

Stephenson County Highway Department Employee Safety Code



***You* are our
most important
asset**

Effective January 1, 2017

Employee Safety Code

Additional copies of this booklet may be obtained from:

**Stephenson County Highway Department
295 W. Lamm Road
Freeport, Illinois 61032
(815) 235-7497**

If you need assistance in the interpretation of any documentation provided within the “Safety Code”, please contact the Stephenson County Highway Department.

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01/01/2016				

PREFACE

This "Safety Code" contains requirements compiled for the safety and protection of both the personnel of the Highway Department and the traveling public.

Accident prevention is one of the vital duties of an employee. Each employee must read this "Safety Code" carefully in order that s/he will be familiar with the Department's safety requirements. All Department employees shall set a good example of safe driving and working practices.

These rules are effective immediately. Should an employee violate a safety rule, s/he shall be made aware of the violation, be advised of the proper procedure, and informed that penalties can be assessed.

All rules in this "Safety Code" apply at all times to all employees performing duties in the course of employment.

This "Safety Code" does not relieve any employee from complying with Federal, State and Local laws. These rules are to be considered the minimum precautions to be taken.

The rules and procedures included in this "Safety Code" were developed as a result of injuries or accidents experienced by Illinois Department of Transportation employees. The rules cannot tell every step to take, but they do identify many steps that must always be taken and some that must never be taken.

Stephenson County Highway Department

JANUARY 1, 2016

EMPLOYEE SAFETY CODE

1. ORDER.

- A. Each employee shall cooperate with every aspect of the Department's Employee Safety Program so that operations can be performed in a manner which ensures the safety of himself/herself, fellow workers, and the public.
- B. Each supervisor is responsible for accomplishing the functions of his/her organization in a manner that shall afford maximum protection for all employees and the public. He/she is responsible for the correction of unsafe work practices or conditions, unsafe driving practices, continued maintenance of good housekeeping practices, and full compliance of his/her employees with the Department's *Employee Safety Code* and all Illinois Department of Labor (IDOL) requirements.

2. PURPOSE.

The Department's objective is to prevent personal injuries or property damage. This objective takes priority over all others.

3. GUIDELINES.

Supervisory personnel at all levels shall:

- A. Provide the necessary training so that employees will be able to perform their work assignments in a manner that is safe and in accordance with Department safety policies and procedures, the Department *Employee Safety Code*, the laws of the State of Illinois and its political subdivisions.
- B. Require all employees to obey Department safety policies and procedures, the *Employee Safety Code*, laws of the State of Illinois and its political subdivisions, and to take prompt and appropriate action to assure such compliance.
- C. Monitor work activities performed and equipment operated to determine and identify existing and/or potential hazards to permit

prompt and appropriate action to be taken as may be necessary to safeguard Department employees, equipment and the public.

- D. Take prompt and appropriate action in accident situations involving Department personnel and/or equipment including: obtaining and/or providing emergency treatment for the injured; investigating each accident to determine why it occurred; reporting accidents as prescribed by the Department's policy; and taking necessary steps to prevent recurrence of such accidents.

This Order designates the STEPHENSON COUNTY HIGHWAY DEPARTMENT *Employee Safety Code* as Appendix 1.

4. RESPONSIBILITIES.

- A. All STEPHENSON COUNTY HIGHWAY DEPARTMENT employees are responsible for total compliance with the provisions of the *Employee Safety Code* (Appendix 1) and all other IDOL requirements.
- B. The County Engineer shall coordinate and audit accident prevention activities of the Department, conduct facility and worksite inspections, conduct accident investigations and assume other related safety activities as assigned.

5. ACCESSIBILITY.

- A. Copies of the *Employee Safety Code* may be obtained from the Stephenson County Highway Department, 295 W. Lamm Road, Freeport, Illinois. 61032.

DEPARTMENT SAFETY POLICY

The following safety concepts are the fundamentals of the Department Safety Policy and as such shall continue to be a part of the overall Employee Safety and Accident Prevention Program:

- A.** It shall be the duty of every employee in a supervisory capacity to carry on the operations under their jurisdiction in such a manner as to provide safe conditions/practices for all employees and the public. Supervisory personnel shall be responsible for the correction of unsafe conditions, unsafe driving and working practices, and the continued maintenance of good housekeeping practices.
- B.** It shall be the duty of every employee in a supervisory capacity to see that each individual employee under their supervision receives all necessary instruction and such training as may be required to perform work in the safest manner possible. In addition, the person in charge shall see that the job instructions, safe driving practices, safe work practices, good housekeeping and the rules of the Department's "Safety Code" and established Job Safety Analyses are complied with by the employee.
- C.** The Department expects the individual employee to cooperate in every respect with the safety program so that the operations may be carried on in such a manner to insure the safety of themselves, fellow workers and the public. Any form of horseplay is prohibited.
- D.** It shall be the duty of each employee to consider no job so important and no service so urgent that time cannot be taken to work and drive safely.

OBJECTIVE

The objective of this "Safety Code" and established Job Safety Analyses is to help maintain maximum output of manpower, equipment and supplies by eliminating accidents resulting in lost time, personal injury, property damage and human suffering.

ACCOUNTABILITY

The violations of Department safety rules and practices have resulted in injury to employees, damage to Department equipment and lawsuits; therefore, the failure of supervisory and/or non-supervisory employees to comply with safety rules and practices outlined in this "Safety Code" and established Job Safety Analyses may result in disciplinary action.

- A. Every employee of the Department is required to know, understand and obey all Department safety rules and practices as they pertain to the employee's job assignment.
- B. Supervisory personnel are accountable for the implementation of all safety rules, practices and policies of the Department and to provide the necessary training and direction to ensure compliance.

PART I: GENERAL SAFETY REQUIREMENTS

1.0 HAZARDS AND EMERGENCIES

1.1 Every employee should watch constantly for hazards along the streets, highways and in his/her place of employment. If a hazard is noted, it should be removed or proper protection provided by placing appropriate warnings, such as signs, cones, flags, torches or barricades.

1.2 Employees who see or learn of any damage to County property shall report the damage to the office or to the maintenance foreman.

1.3 Reasonable assistance in emergencies should be offered to anyone involved in an accident along the highway or in obvious distress, whether or not County equipment is involved or no other emergency aid is on the scene.

1.4 Never touch a person or equipment in contact with power lines.

1.5 If an employee observes a motor vehicle or other equipment of a utility company, contractor or others parked upon the roadway, or workers working on or adjacent to the pavement without being protected by adequate signs, flags or personnel directing traffic, the employee should notify the office and/or the sheriff's department.

2.0 ACCIDENT REPORTING

2.1 Failure to report vehicle or personal injury accidents to his/her supervisor may disqualify an employee from receiving Workers' Compensation Benefits.

2.2 All accidents (including physical collapse) occurring in the course of employment involving Department personnel and/or equipment shall be reported as soon as possible to the office.

2.3 Accidents which involve Department personnel and/or equipment shall be reported within 24 hours after the occurrence. In the event of incapacity, the employee's immediate supervisor shall accomplish the reporting process on behalf of the employee.

2.4 Injuries incurred during working hours but resulting from horseplay, altercations, or while engaged in activities for personal benefit may deprive the employee of benefits provided by the Workers' Compensation Act.

2.5 The operator of a vehicle or mobile equipment operated at Department expense having been involved in an accident, shall immediately notify the nearest local police, or sheriff's department and within one working day submit the appropriate reports to the office.

2.6 No oral or written statement is to be made by any employee regarding an accident involving County property or employees, except reports to a police officer and Department personnel, unless approved by the County Engineer or authorized representative.

2.7 Incidents involving loss or damage to County buildings and equipment resulting from explosives, fire, theft, vandalism and storm shall be reported immediately to the County Engineer.

2.8 RESERVED

2.9 RESERVED

3.0 SAFE DRIVING PRACTICES (also see Section 8.0)

3.1 Employees are expected to devote their full attention to driving safely and the skills that are required for safe vehicle operation. Employees are not exempt from traffic laws. Employees operating vehicles and mobile equipment shall obey all State and Local Traffic Laws.

3.2 The number of employees permitted to ride in a car, truck or mobile equipment shall not exceed the seat space and seat belts as provided by the manufacturer.

3.3 Safety seat belts installed in vehicles and mobile equipment shall be used by the operator and passengers while the vehicle or mobile equipment is in use, except for equipment/operations which require the operator to stand to safely perform the work. The operator shall not place the vehicle in motion until all occupants have properly secured their safety belts.

3.4 The operator shall report all vehicle and equipment malfunctions and defective parts.

3.5 Special attention should be given to keeping windshields, mirrors, windows, headlamps and tail lamp lenses clean.

3.6 Damaged glass and/or lenses of vehicles shall be replaced or repaired as soon as practical.

3.7 When visibility is reduced during daylight operations, use headlights with low beams.

3.8 Do not shift the vehicle into neutral or disengage the clutch when traveling downgrade.

3.9 To minimize skidding when stopping on wet or icy pavement, apply the brakes with a smooth non-locking action. Avoid the sudden application of brakes.

3.10 Drive cautiously and be prepared to stop when approaching a child, pedestrian, or person riding a bicycle.

3.11 Always signal a turning movement or a lane change.

3.12 When it is necessary to stop a Department vehicle at locations where traffic does not normally stop, the employee shall give warning to following vehicles by flashing his brake lights and slowing down gradually.

3.13 Make a conscious effort not to accelerate while being passed.

3.14 Select overnight parking locations that will present the least hazard to the traveling public and the Department mobile and non-mobile equipment.

3.15 When a vehicle is driven to an employee's home overnight, the vehicle shall be parked off the street, if possible.

3.16 For a safe following distance, always allow a minimum of three seconds counting time between your vehicle and the vehicle ahead. Example: When the vehicle ahead of yours passes a fixed point along the roadway (i.e., tree, sign, bridge, etc.), begin counting “one thousand and one, one thousand and two, one thousand and three.” If you reach the selected fixed point before you complete your count, you are following too close—DROP BACK. Under adverse driving conditions, increase following distance by increasing count.

3.17 When employees need additional information regarding State driving laws, they should refer to the Secretary of State Rules of the Road handbook.

3.18 It is the driver's responsibility to perform a circle of safety - walk to the rear of the vehicle and look before backing.

3.19 While refueling vehicles, equipment, or containers, please be aware of the possibility of static electricity:

- a. Turn off engine.
- b. Do not smoke or permit an open flame.
- c. Read instructions for the operations of gasoline dispensing equipment posted at each self-service station before refueling.
- d. To avoid backsplash, stand to one side or far enough away to avoid getting gasoline on clothing.
- e. Replace gas tank cap when finished.

3.20 To prevent the overflow of gasoline and possible fire, do not top-off or fill tank beyond automatic shut off.

3.21 Exercise care in attempting to start a vehicle with a “booster battery.” Uninvolved persons should stand back.

- a. Take a position to the side of the vehicles—do not stand in front of either vehicle.
- b. Make certain batteries are the same voltage.
- c. Do not attempt a “jump start” if battery fluid is low or frozen.
- d. Put gear selector in Park or Neutral position and set the parking brake.
- e. Take vent caps off batteries to release any gases, which are dangerous and can explode.
- f. Check both batteries to identify the positive (+) and negative (-) terminals.

g. Procedures for connecting cables:

Step 1 Connect positive (+) cable clamp (Red) to positive (+) post of dead battery.

Step 2 Connect other positive (+) cable clamp to positive (+) post of booster battery.

Step 3 Connect negative (-) cable clamp (Black or Green) to negative (-) post of booster battery.

Step 4 Connect other negative (-) cable clamp to a metal ground on the stalled vehicle away from the dead battery.

h. Before attempting to start the stalled vehicle, make certain the booster vehicle is running to prevent excessive drain of the booster battery.

i. Remove cable clamps in the reverse sequence to the connecting instructions outlined in "g.", Steps 1 through 4.

j. Caution:

1. Cable clamps may become extremely hot while attempting to start the stalled vehicle; therefore, care should be taken in removing the cables to prevent serious burns.

2. Do not let the cable clamps come in contact with each other when a clamp is connected to a battery, because a spark could cause a battery to explode or burn the individual handling the cables.

3.22 Use extreme caution when removing the radiator cap from equipment or vehicles when the motor is hot. Place a rag over the radiator cap during the loosening and removal to prevent injury from spray caused by pressure build-up.

3.23 RESERVED

3.24 All Department-owned cars and trucks shall be equipped with fully stocked first aid kits.

3.25 Vehicle interiors shall be kept free of objects and debris that could become airborne during an abrupt stop or collision. Tools and materials shall be secured to prevent movement when transported in the same compartment with employees.

3.26 RESERVED

4.0 FIRE PREVENTION

4.1 Do not smoke where flammable or combustible liquids are being handled, stored or used.

4.2 Never use gasoline to start fires.

4.3 Use commercial cleaner to wash parts and equipment – never use gasoline.

4.4 Only store or transport gasoline in approved containers. All containers shall be properly labeled.

4.5 All employee-occupied buildings shall be adequately equipped with wall mounted fire extinguishers. The fire extinguisher shall be selected and placed according to hazards.

a. All fire extinguishers shall be visually inspected every 30 days by the employee in charge to:

- 1.** Ensure that they are in their designated places and easily accessible.
- 2.** Ensure they have not been actuated or tampered with.
- 3.** Detect any obvious physical or chemical damage.

b. All fire extinguishers are to be:

- 1.** Serviced at least once each year by an approved service agency.
- 2.** Tagged to show date of last inspection and/or recharge.
- 3.** Labeled to provide immediate identification as to its type.

4.6 Vehicles and mobile equipment which carry fire extinguishers shall have extinguishers: (1) bracket mounted, (2) located to be accessible, and (3) periodically inspected. (See Section 4.5 for inspection schedule and requirements.)

4.7 If a fire extinguisher has been used or damaged, report the use or damage immediately to the individual in charge so that it will be replaced by a serviceable unit.

4.8 “**No Smoking**” signs shall be conspicuously posted in areas where combustible and flammable materials are stored and distributed. This warning shall be strictly enforced.

4.9 Do not throw matches or cigarette butts directly into waste baskets. Use ash trays. Check ash trays for any signs of smoldering materials before emptying into trash containers.

4.10 When a fire is discovered, an employee should do three things:

- a.** Turn in the alarm (no matter how small the fire appears to be).
- b.** Alert fellow workers.
- c.** If trained, use the proper fire fighting equipment.

4.11 Periodic fire drills shall be conducted. In case of fire, all personnel shall be evacuated to an area of safety and away from firefighters' area of activity.

4.12 Evacuation plans shall be reviewed with all employees and floor plans indicating evacuation routes shall be posted in appropriate locations.

4.13 All employees must refrain from having open flames within their offices or cubicles.

PART II - OFFICE ACTIVITIES

5.0 TRIPPING HAZARDS, SLIPS AND FALLS

5.1 Extension and office equipment cords shall be in good condition and secured.

5.2 Chairs or other inappropriate equipment shall not be used as ladders. Use step ladders, step stools or a similar device in good repair for reaching high places.

5.3 Be alert for slipping hazards, such as freshly mopped floors and stairs. Wet or slippery stairs and floors shall be reported immediately.

5.4 Use handrails when going up or down stairways and escalators.

5.5 When going around corners, be alert for other employees, hand carts, hand trucks, opening doors and other objects.

5.6 Always keep file drawers and desk drawers closed when not in use.

5.7 Open doors with caution, another person may be approaching from the other side.

5.8 All chairs and equipment shall be kept in good repair; report defects immediately.

5.9 Remove objects such as pencils, paper clips and rubber bands from floors whenever noticed, as they may contribute to falls resulting in serious injury.

6.0 HOUSEKEEPING AND BUILDING MAINTENANCE

6.1 Broken glass and other sharp objects shall be wrapped in heavy paper, marked "broken glass" or "sharp objects" and placed beside, not in, the waste basket.

6.2 Aisles, halls and stairways shall be kept clear of objects that may cause employees to fall.

6.3 Reserved

6.4 Keep exits clear at all times. Fire doors shall not be blocked, left open, or made inoperative at any time.

6.5 Good housekeeping practices shall be followed at all times, keeping work and storage areas clean and orderly.

6.6 Precautionary measures shall be taken when disposing of used pressurized containers. Follow the instructions given on the containers.

7.0 GENERAL OFFICE SAFETY (also see Section 5.0)

7.1 Do not open more than one drawer of a file cabinet at any time.

7.2 Distribute weight in file cabinets to prevent top-heavy conditions.

7.3 When emptying drawers of file cabinets, empty top drawers first.

7.4 Electric fans and other equipment with exposed rotating parts shall be equipped with proper guarding. (Fans shall be guarded with 1/2" mesh or finer to prevent fingers from coming into contact with blades.)

7.5 Never lean back in a fixed leg chair to the extent that a leg is raised off the floor.

7.6 Avoid sitting on the front edge of a swivel-base chair and make certain the chair will not roll or tip as you sit.

7.7 To avoid hand injuries, care should be taken when handling files secured with metal fasteners.

7.8 Glass desk tops shall be free of breaks and sharp edges.

7.9 When cleaning, avoid over-spray of furniture polish, window cleaner, etc. to prevent creating slick areas on the floor.

PART III: FIELD ACTIVITIES, SHOPS AND STORAGES

All employees shall be trained on each specific piece of equipment before operating.

8.0 TRUCKS AND MOBILE EQUIPMENT (also see Section 3.0)

8.1 Riding on the outside of equipment is prohibited except where provision is made for the operator or others while performing an operation for which the equipment is designed.

8.2 Do not mount or dismount moving vehicles or equipment. When mounting or dismounting stationary or parked vehicles or equipment maintain three point contact by facing the cab and using handholds and ladders to prevent injury from slips and falls.

8.3 To prevent backing accidents:

- a.** Select parking location to eliminate backing maneuvers.
- b.** Avoid long backing movements.
- c.** Do not leave unattended vehicles parked outside work bay doors.

8.4 Operators shall not operate vehicles or mobile equipment in reverse unless they are certain the backing movement can be made safely.

- a.** When the vision to the rear is limited and a fellow employee is available, such employee shall be utilized by the operator to assist with the backing movement. The person assisting the operator shall take a position outside the vehicle so as not to be exposed to oncoming traffic or the backing vehicle.
- b.** It is the driver's responsibility to perform a circle of safety - walk to the rear of the vehicle and look before backing.

8.5 When traveling in traffic, do not operate the vehicle at such a slow rate of speed as to cause an accumulation of other vehicles behind. If a slow rate of

speed is unavoidable, occasionally pull off the road and wait in order that traffic may clear.

8.6 Use red/orange flags (red light or lantern at night that is visible for a minimum of 500 feet to the sides and rear) to mark the end of any loaded material extending four (4) feet beyond the rear of the bed or body of the vehicle.

8.7 The driver shall be responsible for the security of the load and/or the equipment towed.

8.8 Trucks shall be loaded in such a way that the cargo will not spill or fall off the truck. All ledges and rubrails shall be free of stones and other material that could drop off and hit other property or persons.

8.9 Do not stand on or within two (2) feet of an open traffic lane to talk with the driver of a vehicle parked on the road shoulder.

8.10 A truck may be operated with the end-gate or liftgate in the open or horizontal position only when necessary for load or work situations.

8.11 Department employees must comply with posted minimum speed limits except under the following conditions:

- a. When performing slow moving operations.
- b. When reduced speed is necessary for safe operation of the vehicle.
- c. When working on the roadway surface with the protection of signs, barricades, escort vehicles and/or flaggers.

8.12 Vehicles transporting hazardous materials must display applicable placards and comply with State and federal laws.

8.13 When stopped, parked, or traveling on the shoulder, as much clearance as possible shall be maintained between the edge of the pavement and the near side of the vehicle. The vehicle's emergency lighting shall be used when vehicles are located on or within 15 feet of the pavement edge.

8.14 All vehicles, equipment, workers (except flaggers) and their activities are restricted at all times to one side of the pavement unless otherwise authorized. Avoid stopping on the shoulder across the roadway from another vehicle and/or operation.

8.15 RESERVED

8.16 STEPHENSON COUNTY HIGHWAY DEPARTMENT ENERGY CONTROL PROGRAM (Lockout/Tagout/Blockout)

This standard covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy could cause injury to employees. Please refer to the complete Energy Control Program at the back of this book.

8.17 Fusees are effective for emergency warning at accident scenes and other hazardous locations. Those who may not be familiar with ground level activities, must be aware of the following:

- a. Fusees have a limited burning time; therefore, if an emergency exists beyond the burning time of the fusees, additional fusees or other warning devices, such as reflectorized channel devices, must be set.
- b. The molten sulfur from a burning fusee can burn through a heavy leather shoe; therefore, extreme care must be taken when handling a lit fusee.
- c. To minimize the possibility of fire and/or explosion, never place lit fusees near the vehicles at an accident scene, or other flammable materials.

8.18 Strobe and/or revolving warning lights on vehicles so equipped must be used during the following operations:

- a. When plowing snow or spreading chemicals and/or abrasives.
- b. When traveling with mounted snowplows or other over-width attachments.
- c. When performing slow moving operations.
- d. When temporarily stopped on roadway surface or shoulder.
- e. During an emergency operation.
- f. When towing equipment.

8.19 Always use the ladder mounted on the truck to gain access to the bed; never climb up or down the outside of a truck using the tire as a ladder.

8.20 Select parking locations for Department vehicles and equipment that will not hide traffic signs or signals.

8.21 NO ONE shall ride in or work out of an end loader bucket at any time.

8.22 When changing tires on motor vehicles and equipment, set emergency brake and use blocks to prevent vehicle from rolling and do not stand or work on the pavement.

8.23 Clean spilled paint and glass beads from floors, truck beds and equipment to prevent slips and falls.

8.24 Crews assigned to carry flammable materials other than the fuel supply shall hold a fire drill which shall include the simulated use of fire extinguishers at least four times each season.

8.25 All trucks shall have the proper lights and reflectors, in accordance with ICC regulations and Department policy.

8.26 All trucks shall have the proper emergency warning kits.

8.27 Take all precautions necessary to assure that no one, especially children, can start, operate or cause any movement of parked equipment.

8.28 When towing equipment or a trailer, in addition to securing the hooking device, the driver of the vehicle shall make certain that two (2) safety chains are securely attached or hooked to the towing vehicle and towed unit.

8.29 Equipment designed to be towed, having light systems installed, shall be properly electrically connected to the towing vehicle and the lights shall be operational before moving onto the highway.

8.30 When leaving equipment unattended at any location, block all blades, buckets, booms, beds, plows and devices or lower to down position. If in an unsecured area, remove ignition or starter switch key.

8.31 Reserved

8.32 Reserved

8.33 Reserved

8.34 Do not stand or walk under suspended loads or so near a cable under tension that you can be struck should the cable break or load shift.

8.35 Never reach across or under the moving belt of a force feed loader or any conveyor.

8.36 The following precautions are to be taken during field fueling of mobile equipment, non-mobile equipment and gasoline powered tools:

- a. Only approved fuel containers properly labeled shall be used.
- b. Gasoline powered tools shall be moved at least 10 feet from the fueling area before starting.
- c. Smoking and open flames shall be forbidden where fuel is hauled/stored.
- d. Caution shall be taken so that fuel is not spilled and all traces of fuel and oil shall be removed from non-mobile equipment and gasoline powered tools before starting.
- e. Empty the fuel tank before storing gasoline powered tools for more than one month.
- f. Ensure the manifold is cool and make certain the pouring nozzle is in contact with the fill pipe.

8.37 Always shut off the engine prior to removing obstacles or while making repairs, adjustments and servicing.

8.38 Never attempt to start a tractor with a defective safety starter system. Tractors and other off road motor vehicles shall be inspected at least annually to ensure the safety starter system functions properly.

8.39 Never start a tractor unless seated in the operator's seat.

8.40 All culvert headwall openings and other hazards shall be marked with a post to indicate such hazards.

8.41 A slow moving vehicle emblem shall be properly displayed on all mobile equipment designed to travel less than 25 mph so traffic to the rear may see the emblem.

9.0 SHOPS AND STORAGES

9.1 Never idle (operate, adjust or repair) gasoline or diesel powered equipment in a closed area without adequate ventilation or facilities for removing exhaust fumes.

9.2 Horseplay is prohibited.

9.3 Use only electrically powered tools and equipment which are grounded or are double insulated. Use only 3-wire extension cords in good condition.

9.4 Before changing attachments, repairing or adjusting electrically or pneumatically powered tools and/or equipment, they shall be unplugged or disconnected. Lock-out and tag electrical breaker box if directly wired.

9.5 When operating a power saw, observe the following precautions:

- a. All guards shall be in place.
- b. Use only sharp blades in good repair.
- c. Wear eye and/or face protection.
- d. Wear hearing protection.
- e. Wear respiratory equipment when appropriate.
- f. Table Saw - Use a stick to push narrow or short pieces of lumber through power saws when making a rip cut.

9.6 The following precautions shall be observed when operating a grinder:

- a. Pedestal and bench grinders shall be securely mounted.
- b. Make certain the grinding wheels are tight on the shaft.
- c. Check grinding wheels for cracks, chips, uneven wear or other defects. If wheel is cracked, replace it. If uneven or chipped, dress with a dressing wheel or replace.
- d. Use only grinding wheels designed for the size and speed of the grinder.
- e. Tool rests and tongue guards shall be properly adjusted, not more than 1/8" and 1/4" from grinding wheel, respectively.
- f. Wheel guards shall be in place.
- g. Do not use side of wheel for grinding.
- h. Even though grinder is equipped with fixed face shield, eye protection shall also be worn.
- i. Do not grind materials that will plug the grinding wheel or produce irritating or toxic fumes and particulates.

9.7 Rings and loose jewelry shall be removed before operating rotating or oscillating power tools. Loose clothing and long hair shall be tied back before operating the aforementioned equipment.

9.8 All employee-occupied buildings shall have first aid kits which shall be stocked with the minimum requirements for the number of people working in and around that particular building.

9.9 Good housekeeping practices shall be followed at all times.

9.10 Tools shall not be left lying where employees are likely to trip or fall over them.

9.11 Used oily and paint rags shall be placed in an approved metal container equipped with a self closing lid

9.12 Precautionary measures shall be taken when disposing of used pressurized containers. Follow the instructions given on the container. Never dispose of pressurized containers in a fire.

9.13 Spilled substances and materials shall be cleaned from floors and loading ramps immediately to prevent slips and falls.

9.14 Compressed air shall not be used for cleaning purposes, except when reduced to less than 30 PSI and then only with effective chip guarding. Personal protective equipment, such as eye protection, must be worn by the operator and others working in the vicinity of the cleaning operation.

9.15 After mounting a tire on a split two piece rim, a safety cage or other safety devices shall be used when inflating tires for truck or off-road equipment.

10.0 WELDING AND TORCH USE

10.1 Reserved

10.2 All employees in the immediate vicinity of a welding operation should wear flash goggles. All other employees not aiding the operator should remain a safe distance from the welding operation and avoid eye contact with arc flashes.

10.3 Welders and torch users shall use personal protective equipment and take the following precautions:

- a.** Always wear a welding helmet and eye protection approved for the kind of operation being performed.

- b. Outer clothing should be woolen or cotton. Avoid use of synthetic clothing; especially polyester, rayon or nylon because they readily ignite or melt. All clothing should be free from grease or oil.
- c. Adjust clothing to keep out flying sparks and slag, keeping sleeves and collars buttoned. Front pockets and cuffs should be removed.
- d. Hands and forearms should be protected with fire resistant gauntlet gloves.
- e. For lengthy cutting and welding, fire resistant aprons, leggings, and high boots should be used.

10.4 Cutting and welding operations, whether in confined spaces or outdoors, shall be performed with ventilation and/or appropriate respiratory protection sufficient to prevent contamination of the worker's breathing air from metal fumes and gaseous residues.

10.5 Should it be necessary to weld, cut, solder or do any hot work on a tank or container previously used to hold gasoline, other flammable materials or toxic substances, the worker shall make certain all residues and vapors have been removed from the tank or container.

10.6 Before cutting or heating is done on any surface covered by a protective coating (including galvanizing), the flammability and toxicity of the coating should be determined and appropriate safety measures taken.

10.7 The following precautions must be observed when using gas welders and torches:

- a. Gas cylinders must be secured in an upright position.
- b. Never rapidly open valves on welding gas cylinders.
- c. Gas valves and regulators shall be turned off when not in use.
- d. Never leave lighted welding or cutting torches unattended.

10.8 Take special care to protect gas hoses and/or electric welder cables.

11.0 TOOLS—POWER AND HAND

11.1 All air hammer operators shall wear foot protection capable of providing protection to the toes and metatarsal arch.

11.2 Power tools shall not be left running unattended.

11.3 When working with chisels, star drills and/or wedges, the following shall be observed:

- a. Maintain sharp cutting edge.
- b. Striking surface should not be mushroomed or have overhang (dress or replace).
- c. Use only tools that are free of cracks or checks.
- d. All employees required to face the work shall wear eye protection.
- e. Wood chisels shall have a tight handle and sharp cutting edge.

11.4 Observe the following when using lift jacks:

- a. Make certain lift jacks are properly placed before making lift.
- b. Make certain the lifting capacity of jack is adequate for load to be raised.
- c. Inspect the jack to ensure proper working condition.
- d. Do not lean over a jack handle while the jack is under load.
- e. Removable jack handles shall be removed when lifting operations are completed.
- f. When working under a raised load, use blocks or cribbing to support the load.

11.5 Handles, sockets and rivets of all shovels shall be smooth and securely fastened. Shovels shall never be used in place of a lever or pry bar.

11.6 Tools shall not be left lying where employees are likely to trip or fall over them.

11.7 Use tools only for their intended purpose.

11.8 Faulty, damaged or broken tools shall be kept separate until repaired or properly disposed of.

11.9 Axes, hammers, picks and sledges shall have tight and securely wedged smooth straight-grained handles. All such tools with battered, mushroomed or cracked striking faces or taped handles shall not be used.

11.10 While using a wrench, take a position to prevent striking an adjacent object should the nut release suddenly or the wrench slip.

11.11 Powder-actuated hand tools, such as “Ramset” type guns, shall be used only by qualified operators who have been instructed in the safety precautions and limitations recommended by the manufacturer.

11.12 Proper spacing of workers shall be maintained at all times; especially when using hand tools, since it is not uncommon for workers to be injured by a tool in the hands of a fellow worker.

11.13 Do not operate any equipment until all protective guards are in place and functioning properly.

12.0 WORKSITE PROTECTION AND FLAGGING TRAFFIC

12.1 Requirements for worksite protection and flagging traffic while conducting work on highways and streets open to traffic are found in the following publications:

Illinois Manual on Uniform Traffic Control Devices for Streets and Highways, Part IV

Highway Design Standards for Traffic Control, Section 700

Flaggers’ Handbook

Standard Specifications for Road and Bridge Construction

13.0 ASPHALT WORK

13.1 When using distributors or asphalt kettles, the following must be observed:

- a.** Do not use the unit until you have been instructed in its proper operation.
- b.** Do not light burner with a match held in the hand. Use a stiff wire or stick lighting torch.
- c.** The drum of asphalt shall be punctured on sides and ends to prevent explosions. Lowering chains shall be used to add a full drum of asphalt to a heating kettle.
- d.** To prevent hot asphalt from being splashed, do not throw chunks of asphalt into heated kettle.

- e. Do not heat asphalt when there is evidence of accumulated moisture in the asphalt, kettle or distributor tank.
- f. Do not allow the level of the heated asphalt to get below the heating flues or coils.
- g. Never operate asphalt heating equipment with defective temperature gauges, safety valves or thermocouples.
- h. Never turn the flame so low in an asphalt heating device that there will be danger of the flame being extinguished, which will permit gas to accumulate.
- i. To prevent fire, do not heat asphalt material beyond the recommended maximum working temperature for the type of asphalt being heated.
- j. To minimize the possibility of fire, clean excess asphalt from heating kettles and distributors.

13.2 Pavement cracks and joints are to be poured in a direction moving from the center-line to the shoulder. Never cross center-line or lane-line into an open traffic lane.

13.3 When using hot asphalt, employees shall wear garments that cover the body, tight fitting around the neck, sleeves reaching over the wrists and trousers over the shoe tops. Gloves (other than gauntlet type) shall be worn continuously.

13.4 If burner flame has extinguished with valve in "on" position, vent the flue (firewell) before relighting.

13.5 When adding material to an asphalt heating kettle, always leave five (5) to six (6) inches from the top unfilled to minimize the possibility of spillage and to allow space for expansion when heating.

13.6 To prevent hot asphalt from splashing on employees when attaching or detaching a two-wheeled kettle or distributor filled with hot asphalt to or from a truck, have sufficient assistance to prevent the unit from tipping.

13.7 Do not use water to extinguish an asphalt kettle fire. Lower the lid and use a dry chemical fire extinguisher or loose sand or dirt to smother the fire.

13.8 To prevent spilling hot asphalt, do not fill the pouring can over three fourths full.

13.9 Do not attempt to clean the spout of a pouring can while the can contains hot asphalt, unless special tools are provided.

13.10 Caution should be taken during crack pouring operations so that hot asphalt will not be blown onto yourself or fellow employees.

13.11 When commercial trucks hauling flammable liquids are directed past hole drying and bump burning operations, the burner flame shall be directed away from the passing truck.

13.12 Caps shall be placed on L.P. gas containers at all times, except when the containers are properly connected to a burner.

14.0 VEGETATION CONTROL

14.1 Mowing operators shall be required to wear the following items of Personal Protective Equipment:

- a. Long pants
- b. Shirts
- c. Work boots
- d. Safety vests
- e. Eye protection.
- f. Hearing protection.

14.2 Make daily inspection of rotary mower guards, chains, shields, blades and bolts in order to ensure maximum protection to the tractor operator and the traveling public. Prompt replacement of missing or defective guards, shields and blades shall be made.

14.3 Never operate a tractor mower on a slope that exceeds manufacturer recommendations or with the sickle bar operating on the down slope side.

14.4 Drivers of tractor mowers shall operate at all times in such a manner as not to endanger traffic, being constantly on the alert for a motor vehicle which might unexpectedly leave the roadway and cause a collision. In certain areas, such as on shoulders having guard fences, slopes, back of gutters and shoulders of high fills, it is permissible for the mower to operate on the pavement in the direction of traffic movements in mowing the first swath. Operators are always required to wear the seatbelt when operating tractors.

14.5 Avoid traffic by driving on the shoulder with tractor mower when possible.

14.6 Never use rotary mower blades that have been heated or welded.

14.7 A slow moving vehicle emblem shall be properly mounted so as not to obstruct the operator's vision to the rear.

14.8 Tractor mower operators are required to wear hearing protection in compliance with OSHA regulations.

14.9 Emergency lighting shall be mounted on tractor mowers in accordance with current Department policy.

14.10 Tractor mower operators shall allow sufficient clearance when mowing around signs.

14.11 To minimize the throwing of debris by rotary mowers, police the right of way at least prior to the first mowing of the season. **CAUTION:** Pressurized cans must be picked up by hand.

14.12 Never mow with front end loader bucket and/or bucket arms mounted on the tractor mower.

14.13 Mower operators shall let traffic clear before turning onto the pavement. When necessary to cross a bridge, the mower operator shall first raise the sickle bar or rotary mower and then proceed across the bridge.

14.14 When removing growth or foreign objects from the sickle bar or rotary mower housing, always stop the tractor, turn off the ignition, put the tractor transmission in low or reverse gear and wait until the rotary mower blade has stopped. To prevent the amputation of fingers, use a stick or similar object to remove foreign material from the sickle bar or movable parts.

14.15 Operators of rotary mowers must raise the mower when passing over side roads, intersections and driveways to reduce the danger of the mower throwing foreign objects. Adjust mower to recommended cutting height and mow in such a manner as not to scalp.

14.16 All weed and brush control chemicals (herbicides) shall be mixed and/or applied only by employees authorized, instructed and licensed in their use.

14.17 Employees who are susceptible to weed poisoning and are required to work in areas of dense vegetation should work with extreme caution.

14.18 Employees engaged in field activities should learn to recognize and avoid contact with poisonous vegetation such as poison ivy, poison oak and poison sumac.

14.19 Employees engaged in cutting vegetation with hand sickles or in other work requiring exposure to high weeds or brush shall cleanse parts of body exposed with a strong soap solution after completing the days work in order to lessen the chances of weed poisoning. Contaminated clothing should be laundered before re-use.

14.20 Avoid direct contact with, and the breathing of, dust or vapors of weed and brush control chemicals (herbicides). Always wash hands, arms and face with a strong soap solution after the use of such chemicals before eating. (See Part IV.)

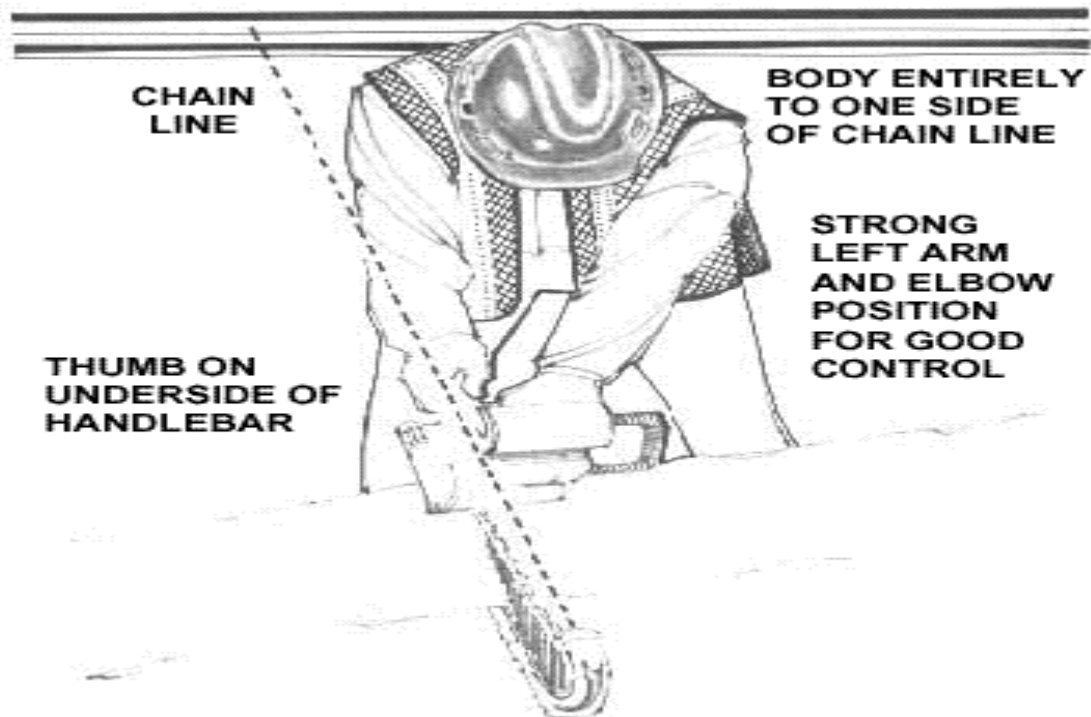
14.21 Operators of tractor mowers shall be alert and watch for hazards such as hidden logs, stumps, right of way markers, culvert headwalls, rocks, holes or dirt piles that can cause a tractor to overturn or stall. When a hazard is observed, slow down and proceed with caution. Hazards should be removed or marked. (See Section 8.40.)

14.22 Employees engaged in cutting vegetation with hand scythes, sickles, weed eaters, machetes and brush hooks shall be spaced to prevent fellow employees from being struck by such tools.

14.23 Chain saw operators shall be required to wear the following items of Personal Protective Equipment:

- g.** Eye protection.
- h.** Close-fitting, non-slip gloves in good repair.
- i.** Hard hat/cap.
- j.** Hearing protection.
- k.** Safety toe shoes.
- l.** Leather chaps or nylon chaps designed and manufactured specifically for chain saw use.

14.24 Employees engaged in tree trimming shall be constantly on the alert for power lines.



14.25 Supervisors must be certain that employees required to operate a chain saw are properly trained in its use. The manufacturer's operation manual shall be reviewed with the employee before the operation starts.

15.0 BRIDGE REPAIRS AND INSPECTIONS (also see Section 12.0)

15.1 All equipment used by bridge repair and inspection crews shall be inspected at frequent intervals. Ropes, blocks, hooks and other swinging scaffold equipment shall be maintained in a safe condition at all times. (See Section 16.0 covering the use of a ladder.)

15.2 Bridge repair and inspection crews shall use safety harnesses and life lines when conditions warrant their use.

15.3 Repair and inspection of bridges shall be made from safe and properly installed ladders, scaffolds, platforms, walkways and aerial buckets.

15.4 Employees engaged in bridge repairs and inspection over water (other than on the deck surface) shall be provided with U.S. Coast Guard approved personal floatation devices (PFD).

15.5 When operating, riding or working in boats, U.S. Coast Guard approved PFD and other safety equipment shall be worn when working alone or available when two (2) or more are in the crew.

15.6 In the operation of boom equipment, use signals and communications that are easily understood. The signalman and operator shall review the signals before beginning operations. (See Section 22.6.)

15.7 If any rope lifeline or related equipment becomes wet, it shall be dried after being used in order to prevent deterioration. All ropes shall be checked for worn or broken strands prior to use.

15.8 When using lift jacks, see Section 11.4.

15.9 Reserved

16.0 LADDERS AND SCAFFOLDS (refer to 5.2)

16.1 Ladders and scaffolds shall be used per manufacturer recommendations.

16.2 Never use metallic ladders when making electrical repairs or when working near electrical lines and power sources.

16.3 Always face the ladder with climbing up or down, and always wear sturdy safety-toe shoes with a raised heel to avoid slipping when climbing a ladder.

16.4 Use linseed oil or other clear preservative to preserve wooden ladders. Do not paint ladders because paint covers defects.

16.5 Do not leave tools or materials on top of ladders or scaffolds where they may be knocked off and injure someone below.

16.6 Ladders in need of repair shall not be used. Those beyond repair shall be disposed of according to current policies and procedures.

16.7 Never climb a ladder while carrying tools or materials in your hands. Wear a tool belt or use a lift to raise and lower tools so that both hands are free to climb the ladder.

16.8 While working from a ladder, never reach too far out in any direction.

16.9 Place bottom of ladder out from the surface of which such ladder leans at a distance equal to approximately one-fourth the ladder length.

16.10 All straight ladders shall be equipped with non-slip safety “shoes” or spikes.

16.11 No ladder shall be used to gain access to a roof or higher level unless the top of the ladder shall extend at least three (3) feet above the point of support at eave, gutter, roof or surface line.

16.12 Never climb higher than the third rung from the top on straight or extension ladders or the second tread from the top on stepladders.

16.13 Tractor/end loader buckets, plows, forklift forks or other inappropriate equipment shall not be used as ladders. All ladders shall be appropriate for the task and in good repair.

17.0 GRADING OPERATIONS

17.1 In the operation of a scraper, motor grader or dozer, use signals that are easily understood. The signalman and operator shall review the signals before beginning operations. Refer to the illustrations on the following page.

17.2 Motor graders shall be equipped with a slow moving vehicle emblem.

Mobile Heavy Equipment Hand Signals



18.0 SNOW AND ICE CONTROL OPERATIONS

18.1 Review operating instructions (Operator's Manual) for all machines and equipment and conduct all inspections per Department policies and/or manufacturer's recommendations.

18.2 All lights, windows, mirrors and wiper blades shall be frequently cleaned during snow and ice control operations.

18.3 Always wear gloves and eye protection while handling snow fence, tie wires and brace wires. When stretching and tying snow fence, stand on the post side, as it is not uncommon for the wire to break and the fence to roll back.

18.4 Refer to MSDSs when working with any materials/chemicals used for snow/ice removal from roadways.

18.5 Do not use fingers to align holes when mounting snowplow blades, spreaders or other attachments. Use a punch, drift pin or similar device to align holes.

18.6 When working in adverse weather conditions, dress appropriately.

19.0 RADIATION SAFETY

19.1 All equipment containing radioactive material shall be inspected and meet all current federal and State standards.

20.0 SURVEY OPERATIONS

20.1 Working on or near a pavement open to traffic requires advance signing and the placement of traffic control devices. Survey crews exposed to traffic hazards that cannot be addressed with existing traffic control plans should discuss with the County Engineer for special traffic and road conditions.

20.2 Working on pavement open to traffic requires constant vigilance. Within each crew, at least one member should be trained as a flagger.

20.3 Eye protection is to be worn while clearing the sight line of vegetation.

20.4 Pressurized spray cans stored in the passenger compartment of a vehicle must be placed in a container out of direct sunlight.

20.5 Surveying and measurements in the vicinity of power lines should be made with clean, dry, non-conductive instruments and non-metallic cloth tapes.

20.6 In snake-infested areas the survey crew should be familiar with the first aid treatment of snake bites and, during survey planning, determine the nearest medical facility where antivenom is available.

21.0 TRENCHING, EXCAVATING AND UNDERGROUND FACILITIES

21.1 No one shall work in trenches or excavations five (5) feet or deeper unless OSHA Standards pertaining to protective procedures are followed.

- a. Sides and banks of trenches in excess of five (5) feet shall be shored, sheeted, braced or laid back to a stable slope.
- b. Trenches less than five (5) feet in depth shall also be effectively protected when examination of the soil indicates hazardous movement may be expected.
- c. When employees are required to be in trenches, an adequate means of exit, such as ladders or steps shall be provided and located within 25 feet of the workers.

21.2 A rescue plan must be prepared for use in case of an emergency.

21.3 Open flames, lighted cigars, cigarettes and pipes shall not be brought into or near an open manhole.

21.4 Neither torches nor spark producing devices shall be brought into or near an open manhole or other confined space opening until it has been determined that no fire or explosive hazards exist.

21.5 Be alert for underground utility services when digging, trenching, drilling or driving posts. If the underground utility cannot be located, check with all utility companies in the area, or with J.U.L.I.E. (800/892-0123) before commencing work.

21.6 STEPHENSON COUNTY HIGHWAY DEPARTMENT CONFINED SPACE ENTRY POLICY

Due to liability concerns, all employees are prohibited from entering any confined space. If entry into a confined space is necessary, it will be done by outsourcing this to individuals trained and certified to perform confined space entry.

22.0 HANDLING OF SUPPLIES AND MATERIALS

22.1 Lifting shall be done with the legs, arms and shoulders, **NOT WITH THE BACK**. Keep the back as nearly perpendicular with the ground as possible and shift feet to avoid twisting the back. (Obtain manual or mechanical assistance when objects are awkward or too heavy to handle by oneself.)

22.2 When using hooks for loading material, be sure the hook is equipped with a safety latch. Be careful not to catch hands between the hook and the load.

22.3 When using a tag line to control the load, stand clear of the load when it is being moved.

22.4 Employees handling materials such as reinforcing steel, cables, castings and rough lumber shall wear gloves.

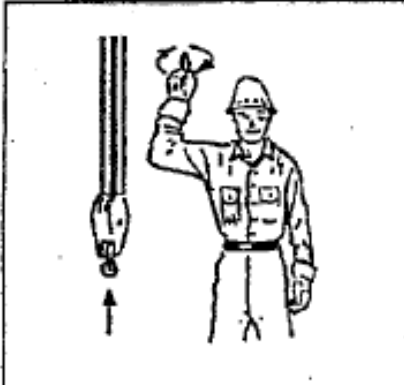
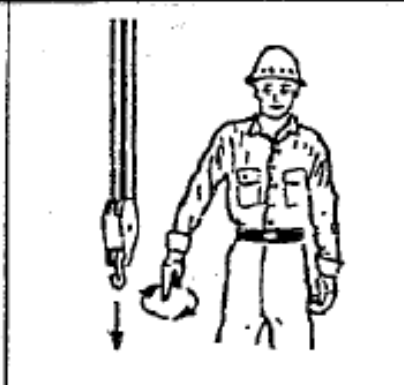

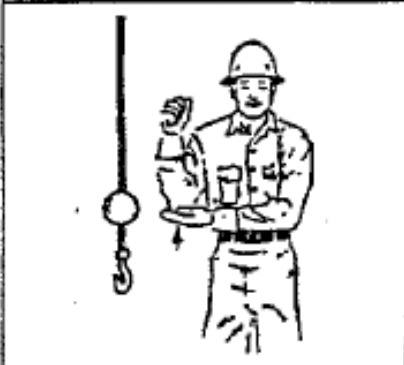
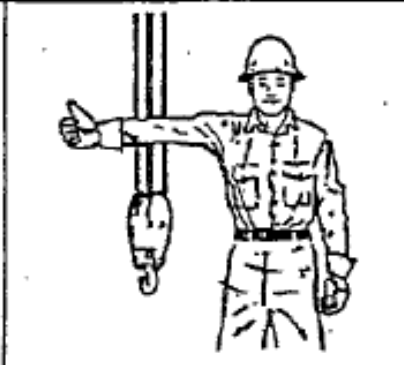
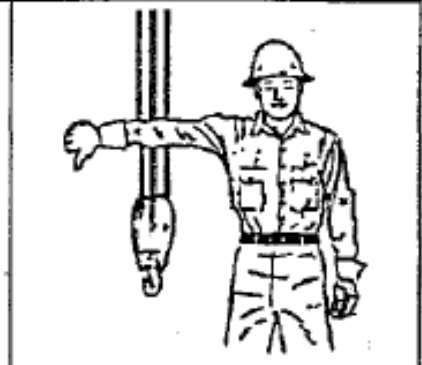

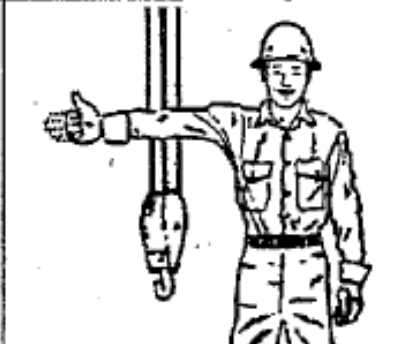
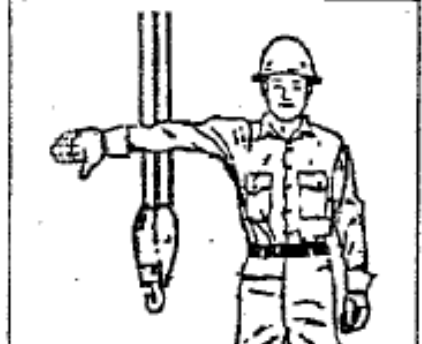
22.5 When making a 2-person lift, one person should be designated to say when the load is to be lifted and when the load is to be set down.

22.6 In the operation of a crane or other lifting equipment, use signals that are easily understood. The signalman and operator shall review the signals before beginning operations.

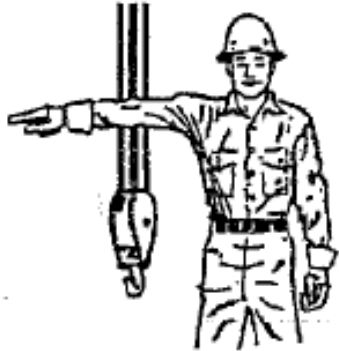
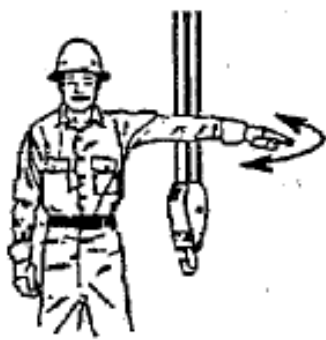
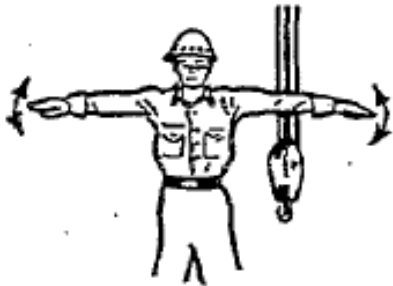
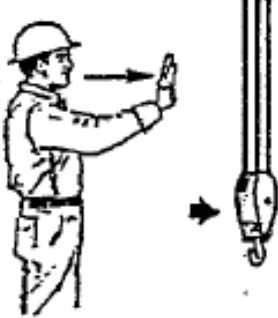

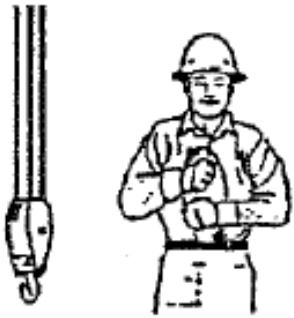

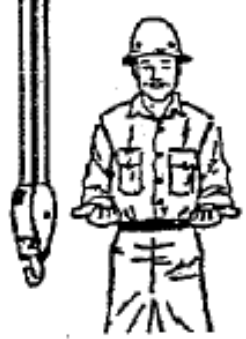

- a. Only one person can be the signalman.
- b. Make sure the operator can see the signalman and acknowledge the signal given.
- c. Signalmen must watch the load. The operator is watching you.
- d. Don't swing the load over other workmen. Warn them to keep out of the way.

(See illustrations on the following two pages.)

CRANE SIGNALS

 <p data-bbox="245 688 646 772">HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circles.</p>	 <p data-bbox="646 688 1047 772">LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circles.</p>	 <p data-bbox="1047 688 1466 772">USE MAIN HOIST. Tap fist on head, then use regular signals.</p>
 <p data-bbox="245 1140 646 1213">USE WHIPLINE (Auxiliary Hoist). Tap elbow with one hand, then use regular signals.</p>	 <p data-bbox="646 1140 1047 1213">RAISE BOOM. Extend arm, fingers closed, thumb pointing upward.</p>	 <p data-bbox="1047 1140 1466 1213">LOWER BOOM. Extend arm, fingers closed, thumb pointing downward.</p>
 <p data-bbox="245 1560 646 1703">MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless above hand giving the motion signal. (Hoist slowly shown as example.)</p>	 <p data-bbox="646 1560 1047 1703">RAISE THE BOOM AND LOWER THE LOAD. With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.</p>	 <p data-bbox="1047 1560 1466 1703">LOWER THE BOOM AND RAISE THE LOAD. With arm extended, thumb pointing down, flex fingers in and out as long as load movement is desired.</p>

CRANE SIGNALS - CONTINUED

 <p>SWING. Extend arm, point with finger in direction of swing of boom.</p>	 <p>STOP. Extend arm, palm down; move arm back and forth horizontally.</p>	 <p>EMERGENCY STOP. Extend both arms, palms down, and move arms back and forth horizontally.</p>
 <p>TRAVEL. Extend arm forward, hand open and slightly raised; make pushing motion in direction of travel.</p>	 <p>DOG EVERYTHING. Clasp hands in front of body.</p>	 <p>TRAVEL (Both Tracks). Use both fists in front of body, making a circular motion about each other, indicating direction of travel, forward or backward (for land cranes only).</p>
 <p>TRAVEL (One Side Track). Lock the track on side indicated by raised fist. Travel opposite track indicated by circular motion of other fist; rotated vertically in front of body (for land cranes only).</p>	 <p>EXTEND BOOM (Telescoping Booms). Hold both fists in front of body, thumbs pointing outward.</p>	 <p>RETRACT BOOM (Telescoping Booms). Hold both fists in front of body, thumbs pointing toward each other.</p>

23.0 OXYGEN, ACETYLENE, L.P. GAS AND EXPLOSIVES

23.1 All Liquified Petroleum Gas (L.P.G.), acetylene and oxygen gas cylinders, whether empty or full, shall be securely fastened at all times in an upright position to prevent falling. The cylinder valves shall be turned off when the cylinders are not being utilized.

23.2 Spare oxygen, acetylene and L.P.G. cylinders shall be stored as recommended by the manufacturer. Empty cylinders shall be so marked or tagged and stored separate from full units. Oxidizers (oxygen) and flammable gases (acetylene and propane) shall be stored separately.

23.3 Caps shall be placed on cylinders at all times, except when the cylinders are properly connected to a burner.

23.4 No explosives are to be secured, stored or used by county highway department employees.

24.0 EMPLOYEE PERSONAL PROTECTION

24.1 All employees engaged in activities on or within 25 feet of a pavement open to traffic, shall wear high visibility vests or approved high visibility outer garments. Flaggers shall wear high visibility vests at all times (see Worksite Protection Manual and/or Flagger Handbook). Exception is made for employees in vehicles or self propelled mobile equipment.

24.2 High visibility headwear is recommended because it is considered an important accessory and complements the overall visibility of the wearer. High visibility headwear enhances visibility to the head of a moving worker in daylight and helps define the shape of the human form during nighttime exposure.

a. Hard Hats/Caps

All supervisors are mandated to wear, and require their employees to wear, protective hard hats/caps when they are in an area where there is potential for injury from falling, moving, swinging, or flying objects. Some work areas where hard hats/caps must be worn include the following:

1. when under equipment or structures,
2. when around loose materials,
3. when around a boom truck, crane, telescoping boom, end loader, backhoe, coring or drilling rigs,

4. when around tree trimming and removal operations,
5. when around breaking or drilling pavement operations,
6. when patching pavement or bridge deck operations,
7. when installing or repairing traffic signs, signals and posts, or
8. in areas where there is a chance of being struck by flying objects.

Note: This list is not intended to be all inclusive; if there is any doubt, wear a hard hat/cap.

b. Bump Caps

Bump caps or hard hats/caps are to be worn by employees when performing automotive and equipment repairs, bridge work, and where the danger of bumping and/or lacerations to the head can occur.

c. No Headgear Required

Situations where headgear would not be required are when employees are in vehicles or self propelled mobile equipment or are in areas designed for restricted public use.

d. Color and Condition

Soiled or faded high visibility garments shall be replaced immediately.

24.3 Eye protection, such as safety glasses, goggles or face protectors, shall be worn when observing, performing or assisting with any operation where danger of injury to the eye or face may occur and which shall include, but not be limited to, the following:

- | | |
|---|---|
| a. Grinder | k. Pavement breaking or drilling |
| b. Lathes | l. Hand held bump burning |
| c. Drill presses | m. When working with wet cell batteries |
| d. Sanders | n. Chemicals |
| e. Power saws | o. Chippers |
| f. Welding - torch use | p. Chain saws |
| g. Sandblasting | q. Mowing |
| h. When using compressed air for cleaning | r. Brush cutting |
| i. When making repairs under bridges or equipment | s. Crack routing & cleaning |
| j. When using cold chisels or star drills | t. High pressure water jets |
| | u. Working under equipment |

24.4 All employees shall be dressed in a proper manner in order to perform the duties required. Such clothing shall include, but not be limited to: long pants,

high visibility shirts or vests when working near active roadways, and adequate footwear (sneakers are not allowed.)

24.5 Where it is not feasible to reduce the noise level or duration of exposure in work areas exceeding published standards, personal protective equipment such as ear muffs or ear plugs shall be used. (Check with supervisor for OSHA requirements.)

24.6 Reserved

24.7 Reserved

24.8 Eye protection shall be worn by surveying crews when working in vegetation or brush more than waist high.

24.9 Reserved

24.10 Reserved

24.11 A U.S. Coast Guard approved floatation throwing device shall be readily available where the possibility of drowning exists during waterway operations when employees are working on, over, or within five (5) feet of the rivers, lakes, streams or other watercourses of the State, regardless of the presence of other structural protection devices between the employee and the water.

24.12 When an employee is working alone on waterway operations where the possibility of drowning exists, or if an employee working on such operations cannot swim, and there is no structural protection device between the employee and the water, a U.S. Coast Guard approved personal floatation device shall be worn by that employee.

24.13 Employees working in areas of dense vegetation should use insect repellent.

PART IV - CHEMICAL PRODUCT SAFETY

25.0 HAZARD COMMUNICATION PROGRAM FOR STEPHENSON COUNTY HIGHWAY DEPARTMENT

The practices outlined in this section apply to personnel working with hazardous substances, products containing hazardous ingredients and hazardous wastes generated by their use. Please refer to the complete Hazard Communication Program at the back of this book.

26.0 CHEMICAL PRODUCT HANDLING PROCEDURES

26.1 Be sure the necessary protective equipment is in place before opening a chemical product container. Adequate ventilation must be available before, during, and after chemical product use.

26.2 Protect the container label from loss or destruction. Pour liquids from container openings in a direction that prevents drips from reaching the label. Have your supervisor replace a detached or damaged label.

26.3 If a chemical product is transferred from its original container to a secondary container, immediately attach an approved label on the secondary container. Be sure the secondary container is compatible with the chemical product and does not leak.

26.4 Do not smoke, eat or drink while handling chemicals or when in an area where exposure to chemicals is likely. Wash hands and face thoroughly before eating, drinking and smoking.

26.5 Keep chemical product containers closed when not in immediate use.

26.6 Avoid exposure to chemical vapors when wearing contact lenses. Vapor-proof chemical splash goggles shall be worn when handling volatile chemical products.

26.7 Do not expose open cuts and sores to chemicals. Avoid skin contact by wearing the appropriate gloves and clothing (see MSDS).

26.8 Never attempt to identify chemical products by breathing their vapors or tasting them. Avoid breathing any chemical vapors.

26.9 Do not open or handle flammable liquids near or upwind from any source of open flames, electric discharge or high heat. Be sure all metal containers over five (5) gallon capacity are grounded during the transfer of flammable liquids to smaller portable containers.

27.0 CHEMICAL CLEANUP AND STORAGE PROCEDURES

27.1 Place all rags, absorbent and other cleanup materials contaminated by chemical products in an appropriate container dedicated to the specific waste.

27.2 Label all hazardous chemical waste containers with an EPA approved hazardous waste label and the name of the waste material.

27.3 Do not mix wastes. Keep each waste separate in its own designated container.

27.4 Place contaminated gloves, clothing and other disposable protective equipment into the designated hazardous waste container for the specific chemical product used.

27.5 Keep hazardous waste containers closed and secured at all times except immediately before and during additions.

27.6 Upon completely filling and securing a hazardous waste container, place the day's date on the hazardous waste label in the space indicating "accumulation start date", and place the full container in the designated hazardous waste storage area.

PART VI: "SAFETY CODE" RECEIPT

Each employee of the Highway Department shall be issued a "Safety Code". The signed "Safety Code" receipt will be included in the employee's personnel file which is maintained by the Office. The *Employee Safety Code* Notice of Receipt is located at the end of this document.

PART VII: SAFETY SUGGESTIONS & HAZARD OBSERVATIONS

As an aid to locating and correcting unsafe conditions and unsafe practices, every employee is encouraged to report hazards observed (see GENERAL SAFETY REQUIREMENTS, Item 1.1 on page 5). Those conditions noted which may not justify an immediate call to the office or which may require a more complete investigation can be reported on the Safety Suggestions and Hazard Observations Form located at the end of this document.

8.16 STEPHENSON COUNTY HIGHWAY DEPARTMENT ENERGY CONTROL PROGRAM (Lockout/Tagout/Blockout)

Developed by the Illinois Department of Transportation
Bureau of Employee Services / Employee Safety Unit
2300 South Dirksen Parkway, Room 313
Springfield, Illinois 62764
217/782-6264

(a) Scope, application and purpose.

(1) Scope.

(i) This standard covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment or release of stored energy could cause injury to employees. This standard establishes minimum performance requirements for the control of such hazardous energy.

(ii) This standard does not cover the following:

(a) Installations under the exclusive control of electric utilities for the purpose of power generation, transmission and distribution, including related equipment for communication or meetings;

(b) Exposure to electrical hazards from work on, near, or with conductors or equipment in electric utilization installations, which is covered by Subpart S of this part; and

(2) Application.

(i) This standard applies to the control of energy during servicing and/or maintenance of machines and equipment.

(ii) Normal production operations are not covered by this standard. Servicing and/or maintenance which takes place during normal production operations is covered by this standard only if:

(a) An employee is required to remove or bypass a guard or other safety device; or

(b) An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.

NOTE: Exception to paragraph (a)(2)(ii):
Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.

(iii) This standard does not apply to the following:

(a) Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or start up of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.

(b) Hot top operations involving transmission and distribution systems for substances such as gas, steam, water or petroleum products when they are performed on pressurized pipelines, provided that the employer demonstrates that: (1) continuity of service is essential; (2) shutdown of the system is impractical; and (3) documented procedures are followed, and special equipment is used which will provide proven effective protection for employees.

(3) Purpose.

(i) This section requires employers to establish a program and utilize procedures for affixing appropriate lockout devices or tagout devices to energy isolating devices, and to otherwise disable machines or equipment to prevent unexpected energization, start-up or release of stored energy in order to prevent injury to employees.

(ii) When other standards in this part require the use of lockout or tagout, they shall be used and supplemented by the procedural and training requirements of this section.

INTRODUCTION

The Stephenson County Highway Department (STEPHENSON COUNTY HIGHWAY DEPARTMENT) is concerned with work place safety and has developed this Energy Control Program. This program covers the servicing and maintenance of machines and equipment in which the unexpected energizing or start up of the machines or equipment or release of stored energy could cause injury to employees and establishes performance requirements for the control of such hazardous energy.

The hazards include any kinetic or potential energy source in the form of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

STEPHENSON COUNTY HIGHWAY DEPARTMENT is committed to provide a safe and healthy work environment for all staff. In pursuit of this endeavor, the following Energy Control Program is provided to eliminate or minimize exposure to the hazards listed above in accordance with the Energy Control Standard. Employees who are assigned job duties that apply to this program are required to comply with the procedures and work practices outlined in this Energy Control Program and further detailed in the *Employee Safety Code*.

The Energy Control Program is a key document to aid STEPHENSON COUNTY HIGHWAY DEPARTMENT in implementing and ensuring compliance with State and federal regulations.

This Energy Control Program includes:

- A. Energy Control Procedures
- B. Employee Training Requirements
- C. Periodic Inspection Requirements

ENERGY CONTROL PROCEDURES

APPLYING ENERGY CONTROLS

- Energy isolation and lockout/tagout/blockout are to be applied only by trained employees authorized to perform service or maintenance.
- Before lockout/tagout/blockout is applied, all employees who work in the affected area must be notified.
- STEPHENSON COUNTY HIGHWAY DEPARTMENT regulations require that control of hazardous energy be done according to a six-step procedure.

1. Preparation for Shutdown

Before you turn off any equipment in order to lock, tag or block it out, you must know:

- The types and amount of energy that power it.
- The hazards of the energy.
- How the energy can be controlled.

2. Equipment Shutdown

- Shut the system down by using its operating controls.
- Follow whatever procedure is correct for the equipment, so that you don't endanger anyone during shutdown.

3. Equipment Isolation

- Operate all energy-isolating devices so that the equipment is isolated from its energy sources.
- Be sure to isolate *all* energy sources - secondary power supplies as well as the main one.
- Never pull an electrical switch while it is under load.
- Never remove a fuse instead of disconnecting.

4. Application of Lockout/Tagout/Blockout Devices

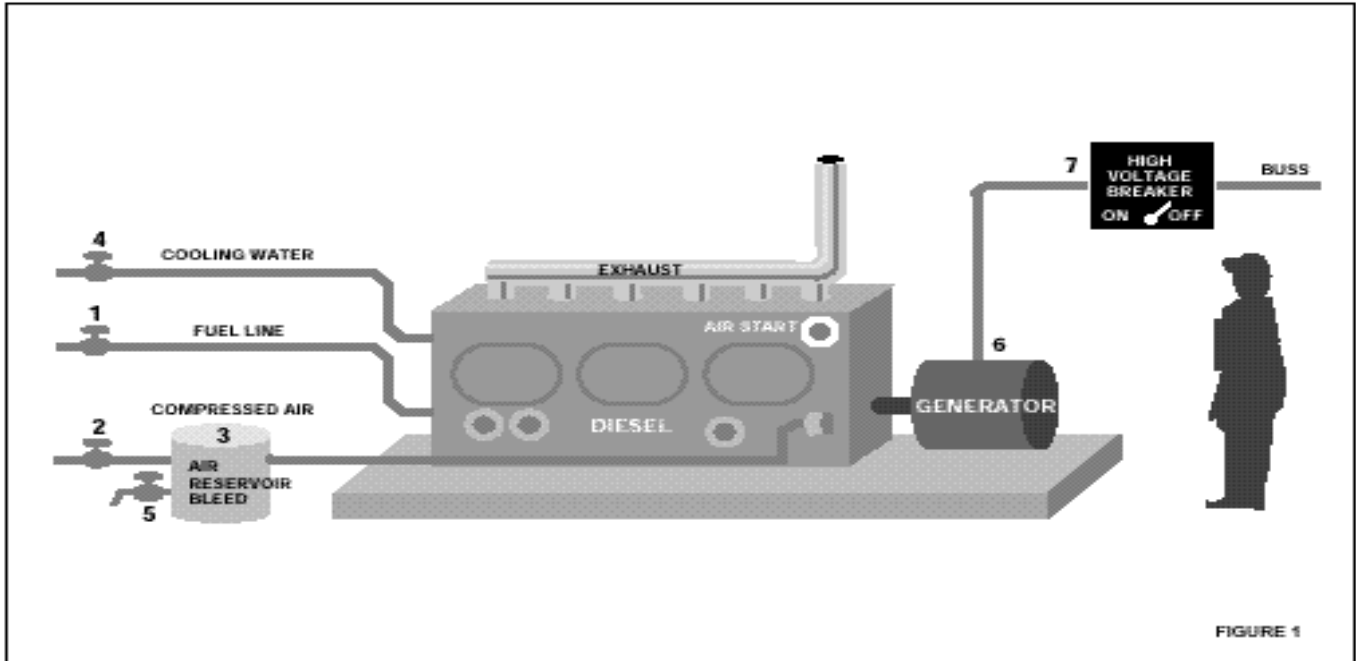
- All energy-isolating devices are to be locked, tagged or blocked.
- Only the standardized devices are to be used for lockout/tagout, and they are not to be used for anything else.
- Use a lockout device if your lock cannot be placed directly on the energy control.
- When lockout is used, every employee in the work crew must attach their personal lock.
- More than one employee can lock out a single energy-isolating device by using a multiple-lock hasp.
- For big jobs, a lockout box can be used to maintain control over a large number of keys.
- If tags are used instead of locks, attach them at the same point as you would a lock or as close to it as possible.
- Fill tags out completely and correctly.

5. Control of Stored Energy

- Take any of the following steps that are necessary to guard against energy left in the equipment after it has been isolated from its energy sources.

- Inspect the system to make sure all parts have stopped moving.
- Install ground wires if applicable.
- Relieve trapped pressure.
- Release the tension on springs or block the movement of spring-driven parts.
- Block or brace parts that could fall because of gravity.
- Block parts in hydraulic and pneumatic systems that could move from loss of pressure.
- Bleed the lines and leave vent valves open.
- Drain process piping systems and close valves to prevent the flow of hazardous materials.
- If a line must be blocked where there is no valve, use a blank flange.
- Purge reactor tanks and process lines.
- Dissipate extreme cold or heat, or wear protective clothing.
- If stored energy can accumulate, monitor it to make sure it stays below hazardous levels.

See Figures 1, 2, 3 & 4.



In the above example the emergency diesel engine/generator set has:

1. A fuel line and valve.
2. A compressed air feed valve.
3. An air reservoir tank (residual energy).
4. A water valve and line for engine cooling.
5. An air reservoir tank bleeder valve.

Although the water line does not **POWER** the equipment, it should be turned off prior to maintenance to prevent coolant from escaping. Also note that the air reservoir tank valve (3) should be bled off (discharge of stored energy) **AFTER** the compressed air valve (2) is turned off in the lockout sequence.

Additionally, the generator output (6) does not power the equipment BUT, the external breaker (7) should be locked out in an **OPEN CIRCUIT** mode to prevent energy from possibly entering the generator from the electrical buss. This example demonstrates that specific machines and equipment require specific procedures for lockout.

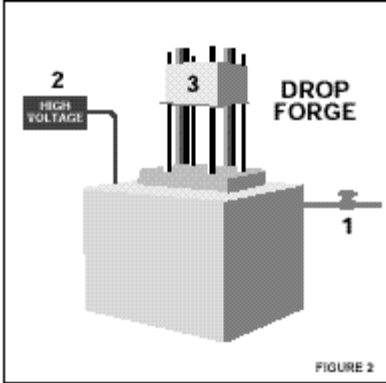


FIGURE 2

Some machinery and equipment is powered from multiple sources. For example, a machine might use electricity (2), gas (1), and a raised weight (3) which is residual energy. Any single source, by itself, even if the others are turned off and locked out, presents a danger to maintenance workers.

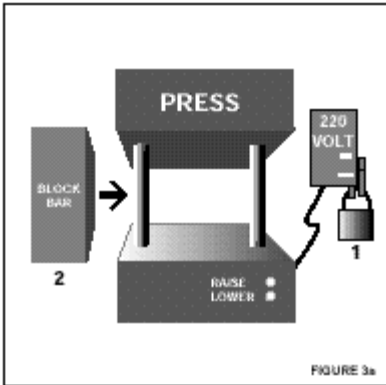


FIGURE 3a

In the example to the left a padlock (1) is used to lock out the electrical box and a blocking bar (2) is used to prevent the press weight from dropping (release of stored energy).

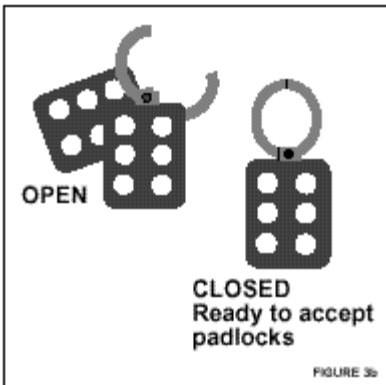


FIGURE 3b

A Multiple Lockout Device is used for accommodating padlocks when multiple locks are required.

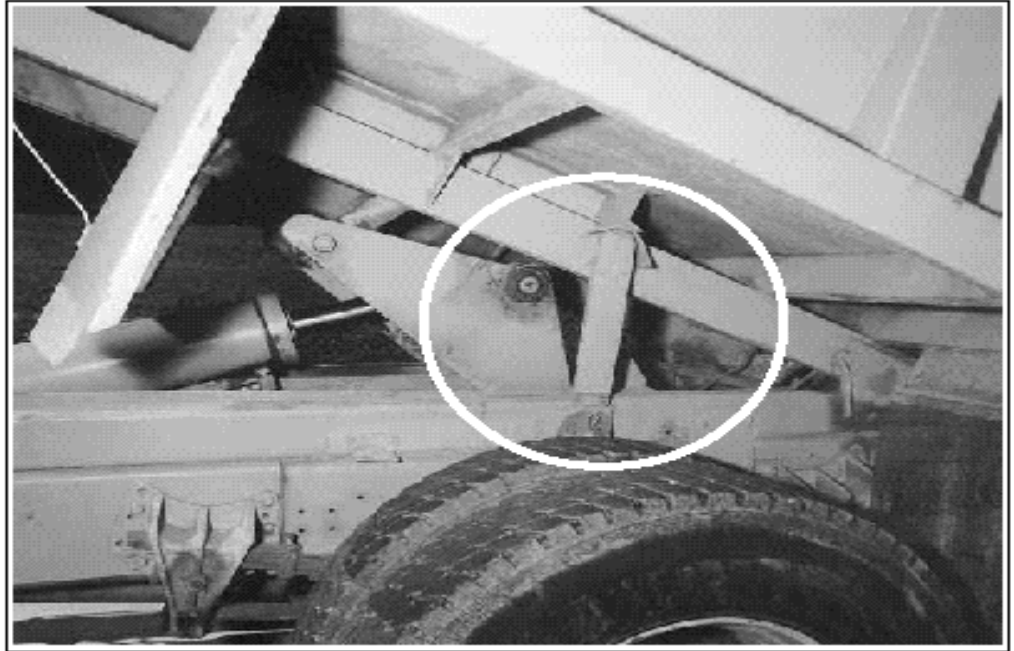


FIGURE 4A

In these examples, either a block is used or the bar provided by the manufacturer is secured to control the hydraulic system from loss of pressure.

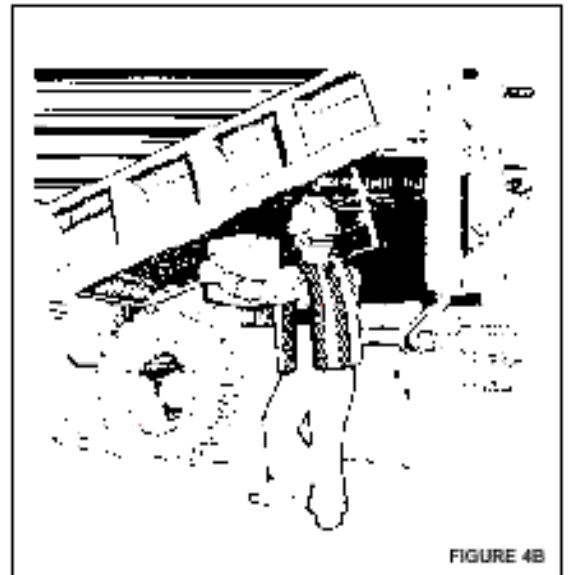


FIGURE 4B

LOCKOUT/TAGOUT

6. Equipment-Isolation Verification

- Take any of the following steps that fit the equipment and energy control.
 - Make sure all danger areas are clear of personnel.
 - If energy source is electrical, verify that the main disconnect switch or circuit breaker can't be moved to the on position and use a voltmeter or other equipment to check the switch.
 - Press all start buttons and other activating controls on the equipment itself.
 - Shut off all machine controls when the testing is finished.
-

PERFORMING THE WORK

- Look ahead and avoid doing anything that could re-activate the equipment.
- Do not bypass the lockout at any time.
- Do not place yourself or any fellow employee in a hazardous situation.

REMOVING LOCKOUT/TAGOUT/BLOCKOUT

- Make sure the equipment is safe to operate.
- Remove all tools from the work area.
- Be sure the system is fully assembled.
- Safeguard all employees.
- Conduct a head count to make sure everyone is clear of the equipment.
- Notify everyone who works in the area that lockout/tagout is being removed.
- Remove the lockout/tagout/blockout devices. Except in emergencies, each device must be *removed by the person who put it on*.
- In some workplaces, the last person to remove his lock may have extra duties, including removing the hasp and lockout device.
- Tags should be removed, signed, and turned in.
- Blocks should be kept in good condition and stored appropriately.

SPECIAL SITUATIONS

When contractors or other outside workers are performing service or maintenance at your workplace:

- The outside contractor and the competent STEPHENSON COUNTY HIGHWAY DEPARTMENT employee must exchange lockout/tagout/blockout information. Employees on site need to understand rules used by the other company's energy control program.
- Be alert for new types of lockout, tagout or blockout devices.

- If you must temporarily re-activate equipment you are working on:
 - Remove unnecessary tools from the work area and make sure everyone is clear of the equipment.
 - Remove the lockout/tagout/blockout devices and re-energize the system.
 - As soon as the energy is no longer needed, isolate the equipment and re-apply lockout/tagout/blockout, using the six-step procedure.
- If servicing lasts more than one work shift, lockout/tagout/blockout protection must not be interrupted.
- Employees leaving work do not remove their locks until the employees arriving are ready to lock out.
- When the worker who applied a lock isn't there to remove it, the lock can be removed only in an emergency, and only under the direction of a competent person.
- Use the Two-Person Rule. The lock is not cut unless a supervisor is present.
- Never remove the lock, tag or block without making sure it is absolutely safe to do so.

EMPLOYEE TRAINING

Lockout/Tagout/Blockout

All training shall include an opportunity for interactive questions and answers with the person(s) conducting the training session.

- All employees who have, or are reasonably anticipated to have, exposure to hazards associated with kinetic or potential energy sources while servicing or maintaining machines and equipment shall receive training by the Department.
- The training program will cover, at a minimum, the following elements:
 - Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
 - Each affected employee shall be instructed in the purpose and use of the energy control procedure.
 - All other employees whose work operations are, or may be, in an area where energy control procedures may be utilized shall be instructed about the procedure and about the prohibition relating to attempts to restart or re-energize machines or equipment which are locked out, tagged out or blocked out.

Tagout Only

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

Retraining

- Annual retraining shall be provided by the Department for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or processes that present a new hazard, or when there is a change in the energy control procedures.
- Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever there is reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.
- The retraining shall re-establish employee proficiency and introduce new or revised control methods and procedures as necessary.

Record Keeping

- The STEPHENSON COUNTY HIGHWAY DEPARTMENT Office shall certify that employee training has been accomplished and is being kept up-to-date. The certification shall contain each employee's name, date of training, and the name of trainer.
- Training records will be completed for each employee upon completion of training. Those employees successfully completing the training will be considered, by definition, as a qualified person. The STEPHENSON COUNTY HIGHWAY DEPARTMENT Office is responsible for record keeping. All training records will be permanently kept in the employee's personnel record.

Periodic Inspections

An inspection by the competent person is to be conducted at least once a year to make sure energy control procedures are being carried out.

ACKNOWLEDGMENT OF TRAINING

I have read and understand the STEPHENSON COUNTY HIGHWAY DEPARTMENT Lockout/Tagout Energy Control Program. I have also completed and passed the comprehensive quiz at the conclusion of the written program.

Print Employee's Name

Employee's Signature

Date

Employee's Social Security Number

Trainer's Name

Date

25.0 HAZARD COMMUNICATION PROGRAM FOR STEPHENSON COUNTY HIGHWAY DEPARTMENT

STEPHENSON COUNTY HIGHWAY DEPARTMENT COMMITMENT

The Stephenson County Highway Department (STEPHENSON COUNTY HIGHWAY DEPARTMENT) is fully committed to providing a safe and healthy work environment for every employee. Sometimes it is necessary for employees to work with or around potentially hazardous substances. In these instances, it is important that employees are aware of the substance's identity, health and physical properties, and the safest work practices required to minimize potential hazards. To ensure employee health and safety, this written Hazard Communication Program has been developed.

STEPHENSON COUNTY HIGHWAY DEPARTMENT RESPONSIBILITY

It is the responsibility of STEPHENSON COUNTY HIGHWAY DEPARTMENT to:

- prepare a list of potentially hazardous substances;
- ensure that containers are properly labeled;
- maintain and make available to employees a file of material safety data sheets (MSDSs) for each hazardous substance in their workplace;
- ensure that employees have the required information and training;
- ensure that all appropriate personal protective equipment is available to employees; and
- develop and implement a written Hazard Communication Program.

EMPLOYEE RESPONSIBILITY

Active employee participation is essential to the success of the Hazard Communication Program. Employees should be alert to the potential hazards of all the substances in the workplace. Consult the MSDS and Spill/Exposure Overview (SEO) for the specifics about these hazardous substances and follow safe work practices to protect their health and safety.

I. LIST OF HAZARDOUS SUBSTANCES

- A. Every hazardous substance known to be present in the workplace will be kept and listed.
- B. The name of the substance that appears on this list will be the same as the one that appears on the label and the MSDS for that substance.

II. LABELING CONTAINERS

- A. Each container of a hazardous material received, used or shipped from Department workplaces must have a hazard warning label. All labels must be in English and contain the following information:
- name of the chemical;
 - appropriate hazard warning; and
 - name and address of the manufacturer.
- B. Portable or secondary containers shall be labeled in the same way.
- C. No label should be defaced or removed unless it is immediately marked with the required information. Any container without a label should be reported immediately to the county engineer.
- D. The name of the chemical on the label will be the same name that appears on the List of MSDSs.

III. MATERIAL SAFETY DATA SHEETS (MSDSs)

- A. A material safety data sheet containing the information required by the OSHA Hazard Communication Standard will be kept for each substance on the List of MSDSs. The MSDS will be the current edition as supplied by the manufacturer.
- B. The collection of current MSDSs must be readily available to all pertinent employees.
- C. No hazardous substance will be used in the workplace unless an MSDS has been obtained first, and is on file.
- D. If new and significant health information about any hazardous substance on the List of MSDSs becomes known, a revised MSDS is to be obtained. Employees who handle, or might be exposed to, the substance will be notified of any changes in work procedures or personal protective equipment required to protect their health and safety.

IV. COMMUNICATING HAZARD INFORMATION

A. TO EMPLOYEES

1. All employees working with, or potentially exposed to, hazardous substances will be appropriately informed and trained.
 - a. Information includes:

- requirements of the Hazard Communication Standard;
 - location of hazardous substances in the workplace; and
 - location of the written Hazard Communication Program, List of MSDSs, and SEOs.
- b. Training includes:
- how to detect the presence or release of a hazardous substance;
 - physical and health hazards of hazardous substances;
 - safe work practices, emergency procedures, and personal protective equipment to minimize exposure to a hazardous substance; and
 - explanation of the labeling system, how to read an MSDS, and where to obtain hazard communication information.
2. This information and training will be provided at the time of an employee's initial assignment to work with or around hazardous substances, or whenever a new hazard is introduced into the work area. All training shall include an opportunity for interactive questions and answers with the person(s) conducting the training session.

GLOSSARY

Definition of words and phrases as used throughout this publication.

Acute: An adverse health effect that occurs rapidly after a short-term exposure to a high level of a substance. Examples include nausea, dizziness and respiratory irritation.

Anemia: A reduction in red blood cells or in their hemoglobin content.

Asphyxiation: Suffocation from lack of oxygen.

Attendant: A person who is assigned as standby to monitor a confined space process or operation and provide support or react as required.

Auto-ignition Temperature: The temperature at which a material will burn without a spark or flame.

Cardiac: Having to do with the heart.

CAS Number: A unique registry number assigned to a substance by the Chemical Abstracts Service.

CFM: An acronym for “Cubic Feet of air per Minute.”

CFR: Code of Federal Regulations.

Competent Person: A person who is capable of identifying existing and predictable hazards in the surrounding working conditions which are hazardous or dangerous to employees and who has authority to take prompt corrective measures to eliminate them.

Confined Space: An enclosed area that has the following characteristics:

- Its primary design is something other than human continuous occupancy;
- has restricted entry and exit; and
- may contain potential or known hazards.

Confined Space Entry: Ingress by persons into a confined space which occurs upon breaking the plane of the confined space portal with any part of his/her body; and all periods of time in which the confined space is occupied.

Cornea: The transparent part of the eye.

Corrosive: Able to destroy by chemical action.

Density: The mass (weight) of a substance per unit volume.

Department: The Stephenson County Highway Department.

Energy Isolation: To separate or interrupt all energy sources so as to prevent startup.

Evaporation Rate: The rate at which a solid or liquid turns to a vapor or gas.

Flash Point: The lowest temperature at which a liquid gives off enough flammable vapors to ignite, if an ignition source is present.

Frostbite: Freezing a part of the body.

Hazard Evaluation: A process to assess the severity of known, real, or potential hazards, or all three, at or in the confined space.

Highway: The entire width between the Right-of-Way lines.

Hoist: A stationary hand-powered apparatus designed for lifting people.

Hot Work: Work within a confined space that produces arcs, sparks, flames, heat or other sources of ignition.

Impervious: A material that does not allow another substance to pass through or penetrate it.

Jaundice: A yellow color of skin and eyes.

Kinetic Energy: The force caused by the motion of an object.

LEL: Lower explosive limit. The lowest concentration (percent) of gas or vapor in air that will produce a flash of fire when ignited. At concentrations below the LEL the mixture is too lean to burn.

LEL/LFL and UEL/UFL: Acronyms for “Lower Explosive Limit” / “Lower Flammable Limit” and “Upper Explosive Limit” / “Upper Flammable Limit.”

Lockout/Tagout: The placement of a lock/tag on the energy isolating device in accordance with an established procedure indicating that the energy isolating device shall not be operated until removal of the lock/tag in accordance with an established procedure.

mg/m³: Milligrams (of a material) per cubic meter of air. A concentration unit often used for dusts, mists, and fumes in air.

Mobile Equipment: Self-propelled mobile equipment not normally traveled on the pavement and not assigned a “C” or “T” No. by the Department.

Multiple Lock Hasp: A metal device used for locking out that will accommodate several individual locks.

Non-sparking: Tools made from bronze or a synthetic material that reduce the possibility of igniting flammable material during the cleanup of a spill.

Oxidizer: Substance that initiates or promotes combustion in other materials by releasing oxygen.

Oxygen Deficient Atmosphere: An atmosphere containing less than 19.5% oxygen by volume.

Oxygen Enriched Atmosphere: An atmosphere containing more than 23.5% oxygen by volume.

Pavement/Roadway: That portion of a highway improved, designed, or ordinarily used for vehicular travel, exclusive of the berm or shoulder.

PCR: An acronym for “Pre-Entry Certification Report.”

Physical Hazard: Substances that are combustible liquids, compressed gases, explosives, flammables, organic peroxides, oxidizers, pyrophoric, unstable (reactive) or water-reactive.

Potential Energy: The force stored in an object that is not moving.

PPE: Personal Protective Equipment.

ppm: Parts per million. A concentration unit used for a gas or vapor in air. It is the number of parts of a substance per million parts of air.

Pyrophoric: A substance that will ignite spontaneously in air at a temperature of 130°F or below.

Qualified Person: A person who by reason of training, education and experience is knowledgeable in the operation to be performed and is capable of judging the hazards involved.

Residual Energy: The force remaining in an object.

Route of Entry: Hazardous materials enter the body by three primary routes: ingestion (swallowing), absorption, and inhalation (breathing).

SCBA: An acronym for “Self-Contained Breathing Apparatus.”

Shock: A disturbance of the circulation which causes a rapid drop in blood pressure.

Solubility in Water: The amount of a material which can be dissolved in a given volume of water. Materials which are very soluble in water are more likely to affect a person’s eyes, nose, and throat due to the water present in these organs. Materials which are not very water soluble can be inhaled into the lungs.

Sorbent: A non-reactive material like clay or vermiculite used to clean up a chemical spill.

Specific Gravity: The density of a given material compared to the density of water. A material with a specific gravity greater than 1.0 will sink in water; less than 1.0 will float.

Supervisor: An individual who directs the work of other employees.

TLV: Threshold limit value. Term used to express the airborne concentration of a material to which nearly all workers can be exposed day after day, without adverse effects.

Toxic: Poisonous.

Toxic Atmosphere: An atmosphere containing a concentration of a substance above the published or otherwise known safe levels.

Tumor: An abnormal mass or new tissue growth having no function.

UEL: Upper explosive limit. The highest concentration (percent) of a gas or vapor in air that will produce a flash of fire when ignited. At concentrations above the UEL, a mixture is too rich to burn.

Ulceration: Loss of tissue resulting in an open sore.

Vapor Density: The density of a gas or vapor compared to the density of air. Gases or vapors with a vapor density greater than 1.0 will sink to the floor; less than 1.0 will rise to the ceiling.

Vapor Pressure: The pressure exerted by a vapor above its own liquid in a closed container. A higher vapor pressure means faster evaporation.

Vehicles: Cars and/or trucks assigned "C" and "T" Nos. by the Department. Also includes leased or privately owned cars and trucks used in the course of employment.

Vests: Is defined as a minimum garment. Any **Department approved** torso covering made of fluorescent strong yellow green with fluorescent orange reflective striping and meeting appropriate ANSI standards.

Winch: An apparatus for lifting heavy or cumbersome objects.

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SAFETY SUGGESTIONS & HAZARD OBSERVATIONS

To: Employee Safety Office
Stephenson County Highway Department
2300 S. Dirksen Parkway, Room 313
Springfield, Illinois 62764

Date of Observation _____ Time _____

Location _____

Type of Hazard or Operations _____

Pavement Defect _____ Vehicle Operation _____

Signing _____ Type of Vehicle _____

Work Crew _____ Equipment No. _____

Vehicle Defect _____ License No. _____

Others _____

Safety Suggestions or
Remarks _____

Stephenson County Highway Department
Employee Safety Code

Notice of Receipt:

I hereby acknowledge receipt of the Stephenson County Highway Department's *Employee Safety Code* ("Safety Code") and signify that I will read this "Safety Code" and abide by its contents. If I am unable to read, I hereby signify that I will have the rules contained within the "Safety Code" read and explained to me in detail and that I will abide by them.

I will retain the "Safety Code" while employed by the Department and will consult with my superior on any rule within the "Safety Code" on which I am in doubt.

This "Safety Code" is also available for review on the Intranet. Subsequent safety policy changes to the "Safety Code" will be made available on the Intranet and will also be made available to me by my Supervisor. I will adhere to each of the rules contained in the "Safety Code".

Signature of Employee

Date Returned

This receipt is to be returned within **one week** to the person who issued this book to you and will be included in your personnel file.

Name of person issuing "Safety Code"

Date Issued