



Construction Program

Employee Safety Manual

March 2016



Department of
Transportation

NYS ACCIDENT REPORTING SYSTEM (ARS)

WORKERS' COMPENSATION

IF YOU ARE INJURED AT WORK CALL:

911 in an Emergency

then,

1-888-800-0029

TOLL FREE-24 HOURS/DAY
NYS Accident Reporting System

Call 1-888-800-0029 if you are injured at work.
Your accident report will be taken quickly and
confidentially.

Your call helps to start the process to determine
your Workers' Compensation Benefits.

- Get Medical help if you need it. Tell your doctor that your injury is work-related.
- Report your injury to your supervisor.
- Questions? Please call your Personnel Office.

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INTRODUCTION

This handbook provides Construction Program Employees with information for the protection of their safety and health in the work environment. This handbook is for the protection of you and your co-workers, and for awareness in ensuring the protection of the Contractor and the public. It has the force and effect of Department of Transportation policy, and must be adhered to. It is impossible to adopt standards and procedures for every situation that might arise on the job. There is no substitute for good judgment and common sense. This handbook sets forth safety and health standards as a guide in the formation of and adherence to safe work habits; however, in situations where unusual working conditions exist, additional precautions may be required. This handbook is intended to have flexibility to accommodate unforeseen or special circumstances. These standards do not supersede or replace existing State or Federal regulations, and are subject to change as future experience dictates.

WHEN IN DOUBT ASK YOUR SUPERVISOR!

Remember that Construction Program Employees are not performing the actual labor for construction activities but, are inspecting the work that the contractor has performed to ensure it meets required specifications. Since their role is one of inspecting, there is no need for Construction Program Employees to be in "harm's way". Remain at a safe distance from work activities whenever possible. Construction Program Employees should wait at a safe distance for the completion of a task before performing inspection tasks that need to be completed closer to the work. Construction Program Employees are allowed full work access and shall be furnished with necessary information and assistance by the Contractor to make a complete and detailed inspection; therefore, inspection may be coordinated in a way that limits the risk to Construction Program Employees with assistance from the Contractor if necessary.

Situational Awareness

As much as we plan to control risk, and as much as workers are trained and experienced, mistakes happen. It is important to understand the raw power of equipment and be constantly scanning the situation to ensure you will not be in harms way. For safety's sake:

- Don't walk around construction project sites or within the right of way while texting or using a cell phone. You are too distracted to be aware of the dangers that may be around you. Take calls and texts in a safe location.
- It is easy to get caught up in the work being performed for detailed tasks such as data collection. It is important to be aware of this, and frequently consider what is going on in your surroundings to ensure you are not entering harms way and that danger is not approaching you.
- Plan your escape route – standing between moving traffic and a barrier would inhibit an escape route
- Keep a cautious eye on traffic
- Move conversations as far away as possible from the live travel lane to guard against errant vehicles
 - Mirrors, loads, and debris from trucks in travel lanes may extend over and beyond concrete barrier and traffic control devices
- Know your surroundings
 - Consider where you may be standing in relation to the swing radius of a backhoe bucket.
 - Do not stand under or in the vicinity of material lifting operations
 - Operators can make mistakes that jolt the machine in unintentional motion
- Do not walk immediately behind, besides, or in the path of moving equipment and cranes
- Communicate with others

NIGHTTIME WORK

Construction Program Employees are to attend a night work safety meeting, where they are made aware of risks inherent in night work. Construction Program Employees must stay in illuminated areas, must be alert at all times to traffic and construction equipment, and must not place themselves in vulnerable positions where they cannot see and/or be seen.

Nighttime construction often reduces traffic disruption and conflicts between construction activities, and traffic and adjacent land use associated with construction activities in congested areas. Nighttime construction entails tradeoffs, particularly increased difficulty in ensuring safe traffic flow through the work zone due to reduced visibility, for both drivers and workers. Speeds are frequently higher because volumes are lower at night. Confusion and lessened visibility tend to reduce lane capacity below daytime levels; impaired drivers (alcohol, drugs, fatigue) are a greater concern at night. Appropriate worksite lighting is essential for safe nighttime operations.

All vehicles, including state vehicles and inspector's personal vehicles, must display rotating amber warning lights and 4-way flashers, including when operating in closed lanes at night and, prior to slowing, stopping, or exiting travel lanes. Headlights may be turned off when operating in closed lanes at night if they would create potential confusion to motorists.

to vertical as possible to avoid reflecting sun glare into the driver's eye. Signs are to reflect actual conditions promoting driver obedience. Signs should be periodically checked. Arrow boards are used where traffic shall be shifted laterally from one lane to another. Variable Message Signs (VMS) should be placed well upstream of work areas to inform motorists of road closures or detours, and provide added warning and real time information concerning changing conditions. It is good practice to activate the VMS at least two weeks before any work will begin. This will give provide the general public with the information about upcoming traffic pattern changes.

Channelizing devices such as cones, drums, vertical panels, construction barricades, and tubular markers are used to delineate the travel path, mark the location of hazards, separate opposing or adjacent travel lanes, separate traffic from pedestrians, and guide motorists through the work zone. Channelizing device(s) used, or to remain at night, at the start of tapers and locations where they identify a specific hazard are equipped with flashing warning lights.

Flaggers control traffic, and are only allowed to direct motorists to Stop or Slow. Flaggers are equipped with orange hard hats and traffic control attire, are trained to perform flagging, and are stationed at illuminated areas at night. The primary flagging device is a Stop/Slow paddle. Flags may be used in intersections and other locations where a Stop/Slow paddle may provide conflicting or confusing direction. Spotters control construction trucks or equipment only, and must not direct traffic.

Shadow/Barrier vehicles are equipped with a truck mounted impact attenuator and a flashing arrow board to protect workers within work areas from errant vehicles. Shadow vehicles are used in moving work zones, and barrier vehicles are used in stationary work zones. Shadow/ Barrier vehicles are positioned close enough to work crews to prevent vehicles from straying into the work area, but far enough from the crews such that the vehicle, if impacted, will not roll into the work area.

APPLICABILITY OF OSHA REGULATIONS

The Occupational Safety and Health Administration (OSHA) of the US Department of Labor promulgated safety and health regulations found in Title 29 Code of Federal Regulations (29 CFR). The two most commonly cited standards are 29 CFR Part 1910 (General Industry) and 29 CFR Part 1926 (Construction). Both of these standards contain regulations applicable to construction work, but there may be other applicable standards when the primary standard is silent.

The NYS Public Employee Safety and Health Bureau (PESH) of the NYS Department of Labor has adopted all of the standards in 29 CFR. Construction Program Employees are public employees, and are therefore covered by PESH primarily under 29 CFR 1910. When 29 CFR 1910 is silent, regulations from any other industry standard that address the work being performed is applicable.

DEPARTMENT SAFETY & HEALTH POLICY

The NYS Department of Transportation (Department) is committed to an aggressive, pro-active safety and health program to ensure minimal risk to its employees, to the employees of contractors and consultants, and to protect the public exposed to transportation operations. To achieve these goals, the Department establishes and monitors policies and procedures to ensure that internal operations and interaction with private firms, utilities, and government agencies are planned and carried out with an emphasis on safety and health. This emphasis must include personal and active involvement by every member of the Department, and originates from the commitment of executive management. Managers and supervisors have a primary responsibility for the safety of their employees, for the safety of those with whom the Department conducts business, and for the safety of the public at large. The Department invites utilities, commercial vehicle operators, rail lines, public transportation agencies, and local governments to become equal partners in ensuring that the Department accomplishes its mission in a safe manner.

CONSTRUCTION PROGRAM SAFETY & HEALTH POLICY

The Construction Program is committed to the safety and health of its employees, and to workers' and public safety in its construction program. The Department and the Office of Construction establish and monitor policies and procedures to ensure that internal operations and interaction with other organizations are carried out with an emphasis on safety and health. Management must promote awareness, arrange for training, and provide employees, with appropriate safety apparel and personal protective equipment.

The Office of Construction, in coordination with Regional Construction Groups, is charged with carrying out the management, administration, and supervision of the Department's construction program. The promotion of a safe work environment requires a coordinated effort with responsibilities assigned, assumed, and fulfilled by the Department, Region, contracting community, consulting community and the public. The responsibility for ensuring compliance with this requirement on all construction contracts rests with the Regional Director, Regional Construction Engineer, Construction Supervisors, Engineers-in-Charge and Inspection Staff, including Consultant Inspectors. The safety and well-being of Department employees, i.e., Construction Program Employees, on all construction contracts, is likewise, the responsibility of the Regional Construction Engineer, Staff, and Employee Safety & Health.

WORK ZONE TRAFFIC CONTROL

Work zone traffic control is the contractors' responsibility, but Construction Program Employees must recognize proper and effective work zones, and recognize the hazards associated with working in or near traffic. Construction Program Employees must perform necessary inspection tasks within proper work zones, and must not perform inspection tasks in areas exposed to traffic.

Work zones provide access to the roadway for the contractor to complete work with safe work areas for workers, guide traffic through the area, and attempt to minimize congestion and community impact. Work zone traffic control requirements are contained in the Standard Specifications, Standard Sheets, contract documents, and the Manual of Uniform Traffic Control Devices (MUTCD). This Safety Manual is not a part of the contract documents, and does not, in itself, create additional contractor requirements.

All vehicles, including State vehicles and inspectors' personal vehicles, must display rotating amber or flashing LED warning lights clearly visible in all directions. Warning lights are to be displayed at all times, including when operating on closed portions of roadways, to alert others to the presence of the vehicle. Warning lights are to be displayed prior to slowing, stopping, or exiting travel lanes. Warning lights are not to be operated when vehicles are safely parked off the traveled way and shoulder, or safely parked on the shoulder when parking there is permitted.

Work zones begin with advance warning informing traffic of road work ahead, what to expect (lane closure, grooved pavement, detour, etc.), and provide guidance to motorists (flagger, arrow board, lane shift, etc.). Between the end of a taper and the work area, is a distance referred to as the buffer space, which has nothing in the space, which is intended to protect work operations from errant vehicles. Signs are used to inform approaching traffic of road work, what to expect and how to proceed through the work zone. Signs should face at approximately right angles to on-coming traffic and be as close

WINTER DRIVING

Safe winter driving is primarily common sense and knowledge of basic facts. Recognize that conditions change constantly. Remove snow and ice from windows, mirrors and lights before starting out (a “peep hole” in the windshield is illegal). Scrape, brush, use the defroster, and wipe off inside fog. Be sure wipers are in good condition. Lights covered with salty splash lose half their effectiveness. When starting out, get the feel of the road by gently accelerating, braking, and turning. Too high a speed on slippery roads is a common hazard. More space between vehicles is required. Stopping distances are increased on ice, especially “wet” ice. As temperature rises, ice becomes more slippery. Depending on temperature, braking distance on ice will be 4 to 10 times greater than at the same speed on dry pavement.

SAFETY RESPONSIBILITIES

Construction Program Employee Safety and Health includes responsibilities for Construction Program Employees, Engineers-in-Charge, Construction Supervisors, Regional Construction Safety Coordinators, and Regional Construction Engineers.

CONSTRUCTION PROGRAM EMPLOYEE

Construction Program Employees must become familiar with this handbook generally, and specifically with the portions that directly apply. Construction Program Employees must take every reasonable precaution to prevent accidents and injuries to themselves, other employees, and the public. Construction Program Employees have a responsibility to report unsafe conditions or practices to their immediate supervisors. Construction Program Employees include, Department Construction and consultant inspection staff.

SUPERVISORY

(Engineer-In-Charge (EIC), Construction Supervisor)

The Engineer-in-Charge and Construction Supervisor must be alert to safety and health hazards, review work sites, and bring such hazards to the attention of employees and superiors. The supervisor must ensure employees are working in accordance with safety expectations.

Regional Construction Safety Coordinator (RCSC) The Regional Construction Safety Coordinator RCSC is a resource for Construction Program Employees for any construction safety concerns. The RCSC reviews the past construction season for contracts lasting more than one season, to review safety records and performance. The RCSC prepares and submits a safety profile before the next construction season to the Regional Construction Engineer, and develops an annual plan for prioritizing attention to Regional safety concerns.

MANAGEMENT

(Regional Construction Engineer)

The Regional Construction Engineer must ensure that work areas are free from correctable, recognizable hazards; establish and require safe work practices as normal procedure; counsel and discipline employees who willfully and continually disregard safe work practices; and meet with subordinate supervisors periodically to review accidents, discuss safety, and explore safer methods to accomplish work.

REPORTING INJURIES AND ACCIDENTS

Construction Program Employees must report all injuries, accidents, and “near-miss” accidents to their immediate supervisor as soon as possible, including accidents involving employees operating their personal vehicles on Department business. Personal injuries must also be reported to Accident Reporting System (ARS), see back of the front cover page for more details on ARS or call 1-888-800-0029.

SAFETY COMMITTEES

The Construction program does not have its own safety committees due to the seasonal nature of and geographic aspects of assignments. Construction Program Employees are encouraged to participate in Regional Safety Committees.

TAILGATE SAFETY TALKS

Department supervisors will conduct periodic Tailgate Safety Talks to teach and remind Construction Program Employees of the safe way to do a job. Construction Program Employees should also attend tailgate safety talks, conducted by contractors for their workers, to heighten their awareness of project-specific safety and health issues, particularly when they must utilize contractor provided equipment such as scaffolds to perform inspection tasks.

BACKING VEHICLES

When parking in a parking lot, always pick a spot to drive through first. When necessary, back into a parking spot in order to be positioned to drive out forwards. Likewise, when parallel parking, try to leave enough room in front of the vehicle to avoid backing when leaving. If backing up is the only option, sound the horn as warning and use all rear-view mirrors and unobstructed windows before finally backing up. Backing into traffic requires additional precautions; a flagger or spotter may be needed, and in some cases work zone protection may be required.

U-TURNS

Operators must avoid U-turns on limited access, high speed facilities by using adjacent interchanges whenever possible. Vehicle operators must use reasonable judgment in proceeding to a location (ramp interchange, etc.) where a safe turn can be executed.

DISABLED VEHICLES

A disabled vehicle should be moved as far off the pavement as possible, with flashers activated. If available, flares or other emergency or reflective warning devices should be placed at least 100ft (30m), to the rear to warn oncoming traffic and where sight distance is limited up to 300ft (100m).

AGGRESSIVE DRIVING

Construction Program Employees must refrain from aggressive driving. It is a dangerous and illegal behavior that will not be tolerated while on Department business. An aggressive driver cannot act alone. If you encounter an aggressive or otherwise dangerous driver, if possible and safe, pull over and let him/her pass. Do not block the aggressive driver's way and do not speed up or respond aggressively.

VEHICLE CONDITION

All State vehicles (or personal vehicles in livery) must be in safe operating condition and meet Vehicle and Traffic Law requirements for safe operating conditions before use. The Employee should perform a visual inspection all the way around the vehicle before each use. The operator must report any suspected defect in a State vehicle to their supervisor and the *Office of Fleet Administration and Support* on a Vehicle Trouble Report (EM-3).

VEHICLE WARNING LIGHT

Construction Program Employees should use a vehicle warning light consisting of an rotating amber or amber flashing LED, when entering, leaving or operating within the highway right of way in conjunction with their assigned duties.

SAFE STOPPING DISTANCES

Safe stopping is a very important, and sometimes misunderstood, part of driving. Maintain proper distance between vehicles; generally one second for every 10 MPH under normal driving conditions. Good judgment must be used because of the many factors that determine safe stopping distance: road conditions, weather, glare, speed, vehicle load, traffic volume, temperature effect on tires and pavement.

FUELING VEHICLES

Vehicles being fueled must have their ignition off, and must be attended during fueling. Smoking is prohibited within 50 ft (15 m) of fueling operations. The use of cell phones is prohibited while fueling.

PARKING VEHICLES

Operators must properly park vehicles in a safe location. Vehicles may be parked within highway work zones, but should be out of the way of the work. Vehicles with automatic transmissions must be parked with the transmission in PARK. When a vehicle is parked on a steep grade, the front wheels should be turned towards the curb or away from the roadway. Vehicles with manual transmission should have the transmission in reverse or the lowest forward gear, and the parking brake set.

INJURY AND VEHICLE ACCIDENT PREVENTION

The Department adopts a very conservative position regarding accident and injury preventability, and assumes (as do the National Standards) that most accidents are preventable. The determination of preventability does not mean simply assessing blame or fault, but is rather a process of determining what actually happened and why, with the primary purpose of trying to prevent it from happening again. Preventability usually can only be correctly determined after an appropriate, and in some cases, extensive investigation. In most cases, review by supervisors and managers, at the local level, is all that is needed to properly assess whether the accident was preventable. While there is at times some difference of opinion in determining preventability, this system will usually result in sound decision making, especially when the process is inclusive.

CONTRACT SAFETY & HEALTH ADMINISTRATION

Construction Program Employees, consultants, visitors and the public involved or affected by contract project work are dependent upon contractor safety and health programs. Department contracts provide requirements for materials and work, but do not instruct the process of the work. The contractor is required by the Standard Specifications to develop a plan to process the work, which includes site specific project safety and health plans. The project safety and health plan is to ensure that all work on the contract is carried out with adequate consideration to protecting the safety and health of workers, Construction Program Employees, visitors, and members of the public involved in or affected by the work. The project safety and health plan is required to document the following:

- Policies are adequate and in place
- Planning has been conducted to identify and address safety & health concerns
- Training for safety & health will be provided to workers
- Implementation of all steps for health & safety are taken

SAFETY RELATED POLICIES

FIRST AID

In case of injury, call 911 immediately for major medical assistance, then where appropriate, a Construction Program Employee may elect to render first aid, within the limits of your training and knowledge. Notify supervision/management as soon as possible thereafter.

FIRE EXTINGUISHING

Construction Program Employees are not encouraged to fight fires in the workplace without proper training and assistance, appropriate personal protective equipment, and correct fire extinguisher.

DISPLACED/DISTRAUGHT PERSONS

Construction Program Employees must not deal with displaced/distraught persons who may be living on or near contract work sites. Supervisors are to contact local law enforcement for assistance if a displaced, distraught or otherwise questionable person must be dealt with in order to do necessary work.

WORKPLACE VIOLENCE

The Department will not tolerate violence or threats of violence in the workplace. Violence is defined as behavior that intentionally threatens, attempts to, or inflicts physical or psychological harm on others, as well as non-contact actions such as, invasion of personal space, menacing, or stalking. All Construction Program Employees are directed to report to their supervisor any activities, incidents or behavior, which they reasonably believe may lead to acts of violence. Supervisors and managers must take prompt action to notify local police authorities if it is believed the situation presents immediate or serious danger.

VEHICLE OPERATION

OPERATOR RESPONSIBILITY

Vehicle operators must observe all NYS vehicle and traffic laws. Vehicles must not be driven over the legal speed limit, or above the speed warranted by weather or conditions. Operators are responsible for the operation and condition of the vehicle, including ensuring that all running, flashing, and signal lights are operating properly, that lenses and reflectors are clean and unbroken, and license plates are clean.

OPERATOR LICENSE

Any Construction Program Employees who operates a vehicle or piece of equipment requiring a NYS Department of Motor Vehicles driver's license must have the appropriate license for the vehicle/equipment, current and in effect at the time of operation. An employee who loses that license (expiration, suspension, or revocation) must immediately notify their immediate supervisor, and must not operate the vehicle/equipment until a valid license is secured.

SEAT BELTS

Construction Program Employees must wear seat belts while traveling or working in a State vehicle/equipment, and any other vehicle/equipment while on State business. This policy applies to drivers and passengers alike, without exception, and includes all non-Department persons in State vehicles.

TRANSPORTATION OF PERSONNEL

Construction Program Employees must only ride in vehicles specifically intended for passengers. Passengers must not exceed the number which can be legally seated. All occupants must wear seat belts. Tools and equipment must not be transported in the same area with personnel. Flammables must not be transported in the passenger area.

WORKING NEAR RAILROADS (RR)

Construction Program Employees must wear PPE, such as hardhats, steel toe shoes, safety glasses in accordance with RR requirements. Anyone or any object within 20ft (6.0m) of the centerline of the rails is fouling the tracks, unless the owning railroad has established a lower fouling distance.

Prior to any work on or over railroad right-of-way, or fouling the track, the railroad will assign a railroad flagger to the work site. The railroad flagger will inform the Contractor when workers may perform work, and when tracks must be cleared. Efforts to clear tracks must begin immediately anytime the railroad flagger indicates.

When tracks must be crossed, look in both directions every time. Do not cross within 50ft (15m) in front of or behind a non-moving/standing train. Do not crawl under stopped cars, or cross tracks between train cars. Do not block or disrupt access roads to and across tracks. Do not park a vehicle within 20ft (6m) of the tracks. Materials, tools, or equipment must not be stored on railroad right-of-way.

WEAPONS

A Construction Program Employee must not possess or transport a weapon (whether assembled or disassembled, operable or inoperable) of any kind while working or while on State property in conjunction with their employment. This prohibition applies while in a State vehicle at any time, in a vehicle leased for State business, or a privately owned vehicle being used for State business. A weapon is defined as any firearm, crossbow, switchblade knife, gravity knife, black jack, ammunition or any other device, as defined in Article 265 of the New York State Penal Law.

HORSEPLAY

The Department provides Construction Program Employees with a hazard-free work environment, including protecting employees from adverse consequences arising out of practical jokes or other activities commonly referred to as horseplay. Horseplay is generally defined as behavior which is essentially without malice, but can be characterized as childish, or foolish in nature. Horseplay can result in injury and in some cases death. Construction Program Employees must not engage in horseplay in the course of performing work for the Department. Supervisors and managers have direct responsibility for controlling such behavior. Any employee found to have contributed to any adverse consequences (in particular an injury or worse) will be subject to disciplinary action.

HOMELAND SECURITY

The NYS Office of Homeland Security "Safeguard New York" Program concerns suspicious packages. If any suspicious item is discovered in the highway ROW, avoid touching or handling the item, leave the area, and then call 9-1-1. Professionals trained and experienced in these matters will respond. It is important that you, your staff, and personnel under the contractor's control remain clear of the area until it is deemed safe to return.

ALCOHOL & DRUGS

The Department prohibits the use of drugs and/or alcohol while working. No Construction Program Employee may use, distribute, dispense, possess, or manufacture any alcoholic beverages, illegal drugs, or any other intoxicating substance, on a job site, or on State property in conjunction with their employment. This prohibition applies, while in a State vehicle at any time, in a vehicle leased for State business, or a privately owned vehicle being used for State business. Construction Program Employees must not be impaired or unable to function at the workplace as a result of consuming alcohol and/or other intoxicants off the work site. Construction Program Employees must not be allowed to remain at the workplace if they are unfit or impaired. The impaired employee will be sent home via safe transportation at their own expense. If all other alternatives are exhausted, the supervisor may assign an employee to drive the unfit person safely home.

While prescribed prescription drugs are not prohibited, they should not render the Construction Program Employee unfit for duty. It may be necessary for an employee to obtain medical certification that a substance will not impair their fitness for duty and supervisors should be made aware of the employee's use of prescription drugs. Supervisors must treat any such knowledge confidentially.

smoke, and possibly fire. Occupants should remain in the vehicle and wait for the utility crew. Jumping free of the vehicle is the last resort. If necessary to jump from a vehicle, leap with both feet as far away from the vehicle as possible, without touching the equipment.

WORKING IN PROXIMITY TO WATER

Construction Program Employees working in areas where the danger of drowning exists, and unprotected by passive fall protection systems (guard railings) or 100% fall protection, must wear a U.S. Coast Guard-approved, Type III, life jacket or buoyant work vest, commonly referred to as a personal flotation device (PFD). One or more ring buoys, with at least 90ft (30m) of line attached must be located at 180ft (60m) intervals across the distance of the work area over water. A skiff or boat for emergency rescue operations, equipped with paddle or oars; a ring buoy or other life preserver; and a reach extension device must be available. Where there is a strong current, or where the water has a large breadth, the skiff or boat must be motorized or occupied at all times to ensure a prompt rescue.

Construction Program Employees walking or working on unguarded decks of floating work platforms must be protected with U.S. Coast Guard-approved PFD.

Areas containing hazardous materials (heavy metals), blast material and debris must be cleaned up by using dust-free methods, including wet clean-up methods and vacuum cleaners with high efficiency particulate air (HEPA) filters.

WORKING NEAR (ENERGIZED) POWER LINES

Construction Program Employees must maintain at least 10ft (3m) from clearance to energized electrical power lines. All electrical power lines are to be considered “live” (energized); and carrying high voltage unless otherwise verified by the owning Utility. Direct contact is when something touches an energized electrical line. Indirect contact is when something is in dangerous proximity (10ft or 3m) to an energized electrical line or an object in direct contact with an energized electrical line.

The location of energized electrical lines and markings identifying their location must be discussed at a pre-work safety meeting of all employees. A spotter must observe overhead electric lines and direct truck and equipment (cranes, excavators, etc.) movement to maintain at least 10 feet (3 meters) clearance from all overhead wires.

Emergency Response

If a power line falls, keep everyone at least 10ft (3m) away, and call 911 immediately. Contact the Utility and notify your supervisor as soon as possible. Do not attempt to move the wire(s); do not touch anything that is touching the wire(s); and be alert to water or other conductors.

If an individual becomes energized, do not touch the individual or anything in contact with the person. Call 911 for medical assistance and call the utility company immediately.

If the person is no longer in contact, it is safe to touch the victim once the source is de-energized. CPR, rescue breathing or first aid should be administered immediately by a trained person.

Wires that contact vehicles or equipment will cause arcing,

HEADPHONES

Construction Program Employees must have unobstructed hearing, while working or while operating motor vehicles, and must 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.

CELLULAR TELEPHONES/PORTABLE DEVICES

Use of Department cellular phones and other portable devices is restricted to Department business and/or emergencies. Hand held cellular telephones must not be used on public highways during the operation of a vehicle (State vehicles, leased or rental vehicles, or personal vehicles used for state business). Drivers are permitted to use hands-free units while the vehicle is moving, or in the absence of a hands-free unit, employees must park in a safe, legal location to initiate or respond to calls.

Safe use of cellular telephones includes:

- Calls must be brief.
- Calls must be initiated or received by a passenger, if available, otherwise pull over to use.
- Drivers must not attempt to write messages while the vehicle is moving.
- If the telephone is hands-free, calls should be initiated only in an emergency, or received, only when using the phone will not interfere with safe operation of the vehicle.
- Hand held units may be used anytime for emergencies (for example, police, fire or medical matters).
- Callers to cell phones who know their intended receiver is operating a vehicle/equipment should be selective in their decision about the need to make the call.

Cellular telephones must not be used by employees:

- While in close proximity to working machinery or other hazardous operations
- In potentially hazardous atmospheres; or while fueling vehicles/equipment
- While traveling through an active workzone

PERSONAL PROTECTIVE EQUIPMENT (PPE)

HARD HATS & HIGH VISIBILITY APPAREL

Construction Program Employees, supervisors and managers, visitors and others involved with Department contracts and operations in the highway right of way (ROW), and all other designated areas, must wear an approved hard hat and approved high visibility apparel. A safety vest is the Department's primary high-visibility garment. Hard hats and high visibility apparel must be maintained in good condition, clean, whole and not faded. Construction Program Employees must periodically inspect their hard hat for cracks or other signs of damage or deterioration. Other types of approved high-visibility apparel may be issued at the discretion of management. Non-approved foul weather gear (raincoat, etc), must be worn with an approved high-visibility vest or other approved high-visibility garment over it.

During night operations, all Construction Program Employees must wear approved hard hats with reflectorized material on all four sides, and approved reflectorized high-visibility apparel.

WORK CLOTHING

Construction Program Employees with field assignments should come to work appropriately dressed in apparel which covers their torsos, arms and legs, and ready to work. Construction Program Employees must adhere to Department work clothing guidelines as part of their job responsibility in locations, including construction sites, field offices, test labs, batch plants, and all areas on the pavement, shoulder, or within, or adjacent to, the ROW. Burns, bruises, cuts and poison ivy are common injuries caused by improper attire.

Construction Program Employees working near machinery with accessible moving parts must not wear loose fitting clothing; have their hair in braids or ponytails, unless secured atop the head; or wear rings, bracelets, necklaces, or earrings which could become entangled.

Work clothing guidelines do not supersede or replace the Hard

briefing(s) by a competent person(s) 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. Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person. Scaffolds must be plumb and level. Adequate sills for scaffold posts and base plates must be used. Open sides and ends of scaffolds more than 6ft (1.8m) above the ground must have a top rail, approximately 42in (1075mm) high, capable of withstanding a 100lb (45 kg) downward force, a mid rail, and a toe board.

WELDING, CUTTING, BRAZING AND HEATING

Construction Program Employees should plan inspection work so as to maintain a safe distance from the work area while hot work is actually taking place and ensure adequate ventilation. Close proximity to "hot" operations (gas, electric arc, MIG and TIG welding, cutting, brazing and heating) may create exposures to hot surfaces and hazardous airborne contaminants. Stay away from welding, cutting, brazing and heating operations. If close proximity inspection is needed, personal protective equipment (PPE), such as eye and respiratory protection, must be used.

ABRASIVE BLASTING

Construction Program Employees must remain out of containment areas during abrasive blasting and wait until the operation stops, air clears and containment is cleaned, before entering the containment area. Construction Program Employees working in close proximity to an abrasive blasting operation may be equipped with PPE, including eye and face protection and, if qualified, a properly fitting particulate filter respirator and hearing protection. Eating, drinking, and smoking are prohibited in areas where blasting is performed. Construction Program Employees must wash their face and hands before eating, drinking, smoking or leaving the work site.

AERIAL LIFT DEVICES

Construction Program Employees using an aerial lift must wear fall protection consisting of a safety harness with a lanyard attached to the boom or basket while in the bucket and on the platform while in operation. Always stand firmly on the floor of the basket, and do not sit or climb on the edge of the basket, or use planks, ladders, or other devices for a work position. Lanyards must not be attached to an adjacent pole, structure or equipment.

Only devices designed and approved for lifting personnel 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 10ft (3m) minimum clearance between electrical lines and any part of the equipment.

LIFTING EQUIPMENT

Construction Program Employees must not stand in the area immediately around the equipment or under the load (object lifted). Proper safety warning devices (gating, cones, fencing, blocking signs, etc) may be used for emphasis to alert personnel to avoid possible falling objects, swinging/rotating arc paths, and/or cable breakage, which can cause a possible deadly whipping effect.

Lift equipment is defined as equipment being capable of raising an item more than 15ft (5m) high, has the ability to swing or rotate a boom, and has a maximum rated lifting capacity exceeding 1 ton. This includes a large excavator with a boom, as well as a crane.

CONSTRUCTION EQUIPMENT

Construction Program Employees must not ride on construction equipment such as pavers, loaders, rollers, excavators, pick-up truck tail gates, etc. for any reason. Construction Program Employees may ride in vehicles equipped with a passenger seat and a seatbelt.

SCAFFOLDS

Construction Program Employees must attend required safety

Hat & High Visibility Apparel policy, the Safety Footwear policy, nor preclude use of other required personal protective equipment, such as gloves, eye protection, face shields, etc. necessary to protect against workplace hazards.

SAFETY FOOTWEAR

Construction Program Employees must wear safety footwear on all work sites and must not wear sneakers, sandals, clogs, or other similarly inappropriate footwear. Construction Program Employees not covered under the Department safety footwear program should avoid locations where the potential exists for foot and toe injury such as burns, dropping of weights, or proximity to wheeled or track vehicles.

Safety footwear costing up to \$100 is provided annually to Construction Program Employees by the Department at no cost. Employees are able to choose a style and fit of footwear from a Department approved list offered on State contract. Employees who wish to obtain footwear that costs more than the limit must pay the excess portion. Employees may also obtain their own safety footwear and be reimbursed by the Department up to \$100 allotment after providing proof that the purchased footwear meets ANSI/ASTM requirements. Safety sneakers must not be worn, as they do not provide overall foot protection afforded by safety work footwear. After the first year on the safety footwear program, employees may bank their annual allotment (up to \$200) to purchase more expensive safety footwear at a later time, provided they have one serviceable pair to wear.

EYE & FACE PROTECTION

Construction Program Employees must wear and maintain appropriate eye protection when performing tasks that present a potential for eye injury. Eye and face protective devices include glasses, goggles, and face shields. Emergency eye wash stations must be available where employees are exposed to particles, non-corrosive liquids or caustic chemicals.

Safety glasses are designed to protect eyes against impact from small objects (prescription glasses are not a substitute for safety glasses unless they meet ANSI Standards). Goggles are eye protection that forms a seal around the entire area of the eyes to provide chemical splash protection, and face shields protect the entire face from impact or chemical splash. (See your RCSC for appropriate PPE.)

RESPIRATORY PROTECTION

Construction Program Employees must avoid exposure to dust/vapors/fumes. Construction Program Employees will be trained in respiratory personal protective equipment for situations and assignments in which possible exposure to airborne contaminants cannot be avoided by engineering or administrative controls. Respirators reduce or eliminate employee exposure to hazardous chemicals and materials that can enter the body by inhalation when used properly.

Respirator use must be in compliance with a written respiratory protection program which includes: procedures for selecting and using respirators; medical evaluation; respirator fit-testing; conditions such as growth of facial hair or eyeglass components; procedures for cleaning, storing and disinfecting respirators; procedures to ensure adequate air quality for air-supplied respirators; and training on proper use of respirators and their limitations. (See your RCSC for appropriate PPE.)

HEARING CONSERVATION

Long term exposure to loud noise will cause hearing loss; therefore, Construction Program Employees should take active steps to protect their hearing. Construction Program Employees exposed to loud noises in excess of 85 dBA, such as a pile driver, must wear hearing protection. The best noise attenuator is distance if administrative and engineering controls are unable to lower noise to acceptable levels. All Construction Program Employees are included in the hearing conservation program which includes training regarding hazards of noise exposure, requirements for wearing hearing protection, selection and proper use of hearing protection, avoiding overexposure away from work, and annual audiometric testing.

FALL PROTECTION

All Construction Program Employees exposed to a falling hazard of 6ft (1.8m) or more must have 100% fall protection. Construction Program Employees who might be exposed to a fall hazard must receive a project specific safety briefing on fall protection requirements, as well as when there are changes in fall arrest equipment.

Safety equipment (including PPE) used for employee protection must be inspected prior to and periodically during each use. Construction Program Employees working in areas unprotected by passive fall protection systems (railings or nets), where the danger exists for a fall of 6ft (1.8m) or greater, must use a personal fall arrest system consisting of a body (safety) harness and lanyard (double lanyards must be used for situations where lifelines are interrupted).

Construction Program Employees must be protected from falls by guard railings, safety nets, or personal fall arrest systems on walking/working surfaces with unprotected sides or edges 6ft (1.8m) or higher above a lower level; while working near leading edges at 6ft (1.8m) or higher above a lower level, while working near holes and excavations deeper than 6ft (1.8m). Guardrail systems must consist of a top rail 42in (1075mm) above the working or walking surface, with a midrail installed at a height halfway between the top and working surface, and a toe board. Construction Program Employees must not proceed until all safety barriers are in place.

Safety nets are required for all work sites located more than 25ft (7.5m) above ground or water surface, where the use of ladder, scaffold, catch platforms, temporary floors, safety lines, or safety belts is impractical. Nets must be installed as close to the under working surface where employees are exposed as practical, and extend 8ft (2.4m) out beyond the edge of the work surface. Nets must consist of mesh netting not to exceed 6in by 6in (150mm by 150mm).

CULVERT/SUBSURFACE STRUCTURE ENTRY

Construction Program Employees, even after receiving appropriate training, must not enter culverts or structures with a diameter/opening size of 36in (900 mm) or less; those plugged by debris snares or other obstructions; or in cases where the water depth (above boot tops), current, or incline presents a hindrance to stable footing.

Construction Program Employees may inspect culverts and other subsurface structures after receiving appropriate training. Air quality must be checked for oxygen deficiency or presence of harmful contaminants prior to entry. Helmet lamp and/or flashlight may be used to improve illumination. Available as-built or other plans should be reviewed prior to entry.

Culverts/structures with unrestricted entry/exit; short enough in length so that a co-worker outside is able to see the employee or maintain unassisted voice contact; water depth (below boot tops), current, and incline not a hindrance to stable footing, having ample daylight and draft, structurally sound, and otherwise free from recognized hazards, do not require special precautions; therefore, are not considered Permit Required Confined Spaces. However, entry must not be made without on-site presence of at least one co-worker outside the culvert/structure.

Hours/ Day

Exposure Limit

8	85 dBA
4	90 dBA
2	95 dBA
1	100 dBA
½	105 dBA
Normal Conversation	50 dBA
Shouting Conversation	60 dBA
Average Street Traffic	85 dBA
Heavy truck	90 dBA
Paving/Milling machine	100 dBA

HAND PROTECTION

Construction Program Employees must wear gloves to protect their hands for the assigned work task. Gloves protect hands against solvents, acids, abrasion, heat and punctures. Work task evaluation for potential hand injury determines the degree of protection needed and the type of glove.

PERSONAL HAZARDS

PERSONAL HYGIENE

Construction Program Employees should be sure to wash hands and face before breaks, lunch, and immediately after work to prevent direct exposure and to lessen the potential for ill-health effects. With the various types of work ongoing at field locations, in labs and at plants, it is important to practice good basic personal hygiene practices. 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. Personal protective equipment such as, eye and ear protection, respirators, and gloves, etc., is provided to eliminate or minimize exposures and avoid contact.

INFECTIOUS WASTE

Construction Program Employees must not handle red garbage bags or packages marked "INFECTIOUS" or "BIOHAZARD" encountered along the highway, or on other public property. Red bags are used for medical or infectious waste. Do not touch needles, drug vials, or other drug paraphernalia, or any medical waste. Assume that all human blood and body fluids are infectious. Consider all needles and knives as potentially infectious. If you come in contact with these materials inadvertently, immediately practice good hygiene, i.e., wash with soap and water. Washing is the single most effective means of preventing infection.

RABIES

Construction Program Employees should consider all wild animals as potentially rabies infected and avoid contact. Rabies is a virus found in the body fluid of an infected warm blooded animal, and can survive for long periods of time in the carcass of an animal even after it dies. In the event of unintentional contact with an open wound or that breaks the skin, the carcass must be saved and your supervisor and Employee Safety & Health Office must be notified as soon as possible.

HISTOPLASMOSIS

Prior to work in any area where pigeons have nested (e.g.,

It must be determined whether hazards exist or whether the work to be done can create hazards in all Confined Spaces. If a Confined Space contains an actual or potential hazard that can cause death, injury or acute illness, incapacitation, entrapment, or otherwise interfere with a worker's ability to leave the space in an emergency, it is a Permit Required Confined Space or permit-space. If Permit Required Confined Spaces exist at a construction site, the following precautions must be taken: (1) workers must be informed of the locations and dangers of each permit space, usually by posted signs; (2) workers not authorized to enter must not enter a permit-space; (3) workers authorized to enter the permit-space must be identified and sufficiently trained to have the knowledge to protect themselves from the hazards in the space; (3) an attendant must remain outside the permit-space and monitor the workers within (4) there must be a plan on how to rescue injured workers promptly and safely.

A Permit Required Confined Space may include a sanitary sewer manhole, culvert with diameter/opening size requiring employees to crawl, utility vault, or any other Confined Space that contains hazardous materials (sewer gases) or substantial quantities of decaying organic material, or requires work which could create an atmospheric hazard (i.e., fumes from welding, painting, relining with resins or other curing material). **DO NOT ENTER A PERMIT REQUIRED CONFINED SPACE.** Consider if photos are sufficient for inspection purposes. Only Construction Program Employees trained; provided with appropriate personal protective equipment and safety apparatus; and listed as authorized to enter, may enter Permit Required Confined Spaces.

CONFINED SPACE ENTRY

A Confined Space is a space that is large enough to enter, has a limited or restricted means for entry and exit, and is not designed for continuous employee occupancy. A Confined Space may present special dangers not found in normal work areas. Confined spaces may be poorly ventilated and, as a result, contain insufficient oxygen or hazardous levels of toxic gases. Air quality must be checked for oxygen deficiency or presence of harmful contaminants prior to entry. Working in a tight space can prevent a worker from keeping a safe distance from mechanical or electrical hazards in the space.

A competent person must identify all confined spaces in which employees may work on a construction site. Examples of confined or enclosed spaces include, but are not limited to, manholes, sewer/drainage lines, drainage structures, culvert, underground utility vaults, storage tanks, ventilation or exhaust ducts, tunnels, pipelines, and open top spaces (more than 4ft or 1.2m in depth) such as pits, tubs, and vaults. As a general rule, **DO NOT ENTER A CONFINED SPACE**; see the Regional Construction Safety Coordinator for assistance. Only Construction Program Employees trained and provided with appropriate personal protective equipment, and other appropriate safety apparatus should enter confined spaces.

PERMIT REQUIRED CONFINED SPACES

A Permit Required Confined Space is a Confined Space that meets one or more of the following:

(1) contains or has the potential to contain a hazardous atmosphere; (2) contains a material that has the potential for engulfing an entrant; (3) has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section; (4) contains any other recognized serious safety or health hazard.

bridge beams), a thorough inspection should be made to determine if there is a build-up of material. Areas with small amounts of dried droppings pose minimal hazard. Construction Program Employees should avoid contact through the use of personal protective equipment, which may include gloves, rubber boots, rain gear, goggles and a dust/nuisance respirator, as necessary.

Areas such as bridge structures where pigeons have nested for long periods may develop a substantial build-up of pigeon droppings. A fungus is produced by a soil organism, which requires the moist, nutrient rich environment that large masses of droppings offer. Exposure to airborne pigeon droppings can result in a fungal infection called histoplasmosis, usually caused by inhalation into the lungs, but in some cases by ingestion through the mouth.

Construction Program Employees should take special care to wash hands thoroughly before eating, drinking or smoking even if the exposure to pigeon droppings is casual.

WEST NILE ENCEPHALITIS

Construction Program Employees should reduce risk of infection from West Nile virus by limiting exposure at dawn and dusk in areas where mosquitoes are prevalent, wearing long-sleeved shirts and long pants, and applying insect repellent to clothing. An effective insect repellent will contain 20% to 35% DEET.

West Nile Encephalitis is a virus that is transmitted by the bite of an infected mosquito. Infection usually develops in 5 to 15 days. Most infections are mild and symptoms may include fever, headache, body aches, skin rash and swollen lymph nodes. Severe infection may cause high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis and rarely death. Persons over 50 years of age are at highest risk. The virus is not transmitted person to person, or from handling infected birds, or other animals.

LYME & RELATED DISEASES

Construction Program Employees should avoid vegetation, where possible, and wear clothing with tight cuffs at the wrists

and ankles in areas where ticks may be encountered. Insect repellent containing 20% to 35% DEET should be used on clothing, not skin. Tuck pants into socks. Use two-sided tape around ankles to immobilize crawling ticks. Carefully inspect the body after being in areas of potential exposure. When a tick bites a host, the microorganism is passed onto the host. If a tick starts to bite, prompt removal is essential. Removal before the tick is completely embedded in the skin will greatly reduce chance of infection. In all cases, a physician is necessary for proper treatment.

Lyme Disease, Rocky Mountain Spotted Fever, Ehrlichiosis, and Babesiosis are diseases associated with ticks. Deer Ticks, Dog Ticks, and Lone-Star Ticks commonly cause these diseases. Ticks lay waiting in tall vegetation until they can attach themselves onto a warm-blooded animal such as a mouse, bird, domestic animal, or human.

POISON IVY/POISON OAK/POISON SUMAC

Leaves of three, let them be! While poison ivy/oak/sumac is active all year, contact is more likely to occur in spring and summer. All varieties of poison ivy/oak/sumac have three leaves, and can be smooth or toothed, hairless or hairy, glossy or dull. It can grow as a vine or shrub, and survive almost anywhere. Berries are hard, white, and small, and droop in clusters. Prevent poison ivy/oak/sumac rash by knowing what it looks like and avoiding contact. Wear clothes that cover arms and legs. Wash skin and clothing thoroughly after exposure to prevent spread by contact with the oily part of the plant, i.e., urushiol.

The harmful chemical in poison ivy/oak/sumac is urushiol. It may take 4 hours to 3 days for affected skin to redden and break into bumps and blisters which ooze. The liquid from open blisters will not spread the rash or transmit it to others, as does the urushiol. Wash affected areas, including clothing, thoroughly with soap and water as soon as possible.

GIANT HOGWEED

Giant hogweed flowers mid-May through July, with numerous white flowers clustered in an umbrella-shaped head that is up to 2.5 feet in diameter across its flat top. It reaches a height of

and position to equipment operators. Warning the operator of your presence in or proximity to the work area and when leaving the work area is essential even though loaders, trucks, and other large equipment must have backup alarms.

EXCAVATION SAFETY

Construction Program Employees must be protected from hazards associated with excavation. The Contractor is responsible for conducting safe excavation operations under the supervision of a competent person. Underground utility locations must be determined at all excavation sites, including excavation limits marked with white paint, white stakes or white flags; the one call system notified; underground utilities locations marked; the precise location of conflicting underground utility verified, hand dug, and if needed, power equipment must operate more than 4in (0.1m) from the utility.

All Construction Program Employees in an excavation (greater than 5ft or 1.5m in depth) must be protected from collapse and cave-in. Trench boxes, support shields, or other protective systems must be designed to meet or exceed all anticipated loads that could be exerted by a cave-in, or the excavation walls must be dug to a flat slope (an angle greater than 1 Vertical to 1-1/2 Horizontal).

All excavations must have a means of egress, such as stairway, ladder, ramp or other device. It must be within 25ft (7.5m) of employees for all steep excavations. Construction Program Employees must not work beneath loads being moved or supported by lifting or digging equipment or in excavations with an accumulation of water.

OPERATIONAL HAZARDS

PLANTS, LABORATORIES, PITS AND QUARRIES

Construction Program Employees assigned to work in batch plants, portable plants, field laboratories, pits and quarries, must inspect work areas daily to ensure their safety, including taking dust control measures where dust significantly reduces visibility. Guards or shields must be provided at dumping and loading locations where employees may be struck by falling or flying material. Loaders, trucks, and large equipment must have back-up alarms. Exposed moving machine parts must be guarded. Grates and other sizing devices must be anchored securely. Construction Program Employees must not ride in truck beds or equipment buckets, work or pass under buckets or booms, or get on or off moving equipment.

Conveyor Safety

Conveyor belts must be stopped prior to sampling material. Serious injuries and death have resulted from 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 loose-fitting clothing, long hair (including beards), jewelry such as chains and watches, and shoe strings. Avoid wearing clothes such as shirts or jackets with hoods; band the ends of sleeves and pant legs, tuck in or cut long hair, and leave jewelry at home. Never poke around a moving conveyor with any tool. Virtually any tool, when it comes into contact with a conveyor, can be grabbed.

Stockpile Safety

Care must be taken sampling stockpiles or working near stockpiles. Be sure to seek your safety representative or supervisor for safe stacking slopes. Stockpiles are stable when sloped or benched at the angle of repose (approximately 1 vertical to 1 ½ horizontal). Steep sloped stockpiles may fail to the angle of repose without warning. Sampling from steep sloped stockpiles must be performed by a machine.

Working Near Heavy Equipment

Construction Program Employees acting as pedestrians (workers on foot) must always communicate their presence

10 to 15 feet when in flower and has hollow stems, 2 to 4 inches in diameter with dark reddish-purple spots and bristles. Coarse white hairs at the base of the leaf stalk are also purplish, and each purple spot surrounds a blister-based hair. The deeply incised compound leaves grow up to 5 feet in width. The plant produces flattened, 3/8-inch long, oval dry fruits that have a broadly rounded base, and broad marginal ridges. Hogweed prefers moist soil and can quickly dominate ravines, river banks, vacant lots, railroad tracks etc.

Its clear, watery sap contains a glucoside that causes photo-dermatitis. Skin contact followed by exposure to sunlight produces painful, burning blisters that may develop into purplish or blackened scars. If you do come into contact with the plant, you are advised to wash the affected areas immediately, keep them out of direct sunlight and seek medical advice at the earliest opportunity. Treatment with topical steroids early in the reaction can reduce its severity - this must be done after taking medical advice. Otherwise it is a case of preventing infection, covering with light dressings and waiting for recovery.

HOT WEATHER REMINDERS

The body reacts to high external temperature by circulating blood to the skin, increasing skin temperature. This allows the body to give off excess heat through the skin. Temperature, humidity, radiant heat from the sun, and air movement, affect the body while working in hot weather. Sweating also helps maintain stable internal body temperature, but is effective only if, humidity is low enough to permit evaporation and if, lost fluids and salts is replaced. Personal characteristics such as age, weight, fitness, medical condition, and acclimatization (getting used to high heat) are important factors to working in hot weather.

Most heat related health problems can be prevented by lessening the effect of heat on the body, including sun block application, shielding from the sun, personal cooling devices, protective clothing, drinking water, ample rest, acclimatization, and recognizing symptoms. Heat disorders include fainting, heat rash, heat cramps, heat exhaustion, heat stroke, and sun burn.

Fainting

Fainting may be a problem for an individual that is not acclimatized to a hot environment, and who remains still. Movement reduces possibility of fainting. Seek medical attention if fainting occurs.

Heat Rash

Heat rash, also known as “prickly heat”, may occur when sweat does not evaporate from the surface of the skin. Serious heat rash can inhibit sleep and impede performance, and result in temporary disability. Heat rash can be prevented by resting in a cool place and allowing skin to dry.

Heat Cramps

Heat cramps are painful muscle spasms caused by drinking large quantities of water without replacing lost body salt. Tired muscles are most susceptible to cramps. Cramps may occur during or after exertion and may be relieved by drinking liquids. More serious cases require medical attention.

Heat Exhaustion

Heat exhaustion results from loss of fluid through sweating and failure to drink enough fluids, and/or take in enough salt. An individual with heat exhaustion experiences extreme fatigue, giddiness, nausea, or headache. Skin is clammy and moist, complexion pale or flushed, and body temperature normal or slightly higher. Treatment is usually simple: rest in a cool place and drink water or, if available, drink an electrolyte solution to quickly restore potassium, calcium, and magnesium salts. Severe cases of vomiting or loss of consciousness require medical attention.

remove spills in the ROW. Construction Program Employees encountering spills, such as petroleum products, unknown spilled material, or abandoned drums, must notify their supervisor.

conditions that may result from exposure; primary routes of entry; exposure limits; whether the material is a carcinogen; precautions for safe handling, use and control measures, such as personal protective equipment or engineering controls; emergency and first aid procedures; date of preparation; and name, address and telephone number of firm or person preparing or distributing the SDS.

Labeling of Containers

Each hazardous materials container must be labeled, tagged, marked, or otherwise identified with the identity of the hazardous chemical and appropriate hazard warnings. Labels are not required for chemicals that are transferred for immediate use (within one work shift) by one employee.

Control & Storage

Once hazardous materials are identified, controls must be established for their purchase, storage, distribution, and use. Safe storage facilities are important. Injuries can occur from container leakage and incompatibility with other commonly stored materials. All storage areas should be clean and well lighted. Containers must be closed and labeled. Strong oxidizers, flammable and explosive substances, and corrosive materials must be separated and assigned special storage areas. Compressed fuel gases, such as acetylene, must be kept at least 20ft (6m) away, or separated by a 4ft (1.2m) high noncombustible barrier.

Hazardous Material Spills

Construction Program Employees are not trained, equipped, nor expected to become involved in hazardous material clean-up. Maintain a distance of 2,000ft (600m) from the uncontrolled release of a hazardous material until the material is identified and the hazards and safety precautions are understood.

All spill clean-up and storage operations must be conducted in a manner that ensures employee safety, minimizes the potential adverse impact on traffic safety, and protects the environment. The Department must comply with all Department of Environmental Conservation (DEC) regulations regarding spill clean-up and storage. DEC approved standby commercial contractors, normally on call, will cleanup and

Heat Stroke

Heat stroke is caused by failure of the body's internal mechanism to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include (1) mental confusion, delirium, loss of consciousness, convulsions or coma; (2) high body temperature; (3) hot dry skin (4) color change to skin. Medical attention must be sought immediately. While awaiting medical help, move the victim to a cool area, apply water with a cloth or sponge, and fan vigorously to increase cooling. Prompt first aid can prevent permanent injury.

Skin Protection (UV radiation)

People who are exposed often to strong sunlight outdoors without protection from proper clothes or sunscreen have a greater risk of skin cancer. Over exposure to ultraviolet (UV) radiation is a risk factor for melanoma. The main source of UV radiation is sunlight.

Skin cancer is the most common of all cancers, accounting for about half of all cancers. Many cases are not reported. Men get these cancers about twice as often as women.

The skin is the largest organ in the body. It covers and protects the organs inside the body. It also protects the body against germs and prevents the loss of too much water and other fluids. The skin sends messages to the brain about heat, cold, touch, and pain.

COLD WEATHER REMINDERS

Personal characteristics such as age, weight, fitness, medical condition and acclimatization (getting used to cold temperatures) are important factors to working in cold weather. Clothing should be warm, layered and dry. A large percentage of body heat is lost through the head; therefore, wearing a hat is important. Avoid sweating due to physical exertion; sweat will dampen clothes and carry heat away from the body. Shivering helps maintain internal body temperature, but is not effective for long periods. Carry candy/sugar for quick energy and body fuel. Minimize prolonged exposure to cold.

Hypothermia

Hypothermia is rapid and progressive physical and mental collapse due to loss of body heat. It is caused by a combination of cold, exhaustion, wind chill, and wetness. Hypothermia can also occur in above freezing temperatures. Symptoms are uncontrollable shivering, drowsiness or exhaustion, slurred speech, fumbling or staggering, and lack of concern for physical well-being. Except for shivering, a victim seldom realizes its rapid development.

Treatment for hypothermia includes getting indoors where it is warm and dry, remove wet clothing, wrap in blankets, put on dry clothing, drink warm liquids, eat high energy foods, stay awake, and seek medical attention.

Chilblains

Chilblains are the reddening of skin accompanied with pain due to exposure to cold/wet conditions. Chilblains are an early warning sign of overexposure to cold that, if continued, may result in more severe injury, such as frostbite. Chilblains do not cause any long term damage.

Frostbite

Frostbite is a condition where body tissue freezes due to exposure to cold. Frostbite will cause the skin to turn a white or pale color with numbness. When frostbite is severe, large blisters appear on and under the skin; therefore, cover affected areas, get inside, and seek medical attention.

HAZARD COMMUNICATIONS PROGRAM

The Hazard Communications Program ensures Construction Program Employees receive basic information and training; take appropriate precautions; and wear appropriate personal protective equipment for the safe use of the approximately 40,000 chemicals used in the nation's workplace. NYS Public Employee Safety and Health Bureau (PESH) and NYS Right-to-Know Law require a written program, training, display of posters, Safety Data Sheets, and labeling and record keeping for all chemicals that can present physical and/or chemical health hazards. Each contract must have a written hazard communication program in the site specific safety and health plan, which must specifically contain a list of the hazardous chemicals known to be present, method used to inform employees of the hazards of routine and non-routine tasks, method used to inform sub-contractors working on the jobsite of hazardous chemicals their employees may be exposed to, and suggestions for appropriate protective measures.

Right-to-Know Law

The Right-to-Know Law has a procedure for employees requesting information from their employer about health and safety hazards of toxic substances found in the work place. Every field office must have a NYS Department of Health Right-to-Know Poster, which indicates name, location and phone number of a contact person.

Training

Construction Program Employees must receive annual training which informs employees of requirements of the regulation, labeling, methods of protection, and how to read Safety Data Sheets. Training presented for the first time must include name and hazardous ingredients, properties, how it is used, health hazards, and methods of protection. Training may be delivered by contractor personnel.

Safety Data Sheets (SDS)

Safety Data Sheets (SDS) must be available for each material used. The SDS contains the chemical and common name of the substance(s); physical and chemical characteristics and hazards; health hazards, including symptoms, and medical

HOT MIX ASPHALT

Construction Program Employees should avoid exposure to asphalt fumes by maintaining distance from pavers and/or material. Paver ventilation systems designed to remove asphalt fumes from the screed must operate properly.

Working with hot mix asphalt may cause breathing problems, asthma, bronchitis, and skin irritation. Acute health effects of exposure to asphalt fumes include headache, skin rash, fatigue, reduced appetite, throat and eye irritation, and cough. These health effects typically appear to be mild in severity and transient in nature. Weather and site conditions unfavorable for dispersion of fumes and vapors may increase exposure to asphalt vapors and diesel fumes. Potentially problematic weather conditions are those with little or no air movement, including inversions, high dew points and relative humidity, and fog. Diesel emissions, tunnels, overpasses, and high traffic volumes may also increase the level of exposure.

PAINT/COATINGS

Construction Program Employees must stay away from paint/coating operations. Various paints, including polyurethane, epoxy, waterborne and alkyd based coatings, including deck sealers and sidewalk sealers, may be encountered and need adequate ventilation to minimize fume/vapor exposure. Construction Program Employees that have a potential for overexposure must be protected by engineering controls, proper work practices, or appropriate personal protective equipment.

All paint contains a film forming component (a solvent or water) and a pigment. Most paints can be worked with safely when proper procedures are followed during the painting, cutting, heating, or welding of materials coated with paint. Proper ventilation is always important while painting and coating.

HAZARDOUS MATERIALS

LEAD

Lead exposures are primarily produced by paint removal. Construction Program Employees need not be exposed to lead. Construction Program Employees must not enter a paint removal containment without the appropriate safety precautions, including a lead exposure control plan, medical surveillance, respirator fit testing, training, and decontamination facilities. Construction Program Employees not covered by the appropriate safety precautions must not enter paint removal containments with the potential for lead exposure from dust, vapor, and/or fumes until floors and other surfaces are cleaned using dust-free methods, including wet-clean up or vacuum cleaners with HEPA filters, at least twice the air volume inside the containment is exchanged, approval that it is safe to enter is obtained from the competent person, and adequate training is provided. The presence of dust and/or debris does not constitute a clean environment safe to enter. Shoveling, sweeping, and brushing must only be used where preferred methods, i.e., wet washing, are not practical, and requires additional air changes before entering, and compressed air must never be used.

Lead based paints are found on bridges, and were traditionally used in interior and exterior building applications. Lead can enter the body by inhalation or ingestion. When materials containing lead are heated, lead is released as a fume which can be inhaled. Lead can adversely affect many parts of the body, including the circulatory, nervous and reproductive systems. Common symptoms of lead poisoning include, sore joints, fatigue, high blood pressure, irritability, tremors, and stomach pain. Eating, drinking, or smoking must not be allowed in areas where lead contamination exists.

Construction Program Employees must not be exposed to abrasive blasting, grinding, welding, cutting and brazing on materials containing or coated with lead. Stay away from lead removal activities and if exposure cannot be avoided, seek to have respiratory protection.

ASBESTOS

Construction Program Employees must not handle, remove, or disturb asbestos unless certified by and in full compliance with requirements of the NYS Departments of Labor and Health. Airborne asbestos fibers are a recognized health hazard for humans and can cause asbestosis and cancer.

Asbestos is a naturally occurring crystalline mineral fiber. Before 1980, asbestos was widely used in building materials (roofing, floor tiles, siding, plaster, and pipe insulation), bridges (sheet piling, water proofing, caulking, mastic paint, etc.), utilities (telephone, sewer and water conduits), and manufacturing (automotive clutch and brake pads).

RADIATION EXPOSURE

Operators of nuclear density gauges must keep them in their possession or properly secured at all times. The gauge handle must be kept in the uppermost position when not taking density measurements and whenever the gauge is moved. All personnel other than the gauge operator are to be outside a 15ft (4.5m) radius from the gauge when in operation. An inspector, when required to verify a reading on the gauge, may approach the gauge when the gauge handle is in the uppermost position and immediately return to outside the 15ft (4.5m) area after verifying the reading. In the event of an emergency (gauge damage or unintended exposure), the gauge operator must immediately secure the area with rope, stakes, warning signs and notify applicable agencies.

Nuclear density gauges, measure pavement and soil density, and are commonly used by contractors and Department staff. Regulations include a radiation safety plan to establish safe procedures for the transportation, operation, and storage of these low level radiation sources, and establish acceptable radiation exposure levels for workers exposed to the equipment. Operators must be NYSDOL licensed, trained and safety certified by a gauge manufacturer. All nuclear density gauge operators must be equipped with personal monitoring devices to measure their radiation exposure when transporting or operating the gauge.

HEXAVALENT CHROMIUM

Construction Program Employees must stay away from heating or welding of galvanized steel to ensure there is no exposure exceeding the permissible exposure limit. Heating or welding of galvanized steel may create hexavalent chromium. Chromium is added to the zinc coating during galvanizing of steel to ward off corrosion or white galvanized rust. Most galvanized steel is not heated or welded; therefore, worker exposures should be minimal. Galvanized stay-in-place forms (pans) used on bridges are welded in place and may be the most likely scenario for worker exposure.

SILICA (CRYSTALLINE)

Construction Program Employees must stay away from silica dust operations. Construction Program Employees exposed to airborne crystalline silica dust must be protected by engineering and/or administrative controls, or must use appropriate respiratory protection. The key to preventing silica exposure is keeping silica dust from becoming airborne. Engineering controls can be as simple as staying upwind of a running operation, using a wet saw for sawing concrete or masonry, using abrasives containing less than 1% crystalline silica during abrasive blasting, or using dust collection systems. When these controls cannot reduce exposures to safe levels, respirators must be used in accordance with the Respiratory Protection. Construction Program Employees should not eat, drink, or use tobacco products in dusty areas, and should wash hands and face prior to eating, drinking, or smoking. Vehicles should be parked where they will not be contaminated in order to reduce silica dust exposure.

Crystalline silica is a common mineral in sand, quartz and granite. Operations that can create airborne silica exposure include sandblasting, rock drilling, stonecutting, quarrying, gunite work, lead-based paint encapsulation, asphalt paving, tunneling, concrete demolition, hammering, chipping, sawcutting or grinding concrete, sawcutting or milling asphalt, and sweeping dust. Inhalation of airborne crystalline silica can cause silicosis, a disabling and potentially fatal lung disease. Inhaling silica dust is also associated with other diseases, such as tuberculosis and lung cancer.