and/or charging and recharging of batteries;
- ◆ Operating limitations;
- ◆ Any other operating instructions, warnings, or precautions listed in the operator's manual for the type of vehicle that the employee is being trained to operate.

Workplace-Related Topics

- ◆ Surface conditions where the vehicle will be operated;
- ◆ Composition of loads to be carried and load stability;
- ◆ Load manipulation, stacking, and unstacking;
- ◆ Pedestrian traffic in areas where the vehicle will be operated;
- ◆ Narrow aisles and other restricted places where the vehicle will be operated;
- ◆ Hazardous (classified) locations where the vehicle will be operated;
- ◆ Ramps and other sloped surfaces that could affect the vehicle's stability;
- ◆ Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;
- ◆ Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

**POWERED INDUSTRIAL TRUCK DAILY
INSPECTION (LPG/Diesel/Gasoline)**

Forklift MFG _____ Model _____ Serial Number _____ Location _____

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
KEY OFF - Procedures							
Overhead guard attached							
Hydraulic cylinders - Hoses/Fluid level							
Mast assembly							
Lift chains and rollers							
Forks, Top Clip Retaining Pin and Heel							
Tires - Condition and pressure							
Fluids leaking - Fuel, Oil, Coolant							
Fuel System Fittings/Hose/Fuel Gauge							
Propane tank bracket positioned/locked down							
Check fire extinguisher							
KEY ON - Procedures							
Check all gauges/warning lights							
Drive Control/Accelerator Pedal							
Battery voltage indicator							
Tilt, Hoist and Lowering Control							
Steering operation							
Brakes - Service and Parking							
Front, rear, and brake lights							
Horn							
Seat (including seatbelt)							
Operation of attachments							
<i>Pre-inspection date</i> →							
<i>Operator's Printed Initials</i> →							

Instructions: Operator must check off each item as having been checked "OK" and safe to use during daily inspections prior to operation.

Comments:

**POWERED INDUSTRIAL TRUCK DAILY
INSPECTION (Electric)**

Forklift MFG _____ Model _____ Serial Number _____ Location _____

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
KEY OFF - Procedures							
Overhead guard attached							
Hydraulic cylinders/hoses							
Mast assembly							
Lift chains and rollers							
Forks, Top Clip Retaining Pin and Heel							
Tires - Condition and pressure							
Fluids leaking - Hydraulic Oil, Battery							
Battery - Water/Electrolyte Level and Charge							
Battery Restraint System - Adjust and Fasten							
Fluid levels - Hydraulic, Transmission, Brake							
KEY ON - Procedures							
Check all instrument monitors							
Accelerator Linkage - Functioning Smoothly							
Battery discharge indicator							
Drive, Tilt, Hoist and Lowering Control							
Steering operation							
Brakes - Service and Parking							
Front, rear, and brake lights							
Horn							
Seat (including seatbelt)							
Operation of attachments							
<i>Pre-inspection date</i> →							
<i>Operator's Printed Initials</i> →							

Instructions: Operator must check off each item as having been checked "OK" and safe to use during daily inspections prior to operation.

Comments:

RESPIRATORY PROTECTION

PURPOSE

The permissible exposure limits (PELs) for many hazardous chemicals and substances can be found in the relevant OSHA standards, and additional information is available in the safety data sheet (SDS). If a significant exposure develops, regardless of the source, the preferred methods of protecting against breathing hazards are:

- Engineering controls, such as ventilation or wet saw-cutting.
- Substituting lower-hazard materials for those that create exposures above the PEL.
- Administrative controls, such as scheduling major work when the hazardous processes are avoidable.

When these preferred methods cannot adequately reduce the hazards, then respirator use will be required for over-exposed employees. Generally, a half-face piece air-purifying respirator will be adequate but, again, this determination must be made based on the type and extent of the exposure. Therefore, Managers and Supervisors must work in conjunction with the department Safety Coordinator to identify the potential breathing hazards and coordinate the implementation of the necessary procedures in advance.

RESPIRATOR USE

In order to qualify to wear a respirator, an employee must be properly evaluated, trained and certified according to the provisions of OSHA's respiratory protection standard (29 CFR 1910.134), which applies to both general industry and construction. Employees who are not qualified according to these standards may not work in environments in which respirators are required.

All employees who are required to wear respirators, including a dust mask with a tight-fitting face-piece, during normal work must be enrolled in the department respiratory protection program, which includes medical evaluations, fit testing, and training.

Any employee who may be required to wear a respirator for a non-routine assignment related to a particular project must enroll in the program for the duration of that project.

Employees who work in environments in which respirator use is not required are NOT permitted to voluntarily use a respirator unless medically cleared to do so. For those who voluntarily choose to wear a dust mask, they may do so only after being issued a copy of OSHA's mandatory appendix to 1910.134, entitled *Information for Employees Using Respirators When Not Required Under the Standard*, which is included at the end of this section.

Employees enrolled in the respiratory protection program do so at no cost to them. The costs associated with training, medical evaluations and respiratory protection equipment will be borne by the department.

The Program Administrator will be knowledgeable of the complexity of the program, conduct evaluations, and be properly trained in the event that implementation of the following program elements becomes necessary.

RESPONSIBILITIES

Program Administrator

The duties of the Respiratory Protection Program Administrator include:

1. Identifying work areas, processes or tasks that require respirators, and evaluating hazards;
2. Selection of respiratory protection options;
3. Monitoring use to ensure respirators are used in accordance with their certifications;
4. Arranging for and/or conducting training;
5. Ensuring proper storage and maintenance of respiratory protection equipment;
6. Ensuring proper fit testing is conducted;
7. Administering the medical surveillance program;
8. Maintaining records required by the program;
9. Evaluating the program;
10. Updating the written program as needed.

Managers and Supervisors

Managers and Supervisors are responsible for ensuring that the respiratory protection program is implemented. In addition to being knowledgeable about the requirements for their own protection, supervisors must also ensure that the program is understood and followed by their employees. Duties include:

1. Ensuring that employees understand and comply with the program;
2. Ensuring the availability of appropriate respirators and accessories;
3. Being aware of tasks requiring the use of respiratory protection;
4. Enforcing the proper use of respiratory protection when necessary;
5. Ensuring that respirators are properly cleaned, maintained, and stored;
6. Ensuring that respirators fit well and do not cause discomfort;
7. Continually monitoring work areas and operations to identify respiratory hazards;
8. Coordinating with the Program Administrator on hazards or other concerns.

Employees

Each employee has the responsibility to wear his or her respirator when and where required and in the manner in which they have been trained. Employees must also:

1. Care for and maintain respirators as instructed and store them in a clean and sanitary location;
2. Inform their supervisor if the respirator no longer fits well and request a new one that fits properly;

3. Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program;

SELECTION PROCEDURES

The Program Administrator will select NIOSH-certified respirators to be used on site based on the hazards to which workers are exposed and in accordance with all OSHA standards. The Program Administrator will work with the manager/supervisor to ensure that the facility's hazard evaluation is adequate for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. The hazard evaluation must include:

1. Identification and development of a list of hazardous substances used in the workplace by department or by work process.
2. Review of work processes to determine where potential exposures to these hazardous substances may occur.
3. Exposure monitoring to quantify potential hazardous exposures.

MEDICAL EVALUATION

1. Employees who are required to wear a respirator must pass a medical exam before being permitted to wear a respirator on the job.
2. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so.
3. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.
4. A licensed physician will conduct the medical evaluations. Medical evaluation procedures are as follows:
 - a. The medical evaluation will be conducted using the questionnaire provided by the physician conducting the evaluation.
 - b. The Program Administrator or Supervisor will provide a copy of this questionnaire to all employees requiring medical evaluations.
 - c. To the extent feasible, the department will assist employees who are unable to read the questionnaire (by providing help in reading the questionnaire). When this is not possible, the employee will be sent directly to the physician for medical evaluation.
 - d. Employees will be permitted to fill out the questionnaire during work hours.
 - e. Follow-up medical exams will be granted to employees as required by the standard, and/or as deemed necessary by the physician.
 - f. All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.

5. The Program Administrator or Supervisor will provide the physician with:
 - a. a copy of this program;
 - b. a copy of the Respiratory Protection standard;
 - c. a list of hazardous substances by work area; and
 - d. for each employee requiring evaluation:
 - i. his or her work area or job title;
 - ii. proposed respirator type and weight;
 - iii. length of time required to wear respirator;
 - iv. expected physical work load (light, moderate, or heavy);
 - v. potential temperature and humidity extremes; and
 - vi. any additional protective clothing required.
6. After an employee has received clearance and begun to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:
 - a. Employee reports signs and/or symptoms related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.
 - b. The physician or supervisor informs the Program Administrator that the employee needs to be reevaluated;
 - c. Information from this program, including observations made during fit testing and program evaluation, indicates a need for re-evaluation;
 - d. A change occurs in workplace conditions that may result in an increased physiological burden on the employee.
7. All examinations and questionnaires are to remain confidential between the employee and the physician.

FIT TESTING

1. Fit testing is required for employees
 - a. prior to being allowed to wear any respirator with a tight fitting face-piece
 - b. annually; and
 - c. when there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).
2. Employees will be fit tested with the make, model, and size of respirator that they will actually wear.
3. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit.
4. Fit testing will be conducted according to the mandatory appendix to OSHA's respiratory protection standard in 29 CFR 1910.134, entitled *Fit Testing Procedures*.

RESPIRATOR USE

1. Employees will use their respirators under conditions specified by the Department's own program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer.
2. All employees shall conduct user seal checks each time that they wear their respirator as specified in OSHA's mandatory appendix to 1910.134, entitled *User Seal Check Procedures*.
3. All employees shall be permitted to leave the work area in order to maintain their respirator for the following reasons:
 - a. to clean their respirator if the respirator is impeding their ability to work;
 - b. to change filters or cartridges, replace parts; or
 - c. to inspect the respirator if it stops functioning as intended.
4. Employees are not permitted to wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures, that prevents them from achieving a good seal.
5. Employees are not permitted to wear headphones, jewelry, or other articles that may interfere with the face-piece seal.

RESPIRATOR MALFUNCTION

1. For any malfunction of a respirator (e.g. breakthrough, facepiece leakage, malfunctioning valve, etc.), the wearer should inform his or her supervisor that the respirator no longer functions as intended, and then go to a safe area to maintain the respirator. The supervisor must ensure that the employee receives the needed parts to repair the respirator, or is provided with a new respirator.
2. Any employee that may be required to wear an atmosphere-supplying respirator must work in a "buddy" system. If a worker experiences a malfunction, he or she should signal to the buddy that he or she has had a respirator malfunction.

AIR QUALITY

1. For supplied-air respirators, only Grade D breathing air shall be used in the cylinders.
2. The Program Administrator or Supervisor will coordinate deliveries of compressed air with the department's vendors, and require them to certify that the air in the cylinders meets the specifications of Grade D breathing air.
3. A minimum air supply of one fully charged replacement cylinder for each supplied air unit must be maintained on the site where the respirators are being used.

CLEANING, MAINTENANCE, CHANGE SCHEDULES AND STORAGE

Cleaning

1. Respirators are to be regularly cleaned and disinfected.
2. Respirators issued for the exclusive use of an employee shall be cleaned as often as necessary, but at least once a day.
3. Supplied air and emergency use respirators are to be cleaned and disinfected after each use.
4. OSHA's mandatory appendix to 29 CFR 1910.134, entitled *Respirator Cleaning Procedures* must be followed.
5. The Program Administrator or Supervisor will ensure an adequate supply of appropriate cleaners and disinfectants. If supplies are low, employees must notify their Supervisor.

Maintenance

1. Respirators are to be properly maintained at all times in order to ensure that they function properly and adequately protect the employee. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts must be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. Repairs to regulators or alarms of atmosphere-supplying respirators must be conducted by a qualified technician or the manufacturer. The following checklist will be used when inspecting respirators:
 - a. Check face-piece for: cracks, tears, or holes facemask distortion cracked or loose lenses/facemask
 - b. Check headstraps for: breaks or tears and broken buckles
 - c. Check valves for: residue or dirt and cracks or tears in valve material
 - d. Check filters/cartridges for: approval designation, gaskets, cracks or dents in housing, and proper cartridge for hazard
 - e. Check air supply systems for: breathing air quality/grade; condition of supply hoses, hose connections, and settings on regulators and valves
2. Employees are permitted to leave their work area to perform limited maintenance on their respirator in a designated area that is free of respiratory hazards. Situations when this is permitted include to wash their face and respirator face-piece to prevent any eye or skin irritation, to replace the filter, cartridge or canister, and if they detect vapor or gas breakthrough or leakage in the face-piece or if they detect any other damage to the respirator or its components.

Change Schedules

Employees must follow the manufacturer's specifications for cartridge changes.

Storage

1. Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations.
2. Each employee will clean and inspect their own air-purifying respirator in accordance with the provisions of their Department's program and will store their respirator in a plastic bag in a secure area that is under their control.
3. Each employee will have his/her name on the bag and that bag will only be used to store that employee's respirator.

4. Atmosphere supplying respirators will be stored in a location approved by the Program Administrator or Supervisor.
5. The Program Administrator or Supervisor will also coordinate the storage of a supply of respirators and respirator components.

Defective Respirators

1. Respirators that are defective or have defective parts shall be taken out of service immediately.
2. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his or her supervisor. Supervisors will turn in all defective respirators to the Program Administrator. The Program Administrator will decide whether to:
 - a. Temporarily take the respirator out of service until it can be repaired; or
 - b. Perform a simple fix such as replacing a headstrap; or
 - c. Dispose of the respirator due to an irreparable problem or defect.
3. When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of similar make, model, and size. All tagged out respirators will be kept by the Program Administrator.

TRAINING

1. The Supervisor in coordination with the Program Administrator will provide the training for respirator users on the contents of their Respiratory Protection Program, and their responsibilities under the OSHA Respiratory Protection standard. Workers will be trained prior to using a respirator in the workplace. Supervisors will also be trained prior to using a respirator in the workplace or prior to supervising employees that must wear respirators. The training course will cover the following topics:
 - a. The Department Respiratory Protection Program;
 - b. The OSHA Respiratory Protection standard;
 - c. Respiratory hazards encountered by employees and their health effects;
 - d. Proper selection and use of respirators;
 - e. Limitations of respirators;
 - f. Respirator donning and user seal (fit) checks;
 - g. Fit testing;
 - h. Emergency use procedures;
 - i. Maintenance and storage;
 - j. Medical signs and symptoms limiting the effective use of respirators;
2. Employees will be retrained annually or as needed (e.g. a change in type of respirator or safety violation).
3. Employees must demonstrate their understanding of the topics covered in the training through hands-on exercises and a written test.

4. Respirator training will be documented by the Program Administrator or Supervisor and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested.

PROGRAM EVALUATION

1. The Program Administrator and the Supervisor will conduct periodic evaluations of the workplace to ensure that the provisions of the Department's program are being implemented.
2. The evaluations will include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring and a review of records.
3. Problems identified will be noted in an inspection log.
4. These findings will be reported to department leadership, and the report will list plans to correct deficiencies in the respirator program and target dates for the implementation of those corrections.

DOCUMENTATION AND RECORDKEEPING

All records will be kept per the requirements of 29 CFR 1910.1020, which include:

1. A written copy of the program and the OSHA standard will be kept in the Program Administrator's office and will be available to all employees who wish to review it.
2. Also maintained in the Program Administrator's office are copies of training and fit test records.
3. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted.
4. The Program Administrator will also maintain copies of the medical records for all employees covered under the respirator program. The completed medical questionnaire and the physician's documented findings are confidential and will remain with the physician. The Department will only retain the physician's written recommendation regarding the ability to wear a respirator.

MANDATORY INFORMATION FOR VOLUNTARY USE OF DUST MASKS

(29 CFR 1910.134 Appendix D)

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

- 1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.*

- 2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.*

- 3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.*

- 4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.*

Name

Signature

Date

NOTE: In order to legally and safely use any kind of respirator other than the dust mask described above, or when the use of a dust mask is mandatory because of the exposure, you must be enrolled in the Department’s respiratory protection program, which includes medical evaluation, fit testing, and specific training.

SAFE ROADS PROGRAM

OVERVIEW: Employees do not intend to have vehicular accidents, but they happen. When these accidents occur, employees and others may be injured, and property may be damaged or destroyed.

OBJECTIVE: To eliminate or reduce injuries and loss of property from vehicle accidents.

DOES THIS PROGRAM APPLY TO THE EMPLOYEES IN YOUR DEPARTMENT? Yes. Departments may use this model program or develop their own program, but every department has a responsibility to reduce or eliminate vehicle accidents. Any program implemented should adhere to the provisions of the General Services Office of Fleet Management Comprehensive Administrative Order, No. 031 (GS-No. 031).

WHAT DOES YOUR DEPARTMENT NEED TO DO TO MAKE ROADS SAFE?

Expect Safe Driving:

Your department should communicate its expectation that each employee will drive safely. The policy statement below is one way to send this message:

[Name of department] requires all employees who operate vehicles on the Metropolitan Government's business to drive safely. To ensure that our department's vehicles are used safely, the *[Name of department]* has implemented a *Safe Roads* program. The emphasis of this program is on the prevention of vehicle accidents. If an employee fails to maintain an acceptable driving record, whether due to on the job or off the job driving, that failure may be grounds for remedial training, restriction of job driving duties, reassignment, demotion, suspension or termination.

Determine Causes For Your Department's Vehicle Accidents:

Departments must understand what caused their vehicle accidents. Departments may contact the Law Department to request a report on their auto liability claims history. This report will give your department a good start towards understanding accident causes.

When loss histories are examined, look for answers to the following questions:

⇒ What causes (for example, backing) appear frequently?

- ⇒ Are there any common factors such as time of day, length of the experience of the driver?
- ⇒ Which drivers have had multiple accidents?
- ⇒ Did mechanical problems contribute to accidents? If yes, were there problems that could have been identified by a pre-trip inspection? Were problems missed during routine maintenance? Were the vehicles not taken for their scheduled routine maintenance?

Attachment B in the Appendix of this chapter is a check list of other factors that can contribute to an accident. It is a good practice to consider these causes as well. Once you have determined the root causes, determine what steps can be taken to eliminate them. The Occupational Safety Administrator is available to provide your department with assistance with this analysis and recommendations for remedial actions.

Set Goals for Accident Prevention:

Accidents are not an unavoidable cost of doing business. They can be prevented. An important part of your department's *Safe Road* program is to set clear, achievable goals. For example, set a goal to reduce the number of rear end accidents in the next fiscal year. If your department is small and does not have many accidents, set a goal that there will be NO vehicle accidents in the coming fiscal year. Communicate these goals to employees. Keep them updated on the department's progress toward meeting the goals. Celebrate successes and redouble efforts in areas where satisfactory progress is not being made.

Hire Drivers with an Acceptable Driving Records who can Meet the Physical Requirements of the Position:

An effective way to reduce vehicle accidents is to hire drivers with acceptable driving records. Check the motor vehicle record (MVR) and driver's license of an applicant before selecting them for a position that requires driving. If a valid driver's license is a requirement of the position to be filled, the recruitment announcement should include a statement that any offer will be contingent upon proof of a valid driver's license for the class of vehicle(s) to be operated and an acceptable driving record.

Civil Service employees that operate heavy equipment and other motorized vehicles on a regular basis are required to have a pre-employment physical to certify the applicant's physical ability to do the job with or without reasonable accommodations. Make sure that the physical requirements of the driving the vehicle are included in the job description and provided to the physician conducting the pre-employment physical.

Valid Driver's License: Tennessee residents must possess at least a Class D driver's license. A driver's license should not include any restriction other than corrective lenses in accordance with Tennessee Department of Safety (1340-1-13-.20). The following driver licenses and permits are NOT acceptable:

- Identification (ID Only)
- Class PD (Learner Permit)
- Class H (Hardship)

Acceptable Driving Record: Before deciding to interview an applicant, review the applicant's driving record.

Verify that Current Drivers Have Acceptable Driving Records

The driving records of employees who operate vehicles on Metro business to transport "clients," drive long distances, or drive frequently should be reviewed at least once every two years. A check every year is preferable.

Review Accidents:

Departments need to review vehicle accidents to determine the root causes of incidents. This information is needed to eliminate or minimize the causes.

Review board members should:

- Represent both supervisory and staff level employees.
- Personally have had no more than one vehicle accident during the past three years.
- Have completed Metro's defensive driver training class within the past three years.

To be effective the review board should carefully consider pertinent facts about the accident before recommending remedial training or discipline.

Sources of the facts are:

- Statements or interviews with the driver, passenger(s), and any other involved parties.
- Police report.
- Any additional facts gathered by the Claims Division of the Law Department.

Before initiating a review process, a department should develop a policy to govern review accidents and a standard for remedial training and/or discipline that is used for all employees. Attachment B in the Appendix is a sample Accident Review Policy.

RESPONSIBILITIES FOR SAFE ROAD PROGRAM

Department Head: Overall responsibility for the safe operation of the department's vehicles. Communicate the importance of safe driving to the department's mission. Incorporate employees' driving record in their performance evaluations. Require new employees to have acceptable driving records. Review current employees' motor vehicle records and take appropriate actions if they are not satisfactory. Ensure that vehicles have the appropriate inspections and maintenance as well as instructions for what to do in the event of an accident. (See Attachment D in Appendix.)

Safety Coordinator: Investigate vehicle accidents. Collect, analyze and distribute information on accidents. Propose loss control measures. Prepare driver safety communications for distribution to employees.

Supervisors: Ensure that drivers receive defensive driving training. Investigate vehicle accidents and implement corrective action for their causes. Make changes in driving assignments based on driving records. Consider loss control during driver performance reviews.

Drivers:

- Possess a valid Tennessee driver's license.
- Complete defensive driving course when hired and periodically thereafter in accordance with the National Safety Council guidelines.
- Check vehicle for maintenance issues or obvious safety hazards before driving.
- Report restrictions or limitations on driving privileges.
- Do not permit any unauthorized person to drive the vehicle.
- Use available restraint devices and require all occupants to do so.
- Know and follow all applicable traffic laws, ordinances, regulations, and use defensive driving practices at all times.
- Take regular breaks when traveling more than three hours at a stretch. Take more frequent breaks if driving at night.
- Assume all responsibilities for fines or traffic violations associated with the use of a Metro vehicle, rental, or private vehicle on official Metro business.
- Do not drive impaired, under the influence of drugs (prescription or non-prescription) or alcohol.
- Turn off the ignition, remove the keys, engage parking brake, and lock the vehicle when you are out of sight of the vehicle, even briefly.
- Drive the vehicle at speeds appropriate for road conditions, and in any case no higher than speed limits.

- Immediately report all incidents (collisions, vehicle damage, traffic citations) to supervisor or designee and as required by law.

How Safe Are Your Roads?

Implementing this Safe Road Program is an effective method to reduce the accidents and injuries that result from vehicle incidents. The measures below are objective measures of how well your department's Safe Road Program is functioning:

- Number of accidents per million miles driven per fiscal year
- Liability costs per vehicle in department per fiscal year
- Average liability cost per vehicle accident per fiscal year

If you would like assistance in developing these measures and comparing them against Metro's average, contact The Metro Safety Division..

Attachment A – MODEL ACCIDENT REVIEW POLICY

The following attachment is a model plan that Departments can choose to adopt as their accident plan. Departments should determine whether accidents are preventable or non-preventable after a review of the pertinent facts from the driver's accident report, police reports, the supervisor's vehicle accident investigation report and, if applicable, Law Department's accident investigation report. Preventability should be determined on the basis of whether the driver took all *reasonable* defensive measures to prevent the accident. *Reasonable* should not be interpreted so strictly that drivers feel Metro's expectations are too high or so loosely that driver errors are overlooked, resulting in no corrective action. The illegal or unexpected actions of the other drivers should be considered, but do not automatically make the accident non-preventable. A good defensive driver prevents accidents in spite of the incorrect actions of others and/or adverse conditions. Preventability is not to be confused with a legal finding of fault. A driver may not be "at fault" legally, but may have been able to prevent the accident.

When a vehicle accident occurs, the department shall determine the cause of the accident as one of the following:

- A. Non-preventable (The driver did all that could be reasonably expected to avoid the accident and in no significant way contributed to it.)
- B. Preventable, with Mitigating Circumstances (The accident was preventable but there were factors other than driver error which contributed materially to the accident).
- C. Preventable. An accident is preventable if the driver could have reasonably taken other actions that would have avoided the accident. The Accident Review Resource Guide (Attachment C in the Appendix) provides guidance to the preventability of accidents.

D. Preventable with Aggravating Circumstances (The accident resulted from willful wrongdoing, disregard for life and property or unauthorized use of a Metro vehicle.).

The following disciplinary actions should be recommended based on the board's finding of the cause of the accident:

- (A) No Disciplinary Action. The accident is determined to be Non-preventable.
- (B) No Disciplinary Action. The accident is determined to be Preventable, with Mitigating Circumstances.
- (C) If the accident is determined to be Preventable disciplinary actions should be recommended.

NOTE: Employees have the right to file appeals in accordance with the applicable provisions of the Civil Service Rules.

Attachment B – VEHICLE ACCIDENT ISSUE CHECKLIST

Driver error is involved in most accidents, but other factors can contribute to driver error. The following is a list of other factors that can contribute to accidents.

Check if Root Cause	Check if Contributing Factor	Issues that Can Lead to an Accident
		Metro’s policies and expectations for safe driving were not clearly communicated and enforced to the employee (e.g. GS-No. 031).
		Driver had not had proper training on the vehicle he was operating.
		Drivers in the department are not held accountable for their driving.
		Driver had not completed Defensive Driving Course.
		Driver was using vehicle to attend to personal business.
		Driver did not have adequate time to complete his daily assignment, including travel time.
		Driver has an unacceptable driving record.
		Vehicle had maintenance problems
		Driver was asked to complete a task for which the vehicle was not appropriate.
		Driver was performing tasks that were not in the job description.
		Employee had made a mechanical modification to the vehicle.
		Spotter did not assist the driver to back up safely.
		Vehicle had not had its preventative maintenance on a regular basis.
		Driver did not perform a pre-trip safety check.
		Driver and/or passengers did not use seatbelts.
		Driver was distracted by cell phone, eating, falling clip board, computer, etc.
		Driver was not fit to drive the vehicle physically and/or mentally.
		Driver’s route included areas that did not have sufficient clearance for the size of the vehicle.

Attachment C - INCIDENT REVIEW RESOURCE GUIDE

This guide provides information on the types of accidents that may be reasonably considered to be preventable.

(A) Vehicle Struck in Rear by Other Vehicle

- a. Non-preventable if:
 - i. Driver's vehicle was legally and properly parked.
 - ii. Driver was proceeding in own lane of traffic at a safe and lawful speed.
 - iii. Driver was stopped in traffic due to existing conditions or was stopped in compliance with traffic sign or signal or the directions of a police officer or other person.
 - iv. Driver was in proper lane, stopped and waiting to make turn.

(B) Vehicle Struck While Parked

- a. Non-preventable if:
 - i. Driver was properly parked in a location where parking was permitted.
 - ii. Vehicle was protected by emergency warning devices as required by federal and state regulations, or if driver was in process of setting out or retrieving signals.

(C) Accidents at Intersections

- a. Preventable if:
 - i. Driver failed to control speed so that he could stop within available sight distance.
 - ii. Driver failed to check cross-traffic and wait for it to clear before entering intersection.
 - iii. Driver pulled out from side street in the face of oncoming traffic.
 - iv. Driver collided with person, vehicle or object while making right or left turn.

- v. Driver, going straight through an intersection, collided with another vehicle making a turn.

(D) Vehicle Strikes Other Vehicle in Rear

- a. Preventable if:
 - i. Driver failed to maintain safe following distance and keep vehicle under control.
 - ii. Driver failed to stay alert to traffic conditions and note slow-down of traffic ahead.
 - iii. Driver failed to ascertain whether vehicle ahead was moving slowly or driver failed to stop slowing down for any reason when required.
 - iv. Driver misjudged rate at which vehicle was overtaking vehicle ahead.
 - v. Driver came too close to car ahead before pulling out to pass.
 - vi. Driver failed to wait for car ahead to move into the clear before starting up.
 - vii. Driver failed to leave sufficient room for passing vehicle to get safely back in line.

(E) Sideswipe and Head-On Collisions

- a. Preventable if:
 - i. Driver was not entirely in the proper lane of travel.
 - ii. Driver did not pull to the right and slow down and stop for vehicle encroaching on own lane of travel when such action could have been taken without additional danger.

(F) Vehicle Struck in Rear by Other Vehicle

- a. Preventable if:
 - i. Driver was passing slower traffic near intersection and had to make sudden stop.
 - ii. Driver made sudden stop to park, load or unload.
 - iii. Driver's vehicle was improperly parked.
 - iv. Driver rolled back into vehicle behind.

(G) Backing Accidents

- a. Preventable if:
 - i. Driver backed vehicle, causing accident, when such backing could have been avoided.
 - ii. Driver failed to get out of vehicle and check proposed path of backward travel.
 - iii. Driver failed to use a “spotter” if driver was in a position where the mirrors failed to show the hazard.

(H) Accidents Involving Train

- a. Preventable if:
 - i. Driver attempted to cross tracks directly ahead of oncoming train.
 - ii. Driver ran into side of train.
 - iii. Driver stopped on or parked too close to train tracks.

(I) Accidents That Occur While Passing

- a. Preventable if:
 - i. Driver passed when view of road ahead was obstructed by hill, curve, vegetation, traffic, adverse weather conditions, etc.
 - ii. Driver attempted to pass in the face of closely approaching traffic.
 - iii. Driver failed to warn the driver of the vehicle being passed.
 - iv. Driver failed to signal change of lanes.
 - v. Driver pulled out in front of other traffic overtaking from rear.
 - vi. Driver cut-in short while returning to right lane.

(J) Accidents That Occur While Being Passed

- a. Preventable if:
 - i. Driver failed to stay in own lane, or hold or reduce speed to permit safe passing.

(K) Accidents That Occur While Entering Traffic Stream

- a. Preventable if:
 - i. Driver failed to signal when pulling out from curb.
 - ii. Driver failed to check traffic before pulling out from curb.

- iii. Driver failed to look back to check traffic if driver was in position where mirrors did not show traffic conditions.
- iv. Driver attempted to pull out in a manner, which forces other vehicles(s) to change speed or direction.
- v. Driver failed to make full stop before entering from side street, alley or driveway.
- vi. Driver failed to make full stop before crossing sidewalk.
- vii. Driver failed to yield right of way to approaching traffic.

(L) Pedestrian Accidents

- a. Preventable if:
 - i. Driver did not reduce speed in area of heavy pedestrian traffic.
 - ii. Driver was not prepared to stop.
 - iii. Driver failed to yield right of way to pedestrian.

(M) Accidents Related to Mechanical Defects

- a. Preventable if:
 - i. Defect was of a type which driver should have detected in pre-trip inspection of vehicle.
 - ii. Defect was a type which driver should have detected during the normal operation of the vehicle.

(N) All Types of Accidents

- a. Preventable if:
 - i. Driver was not operating at a speed consistent with the existing conditions of the road, weather, and traffic.
 - ii. Driver failed to control speed so that vehicle could stop within assured clear distance.
 - iii. Driver misjudged available clearance.
 - iv. Driver failed to yield right of way to avoid accident.
 - v. Driver failed to accurately observe existing conditions and drive in accordance with those conditions.
 - vi. Driver failed to yield right of way to avoid an accident.
 - vii. Driver was inattentive.

- viii. Driver was under the influence of alcohol or drugs.
- ix. Driver was in violation of Metro operating rules, the regulations of any federal or state regulatory agency or any applicable traffic laws or ordinances.

Attachment D – LANGUAGE FOR GLOVEBOX

What DO I Do In Case of Accident?

- Stop immediately.
- Take precautions to prevent further accidents.
- Call Police/Medical Help if Needed.
- Render reasonable assistance to injured persons.
- Follow accident departmental procedures for accidents.
- Do not admit negligence or liability.
- Do not attempt to settle, regardless of how minor the accident.
- Exchange names, addresses, license # and insurance information with driver of other vehicle.
- Get name, address, and home # of injured persons and witnesses, if possible.
- Get as much information as possible:
 - Witnesses
 - Information on owner of car (may be different than driver)
 - Circumstances of the accident while it is still fresh in your mind
- Take photographs of scene of accident if possible and safe to do so.
- Report accident to your supervisor immediately.

Statement of the Metropolitan Government's Insurance

The Metropolitan Government of Nashville and Davison County, is a metropolitan form of government as set out under the Governmental Tort Liability Act in TCA 29-20-101, et seq., and as such has its liability limits defined by law. The Metro Government of Nashville and Davidson County carries no insurance; however, it is self-insured in an adequately funded Self-Insurance Program, up to the limits as set out in the statute. To file a claim, call the Claims Division of the Metro Law Department, 862-6341.

WELDING SAFETY

Careful training and strict attention to safety procedures when welding is essential if workers are to stay safe. Welding equipment manufacturers generally provide specific warnings and instructions that should be read and understood by everyone who uses the equipment. OSHA makes a specific point of listing a supervisor's responsibilities in ensuring welding safety in 29 CFR 1910.253. These include, but are not limited to, being "responsible for the safe handling of the cutting or welding equipment and the safe use of the cutting or welding process." The following guidelines are to assist with this requirement.

Protective Equipment

Eye and face protection are as important to a welding process as the tools themselves. Welders are at risk for burns, heat radiation, and flying bits of hot molten metal. The proper protective equipment can limit these risks substantially. OSHA requires gas welders to wear impact-resistant and heat-resistant goggles or other eye protection. Nonflammable welding helmets are recommended for many operations. For arc welders, OSHA recommends wearing helmets and eye protection designed to resist heat, fire, impact, and electricity.

Since the flames and hot metal from both arc and gas welding give off infrared or heat rays, workers need eye coverings that protect them from long-term exposure, which can lead to cataracts. Safety goggles are available in a wide range of different lens shades, each of which provides protection against the specific infrared hazards of different kinds of welding jobs.

Arc welding also creates ultraviolet rays that can burn eyes and skin-much like a very bad sunburn. Again, instructions from the manufacturer and your supervisor should be your guide to selecting the right safety goggles or glasses for the job. It is a good idea to wear a face shield over the glasses for extra protection.

Body Protection

Welders should also wear clothing that will protect them against burns from hot sparks or metal. Very hot work calls for protective leather aprons, leggings and sleeves. Street clothes are acceptable for some welding jobs, if you follow these precautions:

- Wear long-sleeved shirts-Arc welders should wear clothing made of heavy material to protect against ultraviolet rays.
- Keep collars and cuffs buttoned.
- Do not wear clothes with cuffs or open pockets that could catch sparks.
- Wear high shoes, and keep pant legs over them to keep sparks out.
- Wear flame-resistant head covers.
- Wear clean clothes-grease or oil spots could be flammable.
- Do not wear flammable hair preparations.

For Arc welders, special dry welder's gloves are a must to protect against shock to the hands or electrocution.

Some welding jobs also call for wearing respirators to protect against inhaling fumes and gases. There are special welding respirators available. Follow the instructions of the welding equipment manufacturers, safety data sheets (SDSs) for any gas or materials used in a welding operation, and your supervisor in choosing the correct respirator.

Fire Hazards

The flames and sparks created in the welding process make fire its greatest hazard. Welding sparks have been known to travel as much as 35 feet. The spatter-hot metal created by the process can bounce on the floor or fall through openings.

Whether you use arc or gas welders, always follow these precautions:

- Remove flammables from the area before beginning the job.
- Use a combustible-gas indicator to determine if flammable vapors or gases are present in an area where you plan to weld.
- Try to restrict welding operations to separate special rooms with fire-resistant floors.
- If you must weld in a room with a wood floor, wet the floor or cover it with a fire-resistant shield.
- Cover with a fireproof blanket any flammables that cannot be removed.
- Close or cover any ducts that could carry sparks to combustible items in other areas.
- Keep the welding area free of trash or debris that could catch fire.
- Keep fire extinguishers nearby. Check them regularly and make sure they are in good working order and that workers know how to use them.
- Assign a fire-watch to welding jobs. Fire-watch will remain at welding operations for 30 minutes after welding operations have ended.

If you are using gas welders, take these additional steps to prevent fires:

- Keep cylinders away from sparks and spatter.
- **Do Not** run over gas hoses.
- **Do Not** use oxygen to blow away dust. It increases the likelihood of combustion if any ignition source-even static electricity-is present.
- Use proper lubricants, not grease or oil, on the connections of compressed-oxygen cylinders.
- **Do Not** smoke!

Keep in mind that the gases used for welding: acetylene, butane, natural gas, propane, propylene-are not only flammable, they are also potentially explosive. Before you start a job, check the SDS for the gas you are using.

Fumes and Gases

Another welding hazard is fumes and gases. The fumes are actually microscopic metal particles that are suspended in the air. Fluxes, plating, dirt, oil, and other substances can also create fumes and gases when they are heated by the welding process.

To avoid respiratory problems and lung damage from inhaling these airborne substances, follow

instructions for selecting and using respiratory protection. In addition, keep these safety procedures in mind:

- Use local ventilation, such as an exhaust system.
- Place fans to the side so fumes will blow away from you.
- Do not get too close to the arc on an arc welder.
- Leave the area immediately and get medical attention if you feel sick or uncomfortable.

Arc welder Handling and Storage

Arc welders are electric, so you must also follow the rules of electrical safety to avoid shock or electrocution. Keep these precautions in mind:

- Turn off power before touching electric parts.
- Ground the object you are welding with a separate electrical connection.
- Use the correct cable size.
- Make sure cable insulation is not worn or frayed.
- Do not wear metal jewelry; it could become an electricity conductor.
- Do not weld in the rain; moisture carries electricity.
- If you are unsure of the precautions listed above, get with your supervisor before welding operations.

Confined Spaces

Welding in confined spaces brings additional risks to welding operations. Confined spaces call for extreme attention to safety to counter the hazards of fire, explosion, lack of oxygen, and dangerous levels of toxic gases and fumes. Carefully train anyone who will be assigned to weld in a confined space according to OSHA regulations (29 CFR 1910.146) and permit only trained, authorized workers to enter these spaces-with a permit and an attendant and supervisor in place. In addition, be sure workers keep welding machines and gas cylinders outside the space. They should also shut off equipment when welding operation stops, such as for lunch or overnight.

Welding Safety Checklist

Do Welders?

1. Understand welding hazards?
2. Read and follow equipment manufacturers' instructions?
3. Use impact-and heat-resistant eye and face coverings?
4. Wear helmets or goggles that protect against infrared rays?
5. Wear clothing that covers skin to prevent burns?
6. Wear leather aprons, leggings and sleeves for very hot work?
7. Avoid cuffs, pockets or low shoes that could catch sparks?
8. Wear flame-resistant head covers?
9. Wear dry welder's gloves for arc welding?
10. Use respirators to prevent inhaling dangerous fumes and gases?

Are welding operations performed:

1. After areas are tested for presence of flammables?

2. In areas free of combustible trash or debris?
3. After items that could be tripped over are removed?
4. In areas where smoking is strictly prohibited?
5. With adequate ventilation, and fans blowing fumes away from workers?
6. With working fire extinguishers and possibly an assigned fire-watch?

Are Gas Cylinders:

1. Checked for label instructions before use?
2. Checked regularly for leaks?
3. Kept away from heat and flammable items?
4. Turned off when not in use?
5. Moved and handled to prevent dropping or rolling?
7. Inside of buildings, cylinders shall be stored in a well-protected, well-ventilated, dry location, at least 20 feet (6.1 m) from highly combustible materials such as oil or excelsior. Cylinders should be stored in definitely assigned places away from elevators, stairs, or gangways.

NOTE: For Hot work permit/fire prevention please reference Section 13 of the Metro Safety Guideline.

WORK ZONE TRAFFIC CONTROL PROGRAM

PURPOSE

The Metropolitan Government of Nashville & Davidson County recognizes the importance of providing safety to our employees as well as the public, while conducting work on the Nashville roadways. The purpose of this program will be to provide orderly and predictable movement of all traffic, motorized and non-motorized, throughout the city and to provide such guidance and warnings as are needed to ensure the safe and uniformed operation of individual elements of the traffic stream.

These guidelines are applicable to traffic control for street and highway construction, maintenance, utility, and incident management operations.

RESPONSIBILITY AND TRAINING

All appropriate employees shall be trained in the safety significance of the Work Zone Traffic Control Program. This training shall be documented in accordance with the Training Procedure.

Employees shall be re-trained periodically. In addition, training shall be conducted whenever it is discovered that any employees are deviating from the established guidelines.

It is the responsibility of the Director of each Metro Department as well as the Safety Coordinator for that department to ensure that all requirements of these guidelines are followed and carried out.

The *Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)*, shall be used to supplement these guidelines.
<http://mutcd.fhwa.dot.gov/>

PEDESTRIAN AND WORKER SAFETY

Pedestrian Safety Considerations

- Pedestrians should not be led into direct conflicts with work site vehicles, equipment or operations.
- Pedestrians should not be led into direct conflicts with mainline traffic moving through or around the work site.
- Pedestrians should be provided with a safe, convenient travel path that

replicates as nearly as possible the most desirable characteristics of sidewalks and footpaths.

Worker Safety Considerations

- Worker Clothing - Workers exposed to traffic shall wear a traffic safety vest. If work is performed at night or in inclement weather, such as rain, fog, sleet, snow, etc., the vest shall possess reflective qualities.

Federal Regulation 23 CFR 634

All workers within the right-of-way of a federal-aid highway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility apparel.

The Federal Highway Administration has determined that Class III Vests complying with ANSI/ISEA 107, 2020 and Public Safety Vests complying with ANSI/ISEA 207, 2020 meet the intent of this rule.

Minimum Requirements

- Use of fluorescent background material
- Fluorescent may be yellow-green, orange-red, or red
- Retroreflective material arranged for 360 visibility
- Garments should be labeled as compliant with ANSI/ISEA 107-2020 or ANSI/ISEA 207-2020

NFPA Requirements

NFPA 1500, 2021

- When members are operating at a traffic incident and their assignment places them in potential conflict with motor vehicle traffic, they shall wear a garment with fluorescent and retro-reflective material visible from all directions.
 - Members that operate on roadway incidents should be provided with vests or garments that ensure proper reflectivity such as a highly retro-reflective vest (strong yellow, green, and orange).
 - NFPA 1900, 2024 (Proposed addition to required equipment list)
One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, Standard for High-Visibility Public Safety Vests, and have a five-point break away feature that includes two at the shoulders, two at the sides and one at the front.
- Barriers - Barriers shall be placed along the work area.

- Speed Reduction - In highly vulnerable situations, consideration shall be given to reducing the speed of traffic through the use of flaggers, police and regulatory speed zoning.
- Use of Police - In situations, such as "on call" status, where a job requires the undivided attention of the employees, Police may be used in traffic control.
- Special Devices - Special warning devices such as directional arrows are to be used with care. Directional arrows are only to be used on four lane type roads.
- Public Information - Improved driver performance may be realized through a well-prepared and complete public relations effort that covers the nature of the work, the time and duration of its execution, and its anticipated effects upon traffic and possible alternate routes.
- Road Closure - If alternate routes are available to handle detoured traffic, the road may be closed temporarily during times of greatest worker hazard, which, in addition to offering maximum worker safety, may facilitate quicker project completion and thus further reduce worker vulnerability.
- **In the event that a road is to be closed, the Police Department as well as the Fire Department shall be notified of the road closing.**
- If the road closed is a state highway, the Tennessee Department of Transportation (TDOT) shall be notified prior to the road closing. They can be contacted at 615-741-2848. .

TEMPORARY TRAFFIC CONTROL ZONE COMPONENTS

Advanced Warning Area: In the Advanced Warning Area, drivers are informed of what to expect. The Advanced Warning Area may vary from a single sign or flashing light to a series of signs in advance of the temporary traffic control zone transition area.

Transition Area: When redirection of the driver's normal path is required, traffic must be channelized from the normal path to a new path. This redirection is intended to occur at the beginning of the Transition Area.

Activity Area: The Activity Area is an area of roadway where the work takes place. It is composed of the work-space and the traffic space, and may contain one or more buffer spaces.

Termination Area: The Termination Area is used to return traffic to the normal

traffic path. For normal daytime maintenance, the *END ROAD WORK* sign is optional.

SIGNS

- In the interest of versatility, all signs shall be either reflectorized with a material that has a smooth, sealed outer surface, or illuminated to show approximately the same shape and color day and night.
- Signs shall be placed in positions where they will convey their messages most effectively and placement must therefore be accommodated to roadway design and alignment. Signs shall be so placed that the driver will have adequate time for response. As a general rule signs shall be located on the right-hand side of the street or roadway.
- Ensure that blind-spots are not created in the positioning of signs.
- When work is completed, all necessary signs shall be removed. They are not to be left up overnight. For example, if a "Flagger Ahead" sign is placed in a work zone, it shall be removed whenever the flagging has been discontinued.
- Signs on fixed supports are usually mounted on a single post, although those wider than 36 inches or larger than 10 square feet in area should generally be mounted on two posts. Signs mounted on portable supports are suitable for temporary conditions. All such installations shall be so constructed to minimize damage upon impact.
- Advanced warning signs will be placed, regardless of the duration of the job. If the road must be channelized, a flagger will be used.

CHANNELIZING DEVICES

Function

The function of channelizing devices are to warn and alert drivers of hazards created by construction or maintenance activities in or near the traveled way, to protect workers in the work zone, and to guide and direct drivers and pedestrians safely past the hazards. Channelizing devices include, but are not limited to, cones, vertical panels, drums, barricades, and barriers.

Channelization

These are devices placed on the roadway to keep traffic out of a closed lane. They

should be spaced in accordance with the extent and type of activity, the speed limit of the roadway, and the vertical and horizontal alignment of the roadway.

Metro Nashville recognizes the importance of channelizing devices and has selected cones and drums as their primary form of channelization. In the event of extended construction and maintenance, barricades may be used, in this event, refer to the MUTCD.

Channelization Spacing

Channelization devices shall be spaced according to the mile per hour (MPH) rating of that particular roadway. For example, if the MPH of a roadway is 35, the channelization devices shall be spaced 35 feet apart. **This spacing is not to exceed 40 feet. Any MPH over 40 stays consistent in spacing.**

Cones

- Constructed of a material that is able to withstand impact without damage to themselves or to vehicles.
- Minimum height is 18 inches.

Nighttime work: Height of cone shall be 28 inches, and possess two white bands. The bands shall be made of a reflectorized material and be 6 inches and 4 inches wide respectively. The 6-inch band shall be 3 inches from the top of the cone. The 4-inch band is to be placed 2 inches below the 6-inch band.

Drums

- Drums used for traffic warning or channelization shall be approximately 36 inches in height and a minimum of 18 inches in diameter.
- The markings on the drums shall be horizontal, circumferential, orange and white reflectorized stripes four to eight inches wide, using material that has a smooth, sealed outer surface which will display the same approximate size, shape, and color day and night.
- There shall be at least two orange and two white stripes on each drum.
- If there are non-reflectorized spaces between the horizontal orange and white stripes, they shall be no more than two inches wide.

TAPER LENGTHS

This is the single most important element within the system of traffic control devices. The **taper length** refers to the area where a reduction in pavement width is involved. There are two types of tapers, the merging taper and the shifting taper.

Merging Taper

- This taper is used to close a lane on a multilane roadway and to direct traffic in the closed lane to merge into the adjacent lane. The taper should be long enough so that drivers of vehicles approaching side by side have sufficient length in which to adjust their respective speeds and merge into a single lane before the end of the transition.

Shifting Taper

- This taper is used to move traffic into a different travel path when a merge is not required.
- Close discretion should be given when setting up the taper. A brief period of observing driver performances will generally provide some clear indications of the adequacy of the taper length. For example, if severe brake applications are observed, an increased taper may be necessary.

FLAGGING

Since flaggers are responsible for human safety and make the greatest number of public contacts of all construction personnel, it is important that qualified personnel be selected.

- The flagger shall wear a traffic safety vest at all times while flagging. If flagging is to be performed during nighttime hours or during inclement weather (rain, snow, sleet, etc.) the traffic safety vest (Class III) shall possess reflectorized material.
- The flagger shall be provided a stop/slow paddle with which to control the on-coming traffic. **Note:** The actual flag is only to be used in emergency situations.

FLAGGING PROCEDURES

Signaling With a Stop/Slow Paddle

- To STOP Traffic: The flagger shall face traffic and extend the STOP sign paddle in a stationary position with the arm extended horizontally away from the body. The free arm is raised with the palm toward approaching traffic.
- When it is Safe for Traffic to Proceed: The flagger shall face traffic with the SLOW sign paddle held in a stationary position with the arm extended horizontally away from the body. The flagger motions traffic ahead with the free hand.
- When it is Desired to Alert of Slow Traffic: The flagger shall face traffic with

the SLOW sign paddle held in a stationary position with the arm extended horizontally away from the body.

Signaling With a Flag

- To Stop Traffic: The flagger shall face traffic and extend the flag horizontally across the traffic lane in a stationary position so that the full area of the flag is visible hanging below the staff. For greater emphasis, the free arm may be raised with the palm toward approaching traffic.
- To Alert or Slow Traffic: Where it is desired to alert or slow traffic by means of flagging, the flagger shall face traffic and slowly wave the flag in a sweeping motion of the extended arm from the shoulder level to straight down without raising the arm above a horizontal position.

Communication

- Where the distance between two flaggers is short enough for the two to have a clear visibility of each other, verbal communication or the use of signals can be used to control the flow of traffic.
- Where visibility is obstructed, the means of communication shall be maintained using radios or field telephones.
- Whenever flagging is being performed a sign indicating this shall be provided prior to the location of the flagger.
- If work is discontinued, for example, during lunch, the flagger sign shall be removed to avoid any unwanted confusion to the public. Once flagging continues, the flagging sign shall be placed back in its original position. Note: The flagger sign is only to be removed if traffic can proceed in its original fashion.