



Employee Safety Manual



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CHAPTER 1 – WORK PLACE SAFETY RESPONSIBILITIES

I. EMPLOYEE RESPONSIBILITIES

Employees are responsible for their own safety in the work place. In addition, employees have a responsibility to their family, fellow employees, the community and the State of Indiana to ensure that everyone makes it home at the end of the work day. Therefore, employees shall observe safe practice rules and instruction relating to efficient performance of work. Safe and efficient operations are obtained only when all employees are safety-conscious and keenly alert both mentally and physically. Indiana Department of Transportation (INDOT) employee responsibilities for work place safety include, but are not limited to the following:

- A. Comply with the supervisor's instructions.
- B. Be thoroughly knowledgeable with and comply with contents of this manual that relate to assigned duties.
- C. Work in a safe, productive manner and maintain safety awareness at all times. Employees are responsible to immediately report any unsafe situations and/or acts to their immediate supervisor.
- D. Horseplay, practical jokes and misuse of equipment may result in disciplinary action up to and including dismissal.
- E. Properly operate and maintain assigned vehicles/equipment and report defects.
- F. Report all accidents and injuries immediately.
- G. Wear proper clothing and required protective clothing and equipment.
- H. Employees shall maintain themselves in proper physical condition to safely perform work activities.
- I. Employees allergic to insect stings or insect bites shall notify their supervisor prior to starting any type of outdoor work activity that may potentially expose the employee to such insect sting and/or insect bite hazard.
- J. Employees shall not work too closely to operating equipment, unless required to assist the operator. If you have to work around operating equipment, face the equipment whenever possible.
- K. Employees shall utilize common sense, both on and off the job. INDOT and families suffer when an employee is injured.
- L. INDOT has a “zero” tolerance policy regarding drugs and alcohol in the work place. Refer to Indiana State Personnel Department’s (SPD) Alcohol and Controlled Substances policies and procedures.

Employees who fail to work in a safe manner or whose negligent actions result in injury or property damage may face disciplinary action up to and including dismissal.

II. SUPERVISORY RESPONSIBILITIES

Safety is a leadership responsibility and leaders at every level shall actively work to create a work environment that promotes safe practices and safe conditions. Supervisors are equally responsible for the safety of their employees and for their work. Supervisors will ensure that their employees have a thorough knowledge of the contents within this safety manual.

NO WORK ACTIVITY IS SO IMPORTANT OR URGENT THAT TIME CANNOT BE TAKEN TO PERFORM THE WORK ACTIVITY IN A SAFE MANNER.

INDOT supervisory safety responsibilities include, but are not limited to the following:

- A. It is the supervisor's responsibility to ensure employees properly operate and maintain assigned vehicles/equipment and report defects.
- B. Supervisors shall not allow employees to utilize defective equipment. Equipment shall not be utilized if the equipment condition poses a potential hazard to any employee, the public or when continued use may cause further damage.
- C. Supervisors shall analyze work in advance to determine the safest and most economical way to perform each operation. Supervisors will also be responsible for ensuring that every effort is made to protect the safety of all employees so that they can return home in the same condition in which they arrived.
- D. It is the supervisor's responsibility to ensure employees are properly trained and supervisors shall only assign work activities to trained and qualified employees.
- E. Supervisors shall ensure that new employees assigned to new and/or unfamiliar work activities receive specific instructions regarding potential hazards that may be encountered and provide guidance on how to successfully perform the work activity in a productive and safe manner.
- F. It is the supervisor's responsibility to ensure that, at minimum, the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations and INDOT safety regulations, as outlined in the Safety Policy and the Safety Manual, are complied with at all times.
- G. When a supervisor feels that a particular assignment will expose his/her employees to unusual hazards, he/she will report the condition to his/her supervisor and make plans to reduce the hazards or increase the protection.

Working safely and leadership enforcement of safe work rules and practices are conditions of employment. Supervisors who fail to provide a safe working environment or whose negligent actions result in injury or property damage may face disciplinary action up to and including dismissal.

CHAPTER 2 – SAFETY TRAINING AND SAFETY MEETINGS

I. SAFETY TRAINING

Training is one of the most important functions in developing and maintaining an effective safety program. Safety training and safety meetings are not "spur of the moment" or "rainy day" activities. It is an absolute necessity for safety training to be planned, scheduled and conducted effectively. Training shall be viewed as a job requirement and given priority in the overall work schedule.

Safety training shall be the responsibility of managers and supervisors. INDOT Central Office Employee Safety and/or District Employee Safety shall be a resource for topics and materials to be covered in employee safety-related training and meetings.

The appropriate Employee Safety office shall be notified, in advance, of all employee safety-related training and meetings.

II. NEW EMPLOYEE SAFETY TRAINING ORIENTATION

INDOT Central Office Employee Safety, District Employee Safety, or their designee shall provide all newly hired personnel safety orientation training prior to assignment of the employee's work location.

III. NEW EMPLOYEE SAFETY TRAINING

As a continuation to the new employee safety orientation training, the supervisor shall ensure new employees receive training specific to each new employee's assigned work activities.

IV. SAFETY MEETINGS

INDOT departments shall conduct monthly safety meetings. Each safety meeting shall be planned around specific safety topics. Employee Safety shall be utilized as a resource for specific employee safety topics.

The length of the meeting will depend on the material to be presented. Meetings shall not digress into long, non-productive, non-safety-related topics.

Documentation of all employee safety-related meetings shall be entered and maintained in the most current applicable record management system.

V. JOB SAFETY BRIEFING

A. Planned work activities:

The on-site leader shall conduct a job safety briefing prior to beginning any planned work activities for the day.

1. **Leaders at the next organizational level will be responsible for, but not limited to ensuring the following:**
 - a. **Ensure job safety briefings take place prior to employees performing work activities for the day.**
 - b. **The content and execution of the job safety briefings are relevant and conducted in a professional manner.**
2. **On-site leaders will be responsible for, but not limited to ensuring the following:**
 - a. **Responsible for ensuring that the potential hazards associated with each work day's activities have been identified, communicated and mitigated.**
 - b. **Responsible for completing the appropriate job briefing form(s) and maintaining good recordkeeping of the job briefing forms at the appropriate management facility and crew work location.**

B. Unplanned work activities:

In the event of new unplanned work activities, the on-site leaders are responsible for providing an additional job safety briefing, either formal or informal. The on-site leader shall be responsible for ensuring the potential hazards associated with new unplanned work activities have been identified, communicated, and mitigated.

CHAPTER 3 - FIRST AID/ CARDIOPULMONARY RESUSCITATION (CPR)/ TRAINING AND FIRST AID KITS

I. FIRST AID / CARDIOPULMONARY RESUSCITATION (CPR) TRAINING

First aid/cardiopulmonary resuscitation (cpr) training shall be in accordance with the most current applicable state and federal regulatory Occupational Safety and Health Administration (OSHA) regulations - [Medical services and first aid. - 1910.151](#).

II. FIRST-AID KITS

Each department shall provide first aid supplies readily available to employees. The size and the content of the kit shall meet the most current applicable state and federal OSHA regulations for the type of work activities performed and the quantity of employees at the worksite. Managers and supervisors shall be responsible for ensuring that first aid kits are procured, inspected and maintained in accordance with the most current applicable state and federal OSHA regulations [Occupational Safety and Health Administration - Home](#) .

CHAPTER 4 - REPORTS & INVESTIGATIONS

I. GENERAL INFORMATION FOR OCCURRENCE REPORTING

Some of the most important and essential aspects of an effective Safety Program are:

- A. Properly defining accidents and injuries.
- B. Properly reporting all occurrences.
- C. Proper investigations accomplished by supervisory and other personnel.
- D. Determining what preventive and/or disciplinary actions shall apply.
- E. Taking necessary actions to prevent similar occurrences, in the future, throughout INDOT.
- F. Meeting the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulatory requirements for recordkeeping.

The term “occurrence” is utilized interchangeably to apply to crashes and personal injuries. All occurrence reports shall be completed utilizing the INDOT Accident Recording System (ARS) within seven (7) calendar days.

II. ACCIDENT RECORDING SYSTEM (ARS)

The intent of the Accident Recording System (ARS) is to provide a database of all occurrences. Original documents of the occurrence shall be kept at the originating locations, at the subdistrict or district level with the required signatures. Only authorized employees trained to utilize ARS shall enter occurrence reports.

The data provided in ARS is utilized for recordkeeping and formal reporting to the Indiana Department of Labor’s Occupational Safety and Health Administration (IOSHA) in accordance with the most current applicable state and federal regulatory recordkeeping laws.

The following are forms utilized for occurrence reporting:

- A. **Supervisor's Investigation Report (SF 39762):** The Supervisor’s Investigation Report shall be completed for all occurrences that involve a crash and any occurrence involving injury. The Supervisor’s Investigation Report (SF 39762) shall be completed by the immediate supervisor and shall describe, in detail, the supervisor’s interpretation of the occurrence, why the occurrence happened and what can be done to prevent further occurrences of the same type.

INDOT Central Office of Employee Safety or the INDOT District Safety Director may also investigate occurrences that are considered of such importance to warrant an additional investigation of the occurrence.

B. Vehicle and Equipment Accident Report (SF 39697): The Vehicle and Equipment Accident Report shall be completed for all occurrences involving a crash of vehicle and/or equipment. A copy of the Vehicle and Equipment Accident Report (SF 39697) and a copy of the Indiana Officer's Standard Crash Report (SF 23558) shall be included in occurrence packets when occurrences involve:

- 1. Any collision or occurrence involving INDOT vehicles/equipment and private vehicles, private property, and/or when injury occurs. Such crashes shall be reported regardless of amount of damages to INDOT vehicles or extent of damages to private vehicles or property.**
- 2. Any occurrence involving one or more INDOT vehicles/equipment regardless of amount of damage. A police report is also required if it involves damage in excess of \$1,000.**

IMPORTANT: Glass breakage from stones and other debris need not be reported.

Additionally, an employee involved in a vehicular crash with private vehicles or persons shall not accept responsibility or blame on behalf of INDOT. The employee shall only discuss information about the occurrence with the responding law enforcement agency, his/her INDOT supervisor, authorized INDOT personnel, and State of Indiana Attorney General personnel.

C. Injury Report (SF 54303): The Injury Report shall be completed for all occurrences involving injury. The types of injuries that shall be reported shall include:

- 1. Require or may require medical treatment beyond first aid.**
- 2. Result in time away from work.**
- 3. Require restricted and/or modified work activity.**
- 4. The employee and/or supervisor believe the injury shall be reported even if the employee only received first aid.**

III. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RECORDKEEPING RESPONSIBILITIES

INDOT Central Office Safety and INDOT District Safety Directors are responsible for the official recordkeeping and completion of all work-related injuries or illnesses involving INDOT employees. INDOT is required to record information about every occupational death. Additionally, INDOT is required to record every non-fatal occupational illness and those non-fatal occupational injuries which involve one or more of the following: loss of consciousness; restriction of work or motion; transfer to another job; or medical treatment beyond first aid. These are known as recordable injuries.

The following federal recordkeeping forms are required to be completed by INDOT Central Office Safety and INDOT District Offices of Employee Safety for each of their own respective locations in accordance with the most current applicable state and federal OSHA regulations:

- A. **OSHA Form 301 Injury and Illness/Injury Report:** This form is required to be completed for each recordable work-related injury or illness that has occurred. This form is required to be completed within seven (7) calendar days after the employer receives information that a recordable work-related injury or illness has occurred.
- B. **OSHA Form 300 Log of Work-related Injuries and Illnesses:** A complete recordkeeping log of injuries and/or illnesses that meet the OSHA criteria for recordable cases shall be recorded using the OSHA 300 Log.
- C. **OSHA Form 300A Summary of Work-related Injuries and Illnesses:** This form provides all work-related injury and illness totals for the year in each category provided from the information in the OSHA Form 300 Log of Work-related Injuries and Illnesses. INDOT, as an employer, is required by the most current applicable state and federal Occupational Safety and Health Administration regulations to post the OSHA 300A Summary of Work-related Injuries and Illnesses from February 1st through April 30th of each year. Failure to comply with any portion of the most current applicable state and federal regulations is a violation of multiple state and federal laws.

INDOT Central Office of Employee Safety is responsible for the official year-end recordkeeping submittal on behalf of the entire agency to the Indiana Department of Labor's OSHA.

IV. REPORTING, NOTIFICATION, AND INVESTIGATING SERIOUS INJURIES AND FATALITIES

Serious injury shall be defined as an injury that requires hospitalization or results in a fatality. The following minimum requirements shall be adhered to when a serious accident/injury occurs resulting in serious injury or fatality:

- A. INDOT's on-site leader at the working location shall be responsible for initiating contact for emergency care. (i.e. radio subdistrict, etc.)

- B. Any person receiving the call for help shall assume the responsibility for ensuring that emergency care has been dispatched to the scene. (Emergency phone numbers shall be readily available.)**
- C. Management personnel or designee will assume responsibility for ensuring that emergency care has been contacted and is on the scene.**
- D. Appropriate supervisory and safety personnel shall be notified.**
- E. INDOT District Employee Safety Directors shall be responsible for the notification of the Central Office of Employee Safety Office immediately after an accident resulting in serious injury and/or death.**
- F. The immediate supervisor shall remain with the injured employee until family members arrive.**
- G. Management personnel shall be responsible for ensuring emergency contact(s) and/or family members are notified.**
 - 1. Fatalities shall be reported to emergency contact(s) and/or family members by a personal visit. All locations shall identify a person to be responsible for the personal visit.**
- H. Only designated employees shall communicate with the hospital.**

It shall be INDOT's goal and responsibility to provide whatever assistance is reasonable to the emergency contact(s) and/or family of the seriously or fatally injured employee. This assistance includes, but is not limited to: providing initial transportation; compensation information; any additional reasonable assistance to the family with relation to the death of the employee.

The Central Office of Employee Safety shall be responsible for the notification to the Indiana Department of Labor's OSHA within eight (8) hours of an accident resulting in death and/or the hospitalization of three (3) or more employees.

The appropriate INDOT District Employee Safety Director shall be responsible for investigating all accidents resulting in death and/or serious injury of INDOT employees and coordinating the reporting of such accidents with other investigating agencies. A completed accident investigation report: including law enforcement reports, photos, statements, etc. shall be forwarded to the INDOT Central Office of Employee Safety as soon as possible.

CHAPTER 5 - OCCUPATIONAL HEALTH & ENVIRONMENTAL CONTROLS

I. GENERAL

Occupational health and environmental controls aimed at reducing employee exposure to airborne contaminants, materials or noise is of utmost importance in terms of employee safety and providing INDOT employees with a safe place in which to work. Employees shall never be exposed beyond the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulation's permissible limits for the specific potential work place hazards identified within this chapter.

The most effective way to protect employees is to minimize exposure through the use of engineering controls and good work practices. If such controls fail to reduce potentially hazardous exposures, suitable personal protective equipment (ppe) shall be used.

II. SANITATION

An adequate supply of fresh, cool drinking water shall be provided at all work places. Portable containers used to dispense drinking water shall be capable of being tightly closed and be equipped with a tap. Drinking water containers shall be clearly marked "DRINKING WATER". Where single service cups are supplied, they shall be provided in a sanitary container.

Non-drinking water shall be clearly marked "NON-POTABLE" to indicate that the water is unsafe and not to be used for drinking or washing purposes.

It shall be the responsibility of employees engaged in the application of paints, coatings, herbicides and other contaminants to have, at minimum, five (5) gallons of potable water at the work site.

Hand sanitizer and or hand cleaner shall be available to employees.

If restroom facilities are not readily available, employees shall be allowed to travel to the nearest restroom facility.

III. NOISE EXPOSURE

When employees are subject to sound levels exceeding those permitted by state and federal OSHA regulations, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce noise exposure to OSHA regulation's permissible limits, the appropriate PPE shall be utilized to control exposure.

IV. GASES, VAPORS, FUMES, DUSTS AND MISTS

Exposures by inhalation, ingestion, skin absorption, or contact with any material or substance above the OSHA regulation's permissible limits for airborne contaminants shall be avoided. Administrative or engineering controls shall first be utilized to control exposure. When controls are not feasible, PPE shall be utilized to keep exposure within acceptable limits.

V. VENTILATION

At times, harmful dusts, fumes, mists, vapors, or gases exist (or are produced in the work place) in quantities likely to be harmful to employees. Employees shall not be exposed to dusts, fumes, mists, vapors, or gases beyond OSHA regulation's permissible exposure limits. When prevention or elimination of such hazards is not practical, the hazards shall be controlled by general ventilation, local exhaust ventilation, or other effective means to ensure employee exposure shall not exceed regulatory limits.

VI. SILICA DUST

Silicosis is a disease of the lungs in which the normal lung tissue is replaced by fibrous or scar tissue due to breathing air containing crystalline silica dust. Silica dust may be produced by several maintenance operations. Employees shall not be exposed to silica dust beyond OSHA regulation's permissible exposure limits. The following maintenance operations that employees may be exposed to silica dust include, but are not limited to:

A. Sandblasting operations

B. Cleaning - When cleaning the interior of shops, sheds or other structures, dust shall not be blown into the air. When sweeping, floors shall be moistened or sweeping compound shall be utilized.

C. Jack hammering - If excessive dust conditions exist, "wet" work applications shall be utilized.

VII. CARBON MONOXIDE

Carbon Monoxide gas is not easily detected because it is odorless, colorless, tasteless and non-irritating. It gives no warning of its presence. Employees shall not be exposed to carbon monoxide beyond OSHA regulation's permissible exposure limits.

Common sources of carbon monoxide gas are internal combustion engine exhausts and fires. In areas in which carbon monoxide gas might be present, appropriate engineering controls and good work practices shall be utilized.

VIII. ASBESTOS

The hazards of asbestos exposure may be found in vehicle brake dust, electrical wiring, acoustical plasters, thermal insulation (heating and cooling systems) and products that resist fire. Asbestos is taken into the body through the respiratory tract (nose & mouth) and through ingestion (mouth). Employees shall not be exposed to asbestos beyond OSHA regulation's permissible exposure limits.

IX. LEAD

Lead exposures can occur from removing paint from surfaces previously coated with lead-based paint, such as vehicles and bridges. Employees shall not be exposed to lead beyond OSHA regulation's permissible exposure limits. Recommended preventive measures for exposure to lead shall include, but not be limited to:

- A. Whenever possible, use materials containing lead products in a moist condition to avoid inhalation of the dust.
- B. Care shall be taken to avoid inhalation of lead fumes or dust formed on top of molten lead due to oxidation.
- C. Do not store food in a room containing lead products.
- D. Do not eat or drink while performing work activities. Go a distance away, wash hands with soap and water and clean fingernails before eating.
- E. Practice personal cleanliness.

X. SPRAY PAINTING

Employees shall not be exposed to spray painting chemicals beyond OSHA regulation's permissible exposure limits. Employees shall follow Material Safety Data Sheets (MSDS) carefully before utilizing products. Spray painting shall be conducted only in approved areas.

XI. CHEMICAL DERMATITIS (inflammation of the skin)

When working with chemicals that can cause injury to the skin, proper precautions shall be taken. Solvents and other degreasing chemicals along with wet lime and cement particularly affect the skin. Some persons are more susceptible than others to the action of these materials. Follow MSDS carefully before utilizing products.

XII. EPOXY RESINS

The use of epoxy materials often involves a mixture of compounds, many of which are toxic. The curing agent (particularly amines) and solvents are the principal health hazards, but resins are also toxic to a degree. Unless employees take proper precautions, employees may develop skin rashes, severe itching, eye irritation and/or respiratory ailments. Tolerance to contact varies with the individual employee, but each additional overexposure may increase sensitivity. Follow MSDS carefully before utilizing products.

Additionally, care shall be exercised in making certain other employees working adjacent to the mixing or application of epoxies are provided appropriate PPE, or the working operation shall be isolated to minimize potential exposure to other employees working adjacent to the mixing or application of epoxies.

XIII. HOUSEKEEPING

Good housekeeping is one of the most important factors in enhancing safety, efficiency and fire protection. Good housekeeping guidelines include, but are not limited to the following:

- A. Walkways and working areas shall be kept clean, dry and unobstructed.
- B. All spills shall be cleaned up immediately.
- C. Aisles and exits shall be free of unnecessary tools, parts and equipment.
- D. Extension cords, hoses (air, water, etc.), and ladders shall be stored properly, when not in use.
- E. Stored items shall not be stored so they overhang or protrude into work areas or aisles.
- F. In storage areas, items shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage.
- G. Trash containers shall have a lid, be labeled, emptied regularly, and not allowed to overflow.
- H. Oily rags shall be kept in a labeled, covered metal container to prevent fire hazards.
- I. Hand tools and other equipment shall be stored properly.
- J. All exits, fire extinguishers, breaker boxes, first aid kits, spill kits, eye wash stations, emergency showers and other safety-related items shall not be blocked or obscured and shall be clearly identified.
- K. Vegetation control shall be exercised, as necessary, at facility locations.

- L. If possible, equipment and vehicles shall be parked in a manner so the backing maneuver is eliminated.
- M. Where necessary, loading docks shall be constructed and maintained for safety and convenience of handling heavy equipment or materials.
- N. Designated parking areas shall be provided for employees' personal motor vehicles.

XIV. HAZARDOUS MATERIALS

Employees shall follow these principles when encountering and/or handling hazardous materials:

- A. Pay attention to warning signs.
- B. Read and understand all labels and MSDS carefully before utilizing products.
- C. Ask your supervisor whenever you have any questions about handling or working with any hazardous materials.
- D. If employees become ill during or after use of a hazardous substance, check the label for directions in handling the emergency and seek medical attention immediately.
- E. Materials that are not usable shall be removed from the storage and work areas. These materials need to be sent to a hazardous waste holding area for proper disposal.

XV. WEATHER HAZARDS

It is the employee's responsibility to wear proper clothing and the employee shall maintain proper physical condition in order to safely perform work during dangerous weather conditions. It is the supervisor's responsibility to analyze weather-related conditions prior to and throughout the work day. If any weather condition(s) arise that poses serious health hazards to employees, the supervisor shall determine the necessary measures to reduce and/or eliminate exposure to the weather hazard(s). The measures that can be taken to reduce and/or eliminate exposure to the weather hazard(s) may include, but are not limited to:

- A. Increased number of breaks.
- B. Modify work activities according to weather conditions.

XVI. HEAT INDEX CHART AND WIND CHILL CHART

The most current applicable heat index chart provided by the United States Department of Commerce's National Oceanic and Atmospheric Administration's (NOAA) National Weather Service. Heat Index is available at [National Weather Service Heat Safety](#) and Wind Chill Index is available at [NWS Wind Chill Index](#) . These indices shall be reviewed to assist

supervisors in determining the proper reduction of exposure to weather hazards based upon temperature, wind speed, and/or relative humidity.

- A. The Heat Index (HI) or the "apparent temperature" is an accurate measure of how hot it really feels when the Relative Humidity (RH) is added to the actual air temperature.
- B. Wind Chill factor references the increased wind speeds, accelerated heat loss from exposed skin, and the wind chill is a measure of this effect. No specific rules exist for determining when wind chill becomes dangerous. As a general rule, the threshold for potentially dangerous wind chill conditions is about -20°F.

XVII. PREVENTION & FIRST AID TREATMENT FOR WEATHER-RELATED EXPOSURES

A. Hot temperature exposure

- 1. Sunburn is common during the summer. If you follow a few simple precautions, time lost to sunburn can be reduced by:
 - a. Staying fully clothed wearing, lightweight, loose fitting clothes, (except when loose fitting clothing could pose a hazard, i.e.: chipper and chainsaw operation).
 - b. Wearing a safety hard hat or soft cap.
 - c. Wearing sun block lotion of thirty (30) sun protection factor (spf) or greater.
- 2. Be knowledgeable and aware of the symptoms of heat stroke, heat exhaustion, and heat cramps when involved in strenuous activity in hot environments.

Heat Exposure Type and Symptoms	Response
Heat Cramps: Fatigue, confusion or painful muscle spasms in the legs, arms, or abdominal areas.	Stop exertion and move into the shade or a cooler location. Drink cool liquids.
Heat Exhaustion: Fatigue, confusion, clammy skin, nausea, excessive sweating, weakness, low blood pressure, rapid pulse, fainting.	Move to a cool place with the legs elevated. Drink cool liquids. If condition does not improve, seek medical attention.
Heat Stroke: Extremely high body temperatures, hot, dry, flushed skin, fatigue, confusion, collapse, unconsciousness.	Seek medical attention immediately and cool the body down as quickly as possible.

Take time to allow your body to adjust to high heat and high humidity environments before exertion begins.

If working in protective clothing and equipment, chances of heat stress are greatly increased. In work environments of eighty-five (85) degrees or above, employees shall not spend more than fifteen (15) minutes of any one (1) hour in an impervious suit unless cooling has been provided to the suit.

Be aware of temperature and humidity, and drink fluids with electrolytes at regular intervals.

B. Cold temperature exposure

Hypothermia occurs when a person becomes so cold that his/her body cannot warm up. Hypothermia can be fatal, but its risks can be avoided and its effects minimized if precautions are taken and first aid is performed quickly, when applicable.

Hypothermia Severity Type	Hypothermia Symptoms
Mild Hypothermia	Shivering, loss of coordination, confusion.
Severe Hypothermia	No longer shivering, stumbling, irrational behavior, slow, irregular heartbeat, low body temperature.

1. Protection from cold temperature exposure

- a. Dress warmly, stay dry and bring along extra dry clothing when working outside in cold weather.
- b. Protect the eyes from the bright snow/sky combination by wearing dark colored glasses that offer ultra-violet ray protection.
- c. Be prepared to protect your lungs with a facemask or scarf when subjected to prolonged breathing of extremely cold air.

2. Frostbite

When working in extreme cold, employees are potentially exposed to frostbite. Frostbite is a great danger to the nose, cheeks, ears, toes and fingers. Often, a victim of frostbite is not even aware of the damage being done. Therefore, it is important to know the symptoms and first aid treatment for frostbite.

Frostbite victims may also suffer from hypothermia or loss of body heat. Hypothermia victims need to exit the cold immediately.

a. Signs of Frostbite

The first sign of frostbite is reddening of the skin. The skin then turns blotchy white, gray or yellow. Finally, the skin becomes completely white and sometimes blisters. The body part may feel very cold or numb. In advanced stages of frostbite, there is no feeling at all in the exposed skin.

b. Avoiding Frostbite

Maximum protection against cold is afforded by wearing, at minimum, three (3) layers of clothing. The first layer of clothing next to the skin shall be loose fitting wool, loose twill cotton or quilted thermal underwear. The second layer of clothing shall be a medium weave, medium weight, one (1) or two (2) piece garment, again, not tight fitting. The outer layer shall be wind-resistant and include a hood. Additionally, mittens and gloves provide protection for the hands.

When working in the cold, frequently wiggle toes and fingers. If toes and/or fingers begin to lose feeling, or are tingling or painful, seek a warmer environment.

CHAPTER 6 –PERSONAL PROTECTIVE EQUIPMENT (PPE) AND WORK ATTIRE

I. GENERAL

Personal protective equipment (ppe) provided to INDOT employees shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations [General requirements. - 1910.132.](#)

The utilization of proper personal protective equipment (ppe) and appropriate work attire is required and considered a condition of employment. PPE is provided by INDOT and is available to all employees based upon a work activity's job safety analysis. The following PPE requirements include, but not be limited to:

- A. All PPE shall be approved by INDOT and shall not be altered in any manner.
- B. Employees shall utilize INDOT approved PPE in accordance with the manufacturer's requirements for use, operation, and maintenance.
- C. Supervisors are responsible for ensuring employees are equipped and utilize the appropriate PPE for the work activities being performed.
- D. Supervisors are responsible for the proper training, utilization, and maintenance of the INDOT issued PPE.
- E. If an employee avoids, ignores, or disregards requirements to wear the appropriate PPE for the work activity being performed, corrective and/or disciplinary action shall be administered in accordance with the INDOT policies and procedures.
- F. Supervisors and employees shall regularly monitor employee PPE for compliance, fit, effectiveness, sanitation, and cleanliness.
- G. At the discretion of the supervisor, employees shall be required to wear appropriate PPE while engaged in activities other than those specified in this manual.
- H. Employees and their supervisors shall ensure the appropriate PPE and/or personal protective apparel is worn where hazards may be encountered capable of causing injury or impairment to the body.
- I. If employees utilize PPE the employee has chosen to purchase with his/her own funds, the supervisor shall be responsible to assure its compliance, adequacy, fit, effectiveness, sanitation, and cleanliness.
- J. Defective or damaged PPE shall not be utilized and the defective or damaged PPE shall be replaced immediately.

II. TRAINING

Training shall be provided for each employee who is required to utilize PPE. Each employee shall be trained and knowledgeable about the PPE. At minimum, employees shall be knowledgeable of the following:

- A. When PPE is necessary
- B. What PPE is necessary
- C. How to properly don, remove, adjust and wear PPE
- D. The proper care, maintenance, useful life and disposal of PPE

Supervisors shall verify that each affected employee has received and understood the required training through written certification.

III. WORK ATTIRE

INDOT employees shall wear work attire appropriate for their work activity. Employees assigned to shop and field activities shall wear a shirt with a factory hemmed sleeve or blouse and long pants or trousers worn as intended. Tank tops, cutoff shirts and shorts are not considered appropriate work attire for field personnel. Office and other personnel shall utilize discretion in their work attire, with proper consideration for potential safety hazards while performing work activities. Employees working around skin irritant materials such as detergents, creosote, tar, grease, insulating materials, etc., are required to wear suitable protective garments. It shall be the supervisor's responsibility to ensure that the clothing worn is appropriate for the work activity.

INDOT Employees operating machines, climbing ladders, handling material or performing shop or manual labor shall wear clothes that are reasonably snug, particularly about the neck, wrists and ankles. There shall be no loose cuff flaps or strings. Operators shall not wear neckties, loose sleeves, jewelry, watches or loose long hair to prevent the potential of being caught in moving parts.

IV. HEAD PROTECTION

A. Hard Hats

INDOT employees performing work activities that may expose the employee to danger of head injuries shall wear the appropriate class of ANSI compliant hard hat. Some potential dangers of head injuries are as the result of, but not limited to:

1. Flying objects
2. Falling objects

3. Burns

4. Electrical Shock

B. Bump Caps

Bump caps are described as a lightweight head protection cap worn to prevent minor bumps and scrapes. Bump caps do not abide by the ANSI guidelines and are not suitable for work activities that require ANSI compliant hard hats. INDOT employees working under vehicles that are hoisted on a lift shall wear INDOT approved “Bump Caps.”

V. EYE

INDOT employees performing work activities that may expose the employee to danger of eye injuries shall wear the appropriate type of ANSI compliant protective eyewear. Employees wearing prescription lenses that do not offer the appropriate ANSI compliant eye protection shall wear the appropriate ANSI compliant “over the spectacle” safety glasses or ANSI compliant safety goggles for the type of work being performed.

VI. FOOTWEAR

INDOT employees performing work activities that may expose the employee to danger of foot injuries shall wear the appropriate type of ANSI compliant protective footwear. The specified protective footwear shall have hard toe protection, be hard soled, and meet the most current applicable ANSI Z 41 or ASTM International F2413 standards. These standards shall be found on the care tag of the footwear. The following work activities that require ANSI compliant protective footwear include, but are not limited to:

A. Construction activities

B. Road and/or field activities

C. Shop, garage and/or warehouse activities

Employees performing work activities that require protective footwear are eligible for protective footwear reimbursement.

VII. HAND PROTECTION

INDOT employees performing work activities that may expose the employee to danger of hand injuries shall wear the appropriate type of ANSI compliant hand protection. Some potential dangers of hand injuries are as the result of, but not limited to:

A. Skin absorption of harmful substances

B. Severe cuts and/or lacerations

- C. Severe abrasions
- D. Punctures
- E. Chemical burns
- F. Thermal burns
- G. Harmful temperature extremes

Employees working with rotating machinery shall utilize caution when wearing hand protection.

VIII. HIGH VISIBILITY APPAREL

INDOT employees performing work activities that expose the employee to the potential hazard of being struck by moving vehicles and/or equipment due to lack of visibility shall wear the appropriate class of ANSI high visibility apparel including INDOT approved headwear. At minimum ANSI Class 3 high visibility apparel shall be worn. The following work locations that require ANSI Class 3 high visibility apparel and/or INDOT approved headwear include, but are not limited to:

- A. State of Indiana right-of-way
- B. Construction area

ANSI high visibility apparel faded beyond reasonable effectiveness due to wear and/or lack of cleanliness shall be replaced.

IX. HEARING PROTECTION

INDOT employees performing work activities that may expose the employee to danger of hearing loss injuries shall wear the appropriate type of ANSI compliant hearing protection. Some potential dangers of hearing loss injuries are the result of, but not limited to:

- A. Chainsaws
- B. Chippers
- C. Jack hammers
- D. Working around air compressors
- E. Concrete saws

X. APRONS

INDOT employees performing work activities that may expose the employee to danger of harmful materials that may cause injury shall wear the appropriate type of apron for the work being performed.

XI. CHAINSAW CHAPS

INDOT employees performing work activities that involve operating chainsaws shall wear ASTM International full length chainsaw chaps.

CHAPTER 7- VEHICLE AND EQUIPMENT OPERATIONS AND MAINTENANCE

I. GENERAL

Only competent persons designated by INDOT shall operate INDOT vehicles and/or equipment.

All newly hired vehicle and equipment operators are required to attend an approved driver/operator safety program after the employee's hire date and within one (1) year of employment. Additionally, any employee involved in a preventable accident shall be retrained as soon as possible after the occurrence. These requirements will be accomplished by use of various training programs approved by the INDOT Employee Safety Office.

Employees shall enter and exit facing the vehicle and/or equipment while utilizing the three (3) point of contact technique.

Vehicles and equipment shall be operated in accordance with the most current applicable state and federal laws, the Indiana Department of Administration (IDOA) Fleet Management Policy and the INDOT Fleet Management Policy.

Unauthorized persons will not ride in INDOT vehicles/equipment in accordance with the current INDOT Vehicle Policy.

When performing winter snow and ice operations, extreme caution shall be exercised at all times.

II. VEHICLE AND EQUIPMENT MAINTENANCE

Only competent persons designated by INDOT shall perform maintenance on INDOT equipment and vehicles.

No modifications shall be made to vehicles and/or equipment that may negatively impact the safe operation of the vehicles and/or equipment.

All fall protection requirements provided within this safety manual shall be utilized when performing maintenance on any vehicles and/or equipment when the work activities are at a height greater than four (4) feet from a lower surface.

Lockout/Tagout requirements shall be in accordance with the INDOT Facilities and Equipment Lockout/Tagout Policy and Procedures.

III. PRE-TRIP INSPECTIONS

Operators shall perform vehicle and/or equipment pre-trip inspections prior to the initial dispatch of the vehicle before each shift.

The procedures followed in conducting the inspection shall conform to those established on the INDOT Daily Vehicle Inspection Form. Employees shall report all known vehicle and/or equipment safety defects and/or deficiencies to their supervisor by completing the appropriate INDOT form. Vehicles and/or equipment with known safety defects and/or deficiencies shall not be operated.

IV. SEATBELTS

INDOT employees operating or riding as passengers in INDOT vehicles and/or equipment shall properly wear seatbelts whenever the vehicle/equipment is in motion. All worn or damaged seatbelts shall be replaced immediately. The driver of the vehicle will not operate vehicle and/or equipment until all occupants have properly fastened their seatbelts.

The only exception to the seatbelt requirement is that seatbelts will not be installed or worn on equipment not having Roll Over Protective Structures (ROPS). In cases where it is impossible to properly operate the equipment when wearing a seatbelt, i.e. grader, the seatbelt may be temporarily unlatched.

V. VEHICLE LIGHTING

INDOT vehicular lighting shall be in accordance with the most current applicable INDOT Lighting Policy. The utilization of warning lights shall not conflict with the Work Zone Traffic Control Handbook (WZTCH).

Warning lights shall be utilized when vehicle and/or equipment is parked on the shoulders and employees are working on the pavement, shoulders or median. However, if the vehicle and/or equipment are not equipped with these types of lights, the directional lights, flashing simultaneously, shall be operated.

VI. SLOW-MOVING VEHICLE EMBLEM

Slow-moving vehicle emblem shall be utilized in accordance with Indiana Code 9-21-9-2.

VII. PARKING AND CHOCKING

Employees shall not stop or park vehicles and/or equipment on the traveled portion of the roadway when it is more practical to stop or park off the roadway. The only exception to this is when the work activities require vehicles and/or equipment to be stopped or parked on the traveled portion of the roadway.

Employees shall not stop or park vehicles and/or equipment in close proximity of any working operation as this may interfere with the movement of other vehicles and/or

equipment. Employees shall stop or park vehicles and/or equipment beyond the edge of the roadway and off the shoulder, whenever practical.

Employees shall not park vehicles and/or equipment adjacent to the roadway in such a manner as to constitute a potential traffic hazard, nor will employees park on a curve or hill in which sight distance may be compromised.

Equipment with buckets shall not be parked with the bucket off of the ground.

Employees shall not park vehicles and/or equipment without first setting the brakes.

Employees shall chock both rear wheels of vehicles and/or equipment that are being loaded and/or unloaded.

Employees parking equipment that is not equipped with brakes shall chock the wheels to prevent movement of the equipment.

There shall be a safety prop or block used underneath dump truck boxes for the protection of employees inspecting or repairing underneath. The prop or block will be of sufficient strength to support the weight of the box.

Employees shall keep vehicle and/or equipment doors closed while the vehicle and/or equipment is in motion. Vehicle and/or equipment doors shall not be left open while the vehicle and/or equipment is parked.

Employees shall not open vehicle and/or equipment doors on the side exposed to moving traffic unless and until it is reasonably safe to do so. The opening of the vehicle and/or equipment doors shall not interfere with the movement of traffic.

VIII. VEHICLE TOWING

All vehicle and/or equipment towing operations shall be performed in accordance with the most current applicable INDOT Load Securement Policy.

IX. RIDING ON VEHICLES

Employees are not permitted to ride on the hood, running board, fender or tailgate of any vehicle and/or equipment. Employees are not permitted to enter or exit a vehicle and/or equipment while the vehicle and/or equipment is in motion.

X. TRACTORS

Employees shall utilize tractors in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.

XI. BACKHOES

When operating backhoes, employees shall follow the safety requirements, at minimum, provided as follows:

- A. Always utilize backhoe in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.
- B. Employees shall be alert and watch for overpass clearances, particularly when hauling the backhoe with a truck-trailer.
- C. Employees shall not leave the tractor without first lowering the backhoe bucket to the ground.
- D. Employees shall alert and watch for bystanders when lowering the stabilizers and whenever operating the backhoe.
- E. Employees shall be careful when swinging with a loaded bucket on hillsides to prevent upsets.
- F. Employees shall not be under a raised bucket and boom at any time.
- G. Employees shall be alert and watch for overhead and underground high-voltage electrical lines.
- H. Employees and the supervisor shall consider the potential hazard of underground utilities. 811: "Call Before You Dig!" shall be contacted to identify and mark the locations of underground utility lines.

XII. LOADERS AND DOZERS

When operating loaders and dozers, employees shall follow these safety requirements, at minimum:

- A. Always utilize loader and/or dozer in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.
- B. Employees shall lower all attachments (blade or bucket) to the ground before dismounting from the machine.

XIII. EXCAVATING AND LARGE MATERIAL MOVING EQUIPMENT

When operating excavating and material moving equipment, employees shall follow these safety requirements, at minimum:

- A. Always utilize excavating and large material moving equipment in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.

- B. Standard operating signals will be agreed upon and utilized to direct all operations. Only one (1) employee shall act as the signalman and be permitted to give signals to the employee operating the equipment unless the load is being transferred to a point that is out of the signalman's sight. In such cases, a second signalman shall be utilized.
- C. Employees and the supervisor shall consider the potential hazard of underground utilities. 811: "Call Before You Dig!" shall be contacted to identify and mark the locations of underground utility lines.

XIV. FORKLIFTS, LIFT TRUCKS, AND MOTORIZED HAND TRUCKS

When operating forklifts, lift trucks, and/or motorized hand trucks employees shall follow these safety requirements, at minimum:

- A. Always utilize forklifts, lift trucks, and/or motorized hand trucks in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.
- B. Only trained and authorized operators shall be permitted to operate lift trucks. Training and documentation maintenance requirements shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations.
- C. When a lift truck is left unattended, the forks shall be completely lowered, controls shall be neutralized, power shall be shut off and brakes set. Wheels shall be chocked, if the truck is parked on an incline.
- D. Make sure skids and pallets are strong enough for the load and in good condition.
- E. Sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways and whenever turns shall be made.
- F. Turns shall be made smoothly and slowly to avoid spilling the load or causing a collision.
- G. Watch for blind spots around corners or materials.

XV. NON-MOTORIZED HAND TRUCKS

Employees shall utilize non-motorized hand trucks in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.

XVI. AIR COMPRESSORS

Employees shall utilize air compressors in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.

XVII. CONCRETE MIXERS

Employees shall utilize concrete mixers in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.

XVIII. CHIPPERS

When operating chippers, employees shall follow the safety requirements, at minimum, provided as follows:

- A. Always utilize chipper in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.**
- B. Do not park in high weeds or grass. Continuous operation makes the exhaust pipe a potential fire hazard.**
- C. Clean chips from the motor, especially around exhaust manifold, to prevent potential fire hazard.**
- D. Do not leave chips in truck overnight or over weekends due to potential fire hazard.**

XIX. POWER WASHERS

When operating power washers, employees shall follow the safety requirements, at minimum, provided as follows:

- A. Always utilize power washer in accordance with the manufacturer's requirements for use, operation, and maintenance of equipment.**
- B. Employees shall exercise extreme caution when spraying due to the potential hazards of flying debris.**

CHAPTER 8 - BACKING SAFETY

I. GENERAL

The elimination of backing accidents is a priority for INDOT. Employees with restricted vision to the rear of vehicles and/or equipment shall exercise extreme caution when backing.

II. GUIDELINES

Employees shall avoid backing whenever possible. Operations that can be effectively and safely performed with minimal or no backing shall be practiced whenever possible. Backing shall only be performed when absolutely essential.

A ground guide shall be utilized if backing is required and there is obstructed vision to the rear. The only time it is permissible to back a vehicle with obstructed vision without a ground guide is when the driver is alone and backing is essential.

When ground guides are not available, the following shall apply:

- A. Employees shall ensure that it is clear to back prior to beginning backward motion.
- B. Vehicles having obstructed vision immediately to the rear (ie. dump trucks, pick-up trucks with sign racks in the bed, and other large vehicles) will involve the employee exiting the vehicle and visually inspecting the rear of the vehicle to ensure the area is free of obstructions.
- C. Prior to, and after backing has commenced, side-view mirrors shall be constantly checked to ensure that conditions remain safe for backing.
- D. For vehicles not having obstructed vision to the rear (i.e. sedans, pickup trucks with empty truck bed, etc.) the employee shall turn around and check the complete area surrounding the vehicle to ensure that it is safe to back.
- E. In all cases, employees shall also check for people and/or traffic approaching from the side. Back as soon as possible after checking conditions in the rear. If there is a delay in backing, personally recheck the rear of the vehicle.
- F. In all cases, ensure the area is clear just prior to backing.
- G. Always back slowly and cautiously.
- H. Employees shall communicate warning others who may be near a backing vehicle/equipment, by sounding the horn and/or radio contact.
- I. Vehicles equipped with backup alarms shall have alarms in an operational condition at all times. If alarms are inoperable, ground guides shall be utilized, if available.

III. TRAINING

New and refresher training programs shall be in effect to train and reinforce awareness of safe backing. This training shall include employees that serve as ground guides. This training shall include the proper use of hand signals for all employees performing backing operations and employees serving as ground guides. Employees designated to perform backing operations and ground guides shall be successfully trained employees knowledgeable of the potential hazards associated with performing backing operations.

IV. BACK UP ALARMS

A. Back-up alarms shall be installed and operational on all vehicles/equipment requiring back-up alarms. The equipment that require back-up alarms include, but is not limited to:

1. Dump trucks
2. Sign bucket trucks
3. Centerliners and Edgeliner paint trucks
4. One (1) ton or larger pick up trucks
5. Graders
6. Rollers
7. Loaders
8. Backhoes

B. Back-up alarms shall be installed to the rear, facing rearward. All alarms shall operate automatically when any backward movement takes place. Back-up alarms shall emit suitable audible sound for the conditions and circumstances under which the vehicle/equipment is operated. The alarm shall provide suitable warning throughout backing movement. All back-up alarms installed on INDOT vehicles/equipment shall be non-adjustable one hundred twelve (112) decibels. Employees are responsible for inspecting and reporting defective back-up alarms on vehicles and/or equipment.

V. FIVE PRINCIPLES TO BACKING SAFETY

Employees performing backing operations shall, at minimum, practice the following five (5) principles to backing safety:

A. Get the whole picture: Walk around the vehicle to check clearances, blind spots, and the driving surface.

- B. Back from the driver's side: The safest position to back from is one that begins from the driver's side and is as close to the destination as possible.**
- C. Back slowly: When backing the vehicle, employees shall always consider speed. Backing rapidly may cause the vehicle to veer out of control and collide with objects on either side.**
- D. Use mirrors: When backing the vehicle, it is important to use both side-view mirrors as often as possible. Mirrors help employees check clearances and aid in spotting unexpected pedestrians moving into the vehicle's path.**
- E. Use a ground guide: Ground guides shall be utilized whenever possible. The function of the ground guide is to warn the employee of pedestrians or other objects who are entering the path of travel.**

VI. PROCEDURES FOR GROUND GUIDES

Supervisors shall ensure their employees, who may be called upon to act as ground guides for backing operations, are instructed in proper ground guiding methods. Supervisors shall ensure that these methods be performed at all times. The ground guide methods to be utilized shall include, but not be limited to:

A. Employees giving directions to the driver shall:

- 1. Stand on the ground at the rear of the vehicle/equipment in clear view of the driver;**
- 2. Stand in full view of traffic, both vehicular and pedestrian;**
- 3. Stand in full view of the area where the vehicle is about to back;**

If all three conditions cannot be met, an additional guide shall be used.

- B. Employees guiding a vehicle during backing operations shall maintain a safe distance between themselves and the backing vehicle so that they will not be struck by the vehicle they are guiding.**
- C. Employees guiding a vehicle shall stay in a path outside the width of the backing vehicle where the employee is visible in the rear-view or side mirror. Additionally, employees guiding a vehicle shall be mindful of oncoming traffic in both directions.**
- D. The ground guide shall also consider the condition of the walking surface while performing ground guiding operations. Plan to stop the backing vehicles several times during the backing maneuver. If there is any doubt in the mind of the employee providing the guidance to the driver about conditions in the area, the guide shall stop the driver and make the driver aware of the conditions.**
- E. Hand signals shall be performed instead of voice commands. Hand signals are as follows:**

- 1. SIGNAL FOR TRUCK MOVEMENT:** The palm of the hand shall face the direction toward which the vehicle shall move and the hand and arm shall swing as one from the elbow slowly in that direction.
- 2. SIGNAL TO STOP TRUCK MOVEMENT:** The palm of the hand shall face the driver and the hand and arm shall be held rigid.
- 3. SIGNAL TO RAISE:** Extend the arm with clenched fist with thumb up to raise the bed.
- 4. SIGNAL TO LOWER BED:** Extend the arm with clenched fist with thumb down for lowering the bed.

The employee operating the vehicle will only back the vehicle as long as the ground guide is in sight and the employee operating the vehicle understands the instructions being provided by the guide. Should the issues arise such as the ground guide no longer being in view, or confusion regarding ground guiding instructions, the employee operating the vehicle will stop the vehicle. The employee operating the vehicle will not resume backing operations until the issues have been defined and resolved.

CHAPTER 9 - WORK ZONES

I. GENERAL

Employees shall follow the work zone traffic control requirements provided in the most current applicable **Indiana Manual of Uniform Traffic Control Devices (MUTCD)** and the **Work Zone Traffic Control Handbook (WZTCH)**.

Employees shall take every reasonable precaution to protect themselves and the public from crashes caused by work zone operations.

No one temporary traffic control set up can satisfy all situations. Specific concerns shall be addressed to supervisory personnel during the daily safety briefing prior to beginning work activities.

II. UNAUTHORIZED PERSONS IN WORK ZONES

Employees shall not permit unauthorized vehicles and/or unauthorized persons within the limits of the work zone. Employees shall not permit unauthorized persons to touch moving parts. Additionally, employees shall keep unauthorized persons away from vehicles, equipment, open excavations, heaters, hot materials, chemicals and similar conditions and/or locations.

III. MAINTENANCE WORK ZONE SAFETY INSPECTIONS

Each District Safety Director or their designee shall be responsible for conducting maintenance work zone safety inspections and completing the maintenance work zone safety inspection report. Upon completion, the INDOT Safety Director will retain a copy of the report, which is to be kept on file, and send a copy of the report to the INDOT Central Office of Employee Safety.

CHAPTER 10 - ROAD MAINTENANCE OPERATIONS

I. GENERAL

Operational procedures, regarding road maintenance operations, are contained in the most current applicable INDOT Maintenance Field Operations Manual. Safety procedures contained within this chapter shall be a supplement to the most current applicable procedures detailed in the INDOT Operations Manual, Policies and Procedures.

Additionally, employees shall refer to the **Indiana Manual of Uniform Traffic Control Devices (MUTCD)** and the **Work Zone Traffic Control Handbook (WZTCH)** for traffic control operations.

II. MOWING OPERATIONS

Mowing equipment can be extremely dangerous to operate if safe work practices are not utilized. Important mowing safety rules include, but are not limited to:

- A. Do not operate a mower while other employees or pedestrians are within the range of objects potentially being propelled by a high-speed blade. When possible, direct the discharge toward the ditch and back slope, rather than towards the roadway.
- B. Never attempt to unclog or adjust a running machine.
- C. An employee operating mowing equipment shall wear the appropriate personal protective equipment (ppe) for the appropriate mowing operations and conditions the employee is exposed.
- D. Never wear loose clothing near the power take off (PTO) or rotating equipment.
- E. Employees shall be able to identify poison ivy and poison oak. Supervisors shall warn employees to utilize care when working around these plants.
- F. Observe all motor vehicle laws. Mow with flow of traffic except in special circumstances or when the supervisor grants permission.
- G. Slopes steeper than 3:1 shall not be mowed with conventional tractor type mowers unless allowed by the manufacturer's specifications. All mowing tractors shall be equipped with a fully functioning slope gauge. On slopes less than 3:1 conditions may warrant delaying mowing operations until conditions improve.
- H. Locate large rocks or similar objects and clear debris before mowing.
- I. Stay off wet slopes.

III. TREE TRIMMING

- A. Although tree trimming operations present many potential hazards such as cuts and bruises from limbs and machinery, the principle causes of injury are:
 - 1. Falling trees and falling limbs.**
 - 2. Improper work practices.**
 - 3. High-speed moving parts on power equipment such as chippers and chainsaws.****
- B. Employees performing tree trimming operations shall wear the appropriate PPE for the appropriate tree trimming operations and conditions the employee is exposed.**
- C. Anytime utility lines interfere with tree trimming and/or removal operations, the utility company shall be contacted.**
- D. Before cutting or trimming a tree, the tree shall be checked for structural weaknesses and inspected for dead limb hazards.**
- E. Employees shall ensure a safe falling area is available with adequate escape routes for employees present during tree trimming operations.**
- F. When utilizing hydraulic lifting devices to trim trees, the boom and associated equipment will not be depended upon for electrical insulation. Operators shall not raise and/or project booms over live conductors.**

IV. VEGETATION CONTROL

Only INDOT employees certified by the Purdue Pesticide Programs (PPP) shall perform work activities involving herbicide and/or pesticides. Work activities involving herbicides and/or pesticides shall be in accordance with Purdue Pesticide Programs (PPP), a function of the Purdue University Cooperative Extension Service (CES). Information regarding the Purdue Pesticide Programs (PPP) may be found at: http://www.ppp.purdue.edu/PPP_pubs.html .

V. BITUMINOUS PAVEMENT PATCHING AND REPAIRING

Employees performing patching and repairing with bituminous material shall be trained to recognize potential hazards associated with the material and take the necessary precautions to avoid potential injury. At minimum, employees shall:

- A. Employees handling, mixing and/or applying bituminous pavement patching and repairing chemicals shall follow Material Safety Data Sheets (MSDS) for chemicals being utilized and/or handled (ie. PPE and safe work practices). MSDS documentation shall be available on site for review when the chemical is being utilized.**

- B. Operation of bituminous pavement equipment shall be in accordance with the INDOT Operations Manual.**
- C. Matches, lighters and/or roadway flares shall not be utilized to ignite burners. If more than one burner is utilized and one is inside the other, the inner burner shall be ignited first. Fuels will be allowed to ventilate before trying to re-ignite a burner.**
- D. Kettles shall be filled in accordance with manufacturer's requirements.**
- E. Clean or repair thermometers, as needed.**
- F. Kettles, Distributors and other equipment with LP gas fuel systems mounted on them for purposes other than propulsion shall be permitted to be parked, serviced, or repaired inside buildings. The fuel system shall be leak free, and the container(s) shall not be filled beyond the limits specified. The container shut off valve shall be closed. The vehicles shall not be parked near sources of heat, open flames, or similar sources of ignition, or near unventilated pits.**
- G. Ladders will be available for employees to use when mounting tanks and ladders shall be kept clean. Non-skid surfaces are recommended. Platforms and work areas will be kept free of bituminous materials and debris.**
- H. When using spray bars and hand-held spray units, employees will ensure that all personnel are away from material that may contact them.**

VI. SNOW REMOVAL AND ICE CONTROL

Snow removal and ice control operations shall be performed in accordance with the INDOT Winter Operations Manual. Employees shall be knowledgeable in the handling of the vehicle and the equipment usage on slippery roads and in limited visibility conditions. Training, both in the classroom and in the field is required.

CHAPTER 11 - MAINTENANCE FACILITIES

I. GENERAL

- A. Motor vehicles, while being driven in or out of garages or storage buildings, shall be driven at a low rate of speed and shall stop at the doorway before entering or exiting the building.**
- B. Facility safety inspections shall be performed by designated employees. The safety inspection shall include, but not be limited to:**
- 1. Make daily inspections for fire and safety hazards.**
 - 2. Ensure that accumulations of combustible materials are removed to a safe place and slipping hazards are removed or absorbent material is used.**
 - 3. To prevent falls caused by slips or tripping over equipment, inspect work areas regularly and ensure that floors are free of oil and walkways are clear of tools or equipment.**
 - 4. Ensure that engines operate only when there is proper ventilation, and/or exhausts are vented to the outside to prevent carbon monoxide poisoning.**
 - 5. Equipment to be included on facility inspections include, but are not limited to:**
 - i. Mechanical automotive hoists**
 - ii. Powered grease guns**
 - iii. Mounting heavy duty tires and rims**
 - iv. Jacks**

C. Working on vehicles and/or equipment:

Employees shall ensure that engines are not started and vehicles are not moved while they are working on vehicles by following the INDOT Facilities and Equipment Lockout/Tagout Policy and Procedures. Additionally, employees shall:

- 1. When employees must work on running engines, employees shall be careful to avoid moving parts.**
- 2. Take the necessary precautions to avoid potential steam burn injuries.**

CHAPTER 12 - MATERIAL HANDLING AND STORAGE

I. GENERAL

Materials shall be segregated as to type, size, and length; materials shall be placed in neat orderly stacks which are safe from falling and well labeled. If the stacks are high, the materials shall be stepped back as the height increases, and shall be secured by cross-piling or cross-typing. Stacks of materials shall be arranged to allow for safe passageways.

Materials placed on roads shall be well guarded, have suitable warning signs in the day time, and have flashing lights on and around them at night.

When possible, work will be scheduled to avoid leaving materials on roads at night.

II. MATERIALS HANDLING

A. Lifting and Carrying

Mechanical lifting devices shall be the preferred method for lifting. Supervisors shall assign a sufficient quantity of employees for each lifting activity when mechanical lifting devices are not available. Additionally, employees shall ascertain whether additional help will be needed to safely lift the load and, if necessary, get additional help. Employees shall never try to over-lift. If a large or heavy load must be lifted, the employee shall seek assistance.

Each employee will be instructed by his/her Supervisor in the proper methods of lifting heavy objects. General guidelines for lifting include, but are not limited to:

1. Always warm up your body before you lift any load. This is a good way to prevent muscle strains and pulls. Stretch your back with upward reaches and continue to loosen tight muscles with simple side and back bends.
2. Place one foot along the side of the object to be lifted and the other foot behind it. This will provide greater stability, if feet are comfortably spread with the rear foot positioned for the upward thrust of the lift.
3. Keep your back straight and use the sit-down position. Remember, that means the back itself is straight, not necessarily vertical. A straight back keeps the spine, back muscles and organs of the body in correct alignment. It minimizes the compression to the spine and strain of abdominal muscles that can cause a hernia.
4. Tuck your chin in so the neck and head continue the straight line formed by your back. Tucking in the chin also helps keep the spine straight and firm.
5. Extend your fingers and hands around the object being lifted using the full hand. Since the fingers alone have very little power the strength of the entire hand is needed.

- 6. Draw the load close to your body, with your arms and elbows tucked into the side of your body. When holding your arms away from your body, they lose much of their strength and power. Keeping your arms tucked in also helps keep your body weight centered.**
- 7. Position yourself so the weight of your body is centered over your feet. This provides a more powerful line of thrust and ensures better balance. Start the lift with a thrust of the rear foot.**
- 8. When carrying materials make sure that the load does not obstruct your view.**
- 9. Check all aisles and passageways before transporting your load.**
- 10. Never twist at the waist; instead turn the entire body to place load.**
- 11. The person carrying a load always has the right-of-way.**

B. Stacking and Piling

Employees shall be trained on proper methods for stacking and piling of materials with mechanical machinery. The general rules for stacking and piling include, but are not limited to:

- 1. Each stack shall have a firm foundation.**
- 2. Round objects shall be blocked or bracketed to prevent rolling.**
- 3. Tiers shall be cross-piled or tied so that materials support each other, if possible.**
- 4. Material shall be piled only high enough for safe lifting, handling, and storage.**
- 5. Material shall be leaned away from aisles to prevent toppling.**
- 6. Stacks shall be broken down from the top, with step backs or taper maintained.**
- 7. Materials shall not be stored as to block aisles, fire escapes, fire protection equipment, electrical panels, and other safety equipment.**
- 8. When a mechanical lifting device is used, the load shall be secured and employees shall stay out from under the load as it is lifted.**
- 9. Employees shall watch for pinching conditions, splinters, slivers, and protruding nails.**

III. SPECIFIC MATERIAL HANDLING MATERIALS

Employees shall be trained on proper methods of handling, stacking and piling of specific materials. Some general guidelines for handling stacking and piling of the following materials include, but are not limited to:

A. Lumber

- 1. Employees who handle lumber shall wear the appropriate hand protection to protect against splinters and abrasions.**
- 2. Pile lumber foundations shall be designed and arranged to support maximum loads without sinking, sagging or permitting the piles to topple.**
- 3. Lumber piles that have become unstable shall be immediately made safe.**
- 4. Cross-strips or cross-piling shall be utilized when the pile is more than four (4) feet high.**
- 5. The top of each pile shall be kept as level as possible when lumber is being removed.**
- 6. Used lumber shall have all nails removed before it is piled.**
- 7. Long boards shall be carried by, at minimum, two (2) employees and care shall be exercised at corners and crosswalks.**

B. Sack Materials

- 1. Sacked materials such as fertilizer, glass beads, Calcium Chloride and cement shall be carefully stacked when placed in storage and carefully removed so as to keep the stacks in a stable condition.**
- 2. Material will be stored so as not to create a hazard.**
- 3. Bags stored in tiers will be stacked, blocked, interlocked and limited to height so the bags are stable and secure against sliding or collapsing.**
- 4. When materials are removed from sacks and stored in a secondary container, the container shall be properly labeled.**

C. Barrels

- 1. Barrels shall never be stacked more than two (2) barrels high.**
- 2. Full barrels shall never be stacked on top of empty barrels.**

3. Empty barrels shall be stored on their sides with the bungs or lids replaced and properly blocked.
4. Employees shall never utilize barrels to support equipment or heavy objects.
5. Barrels utilized for secondary containment shall be properly labeled.
6. When removing the top of a barrel, a barrel cutter shall be utilized instead of a cutting torch.
7. When handling barrels with mechanical equipment, employees shall utilize appropriate barrel handling equipment.

D. Pipe and Round Post Storage

1. All pipes, round wood or concrete posts will be carefully stacked and blocked at the end of the pile to prevent spreading or rolling.
2. When removing pipe, round posts or barrels from a stacked pile the top items will be removed first, and employees will do this while standing at the ends of the piles to safeguard themselves from injury in case the pile rolls.
3. Concrete culvert pipe twelve (12) inches or larger in diameter will be lifted and handled only by mechanical lifting equipment. Employees guiding the pipe while it is in the air will not stand beneath the load or get into a position where the load could swing and crush them against a stationary object.
4. Whenever possible, a pipe hook shall be utilized for lifting culvert pipe twelve (12) inches or larger in diameter. The hook shall be of the proper size for the pipe being handled.

E. Chains

1. Chains shall be visually inspected to detect the following:
 - a. Bent links.
 - b. Cracks in weld areas, in shoulders, or in any other section of link.
 - c. Traverse nicks and gouges.
 - d. Stretching - (total length of chain - inside of hook to inside of hook) if length changes from original, take out of service immediately.
2. Chains shall be used according to grade type and the approved working load limits.

3. Alloy steel chain (Grade 80) is the only chain approved for overhead lifting. Carbon steel chains (Grade 30, 40, and 70) are used for many general utility purposes, but are not to be used for overhead lifting.
4. Never use a chain that is twisted or kinked. Twisted or kinked chains shall be discarded.
5. Never splice a chain by inserting a bolt between two links.
6. Do not use a hammer to force a hook over a chain link.
7. Do not use a chain over corners or edges if it can be avoided.
8. Sudden shifts and overloading shall be avoided. The weight of objects shall be known before lifting or pulling. Objects shall be lifted or pulled smoothly and gradually.
9. After connecting chains to the load stand clear and as far away as possible from the pulling vehicle and the load, for a distance at least equal to the length of chain being used.
10. Chains not in use shall be stored in a rack or other suitable container. Do not leave chains lying on the ground or floor where the chains can be damaged.

F. Wire Ropes

1. Wire rope (cable) shall be used according to working load limits, manufacturer's instructions and recommended safety procedures.
2. Wire rope shall be lubricated and inspected according to manufacturer's instructions.
3. Wire rope and cables shall be inspected before and after each use and replaced if ropes are frayed, damaged or show signs of excessive wear.
4. Once a kink is formed in a cable it shall not be used for lifting, pulling or hoisting purposes.
5. The proper method of applying a clip to a cable is to always have the u-bolt over the short end and the clip over the part that carries the load. Clips shall be installed in accordance with manufacturer's recommendations. A thimble shall be utilized when wire rope or cable is to be looped.

G. Fiber Ropes

1. Ropes shall be inspected frequently for broken strands, cuts and worn or frayed spots. Unsafe rope shall be replaced.
2. Do not overload a rope. Once a rope has been overloaded, it has weakened and shall not be used.

3. **Avoid shock-loading, jerking and over-stressing rope.**
4. **Do not drag a rope across the ground, rough or sharp objects, or constantly across another rope.**
5. **Ropes shall be dried thoroughly after use. Frozen or wet ropes shall not be placed against a heat source for quicker drying.**
6. **Rope shall be coiled and properly stored in a dry place when not in use.**

H. Slings

Slings shall be utilized and maintained in accordance with most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations.

I. Hooks

1. **Hooks shall be of the same or greater grade as the chain to which the hooks are attached. Chains utilized for lifting shall be completely within a hook so the chain cannot slip and the hook will not bend.**
2. **Do not place a load on the tip of the hook.**
3. **Hooks with throat openings fifteen (15) percent greater than original, or twisted ten (10) degrees out of line, shall be discarded and not utilized.**
4. **Safety gates shall be utilized on hooks to prevent roll-out.**

J. Hoist:

1. **Scheduled detailed inspection of all hoists, with special attention to load hooks, ropes, brakes, and limit switches shall be performed each day before use. Additionally, hoists shall be inspected by a certified vendor annually and documentation shall be kept on file at that location.**
2. **The safe load capacity of each hoist shall be legibly provided on the hoist body of the machine.**
3. **Loads shall be picked up only when the load is directly under the hoist.**
4. **Hoists shall not be used to lift, support or transport people.**

CHAPTER 13 - FLAMMABLE GASES AND LIQUIDS USE AND STORAGE

I. GENERAL

The use and storage of flammable gases and liquids shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [Flammable and combustible liquids. - 1910.106](#), National Fire Protection Association (NFPA), National Electrical Code (NEC), Federal of Transportation's Federal Motor Carrier Safety Administration (FMCSA), and Environmental Protection Agency (EPA).

MSDS shall be available for all hazardous materials.

VII. SMOKE AND/OR FIRE

If fire and/or smoke occur, the emergency action plan shall be implemented immediately.

VIII. SAFETY CANS

Safety cans utilized for fuel storage and use shall, at minimum, be properly labeled, Underwriters Laboratory (UL) approved safety cans which are equipped with flashback screens, vents and pouring spouts. Employees shall never utilize glass or plastic containers. Engines will be stopped and cooled before refueling.

IX. STORAGE OF FLAMMABLE LIQUIDS AND GASES

A. The storage of flammable liquids and gases shall be kept to the minimum needed. The quantity of flammable liquid that may be located outside of an inside storage room or storage cabinet in a building or in any one fire area of a building shall not exceed:

- a. Twenty-five (25) gallons of Class IA liquids in containers
- b. One hundred twenty (120) gallons of Class IB, IC, II, or III liquids in containers
- c. six hundred sixty (660) gallons of Class IB, IC, II, or III liquids in a single portable tank.

Quantities exceeding those provided herein shall be stored in approved nonflammable storage cabinets that are labeled "Flammable Liquids"

CHAPTER 14 - MACHINE GUARDING

I. GENERAL

Machine guarding and operator training of equipment with machine guarding shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations and manufacturer recommendations - [General requirements for all machines. - 1910.212.](#)

II. SPECIFIC MACHINES

Machine guarding for specific pieces of machinery are identified and shall be in accordance with the most current applicable state and federal OSHA regulations and manufacturer recommendations. Some specific machines that require machine guards include, but are not limited to:

- A. Abrasive Wheels on Bench Grinders**
- B. Circular Saws**
- C. Table Saws**
- D. Radial Arm Saws**
- E. Drill Presses**
- F. Ceiling Fan Blades**

CHAPTER 15 - HAND TOOLS

I. GENERAL

Hand tools and training on the proper use of hand tools shall be in accordance with manufacturer recommendations and the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [Hand and portable powered tools and equipment, general. - 1910.242.](#)

Work at a safe distance from others, especially when utilizing hand tools.

II. CARE AND USE OF HAND TOOLS

Tools shall be kept in a safe working condition. Supervisors, as well as employees, are responsible for the safe condition of tools and equipment used.

All damaged or worn tools shall be promptly repaired. Temporary, makeshift repairs are prohibited. Discard tools that cannot be repaired.

The weight, size and type of tool shall be selected to fit the work activity at hand.

Handles shall be tightly fitted. Employees shall check wood handles carefully for splitting and cracking. Employees shall tighten handles with wedges, when applicable.

III. SPECIFIC HAND TOOLS

Hand tools shall be utilized in accordance with the most current applicable state and federal OSHA regulations and manufacturer recommendations. Some specific hand tools utilized while performing work activities include, but are not limited to:

- A. Wrenches
- B. Chisels and punches
- C. Hatchets and axes
- D. Screwdrivers
- E. Files
- F. Handsaws and hacksaws
- G. Pliers
- H. Picks, pitchforks, hoes, rakes, and shovels
- I. Jacks

CHAPTER 16 - POWER TOOLS

I. GENERAL

Power tools and the training on the proper use of power tools shall be in accordance with manufacturer recommendations and the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [Hand and portable powered tools and equipment, general. - 1910.242.](#)

Work at a safe distance from others, especially when using power tools.

II. CARE AND USE OF ELECTRIC, GASOLINE ENGINE DRIVEN, AND PNEUMATIC POWER TOOLS

Tools shall be kept in a safe working condition. Supervisors, as well as employees, are responsible for the safe condition of tools and equipment used.

Power cables will be checked frequently for breaks in the insulation and defective cables repaired or replaced. When more than a single extension cord is connected to a power source, use twist-lock connectors. The sequence of connection will be from the tool - to the extension - to the power source.

All power tools shall be turned off when changing attachments, making minor adjustments or repairing.

All damaged or worn tools shall be promptly repaired. Temporary, makeshift repairs are prohibited. Discard tools that cannot be repaired.

IV. SPECIFIC POWER TOOLS

All power tools shall be utilized in accordance with the most current applicable state and federal OSHA regulations and manufacturer recommendations. Some specific hand tools utilized while performing work activities include but are not limited to:

- A. Circular, table, and/or radial arm saws
- B. Chainsaws
- C. Drills
- D. Portable grinders
- E. Bench grinders
- F. Sanders
- G. Jackhammers

CHAPTER 17 - WELDING, CUTTING AND BRAZING

I. GENERAL

Welding, cutting and brazing work activities and training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [General requirements. - 1910.252](#), National Fire Protection Association (NFPA) standards, National Electrical Code (NEC), manufacturer recommendations.

Employees engaged in welding or cutting operations shall be knowledgeable in such operations, and shall keep in mind the safety of fellow employees, as well as their own safety at all times.

Screens, shields or other safeguards shall be provided for the protection of persons and other materials that may be susceptible to sparks or rays.

V. SPECIFIC WELDING, CUTTING AND BRAZING INCLUDE BUT ARE NOT LIMITED TO:

A. Arc welding

B. Gas welding and cutting

CHAPTER 18 - ELECTRICAL

I. GENERAL

Safety-related work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts when work is performed near or on equipment or circuits which are or may be energized. Electrical Safety awareness, work activities, and training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [General. - 1910.303](#), National Fire Protection Association (NFPA) standards, National Electrical Code (NEC), and manufacturer recommendations.

Additionally, Lockout/Tagout requirements shall be in accordance with the INDOT Facilities and Equipment Lockout/Tagout Policy and Procedures.

Only qualified employees are permitted to work on or near exposed energized electrical parts.

CHAPTER 19 - WALKING AND WORKING SURFACES

I. GENERAL

Walking and working surface activities and training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [General requirements. - 1910.22](#).

Most slip, trip and fall injuries are a direct result of non-compliance with the most current applicable state and federal OSHA regulations and INDOT guidelines for walking and working surfaces.

II. SPECIFIC WALKING AND WORK SURFACE

Manufactured walking and work surfaces shall be utilized in accordance with the manufacturer's requirements for use, operation, and maintenance. Some specific walking and work surfaces to be utilized shall include, but not be limited to:

A. Ladders - Always choose the right type of ladder for the work activity performed. One type of ladder will not suffice for all situations.

1. Stepladders shall be of three types:

- i. Type I- Industrial stepladder, three (3) to twenty (20) feet for heavy duty, such as utilities, contractors, and industrial use.**
- ii. Type II- Commercial stepladder, three (3) to twelve (12) feet for medium duty, such as painters, offices, and light industrial use.**
- iii. Type III- Household stepladder, three (3) to six (6) feet for light duty, such as light household use.**

2. Utilize a straight or extension ladder when the work activity allows anchoring the ladder to a sturdy surface such as a wall or roof.

3. Use a nonconductive fiberglass ladder in areas where electrical safety is a concern.

B. Scaffolds

C. Floors and stairways

CHAPTER 20 - FIRE PROTECTION & PREVENTION

I. GENERAL

Fire protection and prevention work activities and training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations [Emergency action plans. - 1910.38](#) and [Fire prevention plans. - 1910.39](#), National Fire Protection Association (NFPA), and National Electrical Code (NEC), and Federal Motor Carrier Safety Administration (FMCSA).

Each supervisor is responsible for procuring, installing, inspecting and maintaining the fire extinguishers in his/her respective area. INDOT supervisory positions including but not limited to: Deputy Chiefs; District Deputy Commissioners; and Subdistrict Managers will ensure employees are familiar with the use and care of the extinguishers, when applicable. All personnel will comply with facility evacuation procedures. The most current applicable emergency evacuation plans shall be posted in all INDOT facilities.

II. BUILDINGS

All maintenance shops and units will be equipped with an adequate amount of fire extinguishers.

Extinguishers will be clearly identified with a sign marking its location and shall be securely mounted on a wall bracket.

III. VEHICLES AND EQUIPMENT

All vehicles and equipment used to transport flammable and hazardous materials will be equipped with at least one (1) ten (10) pound extinguisher, rated 10 B:C or higher.

This extinguisher is required on, but not limited to, the following vehicles and equipment:

- A. Oil distributor trucks.
- B. Oil distributor trailers.
- C. Tar kettles (shall be available in the truck towing the tar kettle).

One five (5) pound extinguisher rated 10 B:C or higher shall be on dump trucks and snow removal vehicles.

Extinguishers will be securely mounted in a bracket on or inside the vehicle/equipment.

IV. INSPECTION AND MAINTENANCE

Inspection and maintenance of fire equipment shall be in accordance with the most current applicable state and federal OSHA regulations and NFPA standards.

CHAPTER 21 - FIRE EXTINGUISHERS

I. GENERAL

Fire extinguishers and fire extinguisher training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [Portable fire extinguishers. - 1910.157](#), National Fire Protection Association (NFPA) standards, and National Electrical Code (NEC).

II. INSPECTION REQUIREMENTS

Trained personnel will perform monthly fire extinguisher inspections for the facility, vehicles and equipment for which they are responsible in accordance with NFPA standards.

Documented dates of monthly and annual inspections shall be maintained on the fire extinguisher tag.

III. FIRE EXTINGUISHER CLASSIFICATION

Fire extinguishers are classified to indicate their ability to handle specific classes and sizes of fires.

CLASS OF EXTINGUISHER	PURPOSE
Class A Extinguishers	Used for ordinary combustibles such as wood, paper, some plastics and textiles where a quenching-cooling effect is required.
Class B Extinguishers	Used for flammable liquid and gas fires such as oil, gasoline, paint and grease.
Class C Extinguishers	Used for fires involving electrical wiring and equipment. Class C fires are essentially either Class A or Class B, but also involve energized electrical wiring and equipment. Therefore, the coverage of the extinguisher shall be chosen for the burning fuel.
Class D Extinguishers	Used for fires in combustible metals such as magnesium potassium, powdered aluminum, zinc, sodium, titanium, zirconium and lithium. Persons working in areas where Class D fire hazards exist shall be aware of the dangers in using Class A, B, or C extinguishers on a Class D fire, as well as the correct way to extinguish Class D fires. These units are not classified by a numerical system and are intended for a special hazard protection only.

CHAPTER 22 - ERGONOMICS

I. GENERAL

Ergonomics and ergonomics training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations and manufacturer recommendations.

II. SPECIFIC ERGONOMIC RISKS

Repetitive motion is a leading cause of ergonomic related injuries. Employees shall avoid repetitive motion during work activities. Frequent breaks from these repetitive motions reduce the potential of ergonomic related injuries. Additionally, work activity rotation reduces the potential of ergonomic related injuries.

III. WORK ENVIRONMENTS AFFECTED BY ERGONOMICS

Some work environments affected by ergonomics include, but are not limited to:

A. Office Operations

1. Employees who have work activities that require the employee to sit most of the day may develop hand, shoulder, neck, and/or back issues. Employees shall recognize and not ignore the minor pains to these areas of the body while working in an office setting. Additionally, employees shall, at minimum:
 - b. Maintain good posture.
 - c. Find the correct placement of the computer monitor, keyboard, mouse and other equipment at the office workstation.
 - d. Increase work variety and take small frequent breaks.
2. Eye strain can also be a problem. Adjusting your screen for the minimum amount of glare and the best contrast will reduce the amount of strain on the eyes.

B. Field Operations

1. To avoid utilizing more effort than is necessary, employees shall utilize tools that reduce the amount of effort used to grip the tool. There are several factors that will improve gripping a tool that include:
 - a. Handle shall be sized correctly for hand, not too large or too small.
 - b. Textured or cushioned handle.
 - c. Flange at the base of the handle to keep hand from slipping.

- 2. Gloves can also increase the amount of force needed to perform work activities. Most work activities require the use of gloves and it is important to make certain gloves are not too large or too small.**
- 3. Utilize power tools whenever available to reduce the amount of force necessary to apply to successfully complete the work activity.**
- 4. Always utilize the lightest weight tool, when possible, to successfully complete the work activity.**

CHAPTER 23 - FALL PROTECTION

I. GENERAL

Fall protection and fall protection training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [General Industry standards](#) and [Construction Industry standards](#).

II. STANDARD REQUIREMENT DIFFERENCES

Fall protection standards vary between general industry and construction industry. Employees shall follow the proper fall protection standards based upon the standard that applies for their work activities:

- A. **General Industry:** Every open-sided floor or platform four (4) feet or more above adjacent floor or ground level shall be guarded by a standard railing on all open sides except where there is entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a toe board on the open side(s).
- B. **Construction Industry:** Employees on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is six (6) feet or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

CHAPTER 24 – TRENCHING AND EXCAVATING

I. GENERAL

Trenching and excavating operations and excavating and trenching training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations [Trenching and Excavating - 1926.650](#).

II. SPECIFIC REQUIREMENTS

Before opening any excavation area efforts shall be made to determine if underground utilities exist in the area, and these utilities shall be located and protected during the excavating operations.

The sides of all excavations and trenches more than five (5) feet deep shall be guarded by a shoring system, sloping of the ground, or other equivalent means.

In every trench four (4) feet or more in depth there shall be a means of egress (secured ladder, ramp, or stairway) located every twenty-five (25) feet.

III. PROTECTIVE SYSTEMS

Protective systems shall be used in accordance with the most current applicable state and federal OSHA regulations. Protective systems include, but are not limited to:

- A. Sloping
- B. Shielding (trench boxes or trench shields)
- C. Shoring system

IV. INSTALLATION AND REMOVAL OF PROTECTION

Design of support systems, shield systems and other protective systems shall be selected and constructed by a competent person and shall be in accordance with the the most current applicable state and federal OSHA regulations.

CHAPTER 25 - FIELD CONSTRUCTION ACTIVITIES

I. GENERAL

Construction work activities and training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations and the INDOT Construction Management Division's General Instructions to Field Employees (GIFE).

II. FIELD CONSTRUCTION OFFICE REQUIREMENTS

Field construction offices shall include, but not be limited to:

- A. A competent person shall be designated by the contractor to inspect the job site, materials and equipment. The competent person shall be able to identify existing and potential hazards and take corrective measures to alleviate the existing and potential hazards.
- B. Current and completed OSHA recordkeeping forms shall be maintained and available for inspection.
- C. Most current OSHA work place poster shall be posted and visible for employees to review.
- D. Written copy of the INDOT Hazardous Communication Program.
- E. Material Safety Data Sheets (MSDS) book with MSDS sheets for the hazardous materials shall be maintained in accordance with INDOT Hazardous Communications Program.
- F. The INDOT Employee Safety Manual shall be available for employees to review.
- G. Emergency telephone numbers shall be posted at or near each telephone.
- H. At minimum, one (1) fire extinguisher shall be installed in the office in accordance with INDOT Standard Specifications and the fire extinguisher(s) inspection(s) shall be current.
- I. A first aid kit and bloodborne pathogen kit shall be available in accordance with INDOT Standard Specifications. The size and the content of the first aid kit shall meet the most current applicable state and federal OSHA regulations for the type of work activities performed and the quantity of employees at the worksite.
- J. An INDOT employee trained in first aid and cardiopulmonary resuscitation (cpr) at each worksite.
- K. Extension cords and flexible cords or cables may not be utilized as a substitute for fixed wiring.

- L. Hazardous materials outside the labeled manufacturer containers require Hazard Materials Identification System (HMIS) label.**
- M. All refrigerators shall be grounded.**
- N. Stairways with more than three (3) risers shall be equipped with handrails.**
- O. Stairway landings shall have a twenty (20) inch clearance from the swing of the door.**
- P. Unused openings in electrical cabinets, boxes and fittings shall be effectively closed.**
- Q. Breakers in electric boxes shall be labeled and there shall not be any open spaces in breaker boxes.**
- R. Temporary electric shall be mounted at least ten (10) feet above ground level or the electric lines shall be buried.**
- S. Electrical cords shall regularly be inspected for damage and if ground prong is missing the electric plug or cord shall be replaced.**
- T. Light bulbs shall be guarded.**

CHAPTER 26 - CONFINED SPACE ENTRY PROGRAM

I. GENERAL

Confined space entry operations and confined space entry training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations.

The INDOT Confined Space Program has been designed with the safety and well being of all employees who enter confined spaces in mind.

II. CONFINED SPACE EVALUATION

Every confined space in the work place shall be evaluated in accordance with the most current applicable state and federal OSHA regulations - [Permit-required confined spaces - 1910.146](#) to determine if it is a permit-required confined space.

III. CONFINED SPACE HAZARDS

A. Oxygen Deficient Atmospheres

B. Oxygen Enriched Atmospheres

C. Flammable Atmospheres

D. Toxic Atmospheres

IV. WORKING WITH CONTRACTORS

Working with contractors shall be in accordance with the most current applicable state and federal OSHA regulations.

CHAPTER 27 - HAZARD COMMUNICATION

I. GENERAL

INDOT's policy regarding hazard communication ensures that the hazards of all chemicals found in the work place are identified and the information concerning these hazards is transmitted to employees to provide for their safety and health protection. This policy is implemented through the Hazard Communication Program in accordance with most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [Hazardous waste operations and emergency response. - 1910.120](#) and the INDOT Facilities Policy.

Supervisors shall ensure that all chemical lists, Material Safety Data Sheets (MSDS), consumer product lists, and labels are maintained and kept current.

II. MATERIAL SAFETY DATA SHEETS (MSDS)

INDOT shall rely on the chemical manufacturers from whom it purchases chemical products to evaluate the hazards of the chemicals utilized at INDOT facilities. MSDS for chemicals utilized in the work-place are to be provided by all chemical manufacturers and/or distributors. MSDS for each chemical utilized at INDOT facilities shall be maintained in the work area, clearly marked, and made readily available to employees.

III. LABELING PROCEDURES AND OTHER FORMS OF WARNINGS

INDOT shall, at all times, ensure that all hazardous chemicals in the work place and at the work sites are properly labeled.

All containers of hazardous materials received at INDOT facilities shall be accompanied by a manufacturer's label. These labels will vary by manufacturer. Labels shall contain information related to the critical components of hazard communication in terms of identity, health hazards, flammability ratings, reactivity, physical hazards and personal protective equipment (ppe) recommendations. Manufacturer's labels meeting these requirements are sufficient and are permissible for containers in INDOT facilities. However, when materials are transferred from the original manufacturer containers, or manufacturer's label becomes defaced and/or mutilated the following will apply:

- A. All containers of hazardous materials at INDOT facilities that are originated through transfer from the original manufacturer container to a secondary container, or containers in which the manufacturer's label becomes destroyed shall have an HMIS label affixed.
- B. INDOT shall rely upon the manufacturer labeling system as the primary labeling system for INDOT.

- C. Upon receipt of the MSDS for a chemical purchased from a retail supplier, the label information shall be compared to the information on the MSDS. Inquiry shall be made to the manufacturer or distributor regarding any discrepancies and a record of all written and telephone inquiries shall be maintained.

Labels shall be checked on a regular basis and any that are damaged or missing shall be replaced.

IV. PIPES AND PIPING SYSTEMS

The chemical contents (including petroleum) of piping systems in each work area shall be identified and information about the hazards of such chemicals shall be provided to employees and shall be in accordance with the most current applicable state and federal OSHA regulations and INDOT Facilities Policy.

V. PROCEDURES FOR INCIDENTAL SPILLS

Incidental spills shall be referred to as the release of a hazardous material on INDOT property, where employees know the hazardous content of the material and have the means to safely clean up the spill.

The MSDS shall be followed to determine the safest method to use for cleanup of spills that occur on INDOT property and/or facilities.

Operating Procedure 20 of the INDOT Field Operations Manual shall be followed for spills that occur outside of INDOT property and/or facilities.

CHAPTER 28 - EXPOSURE CONTROL (BLOODBORNE PATHOGENS)

I. GENERAL

Exposure control (Bloodborne Pathogens) and training of exposure control shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [Bloodborne pathogens. - 1910.1030](#).

Employees potentially exposed to blood or other potentially infectious material from occupational exposure shall take the precautions necessary to protect themselves against the risk of coming into contact with blood or other potentially infectious materials.

II. COVERED DISEASES

Among the more common bloodborne diseases that employees may potentially become exposed to are Hepatitis B (HBV) and Human Immunodeficiency Virus (HIV).

III. TRAINING

Supervisors are responsible for ensuring that any employee potentially exposed to blood or other potentially infectious material from occupational exposure shall meet the exposure control training requirements for assignments in which there is a risk of occupational exposure to blood or other potentially infectious material.

IV. UNIVERSAL PRECAUTIONS

Universal Precautions is an approach to infection control. According to the concept, all human blood and certain human body fluids are treated as if known to be infectious for HBV, HIV, and other bloodborne pathogens.

When working with trash or waste, Universal Precautions shall be taken as the first line of defense against occupational exposure to bloodborne pathogens.

V. PERSONAL PROTECTIVE EQUIPMENT (PPE)

All affected employees shall utilize PPE to the extent judged appropriate based on any possibility of contracting an infection from bloodborne pathogens at work.

VI. BLOODBORNE PATHOGEN KITS AND LOCATIONS

A. All Bloodborne Pathogen kits will contain:

1. Latex gloves

2. **Antiseptic towelettes**
3. **Mask**
4. **Impervious apron**
5. **Mouth piece**
6. **Red biohazard material bag to dispose of all waste generated at the scene.**

B. First Aid and Bloodborne Pathogen kits shall be placed in the following locations:

1. **Rest areas**
2. **All INDOT facilities**

VII. HEPATITIS B VACCINATION

Employees potentially exposed to blood or other potentially infectious material from occupational exposure shall be advised of the risk regarding current United States Department of Health's Center for Disease Control (CDC) recommendations concerning HBV vaccination and shall be offered an opportunity to receive a HBV vaccination. The employees may:

- A. Receive the vaccination series, at no cost, during normal work hours no later than ten (10) working days after initial assignment to the work position or work activity.**
- B. Employees declining the HBV vaccination are required to complete the declination form. Employees shall sign the form after reading and understanding that the HBV vaccination is always available should the employee's decision change.**

CHAPTER 29 - CONTROL OF HAZARDOUS ENERGY **(LOCKOUT/TAGOUT)**

I. GENERAL

Control of hazardous energy, work activities, and training shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [The control of hazardous energy \(lockout/tagout\). - 1910.147](#), National Fire Protection Association (NFPA), National Electrical Code (NEC), and INDOT Facilities Lockout/tagout Policy. The INDOT Lockout/Tagout Policy and Procedures includes, but is not limited to containing:

- A. Energy Control Program
- B. Energy Control Procedures
- C. Periodic Inspections

II. OUTSIDE PERSONNEL (CONTRACTORS)

Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this policy, INDOT and the outside employer shall inform each other of their respective lockout/tagout policies and procedures.

INDOT shall ensure employees understand and comply with restrictions and prohibitions of the energy control procedures.

INDOT shall ensure that employees of outside contractors understand and comply with the INDOT Lockout/Tagout Policy and Procedures.

CHAPTER 30 - RESPIRATORY PROTECTION PROGRAM

I. GENERAL

Respiratory protection and training of respiratory protection shall be in accordance with the most current applicable state and federal Occupational Safety and Health Administration (OSHA) regulations - [Respiratory Protection. - 1910.134](#) .

II. RECORD KEEPING

Records of medical evaluations shall be kept in accordance with OSHA standards.