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## **CHAPTER 2 GENERAL SAFETY REQUIREMENTS**

### **2.1 INTRODUCTION**

*Safety is everyone's business.* As an employer, MassDOT is obligated to promote job safety and furnish safe tools, equipment, and proper training. Supervisors must ensure that those under their supervision receive the proper training and that they practice safety at the work site.

When performing bridge inspections, MassDOT employs a minimum of two-person teams comprised of a Team Leader and a Team Member. If everyone does their share, accidents will be minimized.

### **2.2 PERSONNEL**

*Personnel must be physically and emotionally capable of performing inspection duties.* They must be well-rested and alert when reporting to work, not be taking any drugs that cause dizziness or drowsiness, or any drugs containing alcohol. They must be properly trained, possess common sense, good judgment and a good attitude.

*A systematic approach to the inspection process and safety aspects is vital to a good, safe performance.* The inspection team should establish a checklist of things that must be done prior to and during the actual inspection to assure a safe, thorough, efficient inspection process.

### **2.3 CLOTHING**

Personnel **must** wear hard hats, rugged shoes, clothes that fit well and are not loose or constricting in conformance with current MassDOT policy. A safety vest of appropriate color and reflectivity **must** be worn when working on roadways or railroads.

A safety harness and lanyard **must** be worn when working in a lift vehicle or bucket truck and on high climbs.

On high bridges over water as necessary, a safety boat with life jackets and ring buoy on board should be in the water at the approximate location beneath the inspectors. (NOTE: ***Do not place the boat directly beneath the inspectors--a fall into water is preferable to a fall into a boat!***).

Gloves and a tool belt or pouch should be worn as necessary during inspections.

When necessary, specialized equipment should be worn such as face masks, goggles, and other protective equipment. Eye and face protection equipment will be kept clean and in good repair. The use of this type of equipment with structural or optical defects is prohibited.

### **2.4 EQUIPMENT**

All inspection personnel shall adhere to requirements stated in MassDOT Policy Directive P-14-003 dated 9/25/14, see Attachment 2-1.

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### **2.4.1 Advance Work Signs & Safety Cones**

Work signs and cones, sufficient to mark the operation with good sight distance for adequate warning, shall be carried in each inspection vehicle. Inspection vehicles used for Bridge Inspection shall be equipped with flashing warning lights.

For higher volume highways, inspection work should be planned in advance with prior arrangement made with the traffic support group for a safety setup. *The Manual of Uniform Traffic Control Devices (MUTCD) must be followed for these operations.*

### **2.4.2 Ladders**

Except where either permanent or temporary stairways or suitable ramps or runways are provided, ladders described in this Subsection shall be used to give safe access to most elevations.

The use of ladders with broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction is prohibited. When ladders with such defects are discovered, they shall be tagged defective and immediately withdrawn from service. Inspection of metal ladders shall include checking for corrosion of interiors of open end hollow rungs.

Portable ladder feet shall be placed on a suitable base, and the area around the top and bottom of the ladder shall be kept clear.

Portable ladders shall be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is about 1/4 of the working length of the ladder (the length along the ladder between the foot and the top support). Ladders shall not be used in a horizontal position as platforms, runways, or scaffolds.

Unless protected by the required traffic control measures, ladders shall not be placed in median shoulders, sidewalks, driveways, railroads, or any location where they may be displaced by traffic or maintenance activities.

The side rails of the ladder shall extend not less than 36 inches above the landing, wherever possible.

Portable ladders in use shall be tied, blocked, or otherwise secured to prevent movement. In most cases, the second inspector foots the bottom of the ladder to ensure the stability of the ladder.

Ladders made of fiberglass or other non-conducting material shall be used where there is any chance the inspector or the ladder shall come in contact with electrical conductors. Portable metal ladders will not be used at these locations. Commercial grade fiberglass ladders must be used near wires. (NOTE: Assume that all wires carry a lethal current and treat them accordingly).

### **2.4.3 Scaffolding**

Bridge inspectors rarely work from scaffolds and then only on scaffolds erected by support staff. For the safety of the inspection team, it is essential that the scaffolds meet applicable safety requirements.

The footing or anchorage for scaffolds will be sound, rigid, and capable of carrying the maximum intended load without settling or displacing.

Unstable objects such as barrels, boxes, loose brick, or concrete blocks, will not be used to support scaffolds or planks.

The scaffold should be tied off at the top to prevent tipping. Double layers of 2 inch planks at least 10 inches wide should be used.

#### **2.4.4 Safety Harness and Lanyards**

*Safety harnesses, and lanyards will be used only for employee safeguarding.* Any safety harnesses, or lanyard actually subjected to service loading, as distinguished from static load testing, shall be immediately removed from service and will not be used again for employee safeguarding. The recommended service life of the equipment should not be exceeded.

Safety harness lanyards will be a maximum length to provide for a fall of no greater than 6 feet. The rope shall have a nominal breaking strength of 5,400 pounds.

#### **2.4.5 Tools – Hand and Power**

All hand and power tools and similar equipment shall be maintained in a safe condition. Impact tools such as chisels shall be kept free of mushroomed heads. The wooden handles of tools will be kept free of splinters or cracks. When a power tool is used, all safety rules recommended by the manufacturer shall be followed.

Misuse of tools is the major cause of accidents on the job. Each tool is designed for a particular function and should be used accordingly. Keep tools in good repair, sharpened if required, and clean. Use tools as intended only. *Use the right tool for the task.* Avoid injury due to tool slippage, which could cause a fall.

#### **2.4.6 Life Jackets or Buoyant Work Vests**

Employees working over or near water, where the danger of drowning exists, will be provided with U.S. Coast Guard approved life jackets or buoyant work vests. Prior to and after each use, the buoyant work vests or life preservers will be inspected for defects which would alter their strength or buoyancy. Defective units will not be used.

Where inspectors must work without being tied off, these additional safety devices must be available: a ring buoy and a skiff. The ring buoy must have at least 90 feet of line readily available for emergency rescue operations. A lifesaving skiff shall be immediately available (depending on situation) at locations where inspectors are working over or adjacent to water.

### **2.5 ACCESS MEANS**

#### **2.5.1 Confined Space Entry**

Inspectors who are required to enter into confined or enclosed spaces must have been trained so that they are appropriately cautioned as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required. Refer to Subsection 2.2.5 of the FHWA/Bridge Inspector's Reference Manual (Publication No. FHWA NHI 12-049, dated October 2002, Revised December 2006, and Revised February 2012). Inspection of locations where toxic fumes or lack

of sufficient oxygen may be hazardous falls into this category. Prior to entry, inspectors **shall** contact the District Safety Inspector.

### **2.5.2 Aerial Lifts, Lift Buckets and Snooper Trucks**

Equipment used by the Department in bridge safety inspections includes aerial lifts, bucket trucks, and snooper trucks. Only persons that have been trained to operate the equipment shall use the equipment. Belting off to an adjacent pole, structure, or equipment while working from an aerial lifts, bucket trucks or snoopers will not be permitted. A safety harness shall be worn with a lanyard attached to the equipment when in use. Bucket and platform load limits specified by the manufacturer shall not be exceeded.

Qualified properly licensed personnel should operate vans, lift trucks and the Underbridge Snoopers. The vehicles should be inspected and serviced regularly and kept in good repair. Operators should avoid moving a vehicle with the lift or bucket extended unless (as the snooper) it is intended for this type of operation. Extreme caution should be exercised.

### **2.5.3 Catwalks**

Caution shall always be used. If accessible, inspection of the catwalk system shall be performed prior to the use of the catwalk. It shall be noted that as a bridge component, the catwalk system is subject to deterioration.

### **2.5.4 Rigging and Staging**

Rigging and staging requires a support staff with a qualified rigger to insure adequacy and safety.

## **2.6 FIRST AID, EMERGENCY CONTACTS AND ACCIDENTS**

### **2.6.1 First Aid**

Each MassDOT inspection vehicle shall be equipped with a first aid kit with periodic replenishment of contents as they are used or expired.

### **2.6.2 Immediate Life Threatening Injuries**

If a team encounters a situation where there are immediate life threatening injuries, they shall call 911 for the local ambulance service and local fire department.

### **2.6.3 Emergency Contact Numbers**

Inspectors will contact the District Radio Room when Emergencies arise.

### **2.6.4 Accidents**

It is important that all accidents are reported promptly. Incidences shall be reported to the District Human Resources Official or the Boston Human Resources Official. Prompt reporting protects the employee and employer, and initiates a series of events beneficial to everyone concerned. It starts an investigation of the cause of the accident. It starts discussions of possible methods to prevent future

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recurrence. It starts preparation of information for safety seminars and safety training courses. It shall be noted that any incidences that may occur to any of the District Bridge Inspection Personnel, shall be reported to the Area Bridge Inspection Engineer and to the Bridge Inspection Engineer.

**2.7 CHAPTER 2 ATTACHMENTS**Number: P-14-003  
Date: 09/25/14**POLICY DIRECTIVE**

Frank DePaola P.E. (signature on original)

ADMINISTRATOR

**Personal Protective Equipment and Safety Belts***This Policy Directive Supersedes P-09-007***General**

It is the policy of the MassDOT Highway Division that all employees must wear agency-issued hard hats, safety vests and other appropriate personal protective equipment as needed while performing field work, including but not limited to construction inspection, bridge inspection, roadside maintenance, surveying, plant inspection, material testing, carpentry, grass cutting, traffic counting, roadway measurement, wetlands delineation, travel in open vehicles and general labor operations.

It is the responsibility of MassDOT to ensure that all personnel who perform field work are equipped with all necessary personal protective equipment before they are sent into the field. MassDOT Highway Division employees are required to wear personal protective equipment displaying the MassDOT Highway Division logo. Items with MassHighway, MassTurnpike, DCR and other non-MassDOT logos are prohibited.

In addition to ensuring maximum visibility and safety for employees performing field work outside their vehicles, it is equally important to ensure maximum safety for employees inside their vehicles. Therefore, all employees are required to wear safety belts at all times while inside MassDOT-owned vehicles.

**Hard Hats**

The purpose of the hard hat is to protect the head from the shock of falling and/or exposed objects, or penetration by sharp objects. Hard hats are effective only if worn properly. Hard hats should be carefully adjusted to fit the wearer securely and comfortably, and must be worn with the interior suspension elements in place. The space maintained between the shell and the head by the suspension elements reduces shock and prevents the shell from striking the head solidly upon impact.

Employees should inspect hard hats for dents, cracks, brittleness (by striking on concrete or other hard surface), tears or other damages before each use. Both the shell and the suspension elements should be inspected. In the event the hard hat is damaged, the employee shall not be required or allowed to perform field work until an undamaged hard hat is provided by MassDOT. Employees with damaged hard hats shall notify their supervisors, who shall then be responsible for confirming the damage and for ensuring that an undamaged hard hat is provided to the employee.

Employees should periodically clean their hard hats and shall keep their hard hats free from paint, decals, writing, or other foreign substances.

Only the MassDOT Highway Division logo will be allowed on the hard hats, with the exception of required decals for certain types of work, such as track-related activities, or other decals specifically approved by MassDOT for use by certain employees, on special projects, or for similar reasons.

#### **Safety Vests**

The purpose of the safety vest is to make the worker more visible to drivers and others in all weather conditions, day or night. Safety vests should fit securely and must be worn with the reflective material facing outward to ensure maximum effectiveness. ANSI Class and Level II or Level III ratings are required and manufacturer's tags that indicate these ratings should not be removed from any garments.

Vests should be kept clean and free from paint, decals, writing or other foreign substances. Employees should inspect safety vests and reflective striping for tears or other damage before each use. In the event the safety vest is damaged, the employee shall not be required or allowed to perform field work until an undamaged safety vest is provided by MassDOT. Employees with damaged safety vests shall notify their supervisors, who shall then be responsible for confirming the damage and for ensuring that an undamaged safety vest is provided to the employee.

#### **Other Personal Protective Equipment**

When necessary, employees shall wear safety glasses and/or gloves for protection against flying debris, chemicals, hazardous substances, and other items that may be harmful to otherwise unprotected eyes and hands. Safety glasses and gloves should be kept as clean as possible and should be inspected for defects before each use. Open toe shoes, sneakers or similar footwear may not be worn by employees working in the field or around equipment.

In addition to the equipment described herein, certain job functions may also require the use of other personal protective equipment, such as goggles, face shields, ear protection, fall protection (harnesses, lanyards/retractables for unprotected fall hazards, as well as for personal lifts) masks/respirators and hazardous materials suits. This type of equipment shall be worn in accordance with all other relevant directives, guidelines, specifications and Standard Operating Procedures specifically intended for its use, and nothing in this policy shall supersede such other requirements.

**Safety Belts**

Seat belts save lives. All employees in MassDOT Highway Division vehicles shall fasten their seat belts in accordance with the manufacturer's instructions for the make and model of vehicle being used. Tampering with seat belts, or operation not in accordance with the manufacturer's instructions is prohibited.

**Compliance with Policy Requirements**

Employees are responsible for complying with the requirements of this policy. Failure to comply will result in formal disciplinary action, up to and including suspension without pay and/or termination.

Strict adherence to the use of agency-issued personal protective equipment (hard hats, safety vests, jackets, etc.) will be enforced. The Highway Safety Inspectors will monitor and report non-compliance with this policy statewide. Division Heads, Section Heads, managers and supervisors are responsible for ensuring that employees under their jurisdiction comply with the requirements of this policy.

Operators of vehicles are responsible to ensure that passengers in their vehicles are in compliance with this policy. Failure to comply may result in formal disciplinary action, up to and including suspension without pay and/or termination.