



COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET

Frankfort, Kentucky 40622
www.transportation.ky.gov

Matthew G. Bevin
Governor

Greg Thomas
Secretary

OFFICE OF THE SECRETARY
OFFICIAL ORDER 111244

SUBJECT: *Employee Safety and Health Manual*

This manual has been prepared to provide information and guidance to personnel of the Kentucky Transportation Cabinet. Its purpose is to establish uniformity in the interpretation and administration of laws, regulations, policies, and procedures applicable to the operation of the Employee Safety and Health Branch and its relationship with other units of the Cabinet.

The policies and procedures set forth herein are hereby approved and declared effective unless officially changed.

All previous instructions, written and oral, relative to or in conflict with this manual are hereby superseded.

Signed and approved this 22nd day of August, 2018.



Greg Thomas
Secretary

Approved as to Legal Form



Office of Legal Services



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EMPLOYEE
SAFETY & HEALTH
MANUAL



ISSUED BY

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET

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101 DESIGN OF THIS MANUAL

Chapters—The subject matter in this manual is divided into chapters (100, 200, 300, etc.). The chapter title appears in the center of each page header.

Sections—Chapters are divided into sections. Each section title appears in bold in the left margin at the beginning of the related text.

Subjects—Chapters and sections are arranged by subjects.

Subject Number—Each subject is assigned a number, which appears in the left margin of each page of the subject. For example, Chapter 400, *Workplace Risk Assessment & Prevention*, includes subject 405, *Hard Hats*, followed by subject 406, *Job Equipment*, which is divided further into subjects 406-1 through 406-2.

“SAFE” Prefix—Preceding each subject number, this prefix stands for the manual title: *Employee Safety and Health Manual*.

Date—The latest issuance date of a subject appears at the bottom of each page of the subject. This date agrees with the latest issuance date shown for the subject in the “Table of Contents” ([SAFE-01](#)).

Table of Contents (SAFE-01)—This index at the front of the manual lists the titles of the manual’s chapters and sections and their subjects, as well as other information, in numerical order. It includes the latest issuance dates of all the subjects. As the guide matures, these dates change.

Page Numbering—Each chapter has its own page numbering, which appears at the bottom of each page

A **boldfaced subject number** that appears within the text references the location of more information about the subject.

101 DESIGN OF THIS MANUAL (CONT.)

For additional copies of this manual, contact:

Organizational Management Branch
Office of Human Resource Management
Transportation Cabinet Office Building, 6th Floor West
200 Mero Street
Frankfort, KY 40622

102 MANUAL PURPOSE & OVERVIEW

Addressing every possible condition encountered by every class of employees is not within the scope of this manual. Rather, it is intended to outline the fundamental principles that should be observed in safely carrying out KYTC's work. Direct supervisors and employees are responsible for making "good judgment" decisions in the application of the information contained in this manual.

For additional information on any of the topics covered in this manual, refer to the *Safety & Health Administration Guide*; 803 KAR 2; 29 CFR 1910, *General Industry*; 29 CFR 1926, *Construction*; 29 CFR 1915, 1917, 1918, *Maritime*; 29 CFR 1928, *Agriculture*; 803 KAR 2; *Manual on Uniform Traffic Control Devices* (MUTCD); KYTC *Standard Drawings*; or manufacturer-applicable rule, regulation, policy, law, or standard.

Within this manual, as well as the *Safety & Health Administration Guide*, the term "KYTC safety personnel" refers to safety specialists, safety coordinators, and safety administrators.

The *Occupational Safety and Health Act* and OSHA require employers to furnish employees a place of employment free from recognized hazards that are causing or likely to cause death or serious physical harm.

102 MANUAL PURPOSE & OVERVIEW (CONT.)

The Commonwealth of Kentucky has adopted a state plan OSHA program [the Kentucky Occupational Safety and Health (KOSH) program (KRS 338)] and is responsible for the enforcement of occupational safety and health standards in Kentucky.

The KOSH program incorporates by reference the safety and health standards promulgated in [29 CFR 1910](#), *General Industry Regulations*, and [29 CFR 1926](#), *Construction Regulations*.

To comply with [KRS 18A.110\(7\)\(i\)](#), the Secretary of the Personnel Cabinet promulgated [101 KAR 2:150](#), *State Safety Program*, for the development, operation, and enforcement of programs to improve work safety.

To comply with [101 KAR 2:150](#), the Transportation Cabinet (KYTC) assigns the Employee Safety & Health Branch the responsibility to develop, update, oversee, coordinate, evaluate, and administer the KYTC safety and health program. The KYTC safety and health program policy is established in the KYTC *General Administration and Personnel Manual* ([GAP-700](#)).



201 EMPLOYEE SAFETY & HEALTH BRANCH

The Employee Safety and Health (ES&H) Branch:

- Develops, updates, oversees, coordinates, evaluates, and administers the Kentucky Transportation Cabinet (KYTC) safety and health program
- Initiates and maintains hazard prevention programs
- Conducts safety and health inspections
- Conducts or approves all safety and health training
- Develops and monitors safety data

The ES&H Branch Manager is primarily responsible for the implementation of KYTC's safety and health program under the direction of the Executive Director of the Office of Human Resource Management (OHRM).

Safety administrators are primarily responsible for the implementation of KYTC's safety and health program at the statewide level under the direction of the ES&H Branch Manager.

The Central Office program coordinator is primarily responsible for monitoring and managing the workers' compensation program under the direction of the ES&H Branch Manager.

The workers' compensation coordinator is primarily responsible for maintaining all workers' compensation files, correspondence, and coordination with the third party administrator.

SHA-201 provides a detailed listing of duties for Central Office ES&H staff.

202 MANAGEMENT & SUPERVISORS

KYTC management responsibilities may include:

- Communicate safety and health information to all employees
- Abide by KYTC's safety and health program
- Grant appropriate authority and responsibility to effectively manage the safety and health program
- Hold supervisors and employees accountable for their actions and adherence to the safety and health program

In accordance with [29 CFR 1926.32\(f\)](#), supervisors are designated as competent persons and, after consulting with safety personnel as needed, are responsible for the assessment, selection, and use of appropriate personnel, equipment, and personal protective equipment.

[SHA-202](#) provides a detailed listing of duties and responsibilities for management and supervisors.

203 SAFETY COORDINATORS

Safety coordinators are primarily responsible for the implementation of KYTC's safety and health program at the district level under the direction of the chief district engineer.

[SHA-203](#) provides a detailed listing of duties and responsibilities for safety coordinators.

204 EMPLOYEES

It is impractical to include in this manual instructions that cover every detail of work performed under all conditions by the various classes of employees. Rather, these policies are intended to outline the fundamental principles that should be observed in carrying out KYTC's work in a safe manner.

For any operation or activity not covered in this manual, refer to [803 KAR 2](#); [29 CFR 1910](#), *General Industry*; [29 CFR 1926](#), *Construction*; [29 CFR 1915](#), [1917](#), [1918](#), *Maritime*; [29 CFR 1928](#), *Agriculture*; National Consensus Standards; American National Standards Institute ([ANSI](#)); *Manual on Uniform Traffic Control Devices (MUTCD)*; KYTC *Standard Drawings*; or manufacturer-applicable rule, regulation, policy, law, or standard.

Employee responsibilities may include:

- Comply with applicable occupational safety and health standards, policies, procedures, rules, and orders in the performance of their assigned duties
- Promptly report unsafe acts and conditions, accidents, and injuries to the responsible supervisor
- Adopt the recommended safe procedure as the best procedure and have regard at all times for the safety of fellow employees and the public
- Report unsafe equipment and working conditions to the immediate supervisor, safety personnel, or both
- Contribute ideas and suggestions for improved safety practices
- Wear required personal protective equipment for the job being performed

204 EMPLOYEES (CONT.)

- Read and comply with the *Employee Safety and Health Manual* and all safety and health policies and procedures applicable to the work being performed
- Attend mandatory safety training

Employees shall **not**:

- Perform any activity, task, or operation known to be unsafe
- Engage in horseplay or any behavior that may result in injury
- Use or be under the influence of drugs or alcohol

Any employee found in violation of the requirements of the KYTC safety and health program may be issued a TC 25-105, *Notice of Safety Violation*, which may be grounds for disciplinary action ([SHA-9003](#)).

Employees who violate KYTC safety and health program policies and procedures or commit acts that cause or are likely to cause harm to themselves, coworkers, the public, or property shall be subject to disciplinary action, up to and including dismissal ([GAP 801](#)).

205 SAFETY & HEALTH COMMITTEES (SHC)

The safety and health committee (SHC) is an essential tool in the prevention of unsafe workplace practices and conditions, thus reducing the risk of employee injuries.

[SHA-205](#) provides information on safety and health committees, meetings, and officer duties.

206 **INSPECTIONS**

KYTC safety personnel are to perform routine inspections of the following within their assigned district operations:

- Facilities ([SHA 206-1](#))
- Jobsite and work zones ([SHA 206-2](#))
- Equipment ([SHA 206-3](#))
- Fire extinguishers ([SHA 206-4](#))

Vehicle and equipment operators shall also perform safety inspections of assigned vehicles or equipment before putting them into operation on each work shift.

Items to check include, but are not limited to, glass, horn, mirrors, lights, turn signals, brakes, tires and wheels, exhaust system, steering mechanisms, backup alarms, and warning light systems.

Additional checks are necessary for different types of equipment, and operators should refer to the manufacturer's operation manual for inspection criteria.



301 OVERVIEW

Under the *Occupational Safety and Health Act of 1970*, employers are responsible for providing a safe and healthy workplace. Delivering appropriate training to all employees is integral in fulfilling this responsibility.

SHA-301 provides additional information on safety training.

302 NEW EMPLOYEE SAFETY ORIENTATION

New employee orientation is conducted in each district office and Central Office on the 1st and 16th of each month (or on the following Monday when either date falls on a weekend). To ensure uniformity, the Employee Safety and Health (ES&H) Branch develops safety training materials, handouts, and checklists and makes them available to all orientation liaisons. During the orientation, new employees learn about the Kentucky Transportation Cabinet's (KYTC) safety policies and procedures, as well as environmental, health, and safety programs. The *Employee Safety and Health Manual* shall be provided to and reviewed with each new employee on orientation day. A signed TC 12-262 form, *General Policy Acknowledgment*, shall be kept in the employee's personnel file (**SHA-9011**).

SHA-302 provides additional information on new employee orientation training topics.

303 TRAINING MANAGEMENT SYSTEM

All safety training will be documented on a TC 25-2 form, *Training Report* (**SHA-9009**). Training will be entered into an enterprise-wide software application for the administration, documentation, tracking, reporting, and delivery of employee development opportunities.

303 TRAINING MANAGEMENT SYSTEM (CONT.)

Training requirements in OSHA standards are available at:

<https://www.osha.gov/Publications/osh2254.pdf>

Contact the district safety coordinator or KYTC ES&H Branch (502-564-6963) if you have questions about training documentation or requirements.

304 SAFETY & HEALTH TRAINING MATRIX

SHA-304 provides the ES&H Branch training matrix.

305 DEPARTMENT OF CORRECTIONS INMATE PROGRAM

SHA-305 provides detailed information on the training requirements of the Department of Corrections Inmate Program.



401 HIERARCHY OF CONTROLS

The Employee Safety and Health (ES&H) Branch strongly promotes the hierarchy of controls model ([SHA-401](#)). Effective controls protect workers from workplace hazards; help avoid injuries, illnesses, and incidents; minimize or eliminate safety and health risks; and help employers provide workers with safe and healthful working conditions.

402 JOB SAFETY ANALYSIS

Kentucky Transportation Cabinet (KYTC) safety personnel shall assess workplace locations to identify potential hazards that may necessitate the use of personal protective equipment (PPE) by using a TC 25-156 form, *Job Safety Analysis & PPE Certification of Hazard Assessment* ([SHA-9001](#)). If such hazards are identified, KYTC safety personnel shall determine if the hazard can be eliminated or substituted, or if engineering or administrative controls can be implemented.

If PPE is the only viable alternative, safety personnel shall complete the following:

- Select and recommend the type of PPE that will protect employees from potential hazards
- Communicate to affected employees the PPE required for the work being performed
- Inform supervisors of their assigned responsibility to ensure that employees under their direction obtain and properly utilize the designated PPE
- Assist supervisors in providing the required training to affected employees, if necessary
- Certify in writing that the required job safety analysis has been performed and maintain a file copy

403 JOB BRIEFING

A job briefing is a participatory process of creating a safer and healthier work environment by identifying, eliminating, or controlling recognized hazards before commencing a task.

Performing a job briefing can significantly contribute to the prevention of accidents and injuries; therefore, all crew members shall participate in documented job briefings.

Job briefings shall:

- Be held at the start of every work shift
- Include the components of a job safety analysis
- Be documented by the supervisor on a TC 25-163 form, *Job Briefing (SHA-9002)*

Work crew member responsibilities may include:

- Participate in the job briefing by raising questions or safety concerns prior to the work activity
- Certify their participation in and understanding of the job briefing by initialing the TC 25-163 form
- Remain alert to and advise supervisors promptly of any changes in conditions or the development of events that pose a safety concern

SHA-403 provides additional information on job briefings, including supervisor responsibilities.

404 PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE will be provided, used, and maintained per manufacturer guidelines when it is required to ensure the safety and health of employees and lessen the likelihood of occupational injury and illness. Supervisors have the primary responsibility for implementing PPE policies and enforcing PPE use in their work area ([SHA-500](#)).

Employees whose jobs require the use of PPE will be informed of the PPE selection and provided PPE by KYTC at no charge. Consideration will be given to the comfort and proper fit of PPE to better ensure compliance.

Employees required to wear PPE will receive training in its proper use and care prior to performing the work. Employees shall demonstrate understanding of proper PPE use or shall repeat training until able to do so.

The PPE user is responsible for the following:

- Wearing PPE as properly required for the job being performed
- Attending required training sessions and job briefings
- Caring for, cleaning, maintaining, and inspecting PPE as required per manufacturer guidelines before and after each use
 - ◆ Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision.
 - ◆ PPE sharing is strongly discouraged. If PPE sharing is necessary, equipment shall not be used until it has been properly cleaned and sanitized.
 - ◆ Contaminated PPE that cannot be decontaminated shall be disposed of in a manner that protects employees from exposure to hazards.

404 PERSONAL PROTECTIVE EQUIPMENT (PPE) (CONT.)

- Informing the supervisor of the need to repair or replace PPE
 - ◆ Defective or damaged PPE shall not be used and shall immediately be reported, discarded, and replaced.
 - ◆ Defective PPE can be worse than no PPE at all.

- Reading and complying with the *Employee Safety and Health Manual* and *Safety and Health Administration Guide* on all safety and health policies and procedures applicable to the work being performed.

Periodic retraining will be offered to PPE users as needed.

Retraining is indicated when:

- An employee's work habits or knowledge reflects a lack of understanding, motivation, and skills to use required PPE
- New equipment is installed
- Previous training is out-of-date
- Supervisor requests for the reasons noted above
- A TC 25-105 form, *Notice of Safety Violation* ([SHA-9003](#)), or a TC 25-164 form, *Safety Risk Report* ([SHA-9013](#)), is received by ES&H staff requesting retraining

Employee-provided PPE shall be evaluated by the ES&H Branch or the district safety personnel before being placed into service. Supervisors shall ensure that employee-provided PPE is adequate protection for the identified workplace hazards, and that it is maintained in a clean and reliable condition.

Employees who repeatedly disregard PPE policies and rules will be subject to disciplinary action, up to and including dismissal ([GAP 801](#)).

Employees are encouraged to contact safety personnel if they have questions or concerns regarding PPE. Employees may also refer to [SHA-404](#) and [SHA-500](#) for additional information regarding PPE.

405 HARD HATS

KYTC has developed a hard hat program to be followed by all employees. The hard hat is one of the most important pieces of equipment worn in the industrial workplace. Many workers have been saved from serious injury or death because they were wearing a hard hat.

Newly-hired KYTC employees who require head protection shall be provided with a new, unused, and unexposed hard hat. Hard hats shall not be reissued. Employees shall follow the manufacturer recommended guidelines.

Employees shall regularly inspect their hard hats to ensure safety. A conventional hard hat consists of two components – the shell and the suspension – which work together as a system. Both components require periodic inspection and maintenance.

- *Hard Hat Shell.* The shell should be inspected daily for dents, cracks, nicks, gouges, and any damage due to impact, penetration, abrasions, rough treatment, or wear that might reduce the degree of protection originally provided. Degradation of thermoplastic material may be apparent when the shell becomes stiff, brittle, faded, or dull in color or exhibits a chalky appearance. With further degradation, the shell surface may break, minutely crack, flake, or delaminate.

The shell may be field tested by compressing it inward from the sides about 1" (2.5 cm) with both hands and then releasing the pressure without dropping the shell. The shell should exhibit elasticity by quickly returning to its original shape.

Any hard hat shell that shows signs of worn or damaged parts, lack of elasticity, or cracks due to brittleness shall be removed from service immediately and replaced.

405 HARD HATS (CONT.)

- *Hard Hat Suspension.* The hard hat suspension system is just as important as the shell. Its main purpose is to help absorb the shock of an impact. To do so, it must be in good condition at all times.

Suspensions should be inspected closely for cracks, frayed or cut crown straps, torn headband or size adjustment slots, loss of pliability, and other signs of wear. These conditions can be caused by perspiration, hair oils, or normal wear.

Any suspension that is damaged must be removed from service and replaced immediately. Follow all manufacturer guidelines regarding suspension system replacement.

Hard hat service life can be extended by cleaning both the shell and the suspension, and should be made a part of the regular inspection and maintenance program. Scrub the shell and suspension with a mild detergent to remove dirt and stains. Rinse thoroughly with clean, warm water, not to exceed 50°C (120°F). After rinsing, wipe dry and carefully re-inspect for any signs of damage.

In addition to adhering to a regular inspection and maintenance schedule, employees should be aware of the following special precautions.

CAUTION: Failure to observe these warnings could result in death or serious injury.

- If the hard hat has been struck by a forcible blow of any magnitude, the hard hat shall be replaced immediately even if no damage is visible.
- The hard hat shell or suspension shall not be altered or modified. For example, drilling holes in the shell for ventilation purposes is prohibited.

405 HARD HATS (CONT.)

- Avoid contact of the hard hat with electrical wires.
- Hard hats shall not be carried on the rear window shelf of an automobile or stored in direct sunlight. Exposure to extreme sunlight may lead to degradation of the hat's protective materials.
- Do not intentionally abuse hard hats by dropping, throwing, or sitting on them. Hard hats shall not be used as supports.
- Clearance must be maintained between the shell and head for the hard hat protection system to work properly. Therefore, wearers shall not carry or wear anything inside their hard hat.
- Do not paint a hard hat as some paints and solvents may damage the shell, thereby reducing the degree of protection originally provided.
- Do not apply stickers to the hard hat as this may cover a damaged area or result in damage to the shell.

While specific replacement schedules must be based on the work conditions at each job site, ES&H staff generally recommend replacing all employee hard hats after five years of service, regardless of outward appearance.

If an employee's hard hat is defective and a new one is requested, the supervisor shall immediately provide a replacement.

SHA-405 provides additional information regarding hard hats.

406 JOB EQUIPMENT**406-1 SERVICING MULTI-PIECE & SINGLE-PIECE RIM WHEELS**

Single-piece rim wheel accidents occur when the pressurized air contained in the tire is suddenly released, either by the bead breaking or by the bead slipping over the rim flange. The principal hazards involve pressurized air which, once released, can either hurl an employee across the shop if the employee is in close proximity to the rim wheel and within the trajectory, or can propel the rim wheel across the workplace and into a worker.

In a multi-piece rim wheel accident, the wheel components separate and are released from the rim wheel with violent force. The severity of the hazard is related not only to the air pressure, but also to the air volume.

- A tire safety rack for airing tires with multi-piece rims is available in each facility wherever tires are changed. This rack should be utilized by all personnel airing safety rim tires.
- A chain is suggested as an added precaution, but does not substitute for the rack.
- A clip-on chuck with sufficient hose length is also required to permit the employee to stand clear of the potential trajectory of rim components.
- Follow all OSHA regulations per 29 CFR 1910.177 for servicing multi-piece and single-piece rim wheels.

SHA-406-1 provides additional information on servicing multi-piece and single-piece rim wheels.

406-2 SLOPE MOWER

All manufacture guidelines for operation, maintenance, and inspection shall be followed. The owner's manual, **SHA-406-2**, and **FOG-701** provide additional information.

In accordance with **29 CFR 1926.32(f)**, supervisors are designated as competent persons and, after consulting with safety personnel as needed, are responsible for the assessment, selection, and use of appropriate personnel, equipment, and personal protective equipment.

Employees shall follow manufacturer recommendations for equipment servicing and pre-work inspections as recommended in the manufacturer's operation manual, as well as those included in the *Field Operations Guide* (**FOG-701**).

407 JOB ENVIRONMENT**407-1 RESPIRATORY PROTECTION**

KYTC has instituted a respiratory protection program to be followed by all employees required to wear respiratory protection ([SHA-407-1](#)).

Respiratory protection is required when an employee enters an area where metal covered with lead paint is cut, sanded, ground, heated, burned, or blasted with abrasives. Spray painting may also require the use of respirators to protect against solvent vapors in paint.

A respirator shall also be required if air monitoring reveals a permissible exposure limit (PEL) greater than 50 $\mu\text{g}/\text{m}^3$ for lead. Lead awareness information shall be provided to employees prior to possible exposure ([SHA-407-4](#)).

The ES&H Branch safety personnel shall use the following criteria when selecting a suitable respirator:

- Identification of hazards
- Evaluation of hazards
- Appropriate selection and purchasing

Medical examination and testing shall take place prior to an employee using respiratory protection. A medical and occupational history questionnaire shall be completed by the employee prior to meeting with the physician ([SHA-9031](#)).

Medical tests shall be completed as set forth in the established service contract. Employee medical information shall be treated as confidential and maintained on file in the ES&H Branch Central Office. Employees may contact the ES&H Branch to obtain medical test results.

407-1 RESPIRATORY PROTECTION (CONT.)

Prior to performing work requiring the use of approved respiratory protection, the examining physician must provide the Cabinet with the *Physicians Approval for Respiratory Assignment* ([SHA-9032](#)) and a statement of fitness to perform the designated work duties for the employee tested.

All employees required to wear respiratory protection shall be re-examined on an annual basis. Follow-up interim evaluations shall include blood, lead, and zinc protoporphyrin (ZPP).

When a respirator is assigned to an employee for his or her exclusive use, records shall be kept indicating the employee and the specific respirator assigned.

Prior to the assignment of a respiratory protection device, those employees being considered shall receive training. As part of the training, the employee shall have the opportunity to handle the selected respirator, have it fitted properly, test the face piece-to-face seal, and wear it in "normal" air. The ES&H Branch shall choose the most appropriate means for fit testing for each employee and type of respiratory protection assigned. A positive and negative pressure test shall be conducted for each negative-pressure, cartridge-type respirator prior to donning.

KYTC has determined that a filtering face mask may be used only for voluntary use in non-hazardous environments. The Cabinet will purchase and provide nuisance dust masks through the equipment garage's stockrooms. Each mask will be distributed with lead awareness information ([SHA 407-4](#)).

All respirators shall be cleaned and disinfected per the manufacturer requirements. All respirators used under permanent or temporary assignment shall be inspected prior to each donning by the assigned employee.

407-1 RESPIRATORY PROTECTION (CONT.)

The employee shall be responsible for inspection of the following:

- Straps
- Cartridges
- Face seal
- Exhaust and inlet valves
- Air hose connections or blower
- Batteries
- Lens

Emergency assigned respirators shall be inspected at least monthly. All points required by the manufacturer, as well as those above, shall be included in the emergency respirator inspection process.

All respirators shall be stored in a clean, contaminant-free environment. The respirator/face piece shall be placed in a plastic bag to ensure the contaminant does not get into or onto the respirator's face piece. Whenever possible, respiratory protection should be stored in a secured area.

407-2 SILICA

In our continuing pursuit of a safe and healthy workplace, the Cabinet has instituted a silica exposure control plan to be followed by all employees ([SHA-407-2](#)).

Employees shall use a respirator with APF of 10 throughout the entire time that tasks with silica exposure are being performed. ([SHA-407-1](#) and [SHA-506](#) provide information on selection, training, proper use, and fit testing requirements.) Tasks may include, but are not limited to: core drilling, asphalt cutting, concrete cutting, jack hammering, concrete mixing, and sand blasting.

407-2 SILICA (CONT.)

Employees shall observe the following safe work practices:

- Ensure continuous water application when work is in progress.
- Check shrouds and hoses to make sure they are not damaged before starting work.
- Make sure the hoses do not become kinked or bent while working.
- Use switch on vacuum to activate filter cleaning at the frequency recommended by the manufacturer.
- Replace vacuum bags as needed to prevent overfilling.
- Use the equipment controls according to manufacturer's instructions for reducing the release of visible dust.
- If visible dust increases, check controls and adjust as needed.
- Dust containing silica on work surfaces and equipment must be cleaned using wet methods or a HEPA-filtered vacuum.
- Do not use compressed air or dry sweeping for removing dust and debris containing silica from work surfaces.
- Dispose of used vacuum bags in a container and keep the container sealed.

A competent person should be designated to frequently and regularly inspect job sites, materials, and equipment to implement the silica exposure control plan. KYTC can designate any employee to be a competent person if the employee is qualified, including the employee who does the work on a jobsite. For example, employees who go to jobsites alone can be designated a competent person if they know how to properly implement controls on the tools they use, can recognize if the controls are not working, and can correct the non-working controls.

Additional information on OSHA's silica rule can be found at:

www.osha.gov/silica

407-3 ASBESTOS

The purpose of the asbestos awareness program is to establish guidelines and procedures in the operations and maintenance of asbestos containing materials at KYTC facilities, and to protect all employees, contractors, visitors, and vendors from potential health hazards of asbestos-related diseases ([SHA-407-3](#)).

This program applies to all buildings and structures owned by KYTC, employees and subcontractors of KYTC, occupants of KYTC buildings, and external organizations that may come into contact with or disturb asbestos-containing material in KYTC buildings.

The program applies to routine work during which an employee may encounter asbestos, as well as work undertaken to repair or remove asbestos-containing material.

Prior to construction activities, the KYTC project manager or designee shall ensure that all presumed asbestos-containing material (PACM) has been fully evaluated and verified. If during construction activity a suspect material is discovered, the area will be cordoned off until sampling has been completed.

Certain building materials installed prior to 1980 must be presumed to contain asbestos unless proven to be asbestos-free. This is to prevent over sampling or sampling that might trigger an unnecessary remedial response such as thermal insulation, ceiling, and floor tile. Sampling these items would damage them and trigger their replacement. Typically, sampling is only performed on these items when they will be disturbed or are already damaged.

407-3 ASBESTOS (CONT.)

PACM such as transite/cement board, thermal insulation, and floor/ceiling tiles, or suspected asbestos-containing materials shall not be:

- Drilled
- Hammered
- Cut
- Sawed
- Sanded
- Broken
- Damaged
- Moved
- Disturbed

When there is reasonable belief that an asbestos hazard exists, the employee shall stop work activities and immediately contact his or her supervisor. The supervisor shall contact safety personnel or the ES&H Branch to assess the presence of asbestos.

Should PACM be detected, safety personnel or the ES&H Branch shall follow proper procedures to either abate or render safe the area of concern. The employee shall be informed when the worksite is determined to be safe. The employee shall then proceed with completion of the assignment.

Cleanup and repair of asbestos-containing material shall only be performed by outside contractors who have been properly trained. It is the policy of KYTC that Cabinet employees are not to be involved in any asbestos repairs, maintenance, or removal operations. All employees, visitors, vendors and contractors will be notified in advance when work involving asbestos is to be carried out in any area of KYTC buildings which they occupy.

407-3 ASBESTOS (CONT.)

There are several KYTC buildings that have floor tiles containing asbestos; however, regular washing, waxing, stripping, and buffing of these tiles will not release dangerous levels of asbestos.

In order to prevent inadvertent release of asbestos from these tiles, employees shall take note of the following:

- Floor tiles shall not be sanded.
- When stripping floors, use low abrasion pads at speeds lower than 300 rpm and use wet methods.
- Burnishing or dry buffing may be done only when the flooring has enough of a finish that the pad cannot contact the asbestos-containing material.
- Broken and damaged asbestos floor tiles must be removed by asbestos abatement workers.

All custodial and housekeeping employees may not carry out work without first being trained. In addition, all maintenance personnel that may perform duties where they would encounter PACM shall receive awareness training.

Awareness training may be repeated annually and may include:

- Health effects of asbestos
- Locations, signs of damage and deterioration of asbestos-containing materials, and presumed asbestos-containing materials
- Proper response to fiber release episodes
- Types, properties, and uses of asbestos
- Hazards of asbestos fiber inhalation and ingestion
- Types of activities that could release asbestos fibers

407-3 ASBESTOS (CONT.)

For emergency medical assistance, contact the local emergency number (911). Report all work-related incidents to safety personnel or the ES&H Branch.

- *Eye Exposure:* Wash eye(s) immediately with large amounts of water for at least 15 minutes while occasionally lifting the lower and upper lids. Get medical attention as soon as possible.
- *Skin Exposure:* Immediately flush with copious amounts of water. Remove any contaminated clothing and flush exposed skin areas. Get medical attention as soon as possible.
- *Swallowing Exposure:* If asbestos has been swallowed, call 911 immediately.
- *Respiratory Exposure:* Get the victim to open, fresh air immediately. Keep the victim warm and at rest. Get medical attention as soon as possible.

407-4 LEAD

This program applies to potential hazardous exposures employees may encounter within the scope of their job duties as inspectors on bridge painting projects. It addresses the levels of exposure and the methods that will be used to minimize employees' exposure to the identified hazards associated with the removal and application of lead-containing coatings on steel bridges and structures ([SHA-407-4](#)).

Maintenance painting projects require the disturbance of existing lead-based paints on the structure. Identified operations which disturb or remove lead-based paint include water washing, hand and power tool cleaning, and abrasive blasting.

407-4 LEAD (CONT.)

The ES&H Branch shall determine if any employee may be exposed to lead at or above the action level. This initial determination will be made based upon a representative sample of the exposed employees who KYTC reasonably believes may be exposed to the greatest airborne concentrations of lead.

During the initial determination, employees shall use respiratory protection if there is a suspected exposure risk in accordance with the KYTC respiratory protection program and applicable OSHA standards.

If an initial determination shows the possibility of employee exposure to lead at or above the action level, KYTC shall conduct monitoring that is representative of the exposure for each employee in the work area. If an initial determination shows that no employee is exposed to airborne concentrations of lead at or above the action level, no further action is required. Monitoring shall be repeated as required by [SHA-407-4](#).

KYTC shall notify employees within 5 working days after the receipt of the monitoring results. Each employee shall be notified in writing of the results that represent his or her own exposure.

If the results indicate that the representative employee exposure, without regard to respirators, exceeds the PEL, KYTC shall include in the written notice a statement that the PEL was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the PEL.

If an employee is exposed to lead above the PEL for more than 30 days per year, KYTC shall implement engineering and work practice controls (including administrative controls) to reduce and maintain employee exposure to lead below the PEL.

407-4 LEAD (CONT.)

If the instituted engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, KYTC shall:

- Reduce exposures to the lowest feasible level
- Supplement those reductions with the use of respiratory protection that complies with KYTC's respiratory protection program

All KYTC employees working as inspectors or having direct responsibility for specific operations on the project shall be provided with the appropriate annual training and personal protective equipment (PPE) for entering regulated areas.

KYTC employees shall not enter a regulated area:

- Unless properly trained and made aware of the lead-related hazards
- While an abrasive blast operation, hand or power tool removal of rust and existing coatings, or water washing is ongoing
- For inspection until cited operations have ceased, the area has been appropriately vacuumed, and the contractor's quality control representative has inspected the cleaned surfaces

If all feasible engineering controls are in place and working properly, a job rotation schedule shall be established for any KYTC employee exposed to lead concentrations at or above the PEL.

KYTC shall supply the appropriate respirators and fit-testing for all employees required by this section to wear respiratory protection.

407-4 LEAD (CONT.)

KYTC employees shall be required to wear respiratory protection during the following:

- Periods necessary to install or implement engineering and work practice controls
- Operations for which engineering and work practice controls are not sufficient to reduce employee exposures to or below the PEL
- Periods when an employee requests a respirator

Protective work clothing and equipment includes, but is not limited to, coveralls or similar full-body work clothing, gloves, hats, disposable shoe coverlets (where feasible), and safety glasses or other appropriate protective equipment which complies with [29 CFR 1910.133](#).

In accordance with [29 CFR 1910.1025\(g\)](#), if an employee is exposed to lead above the PEL (without regard to the use of respirators) or where the possibility of skin or eye irritation exists, KYTC shall provide at no cost to the employee (and assure that the employee uses) appropriate protective work clothing and equipment such as, but not limited to:

- Coveralls or similar full-body work clothing
- Gloves, hats, and shoes or disposable shoe coverlets
- Face shields, vented goggles, or other appropriate protective equipment which complies with [29 CFR 1910.133](#)

Employees refusing to wear required protective clothing or equipment will be subject to disciplinary action, up to and including dismissal.

407-4 LEAD (CONT.)

Food, beverages, tobacco products, and cosmetics shall not be present or used in areas where employees are exposed to lead above the PEL (without regard to the use of respirators), except in the following locations: change rooms, showers, hand wash stations, and lunchrooms provided by contractors for their employees on the jobsite.

When exiting a lead-exposed work area, employees should wash their face and hands prior to eating, drinking, using tobacco products, or applying cosmetics.

KYTC shall remove an employee from work having an exposure to lead at or above the action level on each occasion as follows:

- Periodic and follow-up blood sampling tests indicate the employee's blood lead level is at or above 50 µg/ 100 g of whole blood.
- Final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition placing him or her at increased risk of health impairment from lead exposure.

SHA-407-4 provides information on returning from medical removal protection.

407-5 CONFINED SPACES

This policy provides procedures for the safe entry and work practices in confined spaces. The policy applies to all employees who enter confined spaces. Additional information is available in [SHA-407-5](#).

According to OSHA [29 CFR Part 1910.146\(b\)](#), a confined space is defined as follows:

- Large enough and so configured that an employee can enter and perform assigned work
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits)
- Not designed for continuous employee occupancy

Confined spaces are dangerous work environments and should always be treated with extreme caution. This policy attempts to provide safe procedures for entry and work in confined spaces; however, there are some confined spaces that are more dangerous and may not be appropriate for any entry. The ES&H Branch Manager shall be notified before any confined space is accessed.

There are two types of confined spaces: non permit-required confined space and permit-required confined space. See [SHA 407-5](#) for examples of each, as well as conditions that must be met prior to employee entry of the space. Employees who enter the confined space have a right to review and observe all checks on the confined space prior to entering the space.

- Once the confined space permit is fully executed, the authorized entrants may enter the confined space ([SHA-9015](#)).

407-5 CONFINED SPACES (CONT.)

- The attendant should retest the air periodically while the employees are in the confined space to ensure that atmospheric conditions are acceptable. If air tests are not acceptable, the attendant is authorized to order entrants to exit the confined space.
- The authorized entrants must stay in communication with the attendant throughout the duration of the work. If any condition inhibits communication, the attendant is authorized to order the entrants to exit the confined space.
- Entrants shall be trained in the use of and be equipped with atmospheric monitoring equipment that sounds an audible alarm in addition to its visual readout.

Whenever employees exit the space, including breaks or lunch, the permit shall be canceled and a new permit completed for re-entry. The air shall be tested each time before re-entry and the permit completed.

407-6 EXCAVATION & TRENCHING

An *excavation* is any man-made cut, cavity, trench, or depression in an earth surface formed by earth removal.

A *trench* (trench excavation) means a narrow (in relation to its length) excavation made below the surface of the ground. In general, the depth of a trench is greater than the width, but the width of a trench as measured at the bottom is not greater than 15 feet (4.6 meters).

407-6 EXCAVATION & TRENCHING (CONT.)

A *competent person* is an individual who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Only someone receiving special training, having experience in the field with the ability to recognize potential hazards, and having the authority to correct hazards or abate operations shall be qualified as a competent person. See [SHA-407-6](#) for a complete list of duties and responsibilities assigned to the designated competent person.

The purpose of the excavation and trenching program is to establish minimum guidelines to protect all employees engaged in outdoor or indoor work activities that expose them to potential hazards from excavation and trenching operations. Employees will be in danger if trenches and excavations are not inspected daily by a competent person for evidence of possible cave-ins, hazardous atmospheres, failure of protective systems, or other unsafe conditions. [SHA-407-6](#) provides additional information on excavation and trenching.

The day-to-day aspects of policy implementation shall be the responsibility of district operations, the competent person, supervisors, and employees engaged in this type of work.

Personnel in the program shall contact the ES&H Branch or district safety personnel if further information or guidance is needed.

Pre-job planning is vital to accident-free trenching and excavation. Refer to [SHA-407-6](#) for specific directions on spoil-pile placement, access and egress, and protective systems or equipment.

407-7 LOCKOUT/TAGOUT PROCEDURES FOR STORED OR RESIDUAL ENERGY

This procedure establishes the minimum requirements for the lock out of energy-isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or the release of stored energy could cause injury. [SHA-408-7](#) provides additional information.

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lock out procedures. The authorized employees are required to perform the lock out in accordance with this procedure. All employees, upon observing a machine or piece of equipment that is locked out to perform servicing or maintenance, shall not attempt to start, energize, or use that machine or equipment.

Employees who violate this program's policies and procedures or commit acts that cause or are likely to cause harm to themselves, coworkers, the public, or property shall be subject to disciplinary action, up to and including dismissal ([GAP 801](#)).

The following sequence of steps shall be followed when locking out energized devices:

1. The supervisor shall notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
2. The authorized employee shall:
 - a. Follow proper procedures to identify the type and magnitude of the energy that the machine or equipment utilizes

407-7 LOCKOUT/TAGOUT PROCEDURES FOR STORED OR RESIDUAL ENERGY (CONT.)

- b. Understand the hazards of the energy
 - c. Know the methods to control the energy
3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).
 4. Deactivate the energy-isolating devices so that the machine or equipment is isolated from energy sources. Locate all energy sources that power the piece of equipment to be maintained. Always look for hidden energy sources. Some machines may have more than one source of power.
 5. Lock out the energy-isolating devices with assigned individual locks. Make absolutely sure the power cannot be supplied without the authorized employee knowing about it. If several people are needed to work on a piece of equipment, each one must apply his or her own lock. This prevents any accidental start-ups while another employee may still be working on the machinery. In this case, a multiple lockout device shall be used that can accommodate several locks at once.

Employees shall not use another employee's lock or lend their own lock to someone else.

6. Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, as well as air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc. Equipment must be at "zero energy state" before servicing or maintenance work can begin.

407-7 LOCKOUT/TAGOUT PROCEDURES FOR STORED OR RESIDUAL ENERGY (CONT.)

Employees shall ensure that equipment is disconnected from the energy sources by verifying that personnel are not exposed and that equipment is isolated and will not operate.

CAUTION: Return operating controls to neutral or "off" position after verifying the isolation of the equipment.

7. The machine or equipment is now locked out.

When the servicing or maintenance has been completed, and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken:

- Check the machine or equipment, as well as the immediate area around the machine or equipment, to ensure that nonessential items have been removed and that the machine or equipment components (including machine guards) are operationally intact.
- Check the work area to ensure that all employees have been safely positioned or removed from the area.
- Verify that the controls are in neutral.
- Remove the lockout devices and reenergize the machine or equipment.

Note: The removal of some forms of blocking may require re-energization of the machine before safe removal.

Notify affected employees that the servicing or maintenance is complete and the machine or equipment is ready for use.

**407-7 LOCKOUT/TAGOUT PROCEDURES FOR STORED OR RESIDUAL ENERGY
(CONT.)**

EXAMPLE OF A LOCKOUT TAG



408 ELECTRICAL SAFETY

408-1 GENERAL SAFEGUARDS

Employees shall comply with all applicable safety standards including KOSHA, NFPA, OSHA, and other appropriate governmental and industry-accepted guidelines, codes, and standards. These practices cover the installation and maintenance of electrical systems, premise wiring, traffic signals, and street lighting. Electrical safety is ultimately the responsibility of the electrical employee.

A *qualified person* is an employee who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify the hazards and reduce the associated risk. This person is referred to as a *qualified electrical worker (QEW)*.

An *unqualified person* is a person who is not a qualified person as defined above.

A qualified person is responsible for:

- Keeping unqualified persons away from areas where electrical work is being performed
- Following the applicable TC 25-156 form, *Job Safety Analysis & PPE Certification of Hazard Assessment*, and safety rules ([SHA-9001](#))
- Knowing the appropriate personal protection equipment (PPE) and tools for each assigned task and how to inspect them before beginning work
- Remaining knowledgeable and current on the applicable safety procedures and rules applying to their job

408-1 GENERAL SAFEGUARDS (CONT.)

An unqualified person shall:

- Always be aware of possible electrical hazards, even when their tasks do not involve electrical work (such as, the operation of mobile equipment, use of ladders, or handling materials)
- Remain outside the limited approach boundary as defined by OSHA standards unless escorted by a qualified person

Unqualified employees shall **not**:

- Conduct any electrical repairs
- Operate equipment in the presence of an electrical hazard
- Allow electrical equipment or components to contact water
- Use cords or plugs missing the “ground” prong
- Overload electrical receptacles

Any level of electricity can be physically harmful. Therefore, employees are responsible for the immediate reporting of **all** electrical safety hazards, as well as acquiring proper training and authorization prior to working on electrical equipment. Employees are also responsible for inspecting equipment prior to using it.

Before starting each job, the employee in charge shall complete a TC 25-163 form, *Job Briefing*, and TC 25-156 form, *Job Safety Analysis & PPE Certification of Hazard Assessment* ([SHA-9002](#) and [SHA-9001](#)).

408-1 GENERAL SAFEGUARDS (CONT.)

Only qualified persons may work on energized electrical circuit parts or equipment. Such persons shall be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

The following electrical safety rules apply to both qualified and unqualified electrical workers:

- Report all electrical hazards to the supervisor before attempting any electrical repairs.
- Do not operate equipment if an electrical hazard is or may be present.
- Do not allow electrical equipment or components to contact water.
- Remember that even low-voltage electricity can be physically harmful.
- Do not use cords or plugs that are missing the ground prong.
- Do not overload electrical receptacles.

408-2 RISK CONTROLS FOR ELECTRICAL HAZARDS

The following **engineering risk control methods**, in conjunction with the National Electric Code, shall be used to prevent occurrence of electricity-related incidents:

- All electrical distribution panels, breakers, disconnects, switches, and junction boxes shall be completely enclosed.
- Water-tight enclosures shall be used if electrical components could possibly be exposed to moisture.
- Structural barriers shall be used to prevent accidental damage to electrical components.

408-2 RISK CONTROLS FOR ELECTRICAL HAZARDS (CONT.)

- Conduits shall be supported for their entire length; non-electrical attachments to conduits are prohibited.
- Non-rigid electrical cords shall have strain relief wherever necessary.

The following **administrative risk control methods** shall be used to prevent occurrence of electricity-related incidents:

- Only trained and authorized quality electrical workers (QEWs) may repair or service electrical equipment.
- Contractors shall be licensed to perform electrical work.
- Physical barriers shall be used to prevent unauthorized persons from entering areas where electrical work or operations (such as, new installation or repair of electrical components or equipment) are being performed.
- Only trained and authorized QEWs may enter electrical distribution rooms.
- All electrical control devices shall be labeled properly.
- Senior facility management shall pre-authorize work on energized electrical circuits through an energized electrical work permit ([SHA-9017](#)) or safe operating procedure.

The following **work practice risk control methods** shall be used to prevent occurrence of electricity-related incidents:

- Electrically-rated safety shoes shall be worn.

408-2 RISK CONTROLS FOR ELECTRICAL HAZARDS (CONT.)

- Properly insulated tools shall be used.
- Non-conductive gloves shall be made available for use during work on electrical equipment.
- Electrically rated matting shall be placed in front of all electricity distribution panels.

The following **high voltage work risk control methods** shall be used to prevent occurrence of electricity-related incidents:

- For high voltage (above 600 volts) all electrical work and operations will be performed by a qualified high voltage electrical contractor.
- All employees shall maintain at least 10 feet from high voltage circuits and overheads up to 50kV. For voltages above 50kV, add 4 inches for every 10kV.
- The electric utility shall be contacted if workers have not confirmed the voltage of the overhead power line.

Any exception to this policy requires an energized electrical work permit ([SHA-9017](#)) approved by the location manager.

408-3 ELECTRICAL TRAFFIC CONTROL DEVICE INSPECTIONS

Preventative maintenance should be performed by qualified electrical workers (QEWs) yearly and include the following:

- Clean the interior of the cabinet and replace the air filter.
- Seal the cabinet and conduits to prevent animals and insects from entering.

408-3 ELECTRICAL TRAFFIC CONTROL DEVICE INSPECTIONS (CONT.)

- Inspect the service and verify the installation of warning stickers.
- Replace the conflict monitor and verify the program.
- Visually inspect detection systems and verify the operation of pedestrian detection.
- Test the fan and thermostat.
- Visually inspect the support structures and span attachments.
- Visually inspect overhead equipment.
- Inspect the grounding and bonding.
- Verify that the red-fail cable, if used, is properly installed.

Doors and hinged panels shall be secured to prevent them from swinging into an employee and causing that employee to contact exposed energized parts.

Metal measuring tapes or steel scales shall not be used near exposed energized parts.

Only qualified employees may perform testing on electric circuits or equipment. Test instruments and equipment and all associated test leads, cables, power cords, probes, and connectors shall be visually inspected for external defects and damage before the equipment is used.

If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service and no employee shall use it until it has been repaired, tested, and found to be safe ([SHA-412](#)).

408-3 ELECTRICAL TRAFFIC CONTROL DEVICE INSPECTIONS (CONT.)

Test instruments, equipment, and their accessories shall be rated for the circuits and equipment to which they will be connected and shall be designed for the environment in which they will be used.

408-4 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The purpose of this section is to ensure personnel have an adequate understanding of potential electrical hazards and the knowledge to select and wear the proper PPE based on the hazards. KYTC shall provide PPE for use by employees working in areas where they could be exposed to electrical hazards.

PPE requirements apply to all persons exposed to potential electrical shock or arc flash hazards. Employees are required to observe the following procedures:

- Use only PPE designed for the work being performed.
- Inspect and test all PPE prior to use.
- Conductive articles of jewelry and clothing (such as watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) shall not be worn near exposed energized parts unless they are rendered nonconductive by covering, wrapping, or other insulating means.
- Where energized work is being performed that has the potential to expose employees to an arc flash, employees shall wear arc-rated (AR), flame-resistant (FR) clothing and AR PPE based on the incident energy exposure associated with the specific task.

408-4 PERSONAL PROTECTIVE EQUIPMENT (PPE) (CONT.)

- At a minimum, all persons exposed to potential electrical shock or arc flash hazards shall wear an untreated, long sleeve, natural fiber shirt, long pants, hard hat, and safety glasses with side shields and electrical hazard (EH)-rated shoes.
- Employees shall wear protective clothing buttoned in the front and at the sleeves with shirts tucked to avoid heat and flames from entering under the clothing. When work covered by NFPA 70E is performed, garments shall conform to the NFPA 70E requirements.
- For the purposes of labeling, it is preferred that an arc flash hazard assessment be completed using an engineering calculation method. However, the NFPA 70E task tables and related guidelines are acceptable as well.
- Use a protective outer cover if the work being performed might damage the PPE's insulation.
- Wear non-conductive headgear if there is a danger of electrical burns or shock from contact with exposed, energized equipment.
- Wear eye and face protection if there is a danger of flying objects, flashes, or electrical arcs produced by an electrical explosion.

In addition to the basic requirements for electrical personnel, PPE may include:

- AR face shields
- Rubber insulating gloves used with leather over-protectors

408-4 PERSONAL PROTECTIVE EQUIPMENT (PPE) (CONT.)

- Rated insulated tools to prevent inadvertent electrical contact and minimize the arc hazard risk if a tool is dropped
- Class E (20 kV) rated hard hats
- Safety glasses equipped with side shields and non-metallic frames
- Leather work shoes with EH-rated soles

Before starting work, PPE shall be carefully inspected to make sure it is in good working condition.

Shock protection shall also include the use of:

- Insulated tools or equipment when working on exposed energized conductors or circuit parts
- Insulated fuse-handling equipment when removing or installing fuses as fuse terminals are energized
- Non-conductive ropes and hand lines when working near exposed energized parts
- Protective shields, barriers, or insulating materials as protection from shock, burns, or other electrically related injury while working near exposed energized parts

When not in use, PPE shall be maintained in a safe, reliable condition and shall be periodically inspected or tested.

- Electrical rubber gloves shall be:
 - ◆ Visually inspected and air tested prior to first use each day
 - ◆ Dielectrically tested at a test laboratory according to the appropriate ASTM guides every six months from first use

408-4 PERSONAL PROTECTIVE EQUIPMENT (PPE) (CONT.)

- Unopened electrical rubber gloves may be stored for a maximum of twelve months under climate-controlled conditions.
- Other rubber electrically insulated products (such as mats and sleeves) shall be tested every twelve months and inspected before each use.
- Rated insulated tools (1000V AC) shall be visually inspected prior to each use. All portable electrical test meters (such as voltmeters, multi-meters, clamp-on ammeters) shall comply with UL-IEC 61010 Category III or IV classification.
- It is preferred that employees use dual-substrate insulating tools that indicate dielectric wear or damage.
- The soles of EH-shoes shall be free of notable wear and debris.

408-5 TRAINING

At a minimum, **qualified electrical workers** (QEWs) shall receive training in safe electrical work practices when hired and refresher training every 3 years, as required by NFPA 70E. All other personnel shall receive electrical hazard awareness training when hired and refresher training every 3 years.

At a minimum, **unqualified electrical workers** who are exposed to electrical hazards and are at risk of injury from electric shock or arc flash shall receive general electrical safety training when first hired and refresher training every 3 years.

Unqualified electrical workers who are required to do specific electrical tasks shall be trained according to the NFPA 70E requirements for that specific task and shall be certified as “Task Qualified.”

408-5 TRAINING (CONT.)

Unqualified electrical workers who are unauthorized to perform work on electrical equipment and components will be trained in general electrical safety precautions and hazard awareness.

Training documentation shall be maintained reflecting each employee's name and training dates, including when the employee demonstrated the work practice. Training documentation shall be maintained for the duration of the employee's tenure. Employment records indicating an employee has received the required training are acceptable means of meeting this requirement.

SHA-408-5 describes the training requirements for QEWs, additional employee training, and retraining.

408-6 DE-ENERGIZED PARTS (ELECTRICAL LOGOUT/TAGOUT)

Live electrical parts shall be de-energized before the employee works on or near them unless the supervisor can demonstrate that de-energizing introduces additional or increased hazards or is unfeasible due to equipment design or operational limitations (**SHA-9017**).

It is not required that live parts operating at less than 50 volts to ground be de-energized if there will be no increased exposure to electrical burns or to explosion due to electrical arcs. When working below 50V, workers shall remain vigilant to the possibility of contact with surrounding energized parts operating at > 50V. Examples of increased or additional hazards include interruption of life support equipment, deactivation of emergency alarm systems, shutdown of hazardous location ventilation equipment, or removal of illumination for an area.

408-6 DE-ENERGIZED PARTS (ELECTRICAL LOGOUT/TAGOUT) (CONT.)

Examples of work that may be performed on or near energized circuit parts due to equipment design or operational limitations include testing of electric circuits that can only be performed with the circuit energized and work on circuits that form an integral part of a continuous industrial process in a chemical plant that would otherwise need to be completely shut down in order to permit work on one circuit or piece of equipment.

SHA-407-7 provides additional information regarding lockout/tagout procedures.

The circuits and equipment to be worked on shall be disconnected from all electric energy sources according to the following sequence.

Note: Control circuit devices (such as push buttons, selector switches, and interlocks) may not be used as the sole means for de-energizing circuits or equipment.

1. Stored electric energy that might endanger personnel shall be released, capacitors shall be discharged, and high capacitance elements shall be short-circuited and grounded. If the capacitors or associated equipment are handled in meeting this requirement, they shall be treated as energized.
2. Stored non-electrical energy in devices that might re-energize electric circuit parts shall be blocked or relieved to the extent that the circuit parts cannot be accidentally energized by the device.
3. A lock and a tag shall be placed on each disconnecting means that is used to de-energize circuits and equipment. The lock is attached to prevent persons from easily operating the disconnecting means. Each tag shall contain a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag.

408-6 DE-ENERGIZED PARTS (ELECTRICAL LOGOUT/TAGOUT) (CONT.)

Note: A tag may be used without a lock if a lock cannot be applied or if the supervisor can demonstrate that tagging procedures will provide a level of safety equivalent to a lock.

4. A qualified person shall use test equipment to test the circuit elements and electrical parts of the equipment that employees will be exposed to and shall verify that the circuit elements and equipment parts are de-energized. The test shall also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage back-feed even though specific parts of the circuit have been de-energized and presumed to be safe.

Note: When test instruments are used to confirm the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument shall be verified before and after the absence-of-voltage test is performed.

Before re-energizing a device, a qualified person shall conduct tests and visual inspections necessary to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed and that the circuits and equipment can be safely re-energized. Employees exposed to hazards associated with re-energizing the circuit or equipment shall be warned to stay clear of the circuits and equipment.

Each lock and tag shall be removed by the employee who applied it or under his or her direct supervision. If the employee is absent from the workplace, the lock or tag may be removed by a qualified person who has been designated to perform this task.

408-6 DE-ENERGIZED PARTS (ELECTRICAL LOGOUT/TAGOUT) (CONT.)

The following conditions must be met before the lock or tag may be removed by the designated qualified person:

- The supervisor has confirmed that the employee who applied the lock or tag is not available in the workplace at the time of removal
- The supervisor has ensured that the employee who applied the lock or tag has been advised of the lock or tag removal before he or she resumes work
- A visual determination has been made that all employees are clear of the circuits and equipment

Qualified employees shall take the following control measures when working on live parts:

- Ensure that all precautions as outlined above have been followed
- Carefully complete work in a slow, considered manner
- Follow all safe working procedures
- Assume that all exposed conductors or equipment are live
- Use work practices suitable for the condition under which the work is to be performed and the voltage level of the live parts or equipment
- Keep a safe working distance

408-7 SPECIFIC WORK PRACTICES

When working in open areas where energized equipment must be exposed, appropriate alerting techniques shall be established. Signs, barricades, symbols, or accident prevention tags shall be used as a warning of electrical hazards. Such alerting techniques shall be placed at the greater of either the limited approach boundary or arc flash protection boundary.

Barricades shall be used in conjunction with safety signs where necessary to prevent or limit access to work areas exposing people to uninsulated energized conductors or circuit parts. Conductive barricades may not be used where they might cause an electrical contact hazard.

If signs and barricades do not provide sufficient warning of electrical hazards, an attendant shall be stationed to warn and protect persons from the potential hazard.

All electrical equipment installations shall include permanent labels as described below:

- Label all disconnecting means, panel boards, and control panels to indicate what they disconnect, the voltage, arc flash boundary, arc flash incident energy at a working distance or personal protective equipment (PPE) category, and where they originate (the next upstream disconnect).
- Label circuit breakers located in panels ($\leq 240\text{V}$) with what they control. This can be on a circuit directory located on the face or inside panel door.
- Provide arc flash hazard information for circuit breaker panels on one label on the enclosure.

408-7 SPECIFIC WORK PRACTICES (CONT.)

- Include a permanent label indicating the minimum working space for all electrical equipment operating at 600 volts nominal or less and likely to require examination, adjustment, servicing, or maintenance while energized. The floor shall also be taped or painted to indicate the working area required.
- Place labels on electrical equipment that are suitable for the environment, with consideration to chemicals and sunlight.

Electric equipment capable of igniting flammable materials (such as gases, vapors, liquids, dust, fibers, or filings) shall not be used where those materials are present unless measures are taken to prevent hazardous conditions from developing.

Employees may not perform housekeeping duties in proximity to areas where live parts present an electrical contact hazard unless adequate safeguards such as insulating equipment or barriers are provided.

Electrically conductive cleaning materials (including conductive solids, such as steel wool, metalized cloth, and silicon carbide, as well as conductive liquid solutions) may not be used in proximity to energized parts unless procedures are followed that will prevent electrical contact.

The following precautions shall be taken when working with portable equipment:

- Portable AC electrical power tools shall be double-insulated construction or grounded. In addition, all 120-volt AC power tools used for construction and maintenance must be used with ground fault circuit interruption (GFCI) protection originating at the wall receptacle. Permanent GFCI receptacles or portable GFCIs are acceptable.

408-7 SPECIFIC WORK PRACTICES (CONT.)

- Portable, plug-connected tools and extension cords shall be visually inspected before each use by the user. Damaged tools, plugs, or cords shall not be used and shall be removed from service. Visual inspection shall be performed to check for external defects (such as loose parts, deformed and missing pins, or damage to outer jacket or insulation) and evidence of possible internal damage (such as pinched or crushed outer jacket).
- Cord- and plug-connected equipment, as well as extension cords that remain connected once they are put in place and are not exposed to damage, shall be visually inspected before relocating them. If inspection reveals a defect or evidence of damage that might expose an employee to injury, the equipment or extension cord must be removed from service, and no person may use it until it has been repaired, tested, and found to be safe.
- Appliances used at the location shall have a manufacturers' nameplate and shall be listed by an appropriate product safety testing and certification organization. If the appliance has exposed metal parts, only a 3-wire cord with a grounded plug is allowed. There should be no exposed electrical hazards.
- All extension cords must be used with GFCI protection at all times. Extension cords shall not be used as a substitute for permanent wiring.
- Portable electric power strips are permitted in compliance with the manufacturer's instructions.
- A flexible cord used with grounding type equipment shall contain an equipment grounding conductor.

408-7 SPECIFIC WORK PRACTICES (CONT.)

- Attachment plugs and receptacles may not be connected or altered in a manner that would prevent proper continuity of the equipment grounding conductor where plugs are attached to receptacles. Additionally, those devices may not be altered to allow the grounding pole of a plug to be inserted into slots intended for connection to the current-carrying conductors.
- Adaptors that interrupt the continuity of the equipment grounding connection may not be used.
- Portable equipment shall be handled in a manner that will not cause damage.
- Flexible electric cords attached to equipment may not be used to raise or lower the equipment and may not be fastened with staples or otherwise hung in such a way that could cause damage to the outer jacket or insulation.
- Employees' hands may not be wet when plugging or unplugging flexible cords and cord- and plug-connected equipment.
- Electrically rated insulating protective equipment such as gloves must be used if handling a plug or receptacle that could provide a conducting path to the employee's hand (for example, a cord connector that is wet from being immersed in water).
- Locking type connectors shall be properly secured after connection.

408-8 ELECTRICAL HAZARD ANALYSIS

Appropriate safety-related work practices shall be determined by an electrical hazard analysis before any person approaches exposed live parts operating at 50 volts or more that are within the limited approach boundary and are not de-energized or locked out ([SHA-407-7](#) and [SHA 408-7](#)). Such work practices shall protect each employee from arc flash and direct or indirect bodily contact with live parts.

A *shock hazard analysis* shall determine the voltage to which personnel will be exposed, boundary requirements, and the personal protective equipment necessary in order to minimize the possibility of electrical shock to personnel.

A *flash hazard analysis* shall determine the flash protection boundary and the personal protective equipment required to be used within the boundary.

Shields, barriers, or insulating materials shall be used to protect employees from shock, burns, or other electrically related injuries while working near exposed energized parts that might be accidentally contacted or where dangerous electric heating or arcing might occur. Normally enclosed live parts that are exposed for maintenance or repair shall be guarded to protect unqualified persons from contact with the live parts.

408-9 ENERGIZED ELECTRICAL WORK PERMIT (EERP)

An EERP ([SHA-9017](#)) shall be required when work is permitted in accordance with NFPA 70E, Article 130.2(A), and takes place under either of the following conditions:

- Within a restricted approach boundary
- Conductors or circuit parts are not exposed, but an increased likelihood of injury from an arc flash hazard exists

[SHA-408-9](#) provides information on EERP contents and exceptions.

408-10 NFPA ARTICLE 130 – WORK INVOLVING ELECTRICAL HAZARDS

[SHA 408-10](#) provides information regarding abbreviations and notes for Table 130.7(C)(16).

408-11 AUDIT REQUIREMENTS

An audit shall be conducted at least annually by a qualified person as directed by safety personnel and shall cover at least one lockout/tagout in progress and the procedure details. The audit shall be representative of the types of devices and energy sources that employees are exposed to in routine and non-routine work. The audit shall be designed to correct deficiencies in the procedure or in employee understanding ([SHA-407-7](#) and [SHA-408-7](#)).

[SHA-408-11](#) provides additional information on electrical safety audits.

408-12 WORKING AROUND POWER LINES

Employees shall survey the area for overhead and underground lines before work begins (“Call 811,” [KRS 367](#)). The supervisor shall contact the power company to have the lines disconnected, de-energized, or properly protected prior to work beginning when lines are too close to work safely or the exact location of underground lines is unknown.

- Employees shall use the following table to determine minimum clearance distances while working near distribution lines:

Normal Voltage (Phase to Phase)	Minimum Required Clearance
up to 50,000 volts	10 feet
Over 50,000 to 200,000 volts	15 feet
Over 200,000 to 350,000 volts	20 feet
Over 350,000 to 500,000 volts	25 feet
Over 500,000 to 750,000 volts	35 feet
Over 750,000 to 1,000,000 volts	45 feet
Over 1,000,000 volts	*

**As established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution.*

- Under the right conditions, electrical current can arc through the air to an equipment boom or other ground. Never work near live distribution lines or electrical circuits. The power company shall be notified and shall do one of the following prior to work commencing:
 - ◆ Disconnect or remove the distribution line
 - ◆ De-energize the distribution line
 - ◆ Guard the distribution line with insulation sleeves

408-12 WORKING AROUND POWER LINES (CONT.)

- Cabinet employees **shall not** remove any objects contacting live distribution lines.

- When performing tree trimming operations, employees shall:
 - ◆ Observe the ten-foot rule
 - ◆ Not attempt to work on trees that are within 10 feet of any kind of overhead wires
 - ◆ Follow all OSHA [29 CFR 1910](#) standards and ANSI recommendations for tree care work

409 FALL PROTECTION**409-1 OVERVIEW**

KYTC has developed a fall protection program to be followed by all employees. The purpose and scope of the fall protection program is to establish guidelines to protect all employees engaged in outdoor or indoor work activities that expose them to potential falls.

Pursuant to [29 CFR 1926.500-503](#), all employees shall be protected when engaged in work or inspection of work at heights greater than 4 feet on elevated work surfaces, platforms, lofts, decks, floor holes, stairs, tanks, bridges, leading edges, pick boards, one- and two-point suspension scaffolds, scaffold towers, fixed ladders in excess of 20 feet (not applicable to work performed on portable, extension, or step ladders), crane booms, excavations, trenches, aerial lifts, ramps, bucket trucks, snoopers, man baskets, radio or microwave towers, roofs, cliffs, rock ledges of roadway cuts, or any other areas where there is moving machinery or other hazards below the work area.

While working at heights greater than 4 feet, employees shall utilize personal fall arrest systems (PFAS) if guardrail systems are not in place. PFAS shall only be used for the purpose intended and in accordance with the manufacturer's guidelines. PFAS shall be utilized when working from any height on lift platforms, buckets, or other lift devices that may have standard railing.

All PFAS shall be evaluated and approved by the district's or division's fall protection coordinator in conjunction with the ES&H Branch.

- The supervisor, employee, or safety personnel shall survey the work environment to identify the potential fall hazards based on the tasks to be performed.

409-1 OVERVIEW (CONT.)

- Employees who are to utilize PFAS shall be provided systems that are appropriately sized and rated for them.
- Only KYTC-approved harnesses shall be purchased and used.
- Whenever possible, fall protection equipment shall be assigned to an individual for his or her exclusive use.
- When fall protection equipment is assigned to an employee for his or her exclusive use, the designated fall protection coordinator shall maintain a record of the employee and the specific equipment assigned.
- Temporary emergency assignment of fall protection equipment shall be made by the supervisor.
- Never store PFAS with other tools, in storage containers not specifically meant for PFAS, directly on the ground, or where it will be exposed to outside elements. Hang equipment in a cool, dry location in a manner that will ensure it retains its shape.
- Employees shall receive training prior to the assignment of fall protection equipment. (See [SHA-409-1](#) for a list of required topics.)
- Prior to use, PFAS shall be inspected by the employee in consultation with the *Inspection Checklist Guide* ([SHA-9018](#)) for damage, wear, and other deterioration, recorded on a TC 25-157 form, *Fall Protection Equipment Inspection Log* ([SHA-9019](#)), and maintained on file.
- All worker accidents and injuries shall be reported and investigated, regardless of their nature.

Employees who violate KYTC fall protection policies and procedures or commit acts that cause or are likely to cause harm to themselves, coworkers, the public, or property shall be subject to disciplinary action, up to and including dismissal ([GAP 801](#)).

For additional information regarding fall protection procedures, refer to [SHA-409](#).

409-2 LADDERS & SCAFFOLDS

Employees shall abide by the following **ladder safety** precautions:

- Ladders shall be well-constructed, with the rungs inset in the side rails. The bottom of the ladder shall have rubber safety feet. Ladders shall be used in accordance with manufacturer's recommendations.
- When ladders are positioned, they shall not be too straight or at too great an angle. The best angle is when distance from the wall to base of the ladder is approximately one-fourth the length of the ladder.
- Ladders should always have firm footing and should be properly tied off with a rope or heavy string to prevent shifting.
- Only fiberglass ladders shall be used for repairs to electrical equipment or energized lines.
- Ladders shall be stored away from traffic areas where damage or injury could occur.
- All ladders used to access overhead storage areas or roofs must extend at least 3 feet above the point of support.
- Ladders shall not be used in a horizontal position as platforms, runways, or scaffolds.
- Employees should not utilize a ladder without first being trained on the proper use, care, maintenance, and transport of a ladder.

Employees shall abide by the following **scaffold safety** precautions:

- Scaffolds shall be erected, moved, dismantled, or altered only under the supervision of the competent person.

409-2 LADDERS & SCAFFOLDS (CONT.)

- Scaffolds shall be constructed to support four times the maximum intended load.
- Scaffold platforms shall be at least 18 inches wide.
- Scaffolds shall be plumb and level.
- Working platforms shall be solidly planked.
- Planking shall be scaffold-grade lumber.
- Free-standing scaffolds shall be anchored to the structure every 26 feet vertically and every 30 feet horizontally.
- Safe and convenient access shall be provided to the platform level by ladder, stair, or other recognized method.
- Scaffold suspension rope shall be free of splices and be capable of supporting six times the intended load.
- Catenary (picks), one-point or two-point suspension, and boatswain chair scaffolds that require fall protection shall be independent of the scaffold or scaffold supports.
- Persons working from scaffolds shall utilize a PFAS and comply with all aspects of the fall protection program.
- Employees must attend required safety briefings by competent persons prior to entering scaffolds.
- Scaffolds must be designed by a qualified person and must be constructed, loaded, and inspected daily by a competent person in accordance with that design before use.

409-2 LADDERS & SCAFFOLDS (CONT.)

- Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person.
- Adequate sills for scaffold posts and base plates must be used.
- Open sides and ends of scaffolds more than 6 feet (1.8 meters) above the ground must have the following:
 - ◆ A top rail approximately 42 inches (1075 millimeters) high and capable of withstanding a 100-pound (45 kg) downward force
 - ◆ A mid rail
 - ◆ A toe board

409-3 THE 3-POINTS OF CONTACT RULE

The recommended safe practice for entering and exiting a vehicle or piece of equipment is the 3-points of contact rule. This means always having at least three points of contact with the equipment—two hands & one foot or one hand & two feet. Following the 3-point rule will provide employees with the most stability and reduce the risk of slips and falls.

- Do not mount and dismount when equipment is in motion.
- Never jump off equipment.
- Face towards the machine when entering or exiting.
- Do not break the three points of contact until the destination is reached: the ground, the vehicle's cab, or the platform.
- Keep movements slow and steady when entering or exiting.
- Be extra cautious in wet, muddy, snowy, or icy conditions.
- Wear appropriate footwear with adequate support, traction and slip resistance for the weather conditions and the equipment surfaces.

409-3 THE 3-POINTS OF CONTACT RULE (CONT.)

- Avoid loose or bulky clothing as it could get caught in the equipment or interfere with contact points.
- Don't step on tires or wheel hubs. Don't use the door frame or edge as a handhold.
- Look for obstacles on the ground before exiting the vehicle.

3-Points of Contact**410 HAZARD COMMUNICATION**

KYTC shall communicate safety and health policies, procedures, goals, and objectives to employees. Under this program, employees are informed of the contents of the OSHA hazard communications standard, the hazardous properties of chemicals with which they work, safe handling procedures, and measures to protect themselves from hazardous chemicals.

A list of hazardous chemicals used by KYTC employees is available online at:

<https://intranet.kytc.ky.gov/org/OHRM/em/Pages/Safety-Data-Sheets-and-Labels.aspx>

410 HAZARD COMMUNICATION (CONT.)

The supervisor or designee of each KYTC facility shall:

- Label all hazardous chemical containers in accordance with **SHA-410**
- Update safety data sheets (SDSs) regularly and make them readily available to all employees during their work shifts, either electronically or in print

Employees should not be around hazardous chemicals in their work area at the time of their initial assignment or when a new chemical hazard is introduced into the work area, until they have received information and training.

Employees shall attend hazard communication training (**SHA-410**).








The ES&H Branch is responsible for managing the training program and the district safety personnel are responsible for delivering the training to ensure that each employee is aware of the hazard communication program.

After attending the training, employees will sign a TC 25-2 form, *Training Report* (**SHA-9009**), verifying that they understand the training topics and how the topics are related to KYTC's hazard communication program.

Before employees perform non-routine tasks that may expose them to hazardous chemicals, supervisors shall advise them of the chemicals' hazards. Supervisors shall also inform employees about exposure control and emergency procedures. The supervisor will evaluate the hazards of these tasks and provide appropriate controls, including PPE and additional training as required.

410 HAZARD COMMUNICATION (CONT.)

HCS PICTOGRAMS & HAZARDS

<p>Health Hazard</p>  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<p>Flame</p>  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	<p>Exclamation Mark</p>  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
<p>Gas Cylinder</p>  <ul style="list-style-type: none"> • Gases under pressure 	<p>Corrosion</p>  <ul style="list-style-type: none"> • Skin Corrosion/ burns • Eye Damage • Corrosive to Metals 	<p>Explosion Bomb</p>  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
<p>Flame over Circle</p>  <ul style="list-style-type: none"> • Oxidizers 	<p>Environment (Non-mandatory)</p>  <ul style="list-style-type: none"> • Aquatic Toxicity 	<p>Skull & Crossbones</p>  <ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

411 SAFETY RISK REPORT

Safety risk reports establish a process for workers to report close calls/near misses, hazards, and other safety and health concerns. Reports may be submitted anonymously, if preferred; however, employees are advised that it is illegal for employers to take any action against employees in reprisal for exercising their rights to report safety issues.

KYTC employees should complete a TC 25-164 form, *Safety Risk Report*, to report an observed safety risk within their assigned work area that could potentially result in an injury or that has resulted in a near miss to themselves or a co-worker ([SHA-9013](#)).

411 SAFETY RISK REPORT (CONT.)

Completed forms shall be forwarded to the district safety coordinator or regional safety administrator. The district safety coordinator shall share the risk report with their immediate supervisor.

Forms may also be mailed to the KYTC Employee Safety and Health Branch, 200 Mero Street, 6th Floor West, Frankfort, KY, 40601, or faxed to (502) 564-6683. ES&H Branch staff will evaluate the safety risk and determine if safety enhancements are needed.

SHA-411 provides additional information on safety risk reports.

412 ACCIDENT PREVENTION TAG SYSTEM

Pursuant to Kentucky Occupational Safety and Health regulations, KYTC must have an accident prevention tag system, also known as a red tag system. The purpose of the red tag system is to remove faulty or damaged equipment from service, prevent injuries to both state employees and the public, and avoid financial loss.

The following information shall be entered on any tag affixed to state equipment:

- State inventory/equipment number
- Type of equipment
- Reason for tagging
- Signature of person completing tag
- Date

412 ACCIDENT PREVENTION TAG SYSTEM (CONT.)

RED TAG FOR DAMAGED/FAULTY EQUIPMENT



The supervisor responsible for the equipment shall be notified of the equipment having been tagged out of service and shall have the equipment repaired, replaced, or maintained out of service until repairs are made by qualified personnel.

Tags shall only be removed once appropriate repairs have been made and the person placing the tag has inspected the equipment to be placed back into service. The authorized inspector placing the tag is the only person authorized to remove the tag and allow it to return to service.



501 OVERVIEW

The Employee Safety and Health (ES&H) Branch shall approve the purchase of all personal protective equipment (PPE) to ensure items meet Occupational Safety and Health Administration (OSHA) requirements, work requirements, and Kentucky Transportation Cabinet (KYTC) specifications.

In accordance with [29 CFR 1926.32\(f\)](#), supervisors are designated as competent persons and, after consulting with safety personnel as needed, are responsible for the assessment, selection, and use of appropriate personnel, equipment, and personal protective equipment.

KYTC safety personnel shall conduct job hazard analyses to determine the appropriate PPE and shall certify the assessment in writing. When working with hazardous chemicals, employees shall utilize the PPE identified on the safety data sheets (SDSs).

Employees who refuse to follow KYTC policy regarding the proper use of safety equipment, including PPE, or commit acts that cause or are likely to cause harm to themselves, coworkers, the public, or property shall be subject to disciplinary action, up to and including dismissal ([GAP 801](#)).

Employee-owned PPE shall be evaluated and approved by KYTC safety personnel prior to use in the workplace.

Questions concerning uniform or PPE availability shall be directed to the district or division purchasing point of contact. Supervisors and employees may also consult the Office of Budget and Fiscal Management, Division of Purchases found online at:

<https://transportation.ky.gov/BudgetFiscalManagement/Pages/Purchases.aspx>

Additional information is available in [SHA-404](#).

502 HEAD PROTECTION

Regardless of their positions or work locations (outdoors or indoors), KYTC employees engaged in work where there is a possible danger of head injury as the result of impact, falling or flying objects, or electrical shock or burns, shall wear hard hats at all times that meet applicable ANSI standards for the type of work being performed ([SHA-405](#)).

Work areas include maintenance and construction projects such as the following:

- Culvert and bridge construction projects where overhead operations are in progress
- Direct contact with rock crushers and screening plants
- Direct contact with hot mix asphalt plants, tree, and debris removal projects
- Official contractor-designated hard hat areas

Other high visibility (hi-vis) headwear, such as caps and hats, shall meet the full requirements of ANSI/ISEA standard 107-2004, or equivalent revisions, and may be utilized in outdoor or indoor work where the hazard of head injuries does **not** exist.

Hi-vis headwear shall **not** be utilized as a replacement where hard hats are required. Hi-vis headwear shall be worn by all employees working in traffic-control flagging operations, within the right-of-way limits, or in other areas where they are potentially exposed to the risk of moving vehicles, equipment, or roadway traffic.

It is ultimately the responsibility of each employee to wear a hard hat or other headwear in applicable areas in compliance with this policy.

Employees who repeatedly disregard PPE policies and rules will be subject to disciplinary action up to and including dismissal from the Cabinet ([GAP 801](#)).

503 WELDING HELMETS

Helmets are required while welding or inspecting welding on construction sites. Filter lenses and plates shall be chosen in accordance with the welding operation. A guide to the proper shade numbers is available in [SHA-503](#).

504 EYE PROTECTION

Appropriate eye protection shall be used by employees exposed to eye hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

Employees shall wear safety spectacles when engaged in grinding, machining, woodworking, chipping, chiseling, post driving, jackhammering, concrete cutting, cutoff sawing, chain sawing, drilling, or any other tasks where there is a potential hazard from flying objects or particles. Safety spectacles are not appropriate protection for nuisance dust, rust particles, light, radiation, or other particulates.

- Regular scratch-resistant prescription spectacles do not provide impact resistance.
- Side-shield protection is required.
- Over-the-Glasses (OTGs) glasses are available for workers who wear prescription eyewear and need eye impact protection.

Appropriate goggles shall be worn when hazards include nuisance dust, rust particles, light radiation, sand, glass beads, sprays and mists, chemicals, or other particulates.

[SHA-504](#) provides information on supervisor responsibilities and types of goggles.

505 FACE PROTECTION

Face shields are required when employees are using a battery charger, handling corrosives, pouring chemicals, or performing any other activities that necessitate use of full-face protection.

Face shields protect the face, however they do not provide eye protection from impact. Therefore, eye protection shall be worn under the face shield. Chain saw operators shall wear a mesh face shield, along with eye protection ([SHA-504](#)).

506 RESPIRATORY PROTECTION

KYTC shall provide respirators, including disposable types, to employees who are exposed to air contaminated with harmful dusts, fogs, mists, fumes, gases, smokes, sprays, or vapors.

The selection of the appropriate respirator shall be made based upon the hazard encountered, and in accordance with applicable OSHA standards and KYTC's respiratory protection program ([SHA-407-1](#)).

Where respirator use is required, all applicable provisions of the KYTC respiratory protection program shall be met. These provisions include, but are not limited to, selection, medical evaluation, fit testing, use, cleaning, storage, and training.

All of the provisions above shall be met **before** an employee is permitted to wear a respirator.

Where disposable respirators are used but not required, respirator users shall be provided information from [29 CFR 1910.134](#), Appendix D, *Information for Employees Using Respirators When Not Required Under the Standard*.

507 LIFE JACKETS (PERSONAL FLOTATION DEVICES)

Life jackets shall be worn by employees working in close proximity to water and the danger of drowning exists, except when a fall-arrest system incorporates a 100 percent tie-off rule. Life jackets shall be U.S. Coast Guard-approved ([SHA-1611](#)).

508 HAND PROTECTION

Employees shall wear gloves to protect their hands from solvents, acids, abrasion, lacerations, heat, and punctures. A TC 25-156 form, *Job Safety Analysis & PPE Certification of Hazard Assessment*, shall be completed for each task to determine the type of glove and degree of protection needed ([SHA-9001](#)).

Electrical gloves must be electrically tested before being issued for such use. They must also be visually inspected and air tested for any possible defects (cuts, holes, tears, embedded objects, changes in texture) before each day's use and whenever there is a reason to believe they may have been damaged ([SHA-408-1](#)).

Gloves must be electrically tested at regular intervals of not more than 6 months. (ASTM F496, *Standard Specification for In-Service Care of Insulating Gloves and Sleeves for Appropriate Test Methods*). Best practice is to inspect and air test gloves before each use.

Refer to [SHA-508](#) for a list of the various types of gloves and their uses.

509 WORKER SAFETY APPAREL

KYTC promotes safety, hygiene, and a positive environment for employees and the general public. All employees shall be aware of the appearance they present in terms of work attire, personal hygiene, and grooming, and shall wear the proper apparel to avoid job-related injuries ([SHA-1802](#) and [SHA-1504](#)).

509 WORKER SAFETY APPAREL (CONT.)

Appropriate clothing and attire shall be worn to provide protection from sunburn, burns, insects, poisonous plants, and measured protection from injuries. This shall include, but is not limited to, long pants and shirts or blouses covering the shoulders and midriff.

Footwear shall be conducive to and appropriate for the employees' work environment and anticipated duties.

Retroreflective vests or other approved high-visibility (hi-vis) safety apparel shall be worn by all employees working in traffic-control flagging operations, within the right-of-way limits, or in other areas where they are potentially exposed to the risk of moving vehicles, equipment, or roadway traffic.

Hi-vis safety apparel must meet the requirements of ANSI/ISEA *American National Standard for High-Visibility Safety Apparel* (or equivalent revisions) and labeled ANSI 107-2004 (or equivalent revisions) standard performance for Class 2 or 3 risk exposure.

Class 3 apparel shall be worn during nighttime flagging.

For safety reasons, field personnel shall not wear:

- Dresses or skirts
- Shorts or Capri pants
- Tank tops or sleeveless shirts

For information on supervisor responsibilities and garment replacement, refer to [SHA-509](#).

For information on Kentucky Personnel Cabinet and KYTC employee dress policies, refer to [GAP-806](#).

510 HEARING PROTECTION

All employees shall be included in the hearing conservation program which includes training on the hazards of noise exposure, requirements for wearing hearing protection, selection and proper use of hearing protection, avoiding overexposure to loud noise when away from work, and annual audiometric testing.

Appropriate hearing protection shall be worn in accordance with OSHA standards. Hearing protection is required when operating chain saws, mowers, weed eaters, chippers, jack hammers, cut-off saws or other hand tools, and equipment where noise levels exceed 85 dba (decibels).

The best noise attenuator is distance if administrative and engineering controls are unable to lower noise to acceptable levels ([SHA-401](#) and [SHA-1803](#)).

511 FOOT PROTECTION

All employees engaged in field activities shall, at a minimum, wear leather-upper work shoes. When working in areas or performing tasks where there is a danger of foot injury due to falling or rolling objects, objects piercing the sole, or exposure to electrical hazards, employees shall utilize protective footwear that complies with ASTM F2413 (formerly 241) requirements.

512 RUBBER APRONS & BOOTS

Rubber aprons shall be available for use with corrosive chemicals including, but not limited to, solvents and acids.

Rubber boots shall be worn as required by the safety data sheet when employees are mixing and applying pesticides.

513 SNAKE-PROOF LEGGINGS

Leggings or other protective equipment for the prevention of snakebites shall be provided to employees as needed.

514 FALL PROTECTION DEVICES

All employees exposed to a potential fall, either to the ground or a lower level of 4 feet or more, shall be protected by OSHA-standard guardrails, safety nets, or personal fall-arrest systems.

Harnesses, lanyards, and similar devices shall meet ANSI criteria and testing. Lanyards shall be equipped with shock absorbers when being utilized as part of a fall-arrest system.

All employees who might be exposed to fall hazards shall receive training and refresher training as required. This training shall be conducted by qualified personnel.

SHA-409 provides information on KYTC's fall protection policy.

515 WELDING, CUTTING, & BRAZING

All employees exposed to hazards created by welding, cutting, and brazing shall be protected by appropriate welding attire (such as tinted welding helmets, welding gloves, smocks, aprons, etc.) to ensure protection for face, eyes, hands, and torso.

516 SKIN PROTECTION

Frequent exposure of unprotected skin to ultraviolet (UV) radiation increases an individual's risk of skin cancer. The main source of UV radiation is sunlight; therefore, employees working outdoors during daylight hours are to wear protective sunscreen or clothing at all times.

517 CHAINSAW/POLE SAW

Employees are to observe the following safety precautions when using a chainsaw or pole saw:

- Follow all manufacturer guidelines for use, maintenance, and storage.

517 CHAINSAW/POLE SAW (CONT.)

- Know how to operate the saw before use.
- Keep the saw in good condition and easy to start.
- Never start a saw while standing in a tree, on a ladder, or in any other unstable position.
- Keep fuel in approved containers.
- Keep the chain sharp and tight.
- Keep the chain oil tank full.
- Watch for kickback (an upward jump or jerk of the saw).
- Do not carry a saw in the passenger space of a vehicle.
- Store saws properly, taking care to set level with gas cap up.
- Keep a loose-fitting sleeve on the chain when storing or transporting.
- Chainsaw/pole saw operators shall be aware of their surroundings. Firm footing shall be utilized at all times. Chainsaws/pole saws shall be shut off before any adjustments are made. Chainsaws/pole saws shall not be left unattended while running.
- Chainsaws shall be removed from operation if the constant pressure switch, when released, allows the saw to continue to operate.
- Smoking is not permitted while operating a chainsaw/pole saw.
- The chainsaw/pole saw blade shall be covered when not in use.
- Chainsaw gas mixture shall be stored in labeled, approved safety cans.
- Chainsaws/pole saws shall be operated only by trained and authorized employees.

517 CHAINSAW/POLE SAW (CONT.)

REQUIRED PPE

CHAINSAW	POLE SAW
<ul style="list-style-type: none">♦ Eye protection/mesh face shield♦ Gloves♦ Hard hat♦ Chaps♦ Hearing protection♦ Steel closed toe boots	<ul style="list-style-type: none">♦ Eye protection/mesh face shield♦ Gloves♦ Hard hat♦ Chaps (optional, but recommended)♦ Hearing protection♦ Steel closed toe boots



601 OVERVIEW

Pursuant to [29 CFR 1910.38](#), each KYTC facility shall have a written emergency action plan that is readily available for each employee's review.

The person in charge of the facility shall:

- Designate an employee to oversee implementation of the emergency action plan
- Advise employees of the contact person available to provide information about the plan and explain duties under the plan
- Designate an employee to train other employees on the content of the emergency action plan and to assist in the safe and orderly evacuation of employees in the event of an emergency

The emergency action plan shall be reviewed and evaluated annually by each facility's designated person. All employees shall be notified of plan updates, as well as changes to employee duties or responsibilities.

[SHA-601](#) provides additional information regarding required plan elements.

602 DESIGNATED EMERGENCY PERSONNEL

Designated employees shall provide assistance to building inhabitants in the event of an emergency that requires evacuation.

Floor captains and alternates shall:

- Remain calm and encourage others to remain calm
- Urge employees to adhere to proper safety procedures
- Direct persons with limited mobility to assigned elevators as needed

602 DESIGNATED EMERGENCY PERSONNEL (CONT.)

- Follow-up with all floor and exit monitors to ascertain the status of their assigned areas
- Check assigned areas to ensure that only emergency personnel remain
- Proceed to designated safe areas and report status
- Refer all media questions to the [KYTC Office of Public Affairs](#) at 502-564-3419

Floor captains shall maintain an up-to-date list of personnel (name, telephone number, location) needing special assistance when evacuating the building.

Floor monitors and alternates shall:

- Remain calm, and encourage others to remain calm
- Urge employees to adhere to proper safety procedures
- Assist persons with limited mobility to assigned elevators as needed
- Check assigned work areas
- Check restrooms and other enclosed areas
- Report the status of assigned areas to the floor captain
- Proceed to designated safe areas
- Refer all media questions to the [KYTC Office of Public Affairs](#) at 502-564-3419

Exit monitors and alternates shall:

- Remain calm, and encourage others to remain calm
- Urge employees to adhere to proper safety procedures
- Report to assigned exits to provide assistance
- Assist persons with limited mobility to assigned elevators as needed
- Remain at assigned elevators and assist persons with limited mobility with exiting the building

602 DESIGNATED EMERGENCY PERSONNEL (CONT.)

- Report the status of assigned exits to the floor captain
- Proceed to designated safe areas
- Refer all media questions to the [KYTC Office of Public Affairs](#) at 502-564-3419

SHA-602 provides additional information regarding supervisor, building superintendent and crew, and crisis management team responsibilities.

603 MEDICAL EMERGENCY

If illness or injury occurs:

1. Check the scene and the victim. Do not move the victim unless life-threatening conditions exist.
2. Call 911. State the problem as specifically as possible and give the exact location of the person needing assistance. Stay on the telephone if requested.
3. Call for the first-aid trained responder in the immediate area.
4. Contact the district safety coordinator or regional safety administrator to report the illness or injury.
5. Ask the employee or supervisor to complete the *IA-I First Report of Injury or Illness* form ([SHA-9023](#)).

604 FIRE

In case of fire:

- Pull the fire alarm if the building is equipped. Otherwise, verbally alert all personnel in the immediate area to the presence of fire and the need for evacuation.
- Upon activation of the fire alarm or verbally alerting personnel, use an outside line to call 911. Remain on the phone if requested.

604 FIRE (CONT.)

- Unless a life-threatening situation is present, lock computer workstation and close all doors.
- Evacuate the building immediately.

The procedure for evacuating the building during a fire shall be as follows:

1. Exit by the nearest safe stairwell or door. Elevators shall be reserved for employees with limited mobility and emergency personnel only.

Note: If smoke or fire prevents the use of the nearest stairwell or exit door, move to the next closest safe stairwell or exit door to evacuate the building and continue to the designated safe area.

2. Enter stairwells or proceed directly toward an outside exit, moving along the outside wall. If in a stairwell, gradually merge to the inside while descending to allow persons at the next level down to enter.
3. Do not try to ascend the stairwell or enter any other area of the building.

Note: In multi-floor buildings, persons with limited mobility are to report to the elevators. If elevators are not functioning, evacuation chairs are available for employees who need assistance. Persons with limited mobility are to exit the building and report to the designated safe areas.

4. Once evacuated, employees are to gather at the designated rally point and remain there until given the "ALL CLEAR" announcement from the fire department or scene commander.

604 FIRE (CONT.)

Note: Designated rally points shall be located a minimum of 500 feet away from the building. Employees shall maintain this distance until advised otherwise by emergency personnel.

5. The senior person in charge for each office shall account for all employees upon reaching the designated rally point and shall report the employee status to the rally captain.
6. Evacuees shall not sit in vehicles in parking garages or lots.
7. Remain calm and orderly in the safe areas. Do not leave safe areas until authorized.
8. Be alert for emergency vehicles.
9. Report any injuries to the rally captain.

SHA-206-4 provides information regarding fire extinguishers.

605 TORNADO

A *tornado watch* indicates that conditions are favorable for a tornado to develop. Upon issuance of a tornado watch, be alert for changes in the weather, and be prepared to act quickly.

A *tornado warning* indicates that a tornado has been sighted.

If a tornado warning alarm sounds, remain calm and follow these directions:

1. Go to the nearest safe area or stairwell. In multi-level buildings, proceed to the areas of the ground floor designated as tornado shelter areas.

605 TORNADO (CONT.)

Note: Employees of the Transportation Operations Center (TOC) on the first floor of the Transportation Cabinet Office Building (TCOB) are to shelter in place in designated areas.

2. Assist others as needed.
3. Stay away from windows as much as possible.
4. In multi-level buildings, elevators shall be reserved for employees with limited mobility and emergency personnel only.

Note: In the TCOB, persons with limited mobility shall report to the central elevator on each floor. If elevators are not functioning, evacuation chairs may be used to evacuate employees with limited mobility. Evacuation chairs are located in the center stairwell on the second floor, as well as the center, east, and west stairwells on the fourth and sixth floors.

5. If unable to reach the tornado shelter areas, seek shelter under sturdy furniture and grasp it securely. If that is not an option, lie in the lowest area available. Clasp both hands behind the back of the head to reduce the risk of neck injury.
6. Use telephones for emergency calls only.
7. Do not leave the tornado shelter area until the "ALL CLEAR" announcement is given.

606 EARTHQUAKE

In case of an earthquake:

- Keep calm. Do not run or panic.
- If indoors, stay near the center of the building and away from windows or outside doors.
- Seek shelter under sturdy furniture, or sit or stand against an inside wall or inside doorway.
- Do not attempt to leave the building unless instructed to do so.
- Cover head with hands and arms.
- If outside, stay in an open area away from buildings and utility wires.
- Do not use candles, matches, or other open flames.
- If in a moving car, stop the vehicle and stay inside.
- Do not enter damaged buildings.
- Use the telephone for emergency calls only.

607 BOMB THREAT

CAUTION: DO NOT use radios and other electronic devices, including cellular telephones, during a bomb threat. Use of these devices could cause detonation. Landline telephone coordination (calling 911) is best.

607 BOMB THREAT (CONT.)**Upon receipt of a bomb threat by telephone:**

- Do not panic. Try to obtain the maximum information from the caller, and keep the caller on the line as long as possible.
- Keep bomb threat procedures and checklist by the telephone at all times and refer to it while speaking to the caller (**SHA-9022**).

The bomb threat procedures and checklist is available online at:

https://emilms.fema.gov/is906/assets/ocso-bomb_threat_samepage-brochure.pdf

Upon discovery of an unidentified suspicious object:

1. Do not touch or move the object, nor allow anyone else to touch or move it.
2. Immediately notify management personnel, who in turn shall notify security if available.
3. If no management personnel are immediately available, notify security if available.
4. If an evacuation is ordered, exit by the nearest stairwell or door. Elevators shall be reserved for employees with limited mobility and emergency personnel only.

Note: In the TCOB, persons with limited mobility shall report to the central elevator on each floor. If elevators are not functioning, evacuation chairs may be used to evacuate employees with limited mobility.

607 BOMB THREAT (CONT.)

TCOB evacuation chairs are located in the center stairwell on the second floor, as well as the center, east, and west stairwells on the fourth and sixth floors.

5. Once evacuated, employees are to gather at the designated rally point and remain there until given the "ALL CLEAR" announcement from the scene commander.

Note: TCOB employees are to assemble in one of two areas based on east and west wing work addresses.

6. The senior person in charge of each office shall account for all employees upon reaching the designated rally point and shall report the employee status to the rally captain.
7. Evacuees shall not sit in vehicles in parking garages or lots.
8. Supervisors shall follow instructions given by emergency agencies (police, fire, explosive ordnance disposal, etc.) and shall report the information through the chain of command as soon as possible.
9. Remain calm and orderly in the safe areas. Do not leave safe areas unless authorized.
10. Be alert for emergency vehicles.
11. Supervisors shall provide necessary assistance to investigating agencies.
12. Report any injuries to the rally captain.

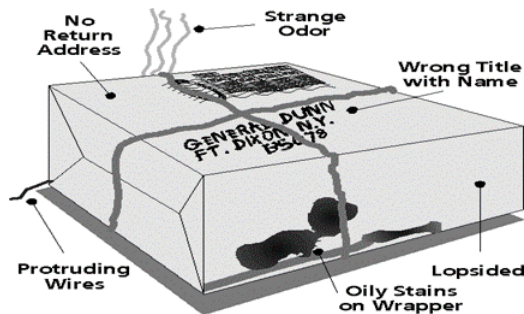
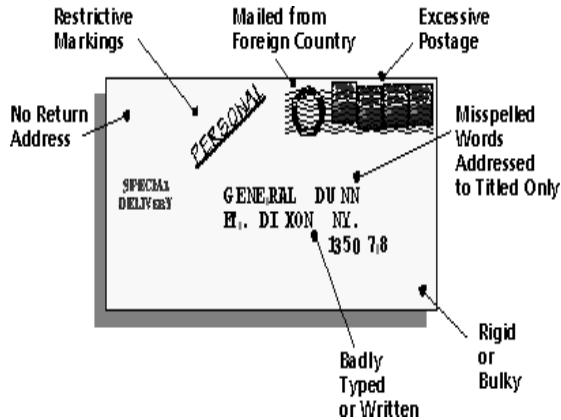
SHA-607 provides information regarding supervisor reporting responsibilities.

608 SUSPICIOUS MAIL

Suspicious mail or packages often have one or more of the following characteristics:

- *Type of Mail:* Foreign, Priority, Special Delivery
- *Restrictive Endorsements:* Confidential, Personal, To Be Opened by Addressee Only
- *Visual Distractions:* Fragile, Rush, Handle with Care
- *Excessive Postage:* Usually postage stamps

EXAMPLES OF SUSPICIOUS MAIL



608 SUSPICIOUS MAIL (CONT.)

Upon receipt of a suspicious delivery:

1. Do not touch the delivery or allow anyone else to touch it.
2. If holding a suspicious delivery, handle it very gently. Do not turn it over or unbalance it. Carefully set it on a flat surface as soon as possible.
3. Do not carry it outside.
4. Do not place it in water.
5. Evacuate the room and surrounding areas.
6. Notify management personnel.
7. If management personnel are not readily available, immediately call 911 or contact the Kentucky State Police.

Upon receipt of an unopened letter or package believed to contain anthrax or other biological agent:

1. Do not panic.

Note: Anthrax organisms must be rubbed into broken skin, swallowed, or inhaled as a fine, aerosolized mist to cause infection. It cannot be aerosolized out of an envelope or package containing powder. The same facts and conditions are generally true for other bacteria likely to be considered biological weapons.

2. Place the unopened envelope or package in a plastic bag or clear envelope, and seal it with tape.
3. Wash hands with soap and water.
4. Notify immediate supervisor.
5. If management personnel are not readily available, immediately call 911 or contact the Kentucky State Police.

608 SUSPICIOUS MAIL (CONT.)

Upon opening an envelope or package containing suspicious powder:

1. Wash hands with soap and water.
2. Notify immediate supervisor.
3. If management personnel are not readily available, immediately call 911 or contact the Kentucky State Police.
4. If clothing is heavily contaminated, do not brush it off. Remove the clothing when possible, and place it in a plastic bag.
5. Shower with soap and water as soon as possible. Do not use bleach or detergent.
6. Put on fresh clothing.
7. Make a list of all people who had actual contact with the powder, and give the list to the immediate supervisor and public health authorities. Instruct contacts to watch for fever or other symptoms over the next several days.

Upon receipt of a package marked with a threatening message:

1. Do not open the package.
2. Leave it, and evacuate the room.
3. Keep others from entering.
4. Notify immediate supervisor.
5. If management personnel are not readily available, immediately call 911 or contact the Kentucky State Police.

SHA-608 provides information regarding supervisor reporting responsibilities.

609 CHEMICAL SPILL

If a chemical spill occurs **outside the building**:

1. Follow directions from the local emergency management system.
2. Secure all windows and doors exposed to the outdoors.
3. Seal gaps at the bottom of doorways.
4. Move to the center of the building; in multi-level buildings, it is not necessary or advised to change floors.
5. Assist others as needed.
6. Supervisors shall use sign-in sheets to account for all employees in their work areas.
7. Do not leave the building until given the "ALL CLEAR" announcement.

If a chemical spill occurs **inside the building**:

1. Move away from the spill area immediately.
2. Notify management personnel.
3. If management personnel are not readily available, immediately call 911 or contact the Kentucky State Police
Note: If the chemical identity is known, the safety data sheet shall be made available to emergency personnel.
4. Wait for instructions from management or emergency personnel.
5. If exposed to a chemical spill resulting in inhalation or skin contact, seek medical attention immediately and follow injury reporting procedures ([SHA-700](#)).

610 AIRCRAFT EMERGENCY

If an aircraft crashes in or adjacent to any Kentucky Transportation Cabinet building:

1. Follow local emergency action plan.
2. Call 911 or the Kentucky State Police.
3. Follow directions from emergency management personnel.

611 CODE ADAM

Pursuant to KRS 199.015, the CODE ADAM safety protocol is hereby established and shall be implemented by all administrators in state buildings in the following manner:

- When a parent, tutor, or guardian notifies any employee of a state building that his or her child is lost or missing, the employee shall obtain from the parent, tutor, or guardian a detailed description of the minor, including but not limited to the name, age, color of eyes, height, weight, clothing, and shoes the child was wearing before becoming lost or missing.
- From the closest telephone available, the same employee shall alert the state building administrator or the person designated in the state building's CODE ADAM plan, who shall then notify the occupants of the state building through the loudspeaker system or any other fast and effective means of communication that CODE ADAM has been activated.
- The employee shall escort the parent, tutor, or guardian to the main door of the state building to help in identifying the child.
- Persons designated by the administrator shall monitor all state building exits to ascertain that the minor does not leave the state building without the parent, tutor, or guardian.

611 CODE ADAM (CONT.)

- Two or more employees, as necessary, shall be assigned to search the parking areas of the state building. This process shall not entail the closing or locking of any door of the state building.
- Any child, or person with a child, leaving the state building shall be asked to go through the main exit previously designated by the administrator. The child or person with the child shall be allowed to leave only after it has been determined that the minor who is leaving is not the child being searched for and that the person with the minor is the parent, tutor, or guardian of the child, and the person presents a government-issued photo identification.
- After CODE ADAM has been announced through the state building's loudspeaker system or any other fast and effective means of communication, the employees shall search the entire building. At least two employees shall be assigned to each floor to certify that the minor is not present.

Note: Employees who are directly serving a member of the public at the time of the search and employees who have been previously excluded by the administrator shall not be compelled to participate in the search.

- If the minor is found unharmed and appears to have been simply lost or missing in the state building, the child shall be immediately taken to the parent, tutor, or guardian.
- If the minor is found in the company of any person other than the child's parent, tutor, or guardian, reasonable means shall be taken to delay the exit of the child and the person from the state building until:

611 CODE ADAM (CONT.)

- ◆ A peace officer arrives
 - ◆ The child and the person with whom the child is found are both properly identified
 - ◆ The circumstances of the situation are determined
- If the minor is not found within a ten-minute period, the state building administrator shall notify a state or local law enforcement agency that a child is lost or missing and provide the information then known about the lost or missing child. The law enforcement agency shall respond to the scene and shall take control of the incident. The law enforcement agency may request that the local search and rescue coordinator provide additional resources to search for the lost or missing child. The law enforcement agency and the local dispatch center shall take the actions required by [KRS 17.450](#), [17.460](#), and [39F.180](#).
- Upon the location of the lost or missing child or the arrival of a peace officer from the law enforcement agency which was notified of the lost or missing child, whichever occurs first, the state building administrator shall cause an announcement of the ending of the CODE ADAM by the state building loudspeaker or other fast and effective means of communication.

SHA-611 provides additional information on the implementation and reporting responsibilities for the CODE ADAM program.

612 GOLDEN ALERT

A *Golden Alert* provides a means to begin an immediate search for a missing, lost, or overdue impaired adult.

An *impaired adult* means a person age 18 years of age or older who has a verified mental or cognitive impairment and whose disappearance poses a credible threat to the health and safety of the person, as determined by a local law enforcement agency [[KRS 39F.010\(3\)\(a\)](#), [KRS 39F.010\(3\)\(b\)](#), [KRS 39F.180](#)].

Upon notification to any KYTC employee of a missing impaired adult at any KYTC facility, the employee shall notify the facility manager and immediately call 911 or the Kentucky State Police.

613 ARMED INTRUDER

In the event of an armed intruder, call 911 and alert others around you if possible. KYTC then recommends that employees utilize a *Run, Hide, Fight* response in reaction to any armed intruder event.

➤ Run

- ◆ Leave the building as quickly as possible.
- ◆ Leave personal belongings behind.
- ◆ Make certain the exit is safe before passing through it.
- ◆ Help those in close proximity, although it may be necessary to leave them in order to ensure personal safety.
- ◆ When law enforcement are encountered while evacuating, keep hands up, visible, open, and free of any foreign objects.
- ◆ Follow police instructions.
- ◆ Get as far away as possible from the building and await further instructions.

613 ARMED INTRUDER (CONT.)**➤ Hide**

- ◆ If evacuating the building is not possible, find a room in which to hide. Block the door with heavy objects or jam the door.
- ◆ Search out a hiding spot where you are out of view, such as under or behind furniture. If possible, make certain that the hiding spot does not restrict movement or cause entrapment.
- ◆ Turn off cell phones.
- ◆ Remain quiet.

➤ Fight

- ◆ As a last resort, and as a personal defense, use aggressive force against the armed intruder.
- ◆ Use any available resources to defend against the intruder's attack.
- ◆ Look for items that can be used as weapons, such as fire extinguishers, chairs, hot liquids, etc., and use them as defensive weapons, if necessary.



701 OVERVIEW

The *Workers' Compensation Law* ([KRS 342](#)) is designed to compensate employees for loss of earnings due to work-related injuries or a disease arising out of and in the course of their employment. This coverage includes medical, temporary total disability, permanent partial disability, permanent total disability, rehabilitation services, and death and burial benefits.

KYTC is self-insured and processes claims along with a third party administrator (TPA). The employee reports the injury to his or her supervisor by completing an *IA-1 First Report of Injury or Illness* form ([SHA-9023](#)). All workers' compensation records shall be retained by KYTC for 5 years.

The *General Administration & Personnel Manual* details the administrative procedures for reporting injuries and the workers' compensation policies and procedures ([GAP-303](#)).

702 MEDICAL & FIRST AID

First aid refers to medical attention that is usually administered on location immediately after an injury has occurred. Examples of first aid include cleaning minor cuts, scrapes, or scratches; treating a minor burn; applying bandages and dressings; providing non-prescription medicine; draining blisters; removing debris from the eyes; massaging cramped muscles; and, encouraging fluid intake to relieve heat stress.

In the absence of an infirmary, clinic, or hospital in proximity to the workplace, a fully stocked first-aid kit and a person adequately trained to render first aid shall be present at every jobsite for the duration of the job (OSHA [CFR 1910.151, 1926.50](#)). Employees who are qualified to render first aid shall complete a training program in accordance with the American Red Cross training guidelines and policies as provided by a certified American Red Cross instructor.

702 MEDICAL & FIRST AID (CONT.)

Trained employees shall be retrained in accordance with established agency and American Red Cross timelines to keep their knowledge and skills current.

The Commonwealth of Kentucky has a “Good Samaritan” statute in place to protect citizens who aid in emergency situations. KRS 311.668 states that when citizens respond to an emergency and act as an ordinary, reasonably prudent person, they shall be immune from civil liability for any personal injury as a result of the care or treatment they render.

Refill supplies, as well as replacement first-aid and bloodborne pathogen kits, may be requisitioned at equipment garages. Supervisors and employees are required to inventory and replace used or outdated items.

Every work-related personal injury or illness shall be reported to the immediate supervisor as soon as possible, if not immediately. The supervisor shall provide an *IA-1 First Report of Injury or Illness* form ([SHA-9023](#)) and related documents to the employee for completion, signature, and return to the supervisor. If an employee is unable to complete the forms independently, the supervisor shall do so and present them to the employee for his or her signature.

[SHA-702](#) provides additional information on injury reporting. [SHA-703](#) provides additional information on the bloodborne pathogens exposure control plan. Employees may also contact the Employee Safety and Health (ES&H) Branch for information.

702 MEDICAL & FIRST AID (CONT.)

The following sections describe the signals for and treatment of basic injuries and illnesses that could occur in the workplace and are provided as refresher information to trained personnel and awareness information to other employees.

Life-threatening conditions must always be treated first. Any severely injured person may develop shock; therefore, treatment must start immediately without waiting for symptoms to develop.

General Instructions

- Check the victim and the scene.
- Call 911.
- Obtain consent for treatment.

Note: If the victim is unconscious, consent is implied.

- Evaluate the victim and situation according to SAMPLE.
 - S** = Signs and symptoms
 - A** = Allergies
 - M** = Medications
 - P** = Past medical history
 - L** = Last oral intake
 - E** = Events leading up to the illness or injury
- Check the victim for bleeding, skin color, medical ID necklaces or bracelets, observable signs of pain.
- Begin appropriate treatment.
- Do not move the victim unless the scene is or becomes unsafe.

702 MEDICAL & FIRST AID (CONT.)**Bleeding (External)**

- Control bleeding by placing a sterile dressing over the wound and applying pressure.
- If possible, elevate the wound above heart level.
- Cover dressing with bandage.
- Seek medical assistance by calling 911.
- If bleeding continues, apply additional dressings or bandages and continue applying direct pressure.
- Take steps to minimize shock.
- For open wounds not located on an extremity, standard guidelines suggest application of a hemostatic dressing coated with a special agent to enhance clotting, combined with direct pressure.
- **Tourniquets shall be used only as a last resort** in cases of delayed care, situations where response from EMS personnel is delayed, when direct pressure does not stop the bleeding, or direct pressure cannot be applied. If used, a tourniquet should be applied and kept in place continuously until more advanced medical personnel take over or the person reaches a medical facility.

Burns

A burn is an injury that results from heat, electricity, chemicals, or radiation. A burn may vary in depth, size, and severity. If electrical, make sure the power is turned off. If it is a dry chemical burn, brush off the area and rinse with water for 10 minutes. If it is a wet chemical, rinse the affected area for 10 minutes.

702 MEDICAL & FIRST AID (CONT.)

- Classification
 - ◆ *First degree*—superficial burn; skin is red, dry, and usually painful; the area may swell
 - ◆ *Second degree*—partial thickness; skin is red and has blisters that may open and weep clear fluid, making the skin appear wet; may appear mottled and often swells
 - ◆ *Third degree*—full thickness; skin may be brown or black (charred), with the tissue underneath appearing white
- Treatment
 - ◆ Stop the burning.
 - ◆ Cool the burned areas.
 - ◆ Cover the burned areas with dry, sterile, loose dressings, or clean cloth
 - ◆ If severe, call 911.
- DO NOT:
 - ◆ Apply ice or ice water except on a small, superficial burn and then for no more than 10 minutes. Ice can cause the body to lose heat and further damage delicate tissue.
 - ◆ Touch a burn with anything except a clean covering.
 - ◆ Remove any piece of clothing that is sticking to the burned area.
 - ◆ Try to clean a severe burn.
 - ◆ Break blisters.
 - ◆ Use any kind of ointment on a severe burn.

Choking (Conscious Victim Only)

1. From behind, place thumb side of fist against middle of abdomen above navel. Grasp fist with other hand.
2. Give five abdominal thrusts.
3. Give five back blows and five abdominal thrusts.
4. Repeat until object is dislodged.
5. If the person becomes unconscious, begin rescue breathing techniques.

702 MEDICAL & FIRST AID (CONT.)**Fractures, Dislocations, & Sprains**

- Support injured area above and below injury site.
- Check for feeling, warmth, and color.
- Immobilize body part above and below injured area by splinting.
- Recheck for feeling, warmth, and color.
- Apply cold compresses to reduce swelling and pain.
- For general care for muscle, bone, or joint injuries remember R.I.C.E.:
 - ◆ Rest
 - ◆ Immobilize
 - ◆ Cold
 - ◆ Elevation

Frostbite

Frostbite occurs when body tissue freezes following exposure to a cold environment and typically affects extremities (fingers, hands, nose, feet, and toes).

- Signals
 - ◆ Loss of feeling and sensation in the affected area
 - ◆ Skin appears waxy, cold to the touch, or discolored (flushed, white, yellow, or blue)
- Treatment
 - ◆ Get the victim out of the cold.
 - ◆ Handle the frostbitten area gently.
 - ◆ Warm the skin gently by soaking the affected area in warm water (100-105 degrees F) until normal color returns and the area feels warm.
 - ◆ Loosely bandage the area with dry, sterile dressings.
 - ◆ If the person's fingers or toes are frostbitten, place dry, sterile gauze between them to keep them separated.

702 MEDICAL & FIRST AID (CONT.)

- ◆ Take precautions to prevent hypothermia.
- ◆ Call 911 to seek emergency medical care as soon as possible.

- DO NOT:
 - ◆ Attempt to rewarm the frostbitten area if there is a chance that it might refreeze or if you are close to a medical facility
 - ◆ Rub the area
 - ◆ Apply direct heat from stove or heat lamp
 - ◆ Break the blisters
 - ◆ Apply ointments

Heat Emergencies

Heat Cramps are painful muscle spasms, usually in the legs and the abdomen.

Heat Exhaustion (early stage) is an early indicator that the body's cooling system is becoming overwhelmed.

- Signals:
 - ◆ Cool, moist, pale, flushed, or ashen skin
 - ◆ Headache, nausea, dizziness
 - ◆ Weakness, exhaustion
 - ◆ Heavy sweating

Heat Stroke (late stage) is when the body's systems are overwhelmed by heat and stop functioning. **Heat stroke is a life-threatening condition.**

- Signals:
 - ◆ Change in the level of consciousness
 - ◆ High body temperature
 - ◆ Red, hot skin that can be either dry or moist

702 MEDICAL & FIRST AID (CONT.)

- ◆ Rapid or weak pulse
- ◆ Rapid or shallow breathing
- ◆ Vomiting

- Treatment for any heat-related emergency
 - ◆ Move the person to a cool place.
 - ◆ Loosen tight clothing.
 - ◆ Remove perspiration-soaked clothing.
 - ◆ Apply cool, wet towels to the skin.
 - ◆ Fan the person.
 - ◆ If the person is conscious, give small amounts of cool water to drink.
 - ◆ **If the person refuses water, vomits, or starts to lose consciousness:**
 - Send someone to call 911 or the local emergency number.
 - Place the person on his or her side.
 - Continue to cool the person by using ice or cold packs on their wrists, ankles, groin, and neck and in the armpits.
 - Continue to monitor for movement and breathing.

Hypothermia

Hypothermia is a life-threatening condition that occurs when the entire body cools because its ability to keep warm fails. The person will die if not given care.

- Signals
 - ◆ Shivering
 - ◆ Slow, irregular pulse
 - ◆ Numbness
 - ◆ Glassy stare

702 MEDICAL & FIRST AID (CONT.)

- ◆ Weakness
- ◆ Apathy or impaired judgment
- ◆ Loss of muscle control, no shivering, or loss of consciousness (late stages of hypothermia)

- Treatment
 - ◆ Call 911.
 - ◆ Gently move the victim to a warm place.
 - ◆ Monitor airway, breathing, and circulation.
 - ◆ Warm the victim by wrapping him or her in blankets or by putting dry clothing on the person.
 - ◆ If the victim is alert, give him or her warm liquids to drink that do not contain alcohol or caffeine.
 - ◆ Monitor for signs of shock.

Insect Stings

- Remove stinger by gentle scraping, not pulling or squeezing.
- Find out from the victim as quickly as possible if they are allergic and if they have an epinephrine auto-injector.
- Wash the site with soap and water.
- Cover the site and keep it clean.
- Apply a cold pack to the area to reduce pain and swelling.
- Watch the person for signals of an allergic reaction.
- Call 911, or transport the victim to a doctor or hospital if allergic reactions such as breathing difficulty, facial swelling, hives, nausea, or abdominal cramps occur.

702 MEDICAL & FIRST AID (CONT.)**Poison Ivy**

Some of the most common and severe allergic reactions result from contact with plants of the poison ivy group. Ordinarily, the rash begins within a few hours after exposure; however, it may be delayed for 24 to 48 hours.

- Signals
 - ◆ Itching
 - ◆ Redness
 - ◆ Rash
 - ◆ Possible headache and fever

- Treatment
 - ◆ Remove contaminated clothing.
 - ◆ Wash all exposed areas thoroughly with soap and water.
 - ◆ Use poison ivy cleaner.
 - ◆ Apply calamine or other soothing skin lotion if rash is mild.
 - ◆ Get medical advice if a severe reaction occurs or if there is a known history of previous sensitivity.

Poisoning

If you suspect a person is showing signs of poisoning, treat it as a life threatening condition. Call 911, then call Poison Control at 1-800-722-5725.

Shock (Traumatic)

Shock is a life-threatening condition where blood is not being adequately delivered to all parts of the body.

- Signals
 - ◆ Restlessness or irritability
 - ◆ Nausea and vomiting

702 MEDICAL & FIRST AID (CONT.)

- ◆ Altered level of consciousness
 - ◆ Pale or ashen, cool, moist skin
 - ◆ Blue tinge to lips and nail beds
 - ◆ Rapid breathing and rapid pulse
 - ◆ Excessive thirst
- Treatment
- ◆ Call 911.
 - ◆ Control any external bleeding.
 - ◆ Keep the victim from getting chilled or overheated.
 - ◆ Elevate the legs 8-12 inches if you do not suspect a head, neck, or back injury, or broken bones in the hips or legs.
 - ◆ Comfort and reassure the victim until advanced medical personnel arrive and take over.
 - ◆ **Do not give food or drink to the victim.**

Snake Bites

The bite of a poisonous snake is extremely painful and is characterized by rapid swelling of the affected part.

- Call 911 or the local emergency number.
- Wash the wound.
- Keep the injured area still and lower than the heart.

Tick Bites

There are two ticks common to the Commonwealth of Kentucky: the American dog tick and the lone star (deer) tick. Both ticks are known to carry diseases harmful to humans. The American dog tick transmits Rocky Mountain spotted fever, while the lone star tick transmits Lyme disease.

- To Avoid Tick Bites
 - ◆ Wear light-colored clothing, hat, long-sleeved shirt, and long pants.

702 MEDICAL & FIRST AID (CONT.)

- ◆ Tuck shirttail into pants, and tuck pant legs into socks.
- ◆ Use insect repellents.
- ◆ Check yourself, children (especially the head), and pets for ticks after each outing.

- Treatment
 - ◆ With a gloved hand, grasp the tick with fine-tipped, pointed, non-etched, non-rasped tweezers as close to the skin as possible and pull slowly.
 - ◆ If possible, save the tick in a tight container for identification.
 - ◆ Wash the bite area with soap and water.

- DO NOT:
 - ◆ Attempt to suffocate or cover the tick with butter, petroleum jelly, fingernail polish, ointment, gasoline, kerosene, or similar substance
 - ◆ Burn with lighted cigarette or match

703 BLOODBORNE PATHOGENS

All employees shall follow universal precautions to prevent contact with blood or other potentially infectious material (OPIM). All blood, vomit, or bodily fluids shall be considered infectious.

Engineering and work practice controls shall be utilized to eliminate possible exposures. Where occupational exposure remains after institution of these controls, personal protective equipment (PPE) shall also be used.

Employees are to observe the following procedures:

- Following bodily contact with blood or OPIM, employees shall wash the affected area with soap and water or flush the area with water as soon as feasible.

703 BLOODBORNE PATHOGENS (CONT.)

If hand washing facilities are not available (for example, on highway work operations), antiseptic hand cleansers or towelettes shall be used and hands washed with soap and running water as soon as feasible. Alcohol prep pads with 70% isopropyl alcohol can be used as towelettes.

- Employees shall wash hands as soon as feasible after removal of gloves or other PPE.
- Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure to bloodborne pathogens or OPIM.
- Rest area personnel shall be alert to the possibility of contaminated sharps in can or barrel trash receptacles. For this reason, hand tamping of contents is prohibited. Extreme caution shall be exercised in carrying and disposing of litterbags to protect against protruding sharps.

Housekeeping methods of compliance include the following:

- Possible contaminated sharps shall not be directly touched. Rather, they shall be moved using mechanical means, such as a brush and dust pan, tongs, or forceps.
- Blood or OPIM shall be cleaned as soon as possible after contamination occurs. The contaminated areas and cleaning tools shall be decontaminated with appropriate EPA-registered, tuberculocidal disinfectants.
 - ◆ Tuberculocidal aerosol sprays are appropriate to disinfect nonporous hard surfaces such as tile, glass, or plastic.
 - ◆ A flooding bulk disinfectant should be used to decontaminate porous materials such as rugs, concrete, mops, or brooms.

703 BLOODBORNE PATHOGENS (CONT.)

PPE is provided at no cost to KYTC employees. The supervisor or foreman should include PPE in first aid kits.

Employees are to observe the following PPE procedures:

- Disposable gloves shall be worn whenever providing first aid.
- Eye protection shall be worn when providing care to bleeding victims.
- Contaminated materials shall be placed in BIOHAZARD bags for proper disposal.
- Contaminated disposable PPE shall be placed in infectious waste bags.
- Disposable PPE shall **not** be decontaminated and reused.

Immediate responses to exposure to blood or OPIM include:

- Skin: Immediately wash the area of exposure with soap and running water. Seek medical assistance within 24 hours.

Note: If wearing any type of PPE, remove it carefully and wash the underlying skin with soap and running water.

- Mucous Membranes (mouth, eyes, etc.): Immediately flush the area with flowing water or saline solution. Seek medical attention within 24 hours.
- Parenteral (piercing mucous membranes or skin by needle sticks, cuts, abrasions, or human bites): Immediately wash the wound with soap and running water. Seek medical attention within 24 hours.

703 BLOODBORNE PATHOGENS (CONT.)

- For employees with occupational exposure (such as bridge painting inspectors, rest area attendants, and rest area foremen):
 - ◆ The Hepatitis B vaccine is offered to these employees at no cost after receiving required training.
 - ◆ Any employee declining or not completing the series of Hepatitis B vaccinations shall sign a waiver ([SHA-9034](#)).

A copy of the Hepatitis B waiver may be accessed online at:

<https://Intranet.kytc.ky.gov/org/OHRM/em/Documents/HEP%20B%20WAIVER.pdf>

- ◆ The Hepatitis B vaccine will be provided at no cost to any employee who initially declines the vaccine, but later wishes to receive it.
- For employees with occupational exposure resulting from collateral duty incidents (such as those administering first aid):
 - ◆ A pre-Hepatitis B vaccine is not offered; however, employees shall receive the required training.
 - ◆ Post-exposure care shall be provided.
- The Hepatitis B vaccine shall be offered as soon as possible and at no cost to all unvaccinated employees who render assistance in the presence of blood or OPIM, but no later than 24 hours after the exposure.

Exposed employees shall seek medical attention at the local hospital emergency room (ER) within 24 hours of exposure.

- The ER physician should follow the hospital protocol for possible bloodborne pathogen (BBP) exposure, including a blood draw and baseline blood test consisting of a normal panel, HEP B, HEP C, and HIV screening, as well as the administration of a tetanus vaccine.

703 BLOODBORNE PATHOGENS (CONT.)

The ER physician should provide results to the patient or patient's primary physician for purposes of follow-up blood testing and medical surveillance as required by the hospital's BBP exposure protocol. The Hepatitis B post-exposure vaccination is left to the discretion of the treating physician.

- A written opinion shall be obtained when an employee is sent for the Hepatitis B vaccine or following an exposure incident.
- The healthcare professional's written opinion for Hepatitis B should be limited to the following information:
 - ◆ Whether the Hepatitis B vaccination is indicated for an employee
 - ◆ If the employee received the Hepatitis B vaccination
- The healthcare professional's written opinion for post-exposure evaluation and follow-up should be limited to the following information:
 - ◆ The employee has been informed of the results of the evaluation.
 - ◆ The employee has been told about any medical conditions resulting from exposure to blood or OPIM that require further evaluation or treatment.

Employees shall report exposure to BBPs or OPIM by completing an IA-1 ([SHA-702](#) and [SHA-9023](#)).

All medical records required by OSHA standards shall be maintained by the KYTC Division of Personnel Management for 30 years after employment ends.

All employees shall receive BBP training at the time of initial employment and annually thereafter for employees with expected exposure to bloodborne pathogens.

703 BLOODBORNE PATHOGENS (CONT.)

Training shall be conducted by the ES&H Branch. All training sessions shall be documented, and records of the training shall be maintained on site for a minimum of three years. Copies shall be filed with the district office, as well as the ES&H Branch.

SHA-703 provides additional information on BBP.

704 AUTOMATED EXTERNAL DEFIBRILLATORS (AED)

Automated external defibrillators (AED) have been placed in facilities throughout the state. AEDs shall be located close to first aid stations, if possible. Guidelines suggest an optimal response time of three minutes or less. Things to consider in AED placement include the building layout, the likelihood of more physical activity taking place in a particular area, and areas with high visitor activity.

A list of employees trained and certified to use AEDs shall be kept next to the AEDs. KYTC employees who would like to be CPR, first aid, and AED certified should contact safety personnel or the ES&H Branch. 803 KAR 2:310 requires at least one person to be first-aid trained for all places of employment having more than eight employees.

Approved training courses for CPR, first aid, and AED are available through the American Red Cross. Training records shall be retained for two years and made available upon request.

The person responding to an incident shall document the event using a TC 25-169 form, *Automated External Defibrillator (AED) Post-Event Review* ([SHA-9025](#)). A copy of the TC 25-169 form shall be sent within one business day to the ES&H Branch, which will then forward it to the AED medical oversight physician.

The Commonwealth of Kentucky has a Good Samaritan statute in place to protect citizens who aid in emergency situations. [KRS 311.668](#) provides that when citizens respond to an emergency and act as an ordinary, reasonably prudent person, they shall be immune from civil liability for any personal injury as a result of the care or treatment they render.

[SHA-704](#) provides additional information on AEDs.

705 OSHA INJURY & ILLNESS RECORDKEEPING & REPORTING

The Kentucky Transportation Cabinet (KYTC) is required to record serious work-related injuries and illnesses on the *OSHA 300 Log*.

Examples of OSHA-recordable injuries or illnesses include:

- Work-related fatality
- Work-related injury or illness that results in loss of consciousness, days away from work, restricted work, or transfer to another job
- Work-related injury or illness requiring medical treatment beyond first aid
- Diagnosed, work-related cancer, chronic irreversible diseases, fractured or cracked bones or teeth, and punctured eardrums

All work-related, needle stick injuries and cuts from sharp objects that are contaminated with another person's blood or other potentially infectious material (as defined by [29 CFR 1910.1030](#)) must be recorded and entered on the *OSHA 300 Log* as an injury. To protect the employee's privacy, the employee's name shall not be entered on the *OSHA 300 Log*. [See requirements for privacy cases in [29 CFR 1904.29\(b\)\(6\)](#) through [1904.29\(b\)\(9\)](#).]

Death, hospitalization, amputation, loss of an eye, or other serious injury of a Cabinet employee shall be immediately reported to district safety personnel and the ES&H Branch at (502) 564-4610. The information provided shall include:

- Caller's name and position classification
- Affected employee's name, position classification, and current work address
- Details surrounding the incident, including location and any witnesses

705 OSHA INJURY & ILLNESS RECORDKEEPING & REPORTING (CONT.)

DO NOT delay reporting even if all the information is not readily available. The district safety personnel shall initiate an investigation of the incident and report their findings to the ES&H Branch.

Each February through April, employees may view a posted summary of the injuries and illnesses recorded the previous year. Copies of injury and illness records must be provided to current and former employees or their representatives upon request.

SHA-705 provides additional information on OSHA reporting requirements.



801 KSAP ACCIDENT REPORT

Employees shall report all incidents involving Cabinet vehicles or equipment (including leased vehicles and equipment) on an SRC-12 form, *Kentucky Self-Insured Auto Program (KSAP) Accident Report* ([SHA-9026](#)).

This form shall contain a detailed outline of the incident written by the person involved. If that person cannot give a written statement, the supervisor shall complete the form in the involved person's own wording. The completed form shall be forwarded to the district equipment supervisor or appropriate district contact who will forward a copy to the KYTC Office of Legal Services. A copy also shall be given to the safety coordinator.

Any person who knowingly and with intent to defraud any insurance company or other person files a statement of claim containing any materially false information or conceals, for the purpose of misleading, information concerning any fact material thereto commits a fraudulent insurance act, which is a crime. ([KRS 304.47-030](#))

802 SERIOUS VEHICLE OR EQUIPMENT INCIDENT

The responsible district, office, or division shall immediately notify the Employee Safety and Health (ES&H) Branch when a Cabinet employee is involved in an incident while operating state equipment or a state vehicle that results in serious injury, property damage, or fatality to another party. In the case of district employees, the safety coordinator shall also be notified.

Safety personnel will promptly investigate the incident and report the findings to their manager and the individual's chain of command.



901 STORAGE & HANDLING OF OXYGEN & ACETYLENE CYLINDERS

Employees shall:

- Separate full oxygen and acetylene cylinders by a minimum distance of 20 feet unless a fire-retardant wall separates the cylinders
- Close valves on empty oxygen and acetylene cylinders
- Ensure that oxygen-cylinder valves never come into contact with grease or oil
- Secure oxygen and acetylene cylinders to hand trucks with a chain when used in shop operations
- Secure against a wall any additional cylinders not secured on hand trucks
- Secure oxygen and acetylene cylinders sufficiently to prevent upsetting when used on service trucks for field repairs
- Not transport or operate cylinders in a horizontal position
- Ensure valve caps or approved cylinder safety caps are in place when cylinders are transported, including when secured on hand trucks and service trucks
- Store cylinders far enough from the cutting and welding operation to prevent contact with hot slag, sparks, or flame.
- Keep the valve wrench on the valve spindle of acetylene cylinders
- Not take cylinders containing oxygen and acetylene into confined spaces

901 STORAGE & HANDLING OF OXYGEN & ACETYLENE CYLINDERS (CONT.)

- Move leaking cylinders to an open area with good ventilation
- Post signs warning personnel against the use of spark- or flame-producing items
- Handle cylinders with care at all times

902 CUTTING OPERATIONS

Employees shall:

- Light torches by friction lighters or similar sources, but not by matches or cigarette lighters
- Ensure that acetylene and oxygen cylinders have operable pressure regulators
- Inspect hoses frequently and replace broken hoses as needed
- Not use tape to repair hoses
- Close cylinder valves upon work completion and bleed pressure from oxygen and acetylene torches
- Apply lukewarm water to loosen acetylene cylinders that have frozen to the ground
- Not use an open flame to loosen frozen cylinders from the ground
- Position hoses for cutting operations without creating a tripping hazard
- Shall immediately mark material worked on with a cutting-torch as “hot” if other personnel may come in contact with it
- Not operate acetylene torches with more than 15 psi

903 ELECTRIC WELDING

Employees shall:

- Use electrode holders capable of safely handling the maximum-rated current required by the electrodes
- Ensure that current-carrying parts passing through the portion of the electrode holder gripped in their hands, as well as the outer surfaces of the holder, are fully insulated against the maximum voltage encountered to ground
- Not permit splices and breaks in electrode cables within 10 feet of the electrode holder
- Keep welding cables dry and free from grease and oil
- Ground the frames of all arc-welding machines through a third wire in the cable containing the circuit conductor or through a separate wire that is grounded at the source of the current
- Have an unobstructed view of an overcurrent protection circuit breaker when operating a welding machine
- Remove electrodes from the holder when leaving electrode cables unattended or after completing a job
- Not dip hot electrodes into water
- Prevent a carbon monoxide hazard by venting exhaust from welding power sources driven by internal combustion engines to the outside
- Use mechanical ventilation hoods provided to remove toxic fumes and contaminants to the outside of the building

903 ELECTRIC WELDING (CONT.)

- Use a required portable welding screen on electric welding jobs to shield harmful rays from other employees working nearby (applies to all garages, shops, and in the field whenever practical)

904 FIRE PROTECTION

Employees shall:

- Ensure service trucks are equipped with a dry-chemical fire extinguisher with at least a 20-pound, Class ABC rating
- Have a dry-chemical, Class ABC fire extinguisher immediately available in shops and garages during welding operations.
- Thoroughly clean old drums, barrels, tanks, or other containers, leaving no traces of flammable, explosive, or toxic substances prior to using cutting torches and welders
- Provide a pressure vent or opening prior to cutting or welding a drum, container, or hollow structure

SHA-206-4 provides additional information on fire extinguishers, and **SHA 604** on general fire safety guidelines.

905 PERSONAL PROTECTIVE EQUIPMENT

Employees involved in cutting and welding operations shall:

- Wear welder's gloves while cutting, welding, or conducting other such operations
- Wear welding helmets and cutting goggles as described in **SHA-503** and **SHA-504**

905 PERSONAL PROTECTIVE EQUIPMENT (CONT.)

- Use respirators in accordance with the Cabinet's respiratory protection program when cutting or welding under certain conditions ([SHA-407-1](#))

- Wear filter-type respirators when cutting, welding, or heating the following in an open area:
 - ◆ Metals containing or coated with lead-bearing materials
 - ◆ Cadmium-bearing or cadmium-coated base metals
 - ◆ Metals covered with mercury-bearing metals
 - ◆ Zinc-bearing base or filler metals
 - ◆ Lead base metals
 - ◆ Cadmium-bearing filler material
 - ◆ Metals coated with chromium-bearing materials

Note: When working on a beryllium-containing base, employees shall wear an air-line respirator.

Other employees exposed to the same atmosphere as the welders or cutters shall be protected in the same manner as welders or cutters.

In situations where it is impossible to provide mechanical or local exhaust ventilation, air-line respirators shall be worn.

When in doubt, supervisors shall contact the Employee Safety and Health Branch for information on the proper respirator to use.



1001 HOUSEKEEPING

Good housekeeping is essential to maintaining a safe and efficient workplace. A garage or shop “good-housekeeping checklist” shall include, but not be limited to:

- Established cleaning procedure
- Floor drains clean with covers in place
- Exits clear at all times
- Steps and stairs clear of objects
- Aisles clear of stored materials
- Floors clear of unused tools and materials
- Tools and equipment in proper storage areas when not in use
- Adequate provision for disposal of waste
- Required lids or covers on waste receptacles containing flammable waste, including oily or greasy rags
- Approved dry compound or absorbent for oil and grease spills
- Floor covers in place for hoist controls
- Unobstructed access to fire extinguishers, water control valves, and circuit breaker boxes
- Circuit breakers clearly marked
- Breaker box panel doors securely latched
- Restrooms clean, orderly, and stocked with an adequate supply of toilet paper, soap, and at least lukewarm water
- Windows and lights clean
- Adequate lighting provided and all lights working properly
- Clean facilities provided for storing clothing, eating lunch, and taking breaks
- Materials securely stacked to prevent falling
- Grounds, driveways, and parking areas clean and orderly
- Adequate heating and ventilation in all parts of the building
- Sufficient room between machines for safe operation
- Spill kits used for immediate cleaning of in-house spills
- Used oil containers maintained in a clean manner

Note: Gasoline and other flammables shall not be used to clean equipment, floors, and other items.

1002 HYDRAULIC LIFTS & JACKS

Employees shall:

- Use safety stands, wheel chocks, and dump bed locks when working beneath raised equipment
- Follow all manufacturer guidelines
- Observe posted capacity limits for jacks
- Place jacks on a firm base

The district equipment supervisor should follow manufacturer recommendations for inspections and maintenance.

1003 STATIONARY AIR COMPRESSORS

Employees shall:

- Use only guarded belt pulleys
- Ensure compressors have an operative pressure gauge and safety pop-off valve that engages when no more than 10 percent of the compressor's maximum working pressure is exceeded
- Secure air compressors to the floor to prevent free movement
- Follow all manufacturer guidelines

1004 FIXED ELECTRICAL EQUIPMENT

Water fountains, ice machines, and soft drink machines, as well as grinders, drill presses, electrical saws, etc., shall be grounded according to the National Electric Code.

Spliced wires or cords shall not be used on any electrical equipment.

1005 BUILDING WIRING

All permanent building wiring shall be in accordance with the current National Electric Code. Any installation or modification of electrical wiring shall be completed by a licensed electrician.

SHA-408 provides additional information on electrical safety.

1006 BENCH GRINDERS

Operators shall review the Bench Grinder Safety Checklist prior to beginning operations (**Exhibit 9027**), available online at:

<https://intranet.kytc.ky.gov/org/OHRM/em/Documents/Bench%20Grinder%20Safety%20Checklist.pdf>

The spindle speed of the machine shall be checked before mounting of the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel. Wheels should be tapped gently with a light nonmetallic implement, such as the handle of a screwdriver for light wheels or a wooden mallet for heavier wheels. If they sound cracked (dead), they shall not be used. This is known as the Ring Test, which shall be conducted on all wheels prior to their mounting to make sure they have not been damaged in transit, storage, or otherwise.

1007 CHAIN HOISTS

Chain hoist capacity shall be posted legibly and shall not be exceeded. Hoist hooks shall have an operational safety latch or keeper. Employees shall follow all manufacturer guidelines.

1008 FANS

All floor and office fans shall have blades guarded by a 1/2-inch guard or other suitable means. Employees shall follow all manufacturer guidelines.

Spliced wiring and cords shall not be used on fans.

1009 BATTERY CHARGING & CHANGING

Battery-charging and changing areas shall be separated from the areas of other operations. A sign—CAUTION, BATTERY-CHARGING AREA—shall be posted. The portable battery charger shall be stored in the designated area when not in use.

Face shields, safety goggles, rubber gloves, and rubber aprons shall be worn by personnel engaged in battery charging operations. A No SMOKING sign shall be posted at the charging station ([SHA-500](#)).

Personnel handling battery acid (sulfuric acid) shall wear face shields, safety goggles, rubber gloves, and rubber aprons. These items shall be provided at the battery-charging site.

During mixing, acid shall be poured into water and not vice versa.

Sulfuric acid shall be stored only in equipment repair garages. Facilities shall be provided for flushing electrolytes from the eyes and skin with water when changing or charging storage batteries. A water supply capable of providing a 15-minute flush shall be within 25 feet of the work area.

1010 SAFETY TIRE CAGES

When tires that are installed on split rims with locking rings are filled with air, the tires shall be placed in an approved safety tire cage or rack. A clip or chuck and in-line gauge shall be used when airing tires with multi-piece rims. Airing tires shall not be left unattended.

1010 SAFETY TIRE CAGES (CONT.)

Field personnel who must fill such tires with air shall securely chain the rim and tire or otherwise positively secure the rim from disengaging. Tires shall be aired with the lock ring facing the ground. A multi-piece rim poster for compliance with [29 CFR 1910.177](#) shall be posted in the immediate vicinity of the tire cage. Tires with multi-piece rims shall be changed only by trained personnel in facilities with approved tools and equipment.

Ether shall not be used while airing tires.

Employees engaged in servicing truck and equipment tires shall be trained in proper safety procedures in accordance with the manufacturer's guidelines.

Employees shall follow all OSHA regulations per 29 CFR 1910.177 for servicing multi-piece and single-piece rim wheels ([SHA 406-1](#)).

1011 MACHINE GUARDING

All open or exposed belts, pulleys, sprockets, shafts, couplings, flywheels, drive chains, etc., located within 7 feet of the floor or ground shall be guarded.

1012 GREASE PITS

Grease pits shall have a protective cover or removable type of 42-inch guardrail and 21-inch mid-rail. A positive means for stopping travel of vehicles shall be provided.

1013 INSPECTION LIGHTS (DROP CORD LIGHTS)

Employees shall observe the following safety precautions:

- Extension cords shall be:
 - ◆ Heavy duty, three-wire type design-rated for hard or extra-hard usage (such as, types S, ST, and SO)
 - ◆ Protected by ground fault circuit interrupters (GFCIs)
 - ◆ Approved by Underwriter Laboratories
- Cord plug ends shall not have the ground prong removed and shall be tightly closed.
- Temporary cords shall not be used as permanent wiring.
- Worn, spliced, repaired, or frayed cords shall not be used.
- Only trained, qualified, and authorized persons shall repair electric equipment.
- Workspaces and walkways shall be kept clear of cords.
- Droplights shall be of the approved grounded type that do not have the means to attach an electrical tool.
- Extension cords and droplight cords shall not be fastened with staples, hung from nails, or suspended by wire.
- Flexible cords shall not go through wall holes.
- Only listed, labeled, or certified equipment shall be installed and used in accordance with the manufacturers' instructions.

1014 PAINT SPRAYING

Employees shall observe the following safety precautions:

- Employees not assigned to paint/coating operations shall take appropriate measures to avoid these areas.
- Employees that have a potential for exposure or overexposure must be protected by engineering controls, proper work practices, or appropriate personal protective equipment ([SHA-401](#) and [SHA-500](#)).
- Adequate ventilation shall be provided for employees exposed to various paints, including polyurethane, epoxy, waterborne and alkyd based coatings, including deck sealers and sidewalk sealers, to minimize fume/vapor exposure.
- Most paints can be worked with safely when proper procedures are followed during the painting, cutting, heating, or welding of materials coated with paint ([SHA-407-1](#)).

1015 FLAMMABLE STORAGE

Flammable liquids shall not be transported in any open vessel. Only approved, sealed containers are to be used. Barrels, cans, or vessels containing flammable liquids shall be secured and chocked in any vehicle before moving. Open lights (such as lanterns) are not to be used on equipment transporting any flammable liquid. Extra or emergency gasoline or other flammable liquids must be carried in approved safety cans with a capacity of not more than 5 gallons. These should be painted red and plainly marked.

Safe handling and use of flammable liquids and gases include:

- Refueling of any type of equipment, trucks, or passenger cars while motor is running is strictly prohibited.

1015 FLAMMABLE STORAGE (CONT.)

- All tanks, hoses, and containers are to be in metallic contact while flammable liquids are being poured.
- "Buck-eye" safety nozzles, or their equivalent, must be used for dispensing gasoline on hand or power-driven pumps.
- Flashlights and portable lamps used in connection with the handling of flammables should be flash-proof, insulated, and approved.
- All rooms, buildings, and enclosures where flammables are handled should be well ventilated.
- Approved fire extinguishers should be provided and conspicuously placed and marked in any area where flammables are stored, handled, or used.
- Flammables should never be used as cleaning agents.
- A tank to be filled should always be gauged to avoid the danger of an overflow. Welding, cutting, riveting, or other work involving ignition should not be performed on any storage tank which has contained flammables until such tank has been completely filled to the top with water.
- Accumulations of rust or scale on a tank which contains or has contained flammable liquids should be removed with no sparking tools such as wooden mallets.
- Any spills of flammables should be cleaned up immediately, particularly in the vicinity of permanent gas and fuel pumps.
- Flammable liquids must never be placed in glass or plastic containers.
- Quantities of flammables one gallon or less shall be dispensed from the original container or an approved metal safety can. *Safety can* shall mean "an approved closed container, of not more than 5 gallons capacity, having a flash arresting screen, spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure." [29 CFR 1926.155(I)]

Note: All safety cans shall be labeled in accordance with requirements in [SHA-410](#).

1015 FLAMMABLE STORAGE (CONT.)

- Quantities of flammables in excess of one gallon shall be dispensed from approved safety cans unless the flammable is extremely hard to pour, in which case the original shipping container may be used.
- Rags used in cleanup can be very susceptible to spontaneous combustion and should be stored in approved safety cans or a safe location.

1016 ELECTRICAL SAWS

Employees shall observe the following safety precautions:

- All exposed belt pulleys and other parts with in-running nip points shall be adequately guarded when located within 7 feet of the floor.
- All electrical saws shall be grounded and have the “on-off” power source located within easy reach of operator.
- No adjustments shall be made to power saws while they are operating.
- Exhaust systems shall be provided where tests have indicated the need.
- Housekeeping around power saws is of utmost importance. Loose sawdust shall be swept as often as necessary.

Hand-Fed Crosscut Table Saws

Saw blades shall be guarded by a hood that will ride the stock as it is being cut. A spreader shall be provided behind the saw blade to prevent the stock from kicking back. Anti-kickback fingers shall be mounted on the hood guard and not on the spreader.

1016 ELECTRICAL SAWS (CONT.)**Swing Cutoff Saws**

Saws shall be fitted with a hood or guard that completely encloses the upper half of the saw, arbor end, and point of operation at all positions of the saw. The guard shall drop on top of and remain in contact with the material being cut. Limit chains or other equally effective means shall be provided to prevent the saw from swinging beyond the front or back edges of the table. A counterweight or other device shall be provided that will automatically return the saw to the rear of the table.

Band Saws

The saw blade shall be guarded as closely to the point of operation as possible. The guard shall encase wheels and all unused parts of the blade.

1017 MECHANICAL & NATURAL VENTILATION

Facilities equipped with mechanical ventilation shall use the exhaust attached to equipment for carbon monoxide removal.

Facilities using natural ventilation (open doors or windows) shall be evaluated upon request from the Employee Safety and Health Branch.

1018 HAND TOOLS

Employees shall abide by the following safety precautions when working with hand tools:

- Only tools that are in good condition shall be used. Defective tools shall not be issued or kept in storage with usable tools ([SHA-412](#)).

1018 HAND TOOLS (CONT.)

- Cracked and split handles shall be replaced and not taped.
- A dedicated storage space shall be provided on the job (in the yard or inside buildings) for proper storage of tools when they are not in use.
- Tools shall be used in accordance with manufacturers' guidelines.

1019 LIFT/HOISTING EQUIPMENT

Lift/hoisting equipment is defined as equipment with a maximum lifting capacity exceeding one ton that is capable of raising an item more than 15 feet (5 meters) high and has the ability to swing or rotate a boom. This includes a large excavator with a boom, as well as a crane, derrick, gin poles, and gantry hoist systems.

Employees shall not stand in the area immediately around lift equipment or under the object being lifted. Proper safety warning devices (gating, cones, fencing, blocking signs, etc.) shall be used to alert personnel to possible falling objects, swinging or rotating arc paths, and cable breakage.

In addition to manufacturer-installed safety supports, employees shall use dump locks and jack stands when working under raised truck beds. Employees shall never work beneath unsupported, suspended loads.

1020 EMERGENCY SHOWER & EYE WASH

Each emergency shower and eye wash station shall be kept clean and free from clutter to allow for clear access. Monthly inspections shall be conducted by safety personnel. Inspections shall be documented and kept on file for one year.

1021 PRESSURE WASHERS

Pressure washers are used to clean equipment, materials, and work areas. They must be used with extreme caution as the water is under high pressure and moves with enough force to damage eyes and abrade skin.

Prior to beginning work, identify the unit's safety stickers, read the operator's manual, and follow the manufacturer's instructions for safe use, maintenance, and storage.

The ES&H pressure washer safety checklist is another resource that employees may use ([SHA-9035](#)).

The checklist may be found online at:

<https://intranet.kytc.ky.gov/org/OHRM/em/Documents/Pressure%20Washer%20Checklist.pdf>



1101 HAZARDOUS CHEMICALS

Employees shall observe the following safety precautions:

- A written chemical hygiene plan shall be developed and implemented in accordance with [29 CFR 1910.1450](#) for each applicable laboratory facility.
- A written hazard communication plan shall be developed and implemented for each laboratory facility.
- Safety Data Sheets (SDSs) for chemicals being handled shall be available at each facility.
- Supervisors shall review SDSs with all affected employees ([SHA-410](#)).
- One person certified in first aid shall be on site in every laboratory.
- Fully stocked first-aid kits shall be readily available for all laboratory employees.
- The contents of all chemical containers shall be labeled.
- Proper ventilation shall be provided at all times.
- Personal protective equipment identified in the SDSs shall be worn as required.
- Eye wash stations or showers shall be located in work areas where corrosive chemicals are used.
- Eye wash stations or showers shall be inspected monthly and maintained in good working order ([SHA-1020](#)).

1102 FIRE & EXPLOSION PROTECTION

Chemicals that are incompatible with one another shall be stored separately. The supervisor shall provide all employees with adequate knowledge and training concerning storage compatibility and safe handling practices ([SHA-410](#) and [SHA-1015](#)).

Flammables with low flash points shall be handled with extreme care. The vapor shall not be allowed to come into contact with a source of ignition. Non-sparking tools shall be used to open drums and other containers of flammable materials ([SHA-1015](#)).

ABC fire extinguishers shall be available and compliant with [SHA-206-4](#).



1201 INTRODUCTION



Improper lifting of heavy items is one of the leading causes of injury in the workplace. Injuries can be avoided when lifting occurs about the knees and below the shoulders. Working and storage surfaces should be at the appropriate level to encourage proper work posture and avoid stooping, bending, stretching, turning, and reaching.

Employees shall observe the following safety precautions:

- Avoid storing heavy materials overhead when at all possible.
- Secure and properly load storage structures to prevent them from tipping over or falling.
- Before lifting, take a moment to examine the load's weight and check for sharp corners, slippery spots, or other potential hazards.
- Know your lifting limit and do not exceed it. When a load cannot be safely handled by one person because of its excessive weight, bulk, or awkward shape:
 - ◆ Ask for help
 - ◆ Divide the load if possible to make it lighter or more manageable to carry
- Use assistance or mechanical devices when lifting loads greater than 20 pounds. Handling of heavy loads should involve the use of mechanical aids such as hand trucks, dollies, hoists, conveyors, carts, powered industrial trucks, and other mechanical devices.
- Know the load's destination and make sure that it and the path of travel are both free of obstructions.
- Never carry a load you cannot see over or around.

1202 LIFTING PROCEDURES

Employees are to use the following procedure when lifting heavy objects:

- Stand close to the load with feet spread apart about shoulder width, one foot slightly in front of the other for balance.
- Squat down, bending at the knees (not the waist) while keeping your back straight. A straight back keeps spine, back muscles, and internal organs in correct alignment. Straight does not necessarily mean vertical or straight up and down.

- Draw the load in close to the body. Tuck arms and elbows in to the side of the body. Grip object firmly with both hands (not just the fingertips).
- Tuck chin so neck and head continue the straight line of the back.
- Begin lifting slowly with the legs (**not the back**) by straightening them. Never twist your body during this step.

- Once the lift is complete, keep the load as close to the body as possible. As a load's center of gravity moves away from the body, stress to the lumbar region of the back dramatically increases.

1202 LIFTING PROCEDURES (CONT.)

- If it is necessary to turn while carrying the load, the employee shall turn his or her entire body by using the feet—not the torso.
- To place the load below waist level, follow the same procedures in reverse order. Remember to keep your back as vertical as possible and bend at the knees.

AVOID TWISTING

1301 EMERGENCY PLANS

Each facility shall have a written emergency action plan. Supervisors shall make employees aware of the content of the plan and related procedures.

Refer to [SHA-600](#) for additional information regarding emergency action plans.

1302 HOUSEKEEPING

Employees shall observe the following safety precautions:

- Keep work areas clean and orderly.
- Aisles, corridors, and stairways must remain clear at all times.
- Always stack material in a manner so that it cannot fall or easily be knocked over.
- Keep windowsills, ledges, and tops of cabinets free of heavy objects.
- Clean spilled liquids immediately.
- Correct or immediately report to appropriate personnel any tripping hazards, exposed nails, loose flooring, raised edgings, splinters, faulty treads or mats, and cords in walkways.

1303 PROPER USE OF OFFICE EQUIPMENT & FURNITURE

Employees shall observe the following safety precautions:

- Equipment shall only be utilized for its intended purpose.
- Bottom drawers of file cabinets should carry the heaviest loads.

1303 PROPER USE OF OFFICE EQUIPMENT & FURNITURE (CONT.)

- Use handles to open and close file drawers.
- Open only one file drawer at a time and close all desk and file drawers when not in use.
- Do not use chairs, desks, tables, or cabinets for climbing or reaching overhead objects.
- Keep fingers away from the point of operation on tools such as staplers, punches, and paper cutters.
- Keep all machine safety guards in a locked position when not in use.
- Store sharp objects in the front part of desk drawers where they are readily visible.

1304 ELECTRICAL ITEMS

Employees shall observe the following safety precautions:

- Properly guard machines with belts, gears, pulleys, or rotating parts.
- **DO NOT** clean machinery while operating.
- Keep electrical cords in good repair.
- Replace cords with frayed insulation or broken ground prongs.
- Keep plugs totally enclosed to prevent shock.
- Use extension cords in accordance with the rating on the plug.

1304 ELECTRICAL ITEMS (CONT.)

- Only trained and authorized personnel shall attempt to repair or adjust electrical equipment.

SHA-408 provides additional information on electrical safety.



1401 OVERVIEW

Employees shall observe the following safety precautions:

- Use only KYTC-owned tools while on the job.
- Use all portable power tools in accordance with the manufacturer's recommended operating procedures.
- Do not use portable electric tools if the operator must stand or be located near water.
- Operators shall wear all required personal protective equipment (PPE) when using any portable power tool.
- Use all guards provided for portable power tools.
- Remove portable power tools from service and red-tag them if any part or safety feature is found not working or missing ([SHA-412](#)).

1402 ELECTRICAL TOOLS**Grounding**

All hand-held portable electrical tools shall be grounded. The tool is grounded when **one** of the four following criteria is met:

- The tool has an approved, double-insulated system
- The tool has a three-wire and three-prong system
- The wall receptacle has wiring in conduit, or the wiring is bonded to a grounded structure
- The adapter has the grounding pigtail wire affixed to the wall receptacle faceplate screw

1402 ELECTRICAL TOOLS (CONT.)**Electrical Cords**

- Replace electrical cords when insulation is worn or frayed.
- Do not leave cords in walkways.
- Protect cords from grease and oil spills.
- Use an extension cord (drop cord) with wiring equal to the wiring of the tool being used and of the grounded type when used with portable electrical tools.
- Cover the wiring on plugs with approved insulated discs.
- Protect extension cords with ground fault circuit interrupters (GFCIs).
- Use extension cords of the heavy duty, three-wire type that are design-rated for hard or extra-hard usage (such as types S, ST, and SO).
- Use extension cords approved by Underwriter Laboratories.

Electrical Drills

- Electrical drills shall have a constant pressure switch (on-off switch) and may have a lock-on control that can be turned off with the same finger or fingers that turned it on.
- When drilling loose pieces of material, the item being worked on shall be clamped in a vice or otherwise secured to prevent the item from spinning.

1402 ELECTRICAL TOOLS (CONT.)**Electrical Circular Saws**

- Each saw shall be provided with a constant pressure switch that shuts off power when pressure is released.
- Circular saws shall be equipped with guards above and below the base plate or shoe. The bottom guard will move freely as the stock is being cut and will instantly return to the covering position when the saw is withdrawn from the item being worked on. **Operators shall not remove or block this guard in open position.**

Grinders & Disc Sanders

- Grinders with abrasive wheels that exceed 2 inches in diameter shall have a protective hood or guard that will cover at least the top half of the abrasive wheel (180-degree coverage).
- Switches for grinders and disc sanders shall be of the “on-off” type only when diameters of abrasive wheels and discs are less than 2 inches.
- Grinders and disc sanders with abrasive wheels and discs 2 inches or greater in diameter shall be equipped with a momentary contact “on-off” switch. The switch may be locked in the “on” position if the same finger or fingers can be used to turn it off.
- Shields covering the cutting blade shall not be removed.
- Operators shall be aware of surroundings and keep all other personnel away from operation.

1402 ELECTRICAL TOOLS (CONT.)

- Extra fuel shall be stored only in labeled, approved safety cans.
- All necessary personal protective equipment shall be worn by operators.

See [SHA-408](#) for additional information on electrical safety.

1403 PORTABLE AIR COMPRESSORS

- Portable air compressors shall have safety chains affixed to the tongue hitch for use with the vehicle towing the compressor.
- All compressed air-line couplings shall have a safety wire secured through the matching holes from one coupling to another to prevent separation of hose sections while under pressure.
- Personnel using compressed air for jackhammering, pavement breaking, etc., shall wear approved protective eye shields.
- Ear protection is required to be worn by personnel operating jackhammers, as well as by other persons within 25 feet of the air compressor or as indicated by sound meter readings ([SHA-500](#)).

1404 AIR-POWERED TOOLS

- Reduce compressed air pressure to 30 psi when using it for cleaning purposes.

Note: Do not use compressed air for cleaning clothes or parts of the body.

- Wear approved face, eye, and ear protection when exposed to the possibility of flying particles ([SHA-500](#)).

1404 AIR-POWERED TOOLS (CONT.)

- Secure air hose couplings with a safety wire affixed in the provided holes and inspect couplings prior to each use.
- Use the same guarding with air-powered portable grinders as that used with electrical portable grinders.
- Use safety clips or retainers to prevent attachments (bits, etc.) from being accidentally withdrawn or expelled.

Note: Personnel using these tools shall exercise particular care in the positioning of feet.

- Only authorized and trained personnel shall operate sandblasters.

1405 PORTABLE ELECTRIC GENERATORS

- Bond the motor to the stand so that a good ground is evident.
- Attach a heavy-duty copper wire to the generator stand and to an appropriately-sized ground rod driven into the ground.
- Use only grounded-type portable electric tools (unless double-insulated) when using a portable electric generator.

Note: All portable electric generators shall be equipped with ground fault circuit interrupters and shall be used in well-ventilated areas only.

Refer also to [SHA-408](#) for information on electrical safety.

1406 WEEDERS

- Follow all manufacturer guidelines included in the owner's manual for operation, maintenance, and inspection of weeders.
- Do not remove cutting blade shields.
- Stay aware of surroundings and keep all other personnel away from operation.
- Store extra fuel in labeled, approved safety cans only.
- Wear required PPE ([SHA-500](#)).

1407 LAWN MOWERS

- Follow all manufacturer guidelines included in the owner's manual for operation, maintenance, and inspection of lawn mowers.
- Do not remove or lower the safety bar while the mower is in operation.
- Wear required PPE ([SHA-500](#)).



1501 GENERAL INFORMATION

Traffic control is one of the most important functions KYTC can provide its employees and the traveling public. Reasonable precautions shall be taken to prevent accidents caused by construction, preconstruction, or maintenance operations. (See also [TO-803](#).)

[SHA-1501](#) provides additional information regarding supervisor responsibilities.

1502 SIGNS, CONES, & OTHER TRAFFIC CONTROL DEVICES

All signs, cones, drums, and other traffic control devices shall conform to the *Manual on Uniform Traffic Control Devices* (MUTCD) and other applicable standard requirements for size, shape, color, planned use, and retroreflectiveness.

[SHA-1502](#) and [MUTCD](#) provide detailed specifications.

1503 HAND-SIGNALING DEVICES

A number of hand-signaling devices such as STOP/SLOW paddles, lights, and red flags are used in controlling traffic through work zones. The sign paddle bearing the clear message STOP/SLOW shall be the primary hand-signaling device used as it provides motorists with more positive guidance than flags. Flag use shall be limited to emergency situations and middle flagger operations. If a flag is used in an emergency situation, it should be replaced with a STOP/SLOW paddle as soon as feasibly possible.

All hand-signaling devices shall be kept in good condition, clean, and legible. The designated competent person shall immediately replace hand-signaling devices in poor condition.

1504 FLAGGERS

Flaggers are responsible for human safety and the prevention of equipment and property damage. A flagger should possess the following qualifications: adequate physical condition, courteous but firm manner, neat appearance, and sense of responsibility for the safety of the public and working crew.

Before KYTC employees are allowed to engage in flagging procedures, they must successfully pass the KYTC course provided by KYTC employee safety personnel and receive a valid KYTC Flagger Certification card. Employees should participate in refresher training every two years thereafter or if it is determined that retraining is necessary due to observed, non-compliant flagger procedures

Flaggers should be positioned on the shoulder of the road at a minimum 50 feet away from all work vehicles and equipment. In addition, an escape route shall be planned and color contrast between the flagger's protective garment and background shall be maintained. The flagger should be clearly visible at all times to approaching traffic for a distance of at least 500 feet to permit proper response by motorists to the flagging instructions.

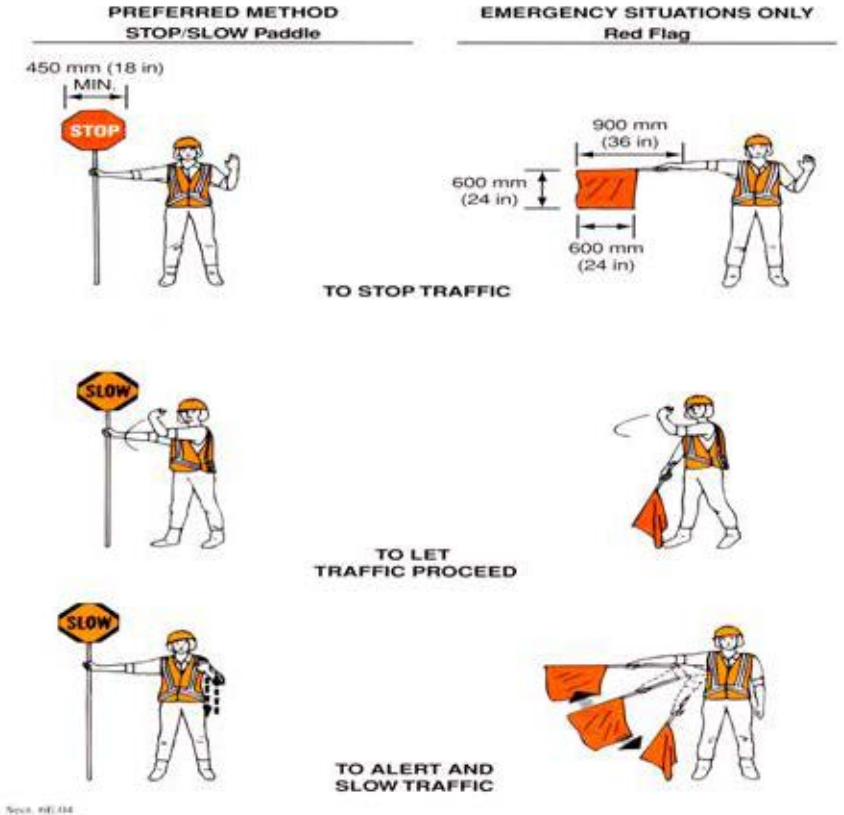
Required flagger equipment consists of ANSI 107-2004 Class II-approved high-visibility apparel, including cap or hard hat; STOP/SLOW paddle; and certification card.

For nighttime operations, a flashlight with red cone shall be used and high-visibility apparel shall be minimum Class III. Unless an emergency situation is present, illumination of nighttime flagger stations should not result in glare to the traveling public.

Only KYTC-issued communication equipment shall be allowed. Flaggers shall not use personal cell phones, stereo headphones, video games, or other distracting electronic devices while flagging.

1504 FLAGGERS (CONT.)

The following figure details proper flagging procedures to be utilized with both paddle and flag.



A middle flagger should be used when two end flaggers cannot maintain line-of-sight or radio communications. In addition, middle flaggers might be considered when traffic may enter work zones between flagger stations.

SHA-1504 provides additional information regarding middle flaggers, supervisor responsibilities, and mobile operations.

1505 TRAFFIC CONTROL METHODS**Two-Way Radios**

Using KYTC-approved, two-way radios is the preferred method of communication between flaggers. The system shall be powerful enough for flaggers to clearly communicate without interference or fadeout and should be tested prior to use.

Pilot Truck

The pilot truck method provides for smooth traffic flow when the end flaggers cannot observe each other. This method may be used in light or moderate traffic flow situations. A pickup truck or a vehicle equipped with appropriate warning lights and a tailgate-mounted sign reading PILOT TRUCK—FOLLOW ME is required.

The traffic stopped by the first flagger will be guided by a pilot truck to the second flagger at the other end. Once a flagger's traffic has left with the pilot truck, all other oncoming vehicles shall be stopped. After delivering traffic to the other flagger, the pilot truck shall then guide the present flagger's traffic back to the other flagger.

Pilot Car

Pilot car operations are appropriate for long distance alternating traffic needs to maintain driver speeds and to help guide traffic through a work site. Pilot car operators should be certified flaggers.

Pass-the-Flag

After the last motorist has left the flagging station, all other oncoming traffic shall be stopped. The flagger at the other end of the jobsite, upon receiving the red cloth or other object, shall then proceed in the same manner described previously. If a flagger has not received the cloth or object within a reasonable amount of time, the flagger shall make an effort to determine the problem.

1506 HIGHWAY-RAIL GRADE CROSSINGS

When highway-rail grade crossings exist either within or in the vicinity of a temporary traffic control zone, lane restrictions, flagging, or other operations shall not create conditions where vehicles might be stopped on the railroad tracks with no means of escape. KYTC flaggers shall be certified.

Refer to [SHA-1623](#) for additional information on working near railroads.

1507 BARRICADES

Barricades may be used to:

- Protect spot hazards
- Close roadways and sidewalks
- Provide additional protection to work areas

For more information, refer to [MUTCD](#) Section 6F.63 and Figure 6F-7.

1508 INCIDENT MANAGEMENT AREAS

A *traffic incident* is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic. Examples include a stalled vehicle blocking a lane, a traffic crash blocking the traveled way, a hazardous material spill along a highway, and natural disasters such as floods and severe storm damage.

Traffic incidents can be divided into three general classes of duration, each of which has unique traffic control characteristics and needs.

1508 INCIDENT MANAGEMENT AREAS (CONT.)

These classes are:

- Major—expected duration of more than 2 hours
- Intermediate—expected duration of 30 minutes to 2 hours
- Minor—expected duration under 30 minutes

A *traffic incident management area* is an area of a highway where temporary traffic controls (TTC) are installed, as authorized by a public authority or the official having jurisdiction of the roadway, in response to a road user incident, natural disaster, hazardous material spill, or other unplanned incident. It is a type of TTC zone and extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where vehicles return to the original lane alignment and are clear of the incident.

The primary functions of TTC at a traffic incident management area are to inform road users of the incident and to provide guidance information on the path to follow through the incident area.

The TTC will reduce the likelihood of secondary traffic crashes and will preclude unnecessary use of the surrounding local road system.

KYTC flaggers shall be certified.

1509 THREE-LANE ROADWAY WITH PASSING LANE

There are times during maintenance activities when flagging traffic on a three-lane roadway may be necessary. All traffic control shall be based on good engineering judgment.

The certified flagger shall not flag traffic by standing in the roadway or on the shoulder when two lanes of traffic are travelling in the same direction.

1509 THREE-LANE ROADWAY WITH PASSING LANE

If flagging is necessary, the flagger shall:

- Stand at the beginning of the passing lane start. This will allow the flagger to flag motorists from one lane before traffic can go into the passing lane. Consult [MUTCD](#), Figure 6H-10, *Lane Closure on a Two-Lane Road Using Flaggers* (TA-10). A middle flagger may be used near the equipment or work location in addition to the two end flaggers.
- If flagging from the beginning of the passing lane start is not feasible, place channeling devices (such as traffic cones or drums) every 40 feet from the start of the passing lane up to 100 feet past the work area. This prohibits traffic from driving in the slow lane. This temporary traffic control plan allows traffic to channel through the passing lane. Cones and barrels shall follow the standards set forth in the MUCTD, Sections 6F.64 and 6F-67.
- If using flaggers or channeling devices are not feasible, follow the guideline set forth in MUTCD, Figure 6H-33, *Station Lane closure on a Divided Highway* (TA-33).

1510 TEMPORARY TRAFFIC CONTROL PLANS

The following provide information on temporary traffic control plans: MUTCD 6A.01, 6B.01, 6C.01, 6C.02, 6C.03; [SHA-402](#); [SHA-403](#); [SHA-1500](#).



1601 ABNORMAL WEATHER ACTIVITY WORK

In the event that any employee (including those involved in flagging operations) must work in abnormal weather conditions such as wind, rain, cold, heat, snow, or ice, supervisors shall make arrangements to provide the employee with regularly scheduled breaks, in addition to as-needed breaks.

All employees shall be furnished with appropriate personal protective equipment (PPE). Employees' safety, health, and wellbeing shall be of the utmost importance. All work activity performed outdoors in the elements shall be based on good engineering judgment.

The following are important points to remember when walking and driving during flood conditions:

- Five inches of fast-moving floodwater can knock over an adult.
- Six inches of water will reach the bottom of most passenger cars causing loss of control and possible stalling.
- One foot of water will float many vehicles.
- Two feet of rushing water can carry away most vehicles, including sport utility vehicles (SUVs) and pick-up trucks.



KYTC employees shall not enter flood waters.

Additional information regarding abnormal weather safety precautions may be found in [MUTCD 6A.01, 6D.03](#); [SHA-402](#), "Job Safety Analysis"; [SHA-403](#), "Job Briefing"; [SHA-500](#), "Personal Protective Equipment"; [SHA-702](#), "Medical & First Aid"; [SHA-1500](#), "Traffic Control."

1602 ESCORT VEHICLES (SHADOW VEHICLES)

Escorts provide advance warning to the traveling public and protection to work vehicles. An escort vehicle shall be used where hills or curves eliminate the motorist's sight distance to the work vehicle. The escort shall follow the moving work site at a safe distance, usually 500 feet. However, the distance will vary according to type of road, speed of traffic, volume of traffic, speed of work vehicles, etc.

Escort drivers shall constantly remain aware of their vehicles' positioning and of the motorists' vehicles and shall vary their speeds and hold back on curves and hillcrests to give more warning to motorists. Escort drivers may have to speed up to regain the proper distance from work vehicles.

Truck-mounted attenuators used on escort vehicles shall comply with [SHA-1718](#).

The escort and work vehicles shall have two-way radio contact.

Escort vehicles shall not be used to transport flammable materials or liquids.

1603 POTHOLE PATCHING

[SHA-1603](#) provides information regarding supervisory responsibilities and assignment of traffic control operations.

1604 LITTER PICKUP

Employees picking up trash shall wear hi-visibility apparel and work toward the truck. The vehicle utilized in this operation shall have, at a minimum, a Level 1 lighting package and appropriate rear-mounted signage in conjunction with appropriate stationary signage.

1604 LITTER PICKUP (CONT.)

As it is not practical to use flaggers during litter pickup operations, it is mandatory that work vehicles remain off the roadway whenever possible. If there is not enough shoulder to allow for this, the driver shall park at the nearest off-the-roadway location.

1605 GUARDRAIL REPAIR

When a lane of travel is impeded during guardrail repair, there shall be a standard lane closure with flaggers used for traffic control. All standard warning or traffic control devices shall be a part of the temporary traffic control plan.

See [MUTCD Part 6 Notes for Figure 6H-10—Typical Application 10 Lane Closure on a Two-Lane Road Using Flaggers](#).

1606 CUTTING BRUSH

Employees shall wear required PPE during brush-cutting operations. Loose clothing shall not be worn in proximity to machinery or equipment where entanglement can occur. The feeding operator and all personnel working within 20 feet of brush-chipping equipment shall wear approved head, eye, hand, foot, and hearing protection. Refer also to [SHA-500](#).

Vehicles used in cutting brush shall be parked off the roadway whenever possible. If the vehicle cannot be parked completely off the traveled portion of the roadway, normal traffic control procedures (including warning signs, flaggers, and channelizing devices) shall be used. If the vehicle can be parked off the traveled portion of the roadway, an appropriate sign may be displayed with a red cone near it.

1606 CUTTING BRUSH (CONT.)

When loading brush on vehicles, a red flag shall be affixed to the rearmost portion of the brush that extends beyond the tailgate section. The load of brush shall be secured so that it does not pose a hazard to the traveling public.

Employees shall maintain a safe distance from one another so as not to create a hazard.

1607 SHOULDERING OPERATIONS WITH MOTOR GRADERS

If operations are slow-moving, normal warning signs and flagging procedures shall be utilized.

If the shouldering operations are fast-moving, normal flagging procedures are not practical. In this case, an appropriate warning sign shall be placed on each end of the work area with a red flag affixed to or red cone placed near it.

When flaggers cannot be used, there shall be a rear escort vehicle with at least a level 1 lighting package and a tailgate-mounted sign. This vehicle shall remain approximately 500 feet behind the shouldering operation. When the grader is operated over a hill or in a curve, the driver of the escort vehicle shall remain in a location visible to traffic to provide warning. The escort vehicle shall be in compliance with [SHA-1602](#).

1608 DITCHING OPERATIONS

Normal flagging and warning-sign procedures shall be used. A ground guide should be used to safely direct dump trucks to and from the vicinity of the operation ([SHA-1503](#) and [SHA-1504](#)).

1609 BACKFILLING

During the dumping of material along the side of the road, the operation shall be properly signed, and flaggers shall be used ([SHA-1503](#) and [SHA-1504](#)).

1610 PAVING OPERATIONS

Paving operations are slow-moving and shall utilize normal warning signs and flagger traffic-control procedures ([SHA-1504](#)).

An ABC fire extinguisher shall be available on motorized paving machines ([SHA-206-4](#)).

Employees shall exercise extreme caution when working on or near the center line.

1611 BRIDGE CONSTRUCTION, INSPECTION, & MAINTENANCE

Employees shall wear U.S. Coast Guard-approved life jackets ([SHA-507](#)) when working on structures with the possibility of a fall into a waterway. Life jackets are not necessary if a fall-arrest system incorporating 100 percent tie-off is used. An ANSI-approved harness and lanyard shall be used ([SHA-409](#)) when a fall of 4 feet or more is possible.

At least one readily available lifesaving skiff with a buoy and 90 feet of line shall be immediately available at locations where employees are working over or adjacent to water where a drowning hazard may exist.

Employees engaged in sandblasting operations shall be required to be medically evaluated in accordance with the KYTC respiratory protection program ([SHA-407-1](#)). Employees shall observe general safety rules for personal protective equipment (PPE) as stated in [SHA-500](#).

1612 ROADSIDE OPERATIONS

The slow-moving nature of roadside operations creates a hazard to both the crew and public and requires several safeguards:

- All persons who handle, load, mix, or apply pesticides shall be licensed and certified by the Kentucky Department of Agriculture.
- The applicator shall comply with the PPE requirements shown on the pesticide label and the SDS. The minimum PPE required for all pesticide applications is long pants, long-sleeved shirts, shoes, and socks.
- When spraying or fertilizing on a **two-lane highway**, the sprayer unit shall have at minimum a level 2 lighting package and a tailgate-mounted sign approximating Caution—Spraying Operations. A rear escort vehicle should also be considered for use.
- When working from a travel lane on a **multilane highway**, the hydro seeder or spray truck shall be equipped with appropriate warning signs and lighting package. An escort vehicle equipped with a truck-mounted attenuator with arrow panel shall be used and comply with [SHA-1602](#).
- The operator shall frequently check the arrow panel to ensure the bulbs are operative.
- Sprayer and hydro seeder units, other than those mounted on pickup trucks, shall be provided an adequate means of communication between the driver and the operator in rear.
- Face shields or goggles approved for these types of operations, chemical-resistant gloves, aprons, or coveralls shall be used by employees while mixing pesticides.
- Spraying operations shall not be conducted on extremely windy days. The supervisor shall determine if weather conditions will permit the spraying operation to be conducted safely.
- If spray solution comes in contact with eyes, the employee shall immediately wash his or her eyes with clean water or eyewash solution.

1612 ROADSIDE OPERATIONS (CONT.)

- Crews shall frequently inspect nozzles and hoses for leakage and deterioration.
- Spraying operations shall be conducted within guidelines prescribed by the Division of Maintenance (**MAIN-700**).
- Standard guardrail systems shall be provided on units if employees are exposed to falling hazards.
- The operation and maintenance of the spray power equipment is the responsibility of an employee who is well-versed in its operational functions.
- Surfaces on the spray tank and truck should be kept reasonably free from accumulation of spray material by washing frequently.
- Safety data sheets (SDS) should be readily available when spraying (**SHA-410**).
- Follow the manufacturer's directions and precautions printed on the container of all sprays and chemicals.

- **DO NOT:**
 - ◆ Use pesticides and chemical sprays near open flame
 - ◆ Smoke during use
 - ◆ Mix weed killers such as Roundup in a galvanized container, as a combustible mixture can result

FOG-608 and **MAIN-700** provide additional information on noxious weed control. The *Pesticide Guidance Manual* also provides information on vegetation management, pesticide use safety, and noxious weed identification.

1613 SNOW & ICE REMOVAL

All operators shall have a valid CDL and shall undergo annual snow and ice training. Vehicles equipped with salt spreaders shall have appropriate warning lights. Front-mounted snowplows shall have a reflective guide bar attached to each corner of plow.

1613 SNOW & ICE REMOVAL (CONT.)

Headlights and warning lights shall be used for both daytime and nighttime operations.

FOG-1000 and **MAIN-1000** provide additional information on snow and ice removal.

1614 TRACTOR MOWING

Mower operators shall:

- Take extra precautions when operating near crests of hills, excavations, or other areas where the machine may tip or drop off
- Make proper observations before backing or turning around equipment
- Shut off the mower engine, place the lever activating the knife blades in the neutral position, and block the wheels of the machine to keep it from rolling, if necessary, before attempting to make repairs to the cutting blade or knife sections or before cleaning the blade

Other mowers operating behind a bush hog shall stay at least 300 feet behind, or the distance recommended by the manufacturer.

SHA-1614 provides information on equipment and signage.

1615 HAND LAWN MOWERS

Hand lawn mower operators shall:

- Ensure the mower's motor has sufficiently cooled before refueling
- Shut off the engine and disconnect the spark plug wire when changing or sharpening the blade or doing any repair work under the mower

1615 HAND LAWN MOWERS (CONT.)

- Ensure grass discharge is not blown toward other personnel
- Install all available guards and use them when the equipment is in operation
- Follow all manufacturer guidelines for operation, maintenance, and inspection as outlined in the owner's manual

1616 CENTER-LINE STRIPING

SHA-1616 provides information regarding escort and other vehicles, lighting, and signage during center-line striping activities.

1617 THERMOPLASTIC-STRIPING OPERATIONS

SHA-1617 provides information regarding channelizing devices, traffic control plans, personal protective equipment, and hazardous waste disposal during thermoplastic-striping operations.

1618 TRAFFIC SIGNAL WORK

Work vehicles shall be protected by a series of channelizing devices on all stationary jobs.

If the equipment must be in the traveled portion of the roadway, adequate warning lights (appropriately illuminated at night), signage, and number of flaggers shall be used.

The use of law enforcement is suggested where signals are mounted diagonally across an intersection. If law enforcement is unavailable and conditions warrant, place the traffic signal on all-red flash or place stop signs on all approaches (**SHA-1500**).

1618 TRAFFIC SIGNAL WORK (CONT.)

Two or more individuals should be on the scene during bucket-truck operations. Bucket-truck work shall comply with [SHA-1717](#) and [FOG-1500](#). Overhead work from the bucket shall be performed within the coned work area only. No portion of an aerial lift platform or supporting structure shall extend over an open lane of traffic, regardless of the working height. A truck-mounted attenuator and arrow panel may be used in affected lanes on roads with five or more lanes and posted speeds of 45 mph or greater.

Platforms on aerial lifts (such as, autocranes or levelator trucks) shall not be operated in excess of the posted capacity of the platform. Adequate guard railing and fall protection shall be provided if employees are working at heights above 4 feet. The operator shall utilize full fall protection ([SHA-409](#)).

1619 SIGN INSTALLATION CREW

The work vehicle shall be protected by a series of channelizing devices on all stationary jobs. In all setups adequate warning lights, signage, channeling devices, and flaggers shall be used. A traffic observer or lookout shall be positioned to continually watch traffic and warn workers whenever trouble is anticipated. Personnel driving sign posts shall utilize appropriate eye, foot, hand, head, and hearing protection ([SHA-500](#)).

If crews and equipment are performing work on the right-of-way (ROW) or in the traveled portion of the roadway, refer to [SHA-1619](#) or [MUTCD](#) Part 6 for jobsite setup options.

1620 SURVEY CREWS

In all setups, adequate warning lights, signage, channeling devices, and flaggers shall be used. A SURVEY CREW sign may also be used.

1620 SURVEY CREWS (CONT.)

If crews and equipment are performing work on the right of way (ROW) or in the traveled portion of the roadway, refer to [SHA-1620](#) or [MUTCD](#) Part 6 for jobsite setup options.

1621 SLOPE MOWING

All manufacturer guidelines for operation, maintenance, and inspection shall be followed. See the owner's manual, [SHA-406-2](#), and [FOG-701](#) for additional information.

Supervisors and slope mower operators should observe the following safety precautions:

- Mowing operations shall not be performed on slopes greater than 3/1 (33 degree slope).
- No brush cutting with equipment will be done within 300 feet of a dwelling, business, residence, or pedestrian area.
- Before daily mowing operations begin, the area to be mowed should be physically walked and inspected by the county superintendent, crew leader, or slope mower equipment operator for potentially dangerous, foreign objects (such as old wire, old guardrail, sign posts, etc.).
- Objects with the potential to be thrown from a mower should be removed from the site.
- Potentially dangerous objects that cannot be removed from the mowing site should be flagged or painted for visibility.

Slope mowing operations shall utilize appropriate traffic control. All employees and flaggers shall wear hard hats and eye protection when they are within 300 feet from the equipment when it is in operation.

- Flaggers shall be equipped with radio equipment to maintain contact with brush cutting equipment operators regarding traffic flow.

1621 SLOPE MOWING (CONT.)

- Traffic shall be stopped when brush cutting equipment is in operation, however no longer than 20 minutes.
- Traffic control shall be conducted as set forth in the latest version of the *Manual on Uniform Traffic Control Devices (MUTCD)* and KYTC *Standard Drawings*.

1622 TRAILERS & TOWED EQUIPMENT

Operators' responsibilities may include the following:

- Perform a preoperational check of their equipment
- Familiarize themselves with the operator's manual
- Report needed repairs promptly
- Perform a visual and manual check of the pintle hooks to confirm they are secure prior to using the truck and attachment
- Make sure cargo is properly loaded and secured using only approved chain and load binders
- Use the proper strength safety chains on any attachment in tow with 10% load weight on the trailer tongue (See [SHA-1703](#) and [SHA-1626](#) for additional information.)
- Be aware of height and width of load
- Plan ahead to minimize the need for backing

Note: If you must back the equipment, back slowly and check mirrors often. Use an observer when available. Make sure backup alarms are working properly.

- Make sure trailer bed and ramps are clear of any debris
- Make sure tilt-beds or ramps are secure before putting trailer in use
- Hook, unhook, load, and unload on stable ground with trailer secure

1622 TRAILERS & TOWED EQUIPMENT (CONT.)

- Be sure taillights and turn signals are in view when towing any attachment that does not have taillight hookup

Operators should not:

- Use any equipment deemed unsafe
- Load a trailer beyond its recommended capacity
- Allow anyone between the truck and trailer when backing to hook-up the trailer

1623 WORKING NEAR RAILROADS (RR)

- Always look in both directions prior to crossing RR tracks.
- Do not cross within 50 feet (15 meters) in front or behind a nonmoving train unless instructed by emergency or railroad personnel.
- Do not crawl under stopped cars or cross tracks between standing train cars.
- Do not block or disrupt access roads to and across tracks.
- Do not park a vehicle or equipment within 20 feet (6 meters) of the tracks.
- Materials, tools, or equipment shall not be stored on railroad right of way.

For emergency incidents occurring on or near railroad crossings, call 911 and use the ENS sign located at each crossing.

The purpose of the ENS sign is to provide the public with critical emergency contact information at every highway-rail grade crossing. The information contained on the ENS sign enables the public to reach the railroad responsible for the crossing and to identify the specific crossing in the event of an emergency.

SHA-1506 provides additional information on highway-rail grade crossings.



1624 CULVERT & SUBSURFACE STRUCTURE ENTRY

Employees may inspect culverts and other subsurface structures after receiving appropriate training. However, no employee (trained or untrained) shall enter culverts or structures that have:

- A diameter or opening of 48 inches (900 millimeters) or less
- Debris snares or other obstructions
- Water depth above boot tops
- Water current or incline that presents a hindrance to stable footing

Prior to entry, air quality shall be checked for oxygen deficiency or the presence of harmful contaminants. Available as-built or other plans should be reviewed as well. A helmet lamp or flashlight may be used to improve illumination.

[SHA-407-5](#) provides additional information on working in confined spaces.

1625 NUCLEAR DENSITY

A *nuclear gauge* (density meter) is a soil testing device that uses two different types of radioactive material to measure the moisture of soils and rock, as well as the density or compaction of such.

Because nuclear gauges use small amounts of radioactive material, certain laws and standards must be met to ensure the safe operation of such. KYTC is licensed to possess and use these devices by the Kentucky Cabinet for Families and Children. Operators of nuclear density gauges shall keep them in their possession or properly secured at all times.

Contact the KYTC Division of Construction for additional information regarding nuclear density gauges. [CST-800](#) and [SHA-1804](#) detail the KYTC nuclear density gauge program.

1626 LOAD SECUREMENT

SHA-1626 provides specific examples of each of the following:

Cargo

Cargo such as corrugated pipe, concrete pipe, and signs shall be secured with adjustable tie downs such as ratchets or binders. Each tie-down shall be attached and secured in a manner that prevents it from becoming loose, unfastening, opening, or releasing while the vehicle is in transit.

The total working load limit of the tie-downs must be at least one-half times the weight of the equipment being transported. A minimum of two tie-downs are to be used if the cargo is less than ten feet in length. One additional tie down is required for every fraction beyond the first ten feet of length.

All tie-downs, cargo securement systems, parts, and components used to secure cargo shall be in proper working order with no damaged or weakened components (cracked, twisted, bent, knotted, stretched, or broken).

Cargo Placement & Restraint

Cargo that is likely to roll, such as concrete or corrugated steel pipe, must be restrained by blocks, wedges, a cradle, or other means to prevent rolling and that is not capable of unfastening or loosening while the vehicle is in transit. Cargo placed beside each other must be in direct contact with each other or otherwise secured to prevent the load from shifting.

Motorized Equipment Greater Than 10,000 Pounds

All heavy vehicles and equipment, such as backhoes, excavators, and loaders, must be secured as close as possible to the front and rear of the equipment by a minimum of four tie-downs.

1626 LOAD SECUREMENT (CONT.)

Accessory equipment, such as hydraulic shovels, buckets, and blades, shall be completely lowered and secured to the trailer. Articulated vehicles must be secured in a manner that prevents movement while in transit. For example, a loader with locking pins that are not engaged needs a tie-down.

The total working load limit of the tie-downs must be at least one-half times the weight of the equipment being transported.

1627 FIELD DATA COLLECTION ACTIVITIES

Additionally, the vehicle shall be parked off the roadway and in such a manner so that it will not block the sight distance of approaching traffic.

If warning signs are needed, a sufficient number in accordance with [MUTCD](#) standards shall be located in advance of the work location to inform the public ([SHA-1501](#)).

1628 EQUIPMENT ROADEO

The Equipment Roadeo event shall adhere to all safety policies as noted in the *Employee Safety and Health Manual (SAFE)* and the *Safety and Health Administration Guide (SHA)*. They include, but are not limited to, the following: foot protection, eye protection, vehicle and equipment safety, high visibility apparel, head protection, and hand protection ([SHA-500](#)).

Designated first-aid stations and responders shall be noted in the event job briefing prior to the event ([SHA-700](#)).



1701 GENERAL SAFETY REQUIREMENTS

Fully controlled access highway means a highway which gives preference to through traffic and which shall have access only at selected public roads or streets, and which shall have no highway grade crossing or intersection ([603 KAR 5:025](#)).

SHA-1701 provides a list of limitations on the use of fully controlled access highways.

Employee Responsibilities

- Seat belts shall be used by all operators and occupants of state-owned or state-leased vehicles and equipment.
- The driver or operator of a state-owned or state-leased vehicle shall ensure that all passengers buckle their seat belts before operation of vehicle and/or equipment.
- The operator shall report through chain of command any safety hazard concerning an assigned vehicle or equipment. It will then be that supervisor's responsibility to report the deficiency to the proper authority ([SHA-412](#)).
- Employees shall not use cell phones or other electronic devices while operating state-owned or state-leased vehicles or equipment.
- Employees shall not use cell phones or other electronic devices while working around or in close proximity to vehicles or equipment while they are in use.
- Vehicle operators shall perform safety inspections and walk-arounds of assigned vehicles each morning before putting vehicles into operation. Items to check include, but are not limited to, glass, horn, mirrors, lights, turn signals, brakes, tires and wheels, exhaust system, steering mechanisms, wheel bearings, backup alarms, and warning light systems.

1701 GENERAL SAFETY REQUIREMENTS (CONT.)

- Smoking is not permitted in a KYTC-owned or leased vehicle.
- Emergency brakes shall be set on all unattended equipment. Vehicles with automatic transmissions shall be left in “park.” Vehicles with standard transmissions shall be left in “reverse” gear when facing downhill and “low” gear when facing uphill.
- Chocking or blocking of wheels is required when jacks are used for changing tires or the vehicle is parked on an incline.
- All vehicles and equipment shall have engines turned off while refueling. Cell phones and other electronic devices shall be turned off while refueling.
- For backing all equipment, a backup alarm that meets federal standards is required. Backup alarms shall be maintained in an operable condition. A backup guide is recommended when rear vision is restricted. If no backup guide is available, the operator shall walk around the vehicle before backing.
- Personnel shall not ride on the sides or top of equipment. Both the operator and the person riding shall be held accountable.
- Employees shall have unobstructed hearing, while working or while operating motor vehicles, and shall not use any type of earphone device in one or both ears. This prohibition does not apply to hearing aids, personal protective equipment, or use of earphone-type, two-way radio systems, or cell phones required for safety.

Equipment Safety Precautions

- Equipment that does not require a license plate shall be inspected in the same manner as licensed vehicles.

1701 GENERAL SAFETY REQUIREMENTS (CONT.)

- All licensed-vehicle tires shall be properly inflated and shall never have less than 1/16 inch of tire tread, except trucks, which shall have at least 1/8 inch of tread on front tires. Non-licensed equipment shall not have bald tires or tires with exposed cord.
- All equipment designed to operate under 25 mph shall have a slow-moving vehicle emblem mounted on the rear in a readily visible location, preferably to left center of equipment. Slow-moving equipment (graders, loaders, snow and ice removal equipment) and other equipment producing traffic hazards to motorists shall have operable warning lights.
- Equipment being towed shall have two safety chains properly connected to the towing vehicle.
- All cracked glass on vehicles and equipment shall be replaced if the operator's vision is restricted or distorted.
- Off-road equipment traveling a roadway shall utilize an escort vehicle. Escort vehicles shall comply with [SHA-1602](#).
- Manufacturer operator and maintenance manuals shall be the standard to follow in the absence of regulatory standards.
- Most earthmoving equipment requires a sight distance of 1,000 feet to safely turn around. Flag persons shall be positioned when this sight distance is not available.
- When airing loose tires mounted on rims with split lock rings, employees shall follow procedures outlined in [SHA-406-1](#).
- All steps and running boards shall be kept clean and in good repair.

1701 GENERAL SAFETY REQUIREMENTS (CONT.)

- Cabs of vehicles shall be kept free of loose chains, bottles, etc. All required equipment, such as first-aid kits, fire extinguishers, and tools, shall be secured.
- An operable horn is required on all vehicles and equipment.

1702 FOLLOWING DISTANCE

- Use the "three-second rule" to determine safe following distance. When the vehicle in front of you passes an obstacle, count "1-one thousand, 2-one thousand, 3-one thousand." If your vehicle has not passed that obstacle, you are at a safe following distance.
- Vehicles in convoy or maintenance operations shall have at least 300 feet between vehicles.

1703 TRANSPORT OPERATIONS

On two-lane highways, an escort vehicle shall be provided anytime equipment is transported on "lowboys" and a wide-load situation exists. The vehicle shall have an adequate warning light system and be positioned to offer maximum protection to oncoming motorists in curves, over hills, etc. ([SHA-1602](#)).

- All loads over 10 1/2 feet in width or 75 feet in length (depending on road alignment) shall have an escort vehicle provided. An escort vehicle shall also be provided whenever the blade or bucket on equipment extends over the lowboy.
- The supervisor in charge of the equipment being moved shall provide traffic control measures (flag persons, signs, etc.) when necessary.
- A trailer shall not be loaded beyond its rated capacity.

1703 TRANSPORT OPERATIONS (CONT.)

- Trailer taillights and turn signals shall be visible and in working condition.
- Cargo shall be secured by appropriately rated transport chain or web-strap bindings.
- Two-vehicle maximum towing load shall not be exceeded.
- Vehicle tongue weight capacity shall not be exceeded.

SHA-1701 and **SHA-1705** provide additional information on general safety policies.

1704 DRIVER'S LICENSES

In accordance with Cabinet policy and state law, all employees operating state vehicles and road equipment must have a valid driver's license with the appropriate endorsements as outlined in the Classification Specifications.

1705 DRIVER RESPONSIBILITY

An operator of a KYTC vehicle is considered by the public to be a representative of the Cabinet and is expected to abide by all traffic laws and Cabinet policies as an example for others. The driver is responsible for the safe operation of the vehicle.

Any non-driving activity conducted while driving is a potential distraction and increases the risk of crash or injury. Therefore, employees shall refrain from driving or operating any vehicle or piece of equipment while distracted. This includes any activity that diverts the operator's attention, including talking on the phone, texting, eating, drinking, talking to others in the vehicle, and adjusting entertainment or navigation systems.

1705 DRIVER RESPONSIBILITY (CONT.)

Operators shall promptly report vehicle defects or unusual conditions to the supervisor.

Operating a Cabinet vehicle does not grant the operator immunity from the law. In case of an accident or violation of the law, the operator shall be held to the same degree of responsibility as if operating a privately owned vehicle. The operator may also be subject to disciplinary action by the Cabinet.

1706 PASSENGER CARS & TRUCKS

- The Secretary of the Transportation Cabinet, division head, or chief district engineer may prohibit any employee from operating Cabinet-owned equipment or passenger vehicle when such restriction is in the best interest of the employee, the Cabinet, or the general public.
- The Director of the Division of Equipment may recommend that an employee be restricted from operating equipment.
- Immediate supervisors shall have the authority to determine who will operate a department vehicle among their personnel.

1707 TRUCKS

- All trucks shall be checked prior to and after each use to ensure operating systems are functioning properly.
- Employees riding in trucks with seat belts shall wear belts whenever truck is in operation.
- The truck cab compartment shall contain no more passengers than the number of available seat belts.

1707 TRUCKS (CONT.)

- When driving too slowly for traffic conditions, employees shall pull safely off roadway to let traffic pass.
- Dump trucks shall be equipped with mud flaps.
- All loads containing materials subject to shifting or dislodging shall be covered with a tarp.

SHA-206-3, as well as **SHA-1701**, provide general safety policies.

1708 BULLDOZERS

- Bulldozers shall be equipped with an overhead and rear canopy guard when used in site-cleaning operations. The overhead guard shall be 1/8-inch steel plate or 1/4-inch woven wire mesh with openings 1 inch or smaller. The rear guard shall be 1/4-inch woven wire mesh with openings 1 inch or smaller.
- Prior to leaving a bulldozer unattended, the operator shall completely lower the blade.
- Extreme care shall be used when working near cuts or fills.
- When descending a slope, the operator shall doze two or three blades full of dirt to the edge of the slope. The operator shall ride down the slope with the edge of dirt in front of the blade. The blade shall not be lowered in an attempt to regain lost dirt because this could overturn the bulldozer.

SHA-1701 provides information on general safety policies.

1709 CRANES

- Operators shall be qualified and certified per OSHA Standard, [29 CFR 1926.1427](#).
- All operations of cranes shall be in accordance with OSHA Standard, 29 CFR 1926.1427.

[SHA-1701](#) details general safety policies, and [SHA-408-12](#) provides information on working around power lines.

1710 OIL DISTRIBUTORS

- Two dry-chemical fire extinguishers (having at least a 20-pound ABC rating) shall be mounted on the front or side. Extinguishers shall be placed approximately 20 feet to rear of distributor while oil is being heated.
- Exposed shaft couplings and pulley belts shall be shielded.
- Oil shall never be heated when oil level is below flues.
- The burners shall not be operating while distributor is being driven.
- Whenever possible, oil distributor burners shall be lit in a segregated area away from vehicles and other structures. Burners shall not be lit within 50 feet of gasoline, diesel, or kerosene storage.
- The hand spray bar and other lines shall be cleaned after each day's use. Waste materials shall be sprayed into a container and collected as part of the hazardous waste program.
- Gasoline shall not be used for cleaning purposes. Do not transport open containers of gasoline on the oil distributor.

1710 OIL DISTRIBUTORS (CONT.)

- Extreme care shall be used on windy days to prevent oil from being blown onto private cars and other property. Employees shall work so that the wind will carry oil vapor away from truck exhaust or burners. This type of operation requires maintaining steps and platforms in a non-slippery condition. Personnel shall be provided a grab bar or railing when operating from rear of distributor.
- Special care shall be given to keep taillights clean and free of oil.
- LP gas shall be limited to one container per vehicle, with a capacity of not more than 100 pounds when stored within buildings. All containers' valves shall be closed.

SHA-1701 includes general safety policies and **SHA-500** provides information regarding personal protective equipment.

1711 FORKLIFT TRUCKS

- Only properly trained and authorized personnel shall be permitted to operate forklifts. The immediate supervisor is responsible for ensuring operators receive proper training.

Note: Forklift operators are certified for up to 3 years.

- Forklift trucks shall be inspected prior to use according to either TC 25-165, *Internal Combustion Engine Industrial Truck Operation Checklist*, or TC 25-166, *Electric Industrial Truck Daily Operation Checklist* (**SHA-9028** and **SHA-9029**).
- An overhead guard shall be provided.
- Forklifts shall have a 5-pound ABC or all-purpose fire extinguisher.

1711 FORKLIFT TRUCKS (CONT.)

- Forklifts shall have an audible horn.
- Loads shall be lowered to lowest position possible when moving from one location to another.
- Prior to leaving a forklift unattended, the forks shall be fully lowered, controls positioned in neutral, emergency brake engaged, and power shut off.
- Wheels shall be chocked when parked on an incline.
- Passengers shall not ride on forklifts.
- Personnel shall not be lifted unless an approved safety platform is provided. The platform shall have toe boards, handrails, and mid-rails.
- The operator shall not permit personnel to be positioned beneath any raised portion of the forklift.
- Arms and legs shall not be placed between uprights of mast or outside running lines of truck.
- Employees shall not use cell phones or any other electronic devices including ear buds, tablets, kindles, or like devices while operating state-owned or state-leased forklifts.
- No one under the age of 18 shall operate a forklift

SHA-1701 includes general safety policies.

1712 GRADERS

- All graders shall have operable warning lights, a working backup alarm, and a SLOW-MOVING VEHICLE sign mounted in the rear, preferably to left center.
- Riders shall not be permitted at any location other than seated in grader cab.
- The blade shall be lowered to the ground when grader is left unattended.
- Graders that are used for snow and ice removal shall have a reflective guide bar attached to the blade corner nearest the traffic side.

Refer to [SHA-1701](#) for general safety policies.

1713 FRONT-END LOADERS, BANTAMS, GRADALLS, & EXCAVATORS

- Operators shall wear seat belts.
- All above-mentioned equipment shall have operable warning lights and a SLOW-MOVING VEHICLE sign mounted in rear, preferably to left center.
- All above-mentioned equipment shall have a working backup alarm
- Operators shall lower bucket to the ground and engage parking brake upon shutting down or leaving equipment.
- Operators shall never operate equipment with personnel working directly beneath bucket.
- Operators, when traveling forward, shall carry the bucket as close to the ground as possible for best machine stability and visibility.

1713 FRONT-END LOADERS, BANTAMS, GRADALLS, & EXCAVATORS (CONT.)

- It is best, whenever possible, to back the loader down steep inclines rather than travel forward with bucket loaded. Wheels shall be properly chocked when parked on incline.
- Personnel shall not be elevated or transported in the materials bucket.

SHA-1701 includes general safety policies.

1714 BACKHOES

- Backhoes shall be equipped with roll bars, and operators shall wear seat belts.
- All backhoes shall have warning lights.
- Backhoes shall have outriggers extended and be on solid footing before work begins.
- All backhoes shall have a working backup alarm.
- The boom shall not be swung over or toward employees.
- The bucket, boom, and outriggers shall be lowered when not in use.

SHA-1701 includes general safety policies.

1715 TRACTORS

- Seat belts shall be worn by operators at all times.
- Tractor shall have a SLOW-MOVING VEHICLE sign mounted in left rear and in a location that can be readily seen. Signs shall be mounted in a position that will not block rear view of the operator.

1715 TRACTORS (CONT.)

- Riders are never allowed on tractor or attached equipment.
- The power takeoff shall have a protective shield in place.
- Tractors shall not be operated on slopes greater than 3:1.
- Operators shall be especially watchful for culverts and other fixtures that may be hidden by grass or weeds.

SHA-1701 includes general safety policies.

1716 ROLLERS

- All rollers shall be equipped with warning lights. Lights shall be in operation during periods of maintenance operations and whenever roller is being towed.
- Extreme care shall be exercised by the roller operator on shouldering operations, especially near embankments.
- Emergency brakes shall be operational.
- Steel-wheeled rollers shall not be used to roll shoulders less than 18 inches in width.
- Roller drums shall be chained to frame while being towed.
- Operators shall wear seat belts.

SHA-1701 includes general safety policies.

1717 BUCKET TRUCKS (AERIAL LIFTS, “CHERRY PICKERS,” AUTOCRANES, & LADDER TRUCKS)

- Bucket trucks shall not be field modified without written permission from the manufacturer.
- Bucket trucks used around energized equipment shall have an insulated platform.
- Prior to transit, the boom and bucket shall be cradled and locked down, either hydraulically or manually.
- Only trained and authorized personnel are permitted to operate a bucket truck.
- The supervisor shall maintain a record of written monthly inspections of the bucket truck and boom equipment on TC 25-168 ([SHA-9030](#)).
- Annual dielectric testing shall be performed to ensure insulation values.
- Only nonconductive hydraulic fluids shall be used. Adding the incorrect fluid will require purging of the entire system and a new dielectric test.
- Load limits of a bucket, boom, or jib crane shall not be exceeded.
- The boom shall not be used to lift or move materials.
- Wheel chocks shall be in place prior to work beginning.
- Outriggers (stabilizers) shall be properly utilized and positioned prior to work beginning.

1717 BUCKET TRUCKS (AERIAL LIFTS, “CHERRY PICKERS,” AUTOCRANES, & LADDER TRUCKS) (CONT.)

- Overhead clearances shall be checked prior to passage.
- The bucket shall not be modified in any manner.
- Booms shall be kept clean—free of dirt, oil, and road grime.
- Truck beds shall be kept orderly and clean.
- Bucket operators shall tie off to the designated anchor by utilizing a lanyard and ANSI-approved harness.
- While stationed in the bucket or on the platform of an aerial lift, employees shall wear a safety harness with the lanyard attached to the manufacture designated anchor point. Lanyards shall not be attached to an adjacent pole, structure, or equipment.
- Always stand firmly on the floor of the basket. Do not sit or climb on the edge of the basket, or use planks, ladders, or other devices to extend the work area.
- Only devices designed and approved for lifting personnel and that are operated by a competent person may be used as aerial lifts. Boom and basket load limits specified by the manufacturer must not be exceeded. The lift or platform must not extend over active traffic lanes. An aerial lift must maintain at least 10 feet (3 meters) minimum clearance between electrical lines and any part of the equipment.
- Traffic-signal work shall also comply with [SHA-500](#) and [SHA-1500](#).

[SHA-1701](#) includes general safety policies and [SHA-408-12](#) provides information on working around power lines.

1718 TRUCK-MOUNTED ATTENUATORS

- Truck-mounted attenuators shall be mounted on well-maintained and reliable vehicles.
- Dump trucks with truck-mounted attenuators shall follow manufacturer's guidelines for ballast.
- Flashing-arrow panels shall be mounted on vehicle. A 4-foot x 8-foot arrow panel is the appropriate size for high-speed, high-volume highways.
- Truck-mounted attenuators may be utilized on moving or stationary work sites. On moving jobsites, appropriate rear-mounted warning signs shall be displayed to provide advance warning.
- All safety devices and lighting shall be kept clean and in proper working order.

SHA-1701 includes general safety policies.

1719 ARROW PANEL

- Arrow panels are key to work-zone safety and shall be maintained in accordance with the manufacturer's recommended guidelines.
- Truck-mounted or trailer-mounted arrow-panel vehicles shall be maintained in reliable condition.
- Minimum distance for arrow legibility shall be met as follows:
 - ◆ Type A (48 inches x 24 inches) 12 lamps = 1/2 mile minimum legibility distance
 - ◆ Type B (60 inches x 30 inches) 13 lamps = 3/4 mile minimum legibility distance
 - ◆ Type C (96 inches x 48 inches) 15 lamps = 1 mile minimum legibility distance

1719 ARROW PANEL (CONT.)

- An arrow panel with burnt-out lamp elements or inoperative parts shall be repaired immediately.
- Only the manufacturer's listed and approved parts shall be used in maintaining and repairing equipment.
- Arrow panels shall meet the minimum size, visibility, legibility distance, number of elements, and other specifications as shown in the [MUTCD](#) Section 6F.61 and Figure 6F-6.
- Except when the arrow trailer is actually being moved, it shall be detached from the towing vehicle. Towing trailer devices with the display active as a mobile operation is prohibited.

[SHA-1701](#) includes general safety policies.

1720 SKY TRIMMER

All manufacturer guidelines for operation, maintenance, and inspection shall be followed. Consult the owner's manual for more information

[SHA-1701](#) includes general safety policies.

1721 EMERGENCY LIGHTING

Emergency lighting shall be used to increase the visibility of KYTC vehicles by establishing an adequate minimum level of warning lighting on such vehicles, to increase the safety of our employees as well as the traveling public, and to improve overall consistency statewide.

[SHA-1721](#) provides additional information regarding recommended minimum lighting levels.

1722 PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

- Portable changeable message signs (PCMS) shall meet the minimum visibility and legibility standards established in [MUTCD 6F.60](#).
- PCMS shall be placed off the shoulder of the roadway and behind a traffic barrier (guardrail), if practical.
- If a traffic barrier is not available to shield the PCMS, it shall be placed off the shoulder and outside of the clear zone.
- If there is no alternative other than placing a PCMS on the shoulder of the roadway or within the clear zone, it shall be delineated with retroreflective TTC devices.
- A taper of at least four channeling devices shall be placed in advance of the PCMS. Use drums or cones as appropriate.
- Do not park vehicles within gore areas.
- Avoid placing PCMS in the natural path of a driver (such as, the outside of a curve).
- PCMS is not a substitute for the static sign; it is a supplement.

1723 RETROREFLECTIVE CONSPICUITY GUIDELINES

Retroreflective conspicuity chevron tape should be considered based on engineering judgement for “high exposure” vehicles for additional visibility. For more information, refer to [SHA-1723](#).

1724 PARKING OF EQUIPMENT

All equipment shall be parked as far as possible off the roadway surface and on the same side of the highway. If both sides of the highway must be used for equipment parking, employees shall use utmost caution in crossing open lanes of traffic.

1725 U-TURNS

Vehicle operators shall avoid U-turns on limited access, high-speed facilities by using adjacent interchanges whenever possible.

Operators shall use reasonable judgment in proceeding to a location (ramp interchange, etc.) where a safe U-turn can be executed.

1726 DISABLED VEHICLES

Disabled vehicles shall be moved as far off the pavement as possible, with emergency lighting (including flashers) activated. If available, cones or other emergency/reflective warning devices shall be placed in the following locations to warn oncoming traffic:

- At least 100 feet (30 meters) to the rear of the disabled vehicle
- Where sight distance is limited up to 300 feet (100 meters)

1727 AGGRESSIVE DRIVING

Employees shall refrain from aggressive driving. It is a dangerous and illegal behavior that will not be tolerated while on KYTC business. If an employee encounters an aggressive or otherwise dangerous driver, the employee shall pull over at the first safe opportunity, let the vehicle pass, and dial 911 to report the incident. The employee shall not attempt to block the aggressive driver's path and shall not speed up or respond aggressively.

1728 WINTER DRIVING

Adhere to the following safety tips when driving during winter weather:

- Recognize that conditions change constantly.

1728 WINTER DRIVING (CONT.)

- Remove accumulated snow, ice, and salt from vehicle windows, mirrors, and lights before driving. Salty residue can diminish the effectiveness of lights by fifty percent.

Note: In Kentucky, it is illegal to drive a vehicle with only a small “peep hole” scraped clear on an otherwise frost or snow-covered windshield.

- Scrape, brush, defrost, or wipe off inside fog.
- Check that windshield wipers are in good condition.
- Gently accelerate, brake, and turn when initially assessing road conditions. Driving at too high of a speed on slippery roads is a common hazard.
- Allow extra stopping distances between vehicles, especially on ice.

Note: Depending on air and surface temperatures, braking distance on ice can be 4 to 10 times greater than that of dry pavement.

SHA-1701 provides information on general safety practices.

1729 STOCKPILE SAFETY

- Care shall be taken when sampling or working near stockpiles.
- Sampling from steep sloped stockpiles shall be performed by machine.
- Consult with the safety coordinator, safety administrator, or supervisor for safe stacking slopes.

1729 STOCKPILE SAFETY (CONT.)

- Stockpiles are stable when sloped or benched at the angle of repose (approximately 1 vertical to 1 ½ horizontal).
- Steep sloped stockpiles may fall to the angle of repose without warning.

1730 CONVEYOR SAFETY

Serious injuries and death have resulted from clothing and other items getting caught by a conveyor and pulling an employee into the pinch point between the roller and the belt.

Any loose item can become caught, including the following:

- Loose-fitting clothing
- Long hair (including beards)
- Jewelry, such as chains and watches
- Shoe strings

Avoid wearing clothes such as shirts or jackets with hoods; band the ends of sleeves and pant legs; tuck in or pin up long hair; and leave jewelry at home.

Conveyor belts shall be stopped prior to sampling material.

Never use tools near a moving conveyor. Virtually any tool can be grabbed and pulled when it comes into contact with a conveyor.

Follow all manufacturer guidelines. [SHA-1701](#) provides additional general safety policies.

1731 BACKING VEHICLES

- Avoid backing equipment whenever possible; however, if backing is the only option, sound the horn as warning, then check all rear-view mirrors and unobstructed windows before beginning to back the vehicle.

1731 BACKING VEHICLES (CONT.)

- Avoid backing into intersections, over pedestrian crosswalks, or around corners.
- Backing into traffic requires additional precautions; a flagger or spotter may be needed, and in some cases work zone protection may be required.
- Before backing a vehicle, the driver or passenger shall walk around the vehicle to determine that there is sufficient area to complete the backing maneuver. The driver should back the vehicle slowly and cautiously, looking to the rear while backing.

Note: The fact that an area was clear when the vehicle started backing is no reason to assume that it will remain clear while backing. A car may pull up or an employee or pedestrian may walk behind the vehicle. For this reason, it is necessary not only to determine clearance before getting in the vehicle, but also to continue with caution while backing.

- If possible, a fellow employee should give guidance while the driver is backing the vehicle. The employee giving directions should stand in full view of the driver, as well as all vehicle and pedestrian traffic, and have an unobstructed view of the backing path. If these conditions cannot be met, additional signal persons should be used.

Note: The driver is legally responsible for accidents that occur while backing a vehicle, even if another employee is giving guidance.

- Always park in designated parking areas.

1731 BACKING VEHICLES (CONT.)

- When parallel parking at a curb, try to allow sufficient clearance in front of the vehicle to pull out without backing.
- When parking in a designated lot, choose a space that allows for the driver to pull forward when exiting the space. When necessary, back the vehicle into the space in order to be positioned to pull forward when exiting. Likewise, when parallel parking, try to leave enough room in front of the vehicle to avoid backing when leaving.

1732 SCISSOR LIFTS

Scissor lifts are work platforms used to safely move workers vertically and to different locations in a variety of industries including construction. Scissor lifts are different from aerial lifts because the lifting mechanism moves the work platform straight up and down using crossed beams functioning in a scissor-like fashion.

- Only trained workers shall be allowed to operate scissor lifts. All scissor lift manufacturer guidelines and instructions shall be followed.
- Scissor lifts shall have guardrails installed to prevent workers from falling.
- Follow the manufacturer's instructions for safe movement. This usually rules out moving the lift in an elevated position.
- Isolate the scissor lift or implement traffic control measures to ensure that other equipment cannot contact the scissor lift.
- Select work locations with firm, level surfaces away from hazards that can cause instability (such as, drop-offs, holes, slopes, bumps, ground obstructions, or debris).

1732 SCISSOR LIFTS (CONT.)

- Use the scissor lift outside only when weather conditions are good. All scissor lifts have a wind rating for outdoor use. Operators shall always operate the scissor lift below this rating.
- Ensure that safety systems designed to stop a collapse are maintained and not bypassed.
- Never allow the weight on the work platform to exceed the manufacturer's load rating.
- Never allow equipment other than the scissor mechanism to be used to raise the work platform (such as, using a forklift to lift the work platform).
- Implement traffic control measures around the scissor lift to prevent other workers or vehicles from getting too close.
- Use ground guides when operating or moving the scissor lift around the workplace.
- Select work locations that do not approach electrical power sources (such as, power lines, transformers) by at least 10 feet and that do not pose other overhead hazards (such as, other utilities, branches, or overhangs).
- If the job task requires work near an electrical source, ensure that the worker is qualified and has received the required electrical training.

SHA-1732 provides information regarding maintenance and applicable OSHA standards.



1801 OVERVIEW

There are a number of resources and tools available to assist members of the Kentucky Employees' Health Plan (KEHP) and state employees who waive health insurance with KEHP, who are trying to create a healthy workplace.

Request a Go365 representative to speak to employees at your worksite or schedule a biometric screening day online at:

<https://livingwell.ky.gov/pages/worksite-wellness.aspx>

SHA-1801 provides additional information regarding Central Office responsibilities.

1802 PERSONAL HYGIENE

With the various types of work at field locations, in labs, and at plants, it is important to practice good basic personal hygiene. Germs are transmitted and sickness often results through hand-to-mouth contact. Chemicals and bacteria enter the body most easily through the eyes, ears, nose, and mouth.

- Wash hands and face before breaks, lunch, and immediately after work to prevent direct exposure to germs and to lessen the potential for the development of ill-health effects.
- Personal protective equipment, such as eye and ear protection, respirators, and gloves, shall be provided to eliminate or minimize exposures and prevent direct contact (**SHA-500**).

1803 HEARING CONSERVATION

When employees are subjected to sound exceeding those listed in the following table, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the ranges noted, personal protective equipment (PPE) shall be provided and used to reduce sound levels to within the acceptable range.

1803 HEARING CONSERVATION (CONT.)**PERMISSIBLE NOISE EXPOSURES**

Duration per day, hours	Sound level dBA slow response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

SHA-1803 provides additional information.

1804 NUCLEAR DENSITY GAUGE PROGRAM

Cabinet personnel involved in construction operations should be knowledgeable of and able to fulfill their responsibilities with respect to the care and handling of nuclear density gauges. The safety and welfare of the operator and the general public are paramount and shall take precedence over all other considerations.

- Potential operators should receive proper safety and Haz-Mat training prior to issuance of their TLD badges. Training records shall be available 5 years after the employees' last use of a gauge.
- Employees should be trained on how to understand the TLD analysis reports every three years or when a change in reporting method occurs.

1804 NUCLEAR DENSITY GAUGE PROGRAM (CONT.)

- Operators should receive training in emergency procedures and recommended procedures for use.
- Operators should receive Haz-Mat training (as required by Subpart H of 49 CFR) that shall be current within 3 years if qualifying for vehicular transport of the gauges.
- Operators should receive training in biological effects and radiological health requirements prior to usage.
- The initial safety training received shall be, at a minimum, a radiation safety training class presented by one of the density gauge manufacturers.
- KYTC shall not conduct the initial safety training, but can provide Haz-Mat training.

All incidents, accidents, and personnel exposure to radiation in excess of ALARA or [902 KAR 100:019](#) limits shall be investigated and reported to the Cabinet and other authorities, as appropriate, within required time limits. The district radiation safety officer (RSO) is responsible for reporting ([SHA-1625](#)).

