

Chapter 10

STANDARDS FOR SAFE WORK PRACTICES

10.1 PURPOSE

The purpose of this chapter is to establish safe work practices standards for Department operations. This chapter provides minimum standards for work practices that when followed, should minimize the occurrence of injuries while performing such operations.

10.2 MANUAL MATERIALS HANDLING

10.2.1 The Unit Manager/Cost Center Manager must ensure, whenever feasible, that mechanical lifting and carrying aids are provided or made available to employees where manual material handling operations are routinely being performed. Materials and items weighing over 50 pounds should be lifted only with assistance or with the use of mechanical lifting devices, depending on the size, shape, and weight.

(Ref: *NIOSH Lifting Standard*)

10.2.2 **Lifting.** Before attempting to manually handle any load, the employee shall:

- (A) Size up the load as to its weight, size, and shape;
- (B) Use, when available, lifting and carrying aids such as hand trucks, dollies, pallet jacks, and carts; or
- (C) Get assistance from a co-worker.
- (D) Observe the following:
 - (1) Plan the move before lifting; remove obstructions from the chosen pathway.
 - (2) Place feet about a foot apart and close to the object for good balance.
 - (3) Bend knees to a comfortable position and get a good grip of the object with the hands and fingers. Use handles when present. Never lift objects if hands are greasy or wet.
 - (4) To the extent feasible use your legs to push up and lift the load straight up, smoothly and evenly, not the upper body or back. Push with the legs; keep load close to the body.

- (5) Lift the object into carrying position, avoiding twisting movements until the lift is completed.
- (6) Turn the body with changes of foot position making sure the path of travel is clear.
- (7) Using your leg muscles, comfortably lower the load by bending the knees. When the load is securely in place, release the grip. Setting down the load properly is just as important as picking it up.
- (8) Do not lift an object from the floor to a level above the waist in one motion. Set the load down on a table or bench and then adjust the grip before lifting it higher.
- (9) Slide materials to the end of the tailgate before attempting to lift them off a pick-up truck. Do not lift over the walls or tailgate of the truck bed.
- (10) If assistance is available, coordinate and communicate movements with the employee assisting with the lift.

10.3 PERSONAL PROTECTIVE EQUIPMENT, FALL PROTECTION AND LIFE SAVING EQUIPMENT

The purpose of personal protective equipment is to provide a barrier or shield between employees and chemical or physical hazards present in the workplace, or to isolate employees from such hazards. Employees are required to wear personal protective equipment appropriate for tasks that they will perform. (Personal Protective Equipment is to be used only as a last resort if engineering or administratively eliminating any hazards that could be harmful to the employee are not feasible.)

10.3.1 Hazard Assessment and Equipment Selection

10.3.1.1 The Unit Manager/Cost Center Manager shall ensure that:

- (A) A written assessment (Job Hazard Analysis) is conducted to determine what hazards are present in the workplace that would necessitate the use of personal protective equipment;
- (B) Sources of hazards are identified. The type and level of risk or the seriousness of the potential injury from each identified hazard is determined.
- (C) Proper personal protective equipment is selected and used that will protect the affected employee(s) from the identified hazards;

- (D) Approved equipment is used, tested, inspected, and properly maintained;
- (E) Employees are trained on:
 - (1) When personal protective equipment is necessary.
 - (2) What personal protective equipment is necessary.
 - (3) How to properly adjust and wear personal protective equipment.
 - (4) The limitations of the personal protective equipment.
 - (5) The proper care, maintenance, useful life, and disposal of the personal protective equipment.
- (F) Retraining is required when:
 - (1) There is reason to believe that the employee lacks the understanding and/or skill to demonstrate the proper use and care of personal protective equipment.
 - (2) If there are changes in workplace conditions or types of personal protective equipment used.

10.3.2 Head Protection

- (A) Supervisors shall ensure that all employees wear approved head protection when working at or visiting Department work sites where there is a possible danger of head injuries. The approved colors for hard hats are orange, yellow or white, and only the removable reflective 3M high visibility lime yellow/silver stickers may be used on the hard hat. These stickers are designed so that they can be removed and re-attached for inspection of the hard hat. Any other types of stickers are prohibited. Cowboy hat type hard hats are not to be used.
- (B) Head protection must be worn by employees in the following work sites and operations:
 - (1) Tree trimming;
 - (2) Under overhead construction/maintenance work;
 - (3) Under overhead sign work;
 - (4) Working around equipment with moving or working parts over shoulder height;

- (5) Using chain saws;
 - (6) Working in excavations/trenches, manholes, or catch basins that are four feet or more in depth;
 - (7) On construction sites designated as hard hat areas.
- (C) Head protection shall be inspected regularly by the employee and replaced immediately when found defective or exceeds the manufacturer's service life. Head protection is considered defective if it is cracked or otherwise damaged, faded, modified, or not equipped with an inner suspension liner. Head protection shall meet ANSI Standard 89.1.

10.3.3 Eye and Face Protection

- (A) Supervisors shall ensure all employees wear appropriate eye and face protection where their eyes and face are exposed to hazards. These hazards could include flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical fumes, gases/vapors, or potentially injurious radiation. Eye and face protection must meet ANSI/SEA Standard Z87.
- (B) Eye and face protection must be worn by all employees in the following operations:
- (1) Acetylene burning, cutting, and welding;
 - (2) Electric (ARC) welding;
 - (3) Abrasive blasting;
 - (4) Chemical handling;
 - (5) Grinding;
 - (6) Spot welding;
 - (7) Using power/powder activated tools;
 - (8) Sledge hammering, hammering, chiseling, scaling, drilling, dressing, buffing, polishing, wire brushing, weeding, or any other operation where flying objects or dust particles are generated;
 - (9) Around injurious radiation;
 - (10) Cleaning with compressed air;
 - (11) Chain saw operations.

- (C) Employees whose vision requires the use of corrective lenses while engaged in operations that involve eye hazards shall wear eye protection that can be worn over the prescription glasses without interference.
- (D) The supervisor shall require an employee to wear appropriate eye or face protection when in his/her judgment the work activity being performed presents a condition capable of causing injury to the employee's eyes and face.
- (E) In work areas and operations where the eyes and bodies of employees may be exposed to injurious corrosive materials, facilities and/or equipment for quick drenching of the eyes and body shall be readily available.

10.3.4 Hand Protection

Supervisors shall ensure all employees wear appropriate hand protection when their hands are exposed to hazards. These hazards include those that can cause cuts, lacerations, abrasions, punctures, chemical burns, thermal burns, and absorption of harmful temperatures. Emphasis on using ergonomic type gloves should be encouraged and matched to the hazard or exposure.

10.3.5 Foot Protection

Supervisors shall ensure that all employees wear serviceable and appropriate foot protection when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where the employees' feet are exposed to electrical hazards. Employees are responsible for inspecting their safety shoes to ensure they are serviceable (soles are not worn out, steel insert is not exposed, or the leather uppers are not worn out.)

10.3.6 Respiratory Protection

- (A) At times, certain airborne contaminants such as dusts, fumes, gases, or vapors cannot be eliminated in the workplace by accepted control measures such as enclosures, or local or general ventilation. When such measures are not feasible, respirators may be required to be worn by affected employees. Whenever possible an assessment should be conducted by an industrial hygienist or a competent person who has been trained and certified to conduct those assessments. **(See Chapter 13.3 "Respirator Protection Program).**
- (B) Supervisors shall ensure that when respirators are required to be worn by employees, the respiratory program in **Section 13.3** of this **Manual** is

followed. The unit Safety and Health specialist/designated safety person shall provide assistance in implementing the program.

- (C) Employees are responsible for using respirators in accordance with the training and instructions received.

10.3.7 Hearing Protection

Employees shall be required to wear hearing protection in designated work areas or operations where the Unit Manager/Cost Center Manager has determined that the noise levels exceed a time weighted average (TWA) of 85dBA. Every effort should be made to purchase equipment where the noise level has been lowered and the dBA is listed on the specifications. For older equipment, conduct assessments to determine if noise levels can be reduced using noise adsorption barriers or modification such as noise absorption covers for jack hammers

- (A) A hearing conservation program will be administered in units where employee exposure to noise levels exceeds the allowable limits according to the hearing conservation program in **Section 13.4** of this **Manual**.

10.3.8 Fall Prevention, Fall Protection, and Fall Protection Equipment

All employees working in facilities and the field have a responsibility to recognize potential workplace fall hazards and understand how to protect themselves from a falling incident. Slip, trip and fall injuries account for over 30% of the injuries of FDOT. A fall hazard is one associated with a fall from heights of four (4') feet or more above a work surface. Fall protection is centered on a set of controls. Eliminating the fall hazard, installation of fall restraints, wearing active fall restraint gear, or a personal fall arrest system. All staff must receive fall prevention training appropriate for the activities that they will be working in. Thereby properly preparing themselves for the work location and the activities that the employee is performing where a risk of falling is present. **[ref. 29 CFR 1910.28 / 1926.502]**

Fall Prevention

Fall prevention is a system or process used to remove the risk of falling. This would include training employees to spot fall risks, installing fall-prevention barriers, or using lanyards to keep workers from reaching unprotected edges while working. May be referred to as fall restraint or fall arrest systems. Prevention is always your first choice.

Fall Protection

Fall protection is equipment used to minimize injuries from falling. Some examples are aerial lifts and fall arrest systems.

Fall Prevention Planning

Prior to initiating work activities in areas where falls are a risk, a Fall Prevention and Protection Plan should be developed. The following points must be considered:

- 1) Preparation for job safety
 - a. Scope of the job regarding safety
 - b. What tasks will be performed where falling is a risk
 - c. What fall protection equipment is required
 - d. Will there be any work above 4'
 - e. Are anchor points needed
 - f. Review risk keys from OSHA Fall Fact Sheet
- 2) Provide appropriate and functional fall protection equipment to all staff performing work where fall risk is elevated.
- 3) Train staff to:
 - a. Recognize site fall hazards in each workplace
 - b. Identify which safety equipment should be used. How it is used and when is it used
 - c. Use equipment safely and correctly
 - d. Recognize falls may happen quickly and often without warning or time to react
 - e. Review prepared OSHA trainings pertaining to ladder, scaffold, and rooftop safety

10.3.8.1 Safety Harnesses, Lifelines, and Lanyards

- (A) Appropriate fall protection systems are required when employees are doing construction work, repair work, or painting 6 feet or more above any work surface.
- (B) Body harnesses and lanyards shall be worn and utilized when working on aerial platforms, bucket trucks, or forklift platforms and shall be inspected prior to each use. Any found to be defective or damaged should be taken out of service.

- (C) Lifelines shall be secured above the point of operation to an anchorage or structural member capable of supporting a dead weight of 5,400 pounds.
- (D) Personal fall arrest systems and components damaged or subject to impact loading shall not be used again. Destroy and dispose of immediately.
- (E) Body harnesses shall be used for fall arresting and safety belts shall be used only as positioning devices.
- (F) Only locking-type snap hooks shall be used for harnesses, lifelines and lanyards.
- (G) Fall arrest-systems shall be rigged so the employee can neither fall more than 6 feet nor contact any lower level.

10.3.8.2 Safety Nets

- (A) Safety nets shall be provided for workplaces (construction activities) more than 25 feet above any surface where ladders, scaffolds, catch platforms, safety lines, and harnesses are impractical.
- (B) When nets are used, they shall extend not less than 8 feet beyond the edge of the work surface and not more than 25 feet below the work surface.
- (C) Work operations shall not be undertaken until safety nets are in place.
- (D) Nets shall be kept free from debris.
- (E) Impact load testing must be accomplished prior to using the safety net.

10.3.8.3 Working Over or Near Water

- (A) All employees working over or near water (including being inside the work bucket of a bucket truck over water) where the danger of drowning exists are required to wear a U.S. Coast Guard approved life jacket or buoyant work vest. Inspection is required prior to and after each use for defects which may alter their strength or buoyancy.
- (B) Supervisors shall designate the nearest area free of water as a place of safety and ensure that:
 - (1) Ring buoys with at least 90 feet of line shall be provided and readily available for emergency rescue operations. The distance between ring buoys shall not exceed 200 feet.

- (2) A life-saving skiff or boat is immediately available for rescue operations where employees are working over or adjacent to water and involving construction activities, repairing, painting or any other maintenance-related activities. ["Immediately available" means if an employee falls into the water the boat or skiff is already in the water to perform rescue operations without delay.]

10.3.9 Safety Vests

- (A) All Department employees working on DOT Right of Way, regardless of the distance from the roadway, and on any other non-DOT Right of Way where there is exposure to traffic, are required to wear approved high-visibility apparel. A minimum of a Class 2 vest is required. Flaggers working at night must wear orange or lime green Class 3 apparel.
- (B) The requirements in **Paragraph (A)** also apply to rainwear. Raincoats or rain suits must be a Class 2 or 3 high-visibility apparel with reflective stripes on the sleeves, the front and the back of the rainwear or the employee must wear at least a Class 2-vest over the orange or yellow rainwear.

10.4 FIRE PREVENTION AND PROTECTION

10.4.1 Portable Fire Extinguishers

- 10.4.1.1 Appropriate portable extinguishers, suitable to the type of hazard, must be readily available at all work sites as required by **NFPA 10** and in all Department vehicles and drivable equipment.
- 10.4.1.2 Fire extinguishers must be properly installed and secured using a wall hangar designed for this purpose or installed in an approved wall cabinet
- 10.4.1.3 Fire extinguishers in vehicles or drivable equipment must be secured and must not be located where they will create a tripping hazard for the driver or passengers.
- 10.4.1.4 Portable fire extinguishers shall be conspicuously located, easily accessible, and identified using signs, arrows, or other appropriate means.
- 10.4.1.5 No supplies, materials, tools, or cabinets will be placed near portable fire extinguishers so as to obstruct their use.
- 10.4.1.6 Supervisors and/or facility managers will be responsible for the inspection, maintenance, and testing of portable fire extinguishers located in Department facilities.

- (A) **Inspection - Monthly** documented inspection of portable fire extinguishers shall be performed to (use the tags on the fire extinguisher or a locally developed form):
 - (1) Ensure that extinguishers are in the designated locations.
 - (2) Ensure that extinguishers are fully charged.
 - (3) Ensure that extinguishers have not been discharged or tampered with.
 - (4) Check pressure gauge and nozzle for loss of pressure and/or damage.
 - (5) Detect any obvious physical damage, corrosion, or other defects.
 - (6) Ensure that operating instructions are clearly visible on the front of each extinguisher and the extinguishers are mounted on hangars.
 - (B) **Maintenance** - Portable fire extinguishers shall be thoroughly examined and/or **recharged annually** by a qualified technician.
 - (C) **Replacement** - Portable fire extinguishers that are removed for maintenance or recharging shall be immediately replaced by spare extinguishers of the same type and equal rating or greater.
 - (D) **Testing** - Portable fire extinguishers will be hydrostatically tested by a competent person as required by the **69A-21.242, F.A.C.**
- 10.4.1.5** Supervisors and Unit Managers are responsible for ensuring that employees who are assigned to use portable fire extinguishers are trained to use them.
- 10.4.2 Fire Prevention**
- 10.4.2.1 Housekeeping-** The Unit Manager and/or designated person shall ensure proper housekeeping is maintained.
- (A) Offices are to be kept clean, orderly, and sanitary. Trash must be emptied regularly.
 - (B) Oily rags and other flammable or combustible wastes must be disposed of in metal containers with self-closing lids, and clearly marked "**Flammable Waste.**" These containers must be emptied daily.
 - (C) Combustible rubbish outdoors must be disposed of in containers with lids, or in containers with a self-closing lid, and clearly marked "**Trash Only**".

- (D) Combustible materials such as lumber and containers of liquids must be piled with due regard to stability.
- (E) Storage areas must be kept free from accumulated rubbish. Weeds and grass must be controlled.
- (F) Vegetation must be controlled.
- (G) All materials shall be stored with regard to their fire characteristics.
- (H) Exits shall not be obstructed.
- (I) Adequate aisles and clearances must be maintained.

10.4.2.2 Ignition Hazards

- (A) Internal combustion engine-powered equipment shall be located so that the exhausts are well away from flammable and/or combustible materials.
- (B) Smoking is prohibited within fifty feet of fuel storage areas or gas service stations. **“No Smoking or Open Flame”** signs shall be posted in these areas.
- (C) **Smoking is prohibited in all the Department buildings including all storage sheds, shops and guard shacks.**
- (D) Smoking is prohibited in all Department vehicles including boats.

Cooking that may release grease laden vapors shall not take place inside buildings or in approved kitchen areas unless an approved ventilation system is in place and has been approved by the State Fire Marshal.

- (E) Open flames or any other burning object (such as incense) is prohibited. The only exceptions would be the use of serving tray warmers for a special function (if approved by the building manager and supervisor) and the use of candles on birthday cake (only when they will be blown out immediately.)

10.4.2.3 Emergency Action Plan

- (A) An emergency action plan shall be implemented to cover those designated actions Department personnel must take to ensure employee safety and orderly evacuation from fire hazardous material release, bomb threats, hurricanes, tornadoes and other emergencies.

- (B)** Prior to the implementation of an emergency action plan, a sufficient number of persons shall be trained to assist in the safe and orderly emergency evacuation of employees.
- (C)** An emergency action plan shall be written to include, at a minimum, the following essential elements:

 - (1)** The types of evacuation to be used in emergency circumstances;
 - (2)** Emergency-escape procedures and emergency escape route assignments;
 - (3)** Procedures that must be followed by those individuals who remain to operate critical facility functions before they evacuate;
 - (4)** Procedures to account for all employees and visitors to be accounted for after an emergency evacuation has been completed;
 - (5)** Rescue and medical duties for those employees who are to perform them;
 - (6)** Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan;
 - (7)** The preferred means of reporting fires and other emergencies;
 - (8)** Names or regular job titles of those persons responsible for maintenance of equipment and systems installed to prevent or control ignitions of fire;
 - (9)** Names or regular job titles of those persons responsible for control of fuel source hazards;
 - (10)** Housekeeping procedures that control the accumulation of flammable and combustible materials and residues so that they do not contribute to a fire emergency;
 - (11)** A list of major workplace fire hazards and the proper handling and storage procedures, potential ignition source (such as welding, smoking and others), the control procedures, and the type of fire protection equipment or systems which can control a fire involving them.
- (D)** All employees shall review the emergency action plan and be apprised of fire hazards of the materials and processes to which they are exposed.

- (E) The written emergency action plan shall be kept in the workplace and made available for employees. The plans must also be included in the ***District and Central Office Comprehensive Emergency Management Plan (CEMP)***.

10.5 ELECTRICAL SAFETY

A common cause of electrical incidents in the workplace is contact with electrical current that can result in death by electrocution or electric burns, other physical injuries, or overheating that can cause fire or explosion. Electric appliances and machines, electrical wiring and other electrical delivery systems such as fuse boxes, circuit breaker boxes, or wiring within conduits are sources of electrical hazards.

10.5.1 Safe Work Practices

10.5.1.1 Before any work is performed, the supervisor must ensure that every part of an electric power circuit, exposed or concealed, is so located that the performance of the work will not bring any employee, tools, or machine into contact with the circuit. Warning signs must be posted and maintained where such circuit exists.

10.5.1.2 No employee will be allowed to work near any part of an electric power circuit, which the employee may accidentally contact, unless the circuit is de-energized or guarded by effective insulation. Danger tags and locks shall be placed to plainly identify the equipment or circuit(s) being serviced.

10.5.1.3 Only trained/qualified employees shall be permitted to work on electrical installations or perform maintenance or conduct electrical tests. Refer to training requirement, ***Chapter 12*** of this ***Manual***.

Note: Training shall be of the classroom or on-the-job type.

Tasks assigned shall not exceed the degree of training.

10.5.1.4 Before use on each shift, employees must inspect all electric power tools, line cords, and plugs. Defective tools and equipment shall not be used and shall have a danger tag affixed until repaired or replaced.

10.5.1.5 Flexible cords connected to equipment shall not be used for raising or lowering the equipment.

10.5.1.6 Plugs are not to be removed from wall outlets by tugging on the line cord.

10.5.1.7 **Extension cords are prohibited from use inside any office, crew room, bridge tender's office, warehouse, or any other indoor area as permanent wiring.** Only heavy extension cords are authorized to be used

for temporary electrical service for audio-visual equipment, janitorial equipment, or in construction/ maintenance activities. Power-strips with built in circuit breakers may be used but cannot be connected to other strips to reach wall outlets.

10.5.1.8 Adapters that interrupt the continuity of the equipment grounding connection must not be used.

10.5.1.9 **Only** authorized and approved current, voltage, or other electrical instruments are allowed to be used.

10.5.1.10 Metal ladders shall not be used when working on any energized electrical system.

10.5.1.11 **Only** ANSI approved and labeled rubber protective devices will be allowed to be used in electrical maintenance work. Ground Fault Circuit Interrupters must be used in wet/damp areas. Additionally, ground fault circuit interrupters should be tested at least **quarterly**.

10.6 LABORATORY SAFETY

Established safety requirements and safe work practices in performing laboratory work will reduce the exposure of laboratory employees to hazardous chemicals and enable them to handle chemicals in a safe manner **(See Section 13.8 of this Manual, Laboratory Safety Program)**.

10.7 SIGNS

Buildings containing hazardous chemicals shall be placarded according to the rules of the State Fire Marshal.

10.8 CHAIN SAW OPERATIONS

10.8.1 Chain saw operators shall wear hard hats, eye protection, face protection, gloves designed to be used for chain saws, chaps, and appropriate hearing protection.

10.8.2 Chain saw operators shall not wear any jewelry or excessively loose-fitting clothing which could become entangled in the machine's operating parts.

10.8.3 Chain saws shall be inspected prior to use to assure that all handles and guards are in place and tight, that all controls function properly, and that the muffler is in good condition.

10.8.4 The manufacturer's instructions shall be followed as to operation and adjustment of chain saws.

- 10.8.5** Chain saws shall be fueled only in safe areas, and not under conditions conducive to fire, such as near smoking areas, hot engines, etc.
- 10.8.6** Fuel shall be stored and dispensed from approved, plainly marked safety containers.
- 10.8.7** Chain saws shall be started at least 10 feet away from refueling areas.
- 10.8.8** Chain saws shall be started only on the ground or when otherwise firmly supported.
- 10.8.9** Operators shall be certain of footing and shall clear away all brush, which might interfere with cutting prior to starting a cut.
- 10.8.10** Chain saws shall be held with both hands in order to maintain control of saws during operation.
- 10.8.11** Chain saws shall be turned off when carried in hazardous conditions such as slippery surfaces or heavy underbrush.
- 10.8.12** Chain saws shall not be used to cut directly overhead or at a distance that would require the operator to lose a safe grip on the saw or to cause debris to fall on the operator.

10.9 WORK ZONE SAFETY

- 10.9.1** When setting up or supervising work zones on state and federal highways, the workers shall have training in accordance with the ***FDOT Maintenance of Traffic Training, Procedure No. 625-010-010***. The workers shall also have knowledge of the safe work practices in accordance with procedures, the ***Manual on Uniform Traffic Control Devices (MUTCD)*** from ***Rule 14-15.10***, located at <http://mutcd.fhwa.dot.gov/> and Department design standards.

10.9.2 Flagging

When operations are such that signs, signals, and barricades do not provide adequate protection on or adjacent to a highway or street, flaggers and/or other appropriate traffic controls shall be provided. Signaling shall be accomplished by flaggers in conformance with:

- (1) *Manual on Uniform Traffic Control Devices (MUTCD).***
- (2) *Department Design Standards.***

- 10.9.3** Department flaggers shall wear ANSI approved high visibility safety apparel during day light hours.
- 10.9.4** The supervisor in charge shall ensure that the individual selected for flagger duty is fully trained per ***FDOT Maintenance of Traffic Training, Procedure 625-010-010*** procedure to perform his/her duties at the work site.
- 10.9.5** At night Flagger Stations SHALL be illuminated, and the Flaggers are required to wear current approved ANSI/ISEA Class 3 High Visibility Safety Apparel.
- 10.9.6** Flag use is limited to immediate emergencies, intersections and when working on the center line or shared left turn lanes where two (2) flaggers are required and there is opposing traffic in the adjacent lanes.
- 10.9.7** Flashing or hazard warning lights shall follow the Mobile Equipment Manual Topic No. 400-000-001, Section 1.4.6 Vehicle Lighting.

10.10 LADDERS

10.10.1 Portable Wood Ladders

- (A)** All wood parts shall be free from sharp edges and splinters; sound and free from shake, wane, compression failure, decay, or other irregularities. The joint between the stops and side rails shall be tight and all hardware and fittings securely attached.
- (B)** Inspections shall be conducted frequently on all extension and step-ladders.
- (C)** Safety feet and other auxiliary equipment shall be kept in serviceable condition.
- (D)** Ladders that are defective shall be red-tagged as "Dangerous-Do Not Use" and taken out of service.
- (E)** Ladders shall be used at the proper angle. The ladder shall be used at such a pitch that the horizontal distance from the top support of the foot of the ladder is 1/4 the working length of the ladder, e.g. if the object is 20 feet high the foot of the ladder will be placed 5 feet from the bottom of the object.
- (F)** Ladders shall be placed to prevent slipping or shall be latched or held in position while in use.
- (G)** Ladders shall not be placed on unstable bases.
- (H)** Splicing or tying together two ladders is prohibited.

- (I) Standing on the top step of a stepladder is prohibited.
- (J) Ladders used to access roofs shall extend at least 36 inches past the landing surface.

10.10.2 Portable Metal Ladders

- (A) Rungs and steps shall be corrugated or treated with non-skid material to prevent slipping.
- (B) Single ladders shall not exceed 30 feet.
- (C) Two-section ladders shall not exceed 48 feet.
- (D) Portable metal ladders shall be prohibited from being used for electrical work or where they may contact electrical conductors.
- (E) Ladders shall be maintained in good condition and inspected regularly for damage.
- (F) Ladders having defects shall be red-tagged and taken out of service until repaired. (**Section 8.3** of this **Manual**)
- (G) Ladders exposed to oil, grease, or paint should be immediately cleaned.
- (H) The ladder shall be set up at the proper angle, with the base placed one fourth of the working length of the ladder from the vertical wall.
- (I) Ladders shall have secure footing.
- (J) Ladders shall be protected from corrosion.

10.10.3 Fixed Ladders

- (A) Metal rungs shall be treated to prevent corrosion.
- (B) Wood ladders shall be treated to resist decay using preservatives non-injurious to employees.
- (C) Ladders installed at 90 degrees to the horizontal shall have at least a 30-inch space between the ladder and any permanent object on the climbing side.
- (D) Rungs shall be free of splinters, sharp edges, burrs, or projections that may create a hazard.

- (E) Cages or safety devices shall be provided on all ladders that are more than 20 feet to an unbroken length of 30 feet in length. *(OSHA has changed this mandate to remove cages if install of new ladder or replacement of a fixed ladder, by Nov 2036 all fixed ladders 20 for higher must have a front tie off safety device and cages must be removed).*
- (F) Landing platforms shall be provided for each 20 feet of height on ladders without cages, wells or safety devices
- (G) Landing platforms shall have standard railings and toe boards.
- (H) Ladder safety devices shall be used on tower, chimney, and water tank ladders.

10.11 MOTOR VEHICLE AND EQUIPMENT OPERATIONS

10.11.1 The safe operation of Department motor vehicles or equipment is the responsibility of the operator.

10.11.2 All employees shall be properly licensed and required to have the license in their possession at all times when operating Department owned or leased motor vehicles or equipment and be familiar with and comply with all state and local traffic laws and ordinances. The Department ***Procedure No. 250-000-010, Driver's Record Requirements***, establishes the driver records requirements related to: (1) the appointment of new employees, the appointment of current employees, and the retention of current employees in positions that have the operation of a motor vehicle identified as a requirement to perform the job duties of the position, as stated on their position description; and (2) employees who occasionally operate vehicles (Department, rental, personal) to perform Department business.

10.11.3 A program has been established to train and provide written authorization for employees to operate vehicles 1.81 metric tons (2 tons) or greater to include all off-road equipment regardless of weight, and shall be implemented according to the ***Motor Vehicle/Heavy Industrial Equipment Operation Authorization, Section 13.5*** of this ***Manual***.

10.11.4 Vehicle Operation

- (A) All occupants of a motor vehicle are required to use the safety belts provided whenever the vehicle is in motion, regardless of whether they are driving on roadways in the yard, construction sites, or off-road sites. The proper use of safety belts includes the correct placement of the shoulder harness so it crosses the chest (not tucked under the occupant's arm.)

- (B) Always drive within the posted speed limit and govern speed according to posted speed limits, road conditions, and traffic conditions. Operators of any state owned or leased vehicle shall report within 24 hours to their immediate supervisor if they received any citation from a law enforcement officer for any motor vehicle law violation.
- (C) Use directional signals in the sufficient time to adequately warn other drivers of intended action.
- (D) Avoid sudden stops or other abrupt maneuvers.
- (E) Use proper following distances. Allow sufficient space to react to unexpected conditions.
- (F) Allow plenty of room when passing.
- (G) Yield to pedestrians.
- (H) When parking a vehicle or piece of equipment, set the brake, turn ignition off, and place transmission in low gear or in “park” if it has an automatic transmission. Some circumstances may also require the vehicle to be chocked or blocked to prevent the vehicle from rolling when parked.
- (I) Loads must be properly secured to prevent injuries to employees and the public.
- (J) Loads shall not exceed the rated vehicle payload capacities. The maximum load capacities (stenciled on the manufacturer's sticker) shall be posted on all trailers and trailer-hitches or other equipment being towed to ensure load capacities are not exceeded.
- (K) Loads that extend beyond the bed or body length of the vehicle shall be properly identified by warning signs, flags, reflectors, or lights in accordance with the Uniform Traffic Control Law and specifically **Section 316.228, F. S.**
- (L) Where possible, all vehicles will be parked so that backing is not required on departure.
- (M) All vehicle operators shall perform a walk around inspection of their vehicle prior to departure to determine any unsafe condition and/or body damage.
- (N) All vehicles with restricted view to the rear will use a spotter for assistance when backing. For vehicles such as dump trucks where the driver normally does not have a passenger or another employee to be used as a spotter, it is suggested that a backup detection system alarm be installed that will notify the driver that there is an object behind him/her.

- (O) When transporting flammable chemicals, only approved safety containers meeting Underwriters Laboratory specifications shall be used and the containers must be secured. Gasoline will be stored in red plastic or metal containers marked "Gasoline." Diesel fuel will be stored in yellow plastic or metal containers marked "Diesel." All containers must have a functioning closure or stopper.

10.11.5 Construction Equipment, Land Clearing Vehicles

- (A) All equipment left unattended at night must have appropriate lights or reflectors to identify the location of the equipment and must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.
- (B) Bulldozer and scraper blades, front-end loaders, buckets, dump beds, and similar equipment must be either fully lowered or blocked when being repaired or when not in use.
- (C) The operator and other persons shall be protected from hazards created by pinch points, rotating parts of the equipment, or flying chips/debris, by incorporating guards, personal protection equipment, and/or appropriate safety training.

10.11.6 Jump Starting Vehicles

Vehicle with good battery must be shut off.

- (A) Connect one red end on the jumper cable to the positive (+) terminal of the good battery.
- (B) Connect the other red end on the jumper cable to the positive (+) terminal of dead battery.
- (C) Connect the black end on the jumper cable to the negative (-) terminal of the good battery.
- (D) Connect the other black end on the jumper cable to the engine block of the vehicle to be started.
- (E) Make sure the cable is clear of fan blades and belts.
- (F) Start the vehicle with the good battery. Then attempt to start the non-operable vehicle.
- (G) After inoperable vehicle has been restarted, remove cable connections in reverse order.

10.12 FORKLIFT OPERATIONS

- 10.12.1** No employee will be allowed to operate a forklift unless trained and authorized by his/her supervisor.
- 10.12.2** The operator must ensure there are no additional riders on the forklift while it is being operated.
- 10.12.3** Forklifts shall not be driven up to a person who is standing in front of a fixed object.
- 10.12.4** No employee shall be allowed to stand or pass under the elevated portion of forklift, whether loaded or empty.
- 10.12.5** When an operator leaves a forklift unattended, he/she must fully lower the load engaging means, neutralize the controls, shut off the power, set the brakes, and remove the key. If parked on an incline, the wheels must be blocked.
- 10.12.6** A forklift is unattended when the operator is twenty-five feet or more away from the vehicle even if it remains in operator's view, or whenever the operator leaves the vehicle and it is not in operator's view.
- 10.12.7** When an operator has dismounted and is within twenty-five feet of the forklift which is still in his/her view, the operator must fully lower the load engaging means neutralize the controls, and set the brakes to prevent movement.
- 10.12.8** Operators must slow down, stop, and sound the horn at cross aisles, and other places where vision is obstructed.
- 10.12.9** Dock boards or bridge plates must be properly secured before they are driven over.
- 10.12.10** Only stable or safely arranged loads shall be handled. Caution shall be exercised when handling off-centered loads. The load capacity of the forklift must not be exceeded.
- 10.12.11** The supervisor shall ensure that the forklift is checked daily before use and if found to be in need of repair, defective, or in any way unsafe, the forklift shall be taken out of service until it has been restored to a safe operating condition.

10.13 FALL PROTECTION, OFFICE HAZARDS AND SAFE WORK

PRACTICES

- (A) This section identifies the types of hazards that are most common in multiple work environments, indoors, outdoors, office settings, and the safe practices to minimize exposure to such hazards. Injuries contributed to falls are the leading injury cause to employees in the FDOT workplace.
- (B) All employees working in the field have a responsibility to recognize potential workplace fall hazards and understand how to protect themselves from a falling incident. A fall hazard is one associated with a fall from heights of 6 feet or more above a work surface. Fall protection is centered on a set of controls. Eliminating the fall hazard, installation of fall restraints, wearing active fall restraint gear, or a personal fall arrest system. All staff must be given adequate fall prevention training thereby properly preparing themselves for the work location and the activities that the employee is performing where the risk of falling is present. **[29 CFR 1926.502]**

10.13.1 Slips, Trips, and Falls

- (A) Do not stand on office furniture or boxes, or climb on shelves to retrieve or store items on shelving over-shoulder height or other high locations. Use a ladder or step stool.
- (B) Do not leave objects such as boxes or packages where they block access through aisles or stairwells.
- (C) On stairways, use handrails and take one step at a time.
- (D) Report worn, broken, or loose stair treads.
- (E) Do not carry heavy or bulky materials up or down stairs.
- (F) Clean up all spills immediately.
- (G) Watch-out for recently waxed floors, loose carpeting, floorboards or tiles, and uneven floors. These hazards should be reported to the supervisor.

10.13.2 Falling Objects

- (A) Store boxes, records, and equipment in the properly assigned storage areas. Store heavy or breakable items on lower shelves.
- (B) Materials should be stacked or piled in stable configurations. Keep frequently used materials within easy reach.
- (C) Open only one file drawer at a time to prevent the file cabinet from toppling over.

10.13.3 Striking Against Objects

- (A) Close file drawers and cabinet doors immediately after use.
- (B) Situate file cabinets so that drawers do not obstruct doorways and walkways.
- (C) Make sure vision is not blocked when carrying loads.
- (D) Approach solid doors from the side away from the hinges. This will enable you to step out of the way if someone comes through.

10.13.4 Other Office Safe Practices

- (A) Use cabinet handles when closing doors and drawers to avoid pinching fingers.
- (B) Keep fingers out of file drawers when closing.
- (C) Be alert for electrical hazards such as frayed or bare wires, overloaded outlets, or improperly grounded wires. Promptly report such hazards to the supervisor.
- (D) Extension cords are not authorized to be used in Department buildings or facilities except for the following: for temporary audiovisual support, building maintenance and construction tools and only if using an extension cord rated heavy duty. The use of temporary power strip is authorized for attaching computers, lights, and other equipment provided the equipment will not overload the power strip and power strips are not attached together to reach a receptacle. Only multi-outlet power strips with UL approved surge suppressors are approved for use.
- (E) Store sharp objects (letter openers, scissors, pencils, etc.) flat inside drawers or point down in a container to prevent cuts and puncture wounds.
- (F) Use separate containers for storing pushpins or tacks. Do not mix pushpins with paper clips.
- (G) Wear finger guards when handling stacks of paper. Moisten stamps and envelopes with a sponge or sealing device.
- (H) Keep fingers away from paper cutter blade. Avoid cutting too many sheets at one time.

10.13.5 Lifting

When it is necessary to lift objects, observe the safe lifting practice described in **Section 10.2.2** of this *Manual*.

10.14 PREPARATIONS FOR WORKING OUTDOORS IN HOT WEATHER

- (A)** This section identifies precautionary measures to be taken prior to working in hot weather. Completely escaping working in hot weather conditions may be unavoidable. However, deliberate planning can be taken prior to working and overseeing crews who may work outdoors or possibly indoors in non-air-conditioned spaces during periods of overly hot weather. Prior planning must be taken to prepare employees and reinforce employee safety, health and welfare.

- (B)** Continuous work in the heat is not advisable. Periodic rest breaks must be taken to allow the body temperature to cool down. Using a work/rest schedule can decrease the risk of heat illness and injury. Adequate hydration to cover the entire staff for the duration of a hot-weather work schedule must be planned for, ahead of scheduled work. Protecting oneself while working in hot weather conditions is the responsibility of the individual employee and the supervisor. Supervisors are accountable to safely manage their employees while working during overly hot weather. This should include evaluating local weather forecasts, to adequately plan for the following days' outdoor activities.

- (C)** Federal guidelines encourage employers to protect workers from heat hazards by including:
 - 1. employee access to water, rest, shade,
 - 2. adequate heat-related training,
 - 3. implementing acclimation procedures for new or returning employees.
 - 4. It is advisable that if practical, employees work on a "buddy-system." Thereby having another co-worker be observant of another individual's health during the work.

- (D)** Employee safety training is critical prior to working in conditions of high heat or high heat and humidity. This information must be addressed before hot weather work begins and shared during monthly safety awareness meetings.

10.14.1 Heat-Related Illnesses

The importance of overseeing the safety of employees while working in hot weather is critical in avoiding the following heat-related illnesses.

Heat Stroke: Causing confusion, slurred speech, loss of consciousness, hot, dry, skin, profuse sweating, seizures, very high body temperature, fatal if treatment is delayed.

Response: *Call 911, move person to cool place, help person cool down by opening shirt and removing shoes and socks. Do not give fluids.*

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Heat Syncope: Fainting, dizziness, light-headedness

Heat Exhaustion: Headache, nausea, dizziness, weakness, irritability, thirst, heavy sweating, elevated body temperature, decreased urine output

Response: *move the person to a cool place, loosen clothes, sip water, cool or dampen clothing, if conditions last longer than 1 hour or symptoms worsen, or person vomits – contact 911.*

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Heat Cramps: Muscle cramps, pain, spasms in abdomen, arms or legs

Response: Stop physical activity and move to a cool place

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Hyponatremia: Mild to Severe: encephalopathy, cerebral, and pulmonary edema, respiratory distress and death

Heat Rash: Red clusters or pimples or small blisters on neck, upper chest, groin, under breasts, elbow creases

Response: *Stay in a cool, dry location, keep the rash dry, use baby powder to sooth the rash*

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Rhabdomyolysis: muscle cramps/pain, abnormally dark urine, weakness, exercise intolerance, asymptomatic

CDC/NIOSH - HEAT-RELATED ILLNESSES		
ILLNESS	SYMPTOM	RESPONSE
Heat Rash	Red Clusters of Pimples or Small Blisters on Neck, Upper Chest, Groin, Under Breasts, Elbow Creases	Work in a cooler, less humid environment, if possible. Keep the rash area dry. Apply powder to increase comfort. Don't use ointments and creams.
Heat Cramps	Muscle Cramps, Pain, Spasms in the Abdomen, Arms or Legs	Drink water and have a snack or a drink that replaces carbohydrates and electrolytes (such as sports drinks) every 15 to 20 minutes. Avoid salt tablets. Get medical help if the worker: Has heart problems. Is on a low sodium diet. Has cramps that do not subside within 1 hour.
Heat Syncope	Fainting; Dizziness; Light-Headedness	Sit or lie down worker; slowly drink water clear juice or a sport drink
Rhabdomyolysis	Muscle Cramps/Pain, Abnormally Dark Urine, Weakness, Exercise Intolerance, Asymptomatic	Stop activity Drink more liquids (water preferred) Seek immediate care at the nearest medical facility. Ask to be checked for rhabdomyolysis (i.e., blood sample analyzed for creatine kinase).
Heat Exhaustion	Headache; Nausea; Dizziness; Weakness; Irritability; Thirst; Heavy Sweating ; Elevated Body Temperature; Decreased Urine Output	Take to emergency room or clinic; call 911; stay until medical help arrives; remove from hot area; give liquids and frequent sips of water; remove unnecessary clothing; cool with compresses or have worker wash head, face, neck;
Hyponatremia	(Loss of Electrolytes) Mild to Severe: Encephalopathy, Cerebral and Pulmonary Edema, Respiratory Distress and Death	<i>(Per Mayo Clinic)</i> Limiting Water intake; Adjusting or stopping meds; Treating underlying causes
Heat Stroke	Confusion; Slurred Speech; Loss of Consciousness; Hot, Dry Skin; Profuse Sweating ; Seizures; Very High Body Temperature, Fatal if Treatment Delayed	Call 911; stay until medical help arrives; Move to shaded, cool spot; remove outer clothing; cool worker quickly: cold water or ice bath, wet skin, wet cloth on head, neck, arm pits & groin, soak clothes in cool water; circulate air.

10.14.2 Work-Rest Scheduling

CDC/NIOSH has prepared a Work/Rest schedule based on air temperature, humidity and degree of work activity with adjustments for the degree of sunlight and humidity to develop an Adjusted Temperature (T_A). The Adjusted Temperature will then indicate the timeframes for both the work and the resting periods.

Full sun (no clouds): Add 13F	40% humidity: Add 3F
Partly cloudy/overcast: Add 7F	50% humidity: Add 6F
No shadows visible/in shade: No adjustment	60% humidity +: Add 9F

10.14.3 The following link is a CDC table which identifies a work/rest time schedule to assist those working in hot weather to help plan for adequate times of shade and resting. Consideration must be made for a person's age, continual hydration, existing medical conditions and any medications currently taken.

<https://www.cdc.gov/niosh/heat-stress/site.html>