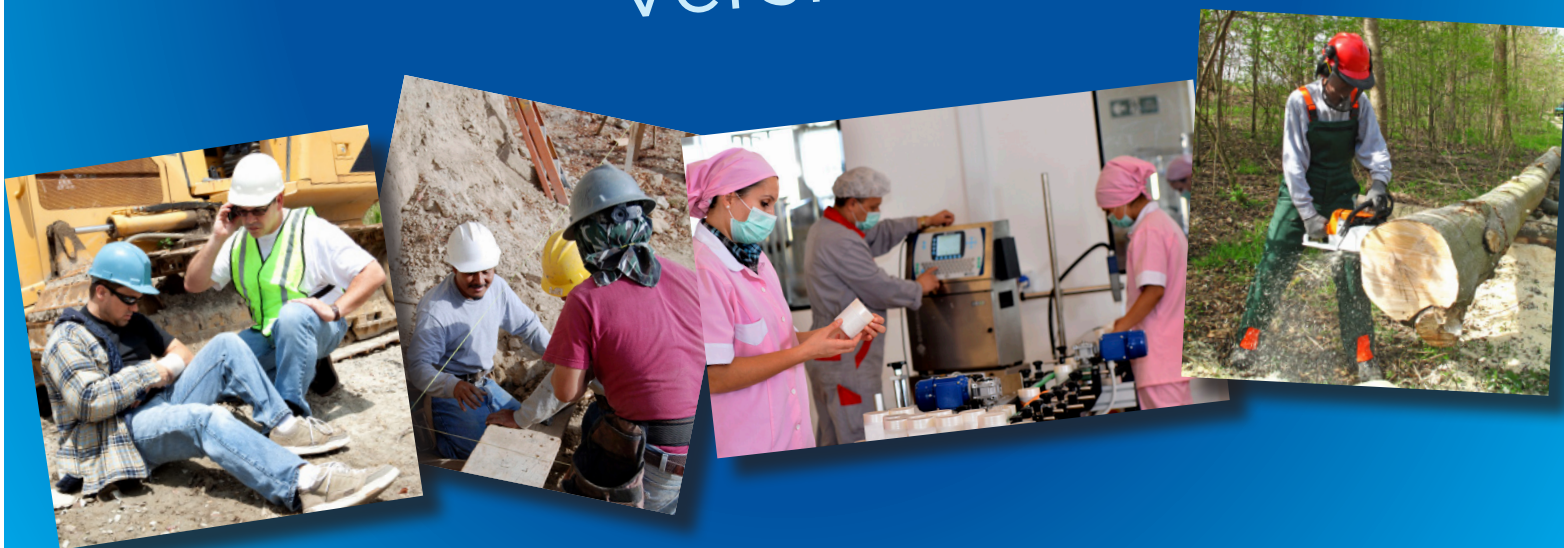




Massachusetts

Safety and Health Orientation for the Public Sector

Version 2



Massachusetts Department of Labor Standards
Workplace Safety and Health Program for Public Employees
www.mass.gov/dols/wshp
(508) 616-0461 and choose option #1
Email: safepublicworkplace@state.ma.us

OSHA Safety for Public Sector Employees

Highlights of Updated Law G.L. c. 149, § 6 ½

On March 9, 2018, Chapter 44 of the Acts of 2018, *An Act Relative to Standards of Employee Safety*, was enacted. The law amends G.L. c. 149, § 6 ½, updates and clarifies employee safety requirements in public sector workplaces, and will be enforced by the Department of Labor Standards (DLS). **The law will take effect on February 1, 2019.**

Highlights:

- The law defines a public sector workplace to include counties, municipalities, all state agencies, quasi-public independent entities, courts, bureaus, commissions, divisions or authorities of the commonwealth, political subdivisions, and public colleges and universities.
- The law requires all public sector employers to implement methods of reducing work-related injury and illness that meet the minimum requirements provided under the federal Occupational Safety and Health Act of 1970.

How Safety Requirements are Enforced:

- DLS conducts safety and health inspections of public sector workplaces. Federal OSHA inspectors will not inspect public sector employers. The updated law clarifies the public sector employer's obligations and does not change current DLS standards or procedures.

How Workplaces are Selected for Inspection:

DLS prioritizes inspections in the following order. For all except "Imminent" inspections, DLS makes an appointment with the public sector employer.

- **Imminent Hazard:** DLS inspectors stop at active trenches, aerial lift operations, and roofing to ensure safety equipment and procedures are used.
- **Accident Investigation:** DLS inspects workplaces in response to a worker injury.
- **Voluntary:** An employer can request a voluntary safety and health audit.
- **Complaint:** DLS responds to complaints about workplace safety conditions. Examples of complaints include ladder handling, lack of respirators, and facility maintenance.
- **Planned Programmed Inspection:** DLS performs a representative number of inspections in workplaces expected to contain machinery or other hazards. Examples of recent inspections include wastewater treatment plants, drinking water plants, highway departments, municipal electric power stations, school kitchens, and crossing guard locations.

OSHA Safety for Public Sector MGL c149 §6 ½

Frequently Asked Questions

On March 9, 2018 House Bill 3952, An Act to Further Define Standards of Employee Safety that amends M.G.L. chapter 149 §6 ½ was enacted. The law updates and clarifies employee safety requirements in public sector workplaces, and is enforced by the Department of Labor Standards (DLS). **This law is effective February 1, 2019**

- 1. Does the amended law replace OSHA?** No. OSHA continues to have jurisdiction over **private** sector employers.
- 2. Are Massachusetts requirements as strict as OSHA?** The new requirements are the same as OSHA's requirements, no stricter or more lenient.
- 3. When is the effective date?** February 1, 2019. In the interim, however, the current law remains in effect, and DLS will continue to conduct safety and health inspections. Before the new law's effective date, DLS will conduct outreach to familiarize employers with their responsibilities.
- 4. Can public sector employers get fined?** Although DLS has the authority to issue fines, its enforcement approach is to issue an order for corrective action to employers for a first offense. When corrective actions are completed within the timeframe specified, no fine is issued.
- 5. When should we notify DLS about an injury?** Contact DLS at 508-616-0461 and choose option #1, or safepublicworkplace@state.ma.us within 24 hours if an accident causes a death, amputation, loss of an eye, loss of consciousness, or inpatient hospitalization. For these and all other injuries, continue to follow your current workers' compensation procedures and file First Reports with the Department of Industrial Accidents.
- 6. When should we keep an OSHA 300 Log?** Complete an OSHA 300 Log if you receive a letter from the Bureau of Labor Statistics requesting a copy of your log. Complete an OSHA 300 Log if requested by a DLS inspector. Do not enter your logs on the osha.gov website. More details to follow in 2019.
- 7. What training requirements are there?** Training requirements are job specific. Safety training depends on the tasks and equipment handled by employees, such as aerial lifts, trenches, ladders, or chainsaws. For a summary, see the DLS website at www.mass.gov/dols/wshp and <https://www.osha.gov/Publications/osha2254.pdf>.
- 8. Is OSHA 10 training required?** Under updated MGL c149 §6 ½, OSHA 10 training is not required of all employees. There is, however, a public bidding law that requires OSHA 10 training on publicly bid construction projects over \$10,000. Provide this training if that law applies to your workers.
- 9. What resources are there to help with the cost of training?** The Department of Industrial Accidents, Office of Safety awards up to \$25,000 to organizations to fund workplace safety training. For more information about this grant email: safety@dia.state.ma.us
- 10. What are the requirements for a private contractor performing work on public property?** Private sector employers are required to comply with OSHA standards. An enforcement inspection can be conducted by federal OSHA inspectors.
- 11. What tools are available to help prepare for compliance?** Self-audit checklists, template programs, and sample trainings are available for public workplaces. We expect to make more educational and compliance materials available to employers as we conduct outreach prior to the effective date. See www.mass.gov/dols/wshp



DLS Safety Requirements for Fire Departments

Frequently Asked Questions

1. Personal Protective Equipment (PPE) questions:

a. Will firefighter station uniforms be required to be Flame Retardant?

No. Continue to use the station uniforms that you are using. OSHA does not require station uniforms to be flame retardant. The selection of PPE is based on hazard of the task. Visit [osha.gov/laws-regs/standardinterpretations/1991-07-08-0](https://www.osha.gov/laws-regs/standardinterpretations/1991-07-08-0).

b. Are steel toe boots required for station uniform? The standard boot is a black uniform boot or black sneaker.

No. A safety toe shoe ("steel toe" or "composite toe") is not required for station uniform.

c. What if bunker gear is older than the recommended NFPA expiration?

The OSHA standard requires that PPE is in good condition, and washed, stored and inspected according to manufacturer instructions. The Department of Labor Standards (DLS) will refer to OSHA standards, which do not enforce an expiration date.

d. When is hearing protection required?

Hearing loss is a known hazard in the Fire Services due to truck sirens and pump equipment. However, each fire department will have different noise levels depending upon the types of equipment and types of responses conducted.

DLS will not assume that your department has excessive noise. DLS will conduct noise testing first. There are calculations based on noise level, number of hours exposed, and number of days exposed per year to determine if noise levels are excessive.

Departments that have noise levels above 85 decibels for eight continuous hours, for more than 30 days per year, should evaluate workplace noise exposure. The results of testing will indicate whether hearing protection is required.

2. Respirators:

a. Is facial hair allowed?

DLS will follow OSHA interpretation which allows some, but not all, types of facial hair. A Department may elect to have a stricter policy. Visit [osha.gov/laws-regs/standardinterpretations/2012-09-14](https://www.osha.gov/laws-regs/standardinterpretations/2012-09-14).

There can be no facial hair that comes between the sealing surface of facepiece and the face, and no facial hair that interferes with valve function. This rule stays in effect even if the person passes a fit test with facial hair.

b. What type of fit test is required for SCBA?

Qualitative or Quantitative is acceptable. See [osha.gov/laws-regs/standardinterpretations/1999-01-15](https://www.osha.gov/laws-regs/standardinterpretations/1999-01-15).

c. Can Fire Departments administer fit tests?

Yes, Fire Departments can administer fit tests to their own employees. A vendor is not required. Keep a record of each employee fit test. Fit tests are required annually.

d. When a FF passes the fit test, doesn't this mean that they are medically cleared to wear the respirator?

No. These are different concepts. A fit test confirms that air does not leak into the facepiece. This is required at new hire before a person is assigned to wear a respirator, and on an annual basis.

A medical evaluation for respirator use confirms that the firefighter is physically able to wear a respirator. This is required at new hire before a person is assigned to wear a respirator. See below section on Medical Exams.

e. Can a respirator be used by more than one person?

Yes. Each employee does not need to be issued their own respirator. The OSHA standard requires that a respirator is cleaned and disinfected before being used by another person.

f. Is a SCBA required for all fires where smoke is present?

No. A respirator is required when air contaminants exceed the OSHA permissible exposure limit. Contaminants include particulate, carbon monoxide, cyanide, acid gas, volatile organic compounds and other byproducts of combustion.

A SCBA is traditionally worn when air contaminants are above IDLH conditions (immediately dangerous to life and health). It is important to remember that air contaminants of particulate and combustion byproducts can be above the OSHA permissible exposure limit for those compounds while being below IDLH conditions. Firefighters should protect their breathing in both conditions - above the OSHA permissible limit and IDLH.

An OSHA interpretation letter explains that the Incident Commander may determine choice of respirator based on the hazards of the scene. For example, an incipient stage fire might not require a SCBA, and excessive smoke during overhaul might require a SCBA. See [osha.gov/laws-regs/standardinterpretations/2002-07-08-0](https://www.osha.gov/laws-regs/standardinterpretations/2002-07-08-0)

g. The OSHA 2-in/2-out rule: What if 4 personnel are not available on scene?

• The 2-in/2-out rule applies when conducting interior structural firefighting, except when performing emergency rescue activities before an entire team has assembled.

- o The respirator standard, 1910.134 (g) provides an exception to the 2-in/2-out rule for life saving operations.
- o One of the "two out" may be assigned other roles, such as Incident Commander.

• Non IDLH conditions: The 2-in/2-out rule is not required. See [osha.gov/laws-regs/standardinterpretations/1995-11-01](https://www.osha.gov/laws-regs/standardinterpretations/1995-11-01)

h. What are requirements to refill SCBA cylinders?

OSHA does not specify who may fill SCBA cylinders.

DLS expects the following:

- o Periodic inspection is conducted of compressor equipment to ensure quality of breathing air; At a minimum, an air sample is sent for laboratory analysis at least once a year.
- o Annual respirator training should include information on using the compressor and refilling SCBA cylinders.
- o Fire Departments who conduct a periodic skill assessment by observing individuals refill cylinders will be determined by DLS to fulfill the requirement to provide compressor training.

The OSHA standard provides requirements for air quality, couplings, cylinders, and carbon monoxide alarms on compressors that are oil-lubricated.

3. Medical Questions

The OSHA standards require three different types of medical exams for firefighters. The following questions will address these separate concepts.

1. Medical exam for performance of job duties;
2. Medical exam for authorization to use a respirator; and
3. Medical exam for Hazmat Team.

a. Medical Exam for Performance of Job Duties

OSHA regulation 29 CFR 1910.156(b)(2) states that “the employer shall assure that employees who are expected to do interior structural firefighting are physically capable of performing duties which may be assigned to them during emergencies.”

- **What DLS expects for Medical Fitness for Duty:**

See: *Interpretation Letter 01 - Documentation Requirements for Fire Services Fitness for Duty and Respirator Clearance* dated January 15, 2019)

- o For firefighters hired on or after February 1st, 2019, DLS will require employers to maintain proof of fitness for duty, which may be one of the following (in order of preference):
 - § Statement that employee has successfully passed a NFPA 1582 physical.
 - § HRD Civil Service new hire form confirming fitness for duty.
 - § Statement from healthcare provider (NP, PA, DO, MD, RN) stating employee is fit for duty (may be employee's primary care physician).
 - § Firefighter 1 or 2 certificate from any training source.
 - § CDL medical exam or other physical exam the department has recognized as proving fitness for duty.
 - § Signed statement by the Employer (Chief or other town official) that the employee is fit for duty
- **Repeat Exams:** An annual physical exam is not required in OSHA standards for firefighting personnel who are not assigned to hazmat teams. NFPA 1582 contains an annual fitness evaluation, but the OSHA standards do not. Repeat the medical exam for performance of job duties when the firefighter demonstrates difficulty performing duties, or the firefighter has known heart disease, epilepsy, or emphysema. It is the employer's responsibility to confirm that individuals can physically perform their job duties, so DLS will expect that each Fire Department has a policy in place to provide new hire, and repeat medical fitness exams when indicated. DLS will not single out individual firefighters and require a repeat medical exam.
- **Use of SCBA more than 30 days per year:** The OSHA respirator standard 1910.134 does not require annual medical exams for persons who wear a SCBA more than 30 days per year. This language is contained in the HazMat standard for HazMat personnel only.

b. Medical Exam for Authorization to use a Respirator

OSHA regulation 29 CFR 1910.134 (e) requires medical evaluation before a person is authorized to use a respirator. This is a different and separate concept from a fit test. A fit test confirms that air does not leak into the facepiece. The medical respirator approval confirms that the individual is physically capable of wearing a respirator. These are two different concepts in the OSHA respirator standard. Both must be passed in order to wear a respirator.

- **What DLS expects for Respirator Approval**

See: *Interpretation Letter 01 - Documentation Requirements for Fire Services Fitness for Duty and Respirator Clearance* dated January 15, 2019)

- o **Contents of Exam (for firefighters hired on or after February 1st, 2019):**

- a. Provide the OSHA Respirator Questionnaire at new hire, before an individual is assigned to wear a respirator. The questionnaire is evaluated by a licensed healthcare provider.
 - b. Based on the results of the questionnaire, the healthcare provider may approve the individual for respirator use, or may request an in-person exam that includes spirometry.
 - c. Provide an in-person respirator medical exam when requested by the healthcare Provider.

- o **Healthcare providers:** The licensed healthcare provider for respirator approvals can be an MD, RN, PA, or NP. It may also be performed by other healthcare provider (such as a town's public health nurse), but not by paramedics or EMTs. There are several vendors that offer the respirator questionnaire online.

- § **Respirator Approval vs. New Hire Medical:** The Respirator questionnaire contains information that is not contained in the HRD new hire medical exam. The HRD "Medical Examination Form Initial-Hire Medical Standards (2014)" does not satisfy the documentation requirement for respirator approval.

- § **Documentation:** DLS may request a copy of the healthcare provider's statement that an individual is approved to wear a respirator. This document includes the firefighter's name, healthcare provider information, date of exam, and healthcare provider's statement that the examinee is cleared to use a respirator. This document does not include questionnaire answers, spirometry results or other personal medical information.

- § **Repeat Exams:** The respirator approval is not annual under OSHA requirements. The respirator approval must be repeated when:

- i. Employee reports signs or symptoms that are related to ability to wear a respirator;
 - ii. A healthcare provider, Fire Department supervisor, or the Fire Department respirator program administrator informs the employer that an individual needs to be reevaluated;
 - iii. Information from the respirator program, including observations made during fit testing, indicate the need for a reevaluation;
 - iv. A change occurs in work conditions (i.e. physical work effort, protective clothing, temperature) that may result in substantial increase in the physiological burden placed on an individual while wearing a respirator.

- c. Medical Exam for HazMat Team**

OSHA regulation 29 CFR 1910.120(f) requires medical exams for individuals assigned to hazmat teams.

- **What DLS expects for HazMat medical evaluation**

- o **Contents of Exam:** Provide a medical exam consistent with 29 CFR 1910.120(f)(4).

- o **Documentation:** DLS can request documentation that a medical exam has been provided. DLS will not request personal medical information.

- o **Repeat exams:** Repeat the exam annually, and whenever an individual reports symptoms of chemical overexposure during a hazmat response.

4. Hazmat Questions

a. When FF responds to a Carbon Monoxide alarm, is this a hazmat incident?

No. Carbon Monoxide is not included in the scope and definitions of the OSHA Hazmat standard. Since Carbon Monoxide is a combustion byproduct and not a traditional chemical spill, it does not meet scope of the OSHA Hazmat standard.

b. As part of minimum training, all FF receive a 16-hour hazmat awareness training. Does this make them hazmat team? (i.e. trigger requirement for annual medical exam).

No. The OSHA requirements for Hazmat teams are triggered when an employee is assigned to perform hazmat tasks.

c. If a FF wears a SCBA more than 30 days a year, does this make them hazmat category under OSHA? (i.e. trigger requirement for periodic medical exam).

No. The scope of 29 CFR 1910.120(a) governs which tasks are considered hazmat. Wearing a SCBA more than 30 days per year does not trigger the scope of the hazmat regulation.

The concept of a 30-day trigger is in the medical section of the hazmat standard, CFR1910.120(f) (2). For persons assigned to a hazmat team, a medical exam is required if they wear a respirator during hazmat activities more than 30 days per year, are exposed to hazardous substances during hazmat activities above OSHA permissible limits more than 30 days per year, or show symptoms of overexposure to a hazardous substance.

d. Can the medical exam used for authorization to wear a respirator be used to satisfy the medical requirements in the hazmat standard?

No. The evaluations are different. See [osha.gov/laws-regs/standardinterpretations/1999-01-15-1](https://www.osha.gov/laws-regs/standardinterpretations/1999-01-15-1)

e. Is training required on Hazard Communication GHS, SDS, and labeling?

Yes, and this has been a part of standard training at the fire academy for several years.

5. Employee Qualifications

a. **Training:** The updated law for OSHA compliance does not change Massachusetts Fire Academy requirements. OSHA requires that firefighters are trained commensurate with those duties and functions they are expected to perform.

i. OSHA 10 training is not required for Fire Departments.

6 Fall Protection

a. **Workers routinely climb over trucks to repack hoses, axes and other equipment. The walking surface is higher than 4 feet off the ground. When do they need to be tied off to Fall Protection?**

Falling from the truck is a known hazard, and we know that firefighters in Massachusetts have been injured when falling off a truck. DLS will ask Fire Departments to assess the danger and explain their strategy for keeping firefighters safe on vehicle tops.

Each Fire Department should evaluate their stations and apparatus, and implement methods to prevent falls from the top surface of equipment.

b. **Firefighters routinely climb onto the roof of a burning building to cut a vent hole. When do they need to be tied off to fall protection?**

DLS will ask Fire Departments to explain their strategy for keeping firefighters safe on roofs and minimizing their exposure to the risk of falling. The OSHA Standard 29 CFR 1910.28(b) (1)(ii) allows employers to develop an alternative fall protection plan when tying off to fall protection is not feasible.

c. Is fall protection required in ladder trucks and aerial platforms?

Yes. OSHA 1910.67 requires fall protection and operator training in elevated and rotating work platforms.

d. Is fall protection required around the pole in the station?

Yes. Railings or some other type of protection are required at floor openings.

7. Is a plymovent ventilation system now mandatory in all Fire Stations?

Diesel exhaust is a known human carcinogen. Each station should have a strategy to reduce the migration of diesel exhaust in the fire station. A flexible ventilation hose attached to vehicle exhaust is the most effective method. DLS bulletin *Engine Exhaust Fumes in Fire Stations: Health Effects and Recommendations* (1997) contains information on ventilation and other strategies.

8. CDL: Is a commercial driver license required to operate fire trucks?

The RMV has jurisdiction over this question. The updated law for OSHA compliance in public sector does not change RMV requirements.

9. Hoist License: Is a hoist license required to operate the ladder truck?

The updated law for OSHA compliance in public sector does not change 520 CMR 6.00 which is overseen by the Division of Professional Licensure (formerly Department of Public Safety).

10 Department of Labor Standards (DLS)

Currently, DLS is inspecting public sector workplaces due to accident reports, complaints, and on a voluntary basis. Fire departments are encouraged to contact DLS for a voluntary, non-enforcement, site visit to prepare for implementation of the new law on February 1st, 2019. Starting on that date, DLS will begin to conduct programmed (random) inspections to address hazards found consistently at similar workplaces.

Regardless of the reason for the inspection they are all conducted in the same manner.

1. DLS contacts agency and makes appointment for inspection.
2. DLS meets with leadership, and labor, from the agency for an opening conference to discuss the inspection and review paperwork.
3. DLS conducts a walkthrough with management and labor of the workplace to evaluate tasks, equipment and conditions to determine if any could cause a work related injury or illness.
 - a. Noise and air testing may be conducted.
 - b. Photos may be taken.
 - c. Questions are encouraged.

As a matter of policy if DLS finds a violation it will issue a *Written Warning* first. A *Civil Citation* with Civil Penalty (fine) will only be issued when the employer is found to willfully create an unsafe workplace, has repeat violations or fails to abate violations found during previous inspections.

INTERPRETATION LETTER 01	Date: January 15, 2019
Documentation Requirements for Fire Services Fitness for Duty and Respirator Clearance	Signature: William McKinney Director, Department of Labor Standards
Relevant Standards	29 CFR 1910.134(e) and 1910.156(b)(2)

Through their initial training and by performing their jobs, active firefighters (professional, volunteer and call) have demonstrated their fitness for duty and ability to wear a respirator. Many firefighters have received documentary proof of fitness for duty and ability to wear a respirator, as detailed below. Not all active firefighters, however, will have this documentation, especially those with longer tenures on the job. The Department of Labor Standards (DLS) will therefore presume that all firefighters with a hire date¹ before February 1st, 2019 are fit for duty and physically able to wear a respirator and will not require any additional documentation as proof of fitness for duty under 29 CFR 1910.156(b)(2) or proof of clearance to wear a respirator under 29 CFR 1910.134(e) for firefighters hired before February 1, 2019.²

Annual fit tests, as required under 29 CFR 1910.134(f)(2), are required of all firefighters regardless of hire date.

Additionally, any firefighter, regardless of hire date, who experiences heart disease, epilepsy, or emphysema after February 1st, 2019 shall not be permitted to participate in firefighting activities unless a physician's certificate of the employee's fitness to participate in such activities is provided, per 29 CFR 1910.156(b)(2).

Finally, any firefighter, regardless of hire date, may be required by the employer to complete an additional proof of clearance to wear a respirator, per 29 CFR 1910.134(e)(7).

For firefighters hired on or after February 1st, 2019, DLS will require employers to maintain the following documentation in their personnel files:

- Proof of fitness for duty, which may be one of the following (in order of preference):
 - Statement that employee has successfully passed a NFPA 1582 physical.
 - HRD Civil Service new hire form confirming fitness for duty.
 - Statement from healthcare provider (NP, PA, DO, MD, RN) stating employee is fit for duty (may be employee's primary care physician).
 - Firefighter 1 or 2 certificate from any training source.
 - CDL medical exam or other physical exam the department has recognized as proving fitness for duty.
 - Signed statement by the Employer (Chief or other town official) that the employee is fit for duty.

¹ For firefighters with an original hire date before February 1st, 2019 who transfer departments after February 1st, 2019 without a break in service DLS will utilize the original hire date for purposes of this Interpretation Letter.

² This Interpretation Letter is not related to and does not apply to medical exams required of HAZMAT team members under 29 CFR 1910.120(f).

- A statement from a healthcare provider (NP, PA, DO, MD, RN) that the employee has been deemed fit to wear a respirator. Information on the method for this determination can be found at 29 CFR 1910.134(e).

DLS encourages but does not require departments to utilize the NFPA 1582 standard and to perform more frequent medical evaluations than those required under 29 CFR 1910.134(e) and 1910.156(b)(2).

Public sector occupational safety and health requirements are set by statute, standards and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes DLS's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to safety and health regulations. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult DLS's website at www.mass.gov/dols/wshp.

Health & Safety Management for Municipalities

From 2009-2011, more than 8,700 work related injuries for municipal workers were reported to the Massachusetts Division of Industrial Accidents. These injuries place a cost burden on cities and towns to provide medical treatment and workers compensation costs. In many cases, methods to prevent the injury were readily available but not used. An active safety management system can help cities and towns reduce their work-related injuries in a cost effective manner.

Safety and Health Management

The following elements are recommended as part of a comprehensive management system to reduce work-related injuries and illnesses.

Management Leadership

- Establish a department and town-wide Safety & Health Policy.
- Establish management and employee accountability.
- Authorize a joint labor-management Safety Committee.
- Set goals for safety.

Control Risk

- Establish written safety procedures for department tasks. Sample safety programs are available at www.mass.gov/dols/wshp.
- Provide safe and adequate equipment to perform job tasks:
 - o Operations equipment
 - o Safety equipment
- Implement an equipment inspection and maintenance schedule.
- Pre-plan job tasks to include injury prevention.
- Follow established industry standards for workplace safety.
- Conduct periodic workplace inspections and control hazards.
- Provide new hire and annual training.

Measure Performance

- Monitor department injury patterns and injury costs. A worksheet is available at www.mass.gov/dols/wshp.
- Conduct accident investigations and determine preventive strategies.
- Conduct self-audits using a joint labor-management team.
- Compare performance to annual safety goals.



Diesel Exhaust in Fire Stations: Recommendations

Purpose

Fire apparatus and emergency equipment vehicles can generate diesel exhaust. The Massachusetts Department of Labor Standards (DLS) provides these recommendations to reduce exposure to diesel exhaust in fire stations as part of a comprehensive safety and health program. These recommendations are not a regulation.

Health Effects

Diesel exhaust is a known human carcinogen (IARC 2012). It also contains ultrafine particulates and Carbon Monoxide which can cause adverse cardiovascular effects in persons with pre-existing heart disease.

Diesel exhaust contains a mixture of compounds that can vary according to fuel and engine type, load cycle, engine maintenance, and tuning. Diesel exhaust contains gasses and particulates that include Carbon Monoxide, Nitrogen Dioxide, Sulfur Oxides, Formaldehyde, polynuclear aromatic hydrocarbons (PAH's), and ultrafine particulates called diesel particulate matter.

Recommendations

Fire Departments are encouraged to implement as many of these recommendations as possible to keep exposure to diesel exhaust as low as possible. Feasible methods include:

1. Keep apparatus and vehicles maintained and tuned according to manufacturer guidelines.
2. Minimize time idling indoors.
3. Capture exhaust directly at the apparatus when feasible. The United States Fire Administration recommends that fire stations provide direct capture of exhaust at the vehicle such as a flexible ventilation hose that is connected directly to the vehicle exhaust, or an onboard filter system that is mounted integral to the apparatus exhaust. Download information here: www.usfa.fema.gov/downloads/pdf/publications/design_of_fire_ems_stations.pdf
4. Provide adequate ventilation in the building so that engine exhaust from the apparatus bay does not migrate towards occupied areas. Air flow in the building should travel from occupied areas towards the apparatus bay. Ceiling-mounted filter systems, downdraft ventilation, or exterior wall fans could be considered in buildings without direct capture systems.
5. Provide air barriers between apparatus bay and other areas of the building. Barriers include self-closing doors and self-closing covers at fire pole openings.
6. Buildings with HVAC system should maintain system and replace filters regularly.
7. Ensure that engine exhaust is not located near the compressor inlet for SCBA air cylinder filling. DLS can issue a citation for this condition under 29 CFR 1910.134(i)(5).
8. Store turnout gear in a manner to reduce diesel exhaust particulate from settling on gear.
9. Ice machines should not be located in the apparatus bay so that diesel exhaust particulate does not settle on the machine. DLS can issue a citation for this condition under 29 CFR 1910.141(g)(4).
10. Conduct frequent cleaning and housekeeping to remove settled dust from surfaces.
11. Install Carbon Monoxide detectors in all sleeping and living areas.
12. Prohibit smoking inside fire station and on fire station grounds.

Resources

1. United States Fire Administration: "Safety and Health Considerations for the Design of Fire and EMS Stations" 05/18. More information here: www.usfa.fema.gov/downloads/pdf/publications/design_of_fire_ems_stations.pdf





THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS



YOU MUST REPORT A FATALITY OR CATASTROPHE

**Notify the Department of Labor Standards
at 508-616-0461 and choose option #1,
or email safepublicworkplace@state.ma.us**

**Notify the Department of Labor Standards within eight hours of
any work-related injury to a Public Sector employee involving:**

- Fatality
- Loss of an Eye
- Amputation
- Inpatient Hospitalization

Please include:

- Name of agency
- Location of incident
- Time and date of incident
- Number of injured or deceased employee(s)
- Name of contact person, including phone number and email address
- Brief description of incident

**Learn how to prevent work-related injuries or fatalities at
www.mass.gov/dols/wshp**



Massachusetts Workplace Safety and Health Protection for Public Employees

454 CMR 25.00 requires all public sector employers to comply with OSHA regulations.

- Employers:** Employers are required to provide procedures, equipment, and training to prevent work-related injuries and illnesses.
- Employees:** Employees are required to comply with the policies and procedures established in their workplace to reduce work-related injuries and illnesses.
- Inspection:** The Department of Labor Standards (DLS) may conduct an on-site inspection to evaluate workplace conditions and make recommendations for the prevention of work-related injuries and illnesses. See **Inspection Summary** at mass.gov/dols/wshp.
- Enforcement:** DLS may issue a *Written Warning* which contains an *Order to Correct* when an inspection reveals a condition which could cause a work-related injury or illness. DLS may issue a *Civil Citation with Civil Penalty* when an employer fails to abate a *Written Warning*, or repeats conditions identified in a previous *Written Warning*.
- Voluntary Assistance:** Public sector workplaces may request technical assistance by contacting DLS at safepublicworkplacemailbox@mass.gov or (508) 616-0461 and choose option #1, or There are no written warnings or penalties issued for voluntary assistance.
- Complaints:** Public employees or their representatives may file a complaint about safety and health conditions at their workplace by contacting DLS at safepublicworkplacemailbox@mass.gov or (508) 616-0461 and choose option #1.
- Safety and Health Management:** Sample safety programs and technical bulletins are available at mass.gov/dols/wshp.

Massachusetts Department of Labor Standards • Workplace Safety and Health Program

Notice of Alleged Safety and/or Health Hazard

Reporting of Alleged Safety and/or Health Hazard

Complaints regarding occupational safety and health conditions at a public sector workplace (municipality, county, state agency) in Massachusetts can be submitted to the Department of Labor Standards (DLS) using this form. If you prefer to phone in your complaint, the form will be started for you and your signature will be requested.

Complaints regarding occupational safety and health conditions at a private sector employer, including private sector employers working on public property, should be made by contacting the local OSHA area office. See www.osha.gov for a list of OSHA offices.

Who may submit a complaint? Any employee or a representative of employees who believes that a violation of a safety or health standard exists that threatens physical harm, or that an imminent danger exists, may submit a complaint to DLS. Signed complaints are given priority over unsigned complaints. DLS also accepts referrals about potential safety and health conditions from other state agencies, federal agencies and public safety departments.

Can an employer retaliate against the complainant? MGL c. 149 § 185 provides explicit protection for employees exercising their rights, including making safety and health complaints. Complainants are not protected against discipline by their employer for work performance issues. Filing a complaint with DLS regarding safety conditions does not preclude the employer from continuing with disciplinary proceedings or personnel assignments that may be underway.

What happens after a complaint is submitted? DLS evaluates information in the complaint. DLS may respond to the complaint by contacting the employer by phone or letter, by conducting a site inspection, or by referring the complaint to the appropriate government agency that has authority if DLS does not have jurisdiction. If DLS determines that there are no reasonable grounds to believe that a violation exists, the complainant will be notified in writing of such determination when contact information has been provided. The employer is permitted to request a copy of the written complaint. If the complainant has requested, the employee information is redacted before it is submitted to the employer.

Instructions

1. Complete page 2 as accurately and completely as possible.
2. Describe each hazard you think exists in as much detail as you can.
3. If the hazards described in your complaint are not all in the same area, please identify where each hazard can be found at the worksite.
4. If there is any particular evidence that supports your suspicion that a hazard exists (for instance, a recent accident or physical symptoms of employees) include the information in your description.
5. If you need more space than is provided on the form, continue on another sheet of paper.

After you have completed the form, return it by mail, fax or e-mail to:

Department of Labor Standards
167 Lyman Street
Westboro, MA 01581

E-mail: safepublicworkplace@state.ma.us.

Fax: 508-616-0467, Phone: 508-616-0461



Notice of Alleged Safety and/or Health Hazard

Complaint Number (for office use) _____

Agency Name (Please provide full name) _____

Site Address _____ Site Phone _____

Mailing Address _____ Mail Phone _____

Management Official for your department _____ Telephone _____

Management Official for the Agency _____

Hazard Description/Location Describe briefly the hazard(s) which you believe exist. Include the approximate number of employees exposed to or threatened by each hazard. Specify the particular building or worksite where the alleged violation exists. Include drawings, sketches or photographs if applicable and possible.

Please describe employees affected by the hazard:

- ☐ Municipal or County employees
- ☐ State employees
- ☐ Employees of a private company

Has this condition been brought to the attention of:

- ☐ Employer
- ☐ Other Government Agency (specify) _____

Please Indicate Your Desire:

- ☐ Do NOT reveal my name to my Employer
- ☐ My name may be revealed to the Employer

The Undersigned believes that a violation of an Occupational Safety or Health standard exists at the agency named on this form.

(Mark "X" in ONE box)

- ☐ Employee
- ☐ Safety and Health Committee
- ☐ Representative of Employees
- ☐ Other (specify): _____

Complainant Name _____ Telephone _____

Address (Street, City, State, Zip) _____

Complainant email _____

Signature _____ Date _____

If you are an authorized representative of employees affected by this complaint, please state the name of the organization that you represent and your title:

Organization Name _____ Your Title _____



THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT DEPARTMENT OF LABOR STANDARDS

Workplace Safety and Health Program Inspection Summary

Massachusetts General Laws Chapter 149 §6 authorizes the Department of Labor Standards to conduct inspections and provide recommendations to prevent work-related injuries and illnesses at public employee workplaces.

What to Expect during a Safety and Health Inspection

- The DLS representative will conduct an opening conference to explain the purpose of the visit, and the scope of the inspection. The opening conference will include a request to speak with the workplace union representative, if applicable. The DLS representative may request to review injury records.
- After the opening conference, the DLS representative will conduct a site walkthrough to evaluate tasks, equipment or conditions which could cause a work related injury or illness.
- At the conclusion of the inspection, the DLS representative will conduct a closing conference to discuss observations. The representative will also indicate conditions where corrective action may be required. The representative may also request documentation such as safety policies and training records. Due to the nature of work activities or equipment, additional research by DLS may be required before a report is provided.

Inspection Report

- A written report which identifies hazards and provides recommendations for the prevention of work-related injury or illness will be sent to the department management. The report may take the following formats:
 - a. A **Technical Assistance Report** will be issued when a municipality voluntarily requests on-site assistance. A correction due date is provided for conditions which could cause employee injury or illness.
 - b. **Written Warning** may be issued when a workplace inspection reveals conditions which could cause employee injury or illness. A correction due date is provided.
 - c. A **Civil Citation with Civil Penalty** may be issued which contains a fine of up to \$1,000 per violation, and a correction due date. DLS may consider issuing a Civil Citation with Civil Penalty in circumstances when the employer repeatedly allowed an unsafe condition to occur, the condition has already caused a serious work-related injury, or if the employer has ignored a previous Written Warning.

Health & Safety Management for Municipalities

From 2009-2011, more than 8,700 work related injuries for municipal workers were reported to the Massachusetts Division of Industrial Accidents. These injuries place a cost burden on cities and towns to provide medical treatment and workers compensation costs. In many cases, methods to prevent the injury were readily available but not used. An active safety management system can help cities and towns reduce their work-related injuries in a cost effective manner.

Safety and Health Management

The following elements are recommended as part of a comprehensive management system to reduce work-related injuries and illnesses.

Management Leadership

- Establish a department and town-wide Safety & Health Policy.
- Establish management and employee accountability.
- Authorize a joint labor-management Safety Committee.
- Set goals for safety.

Control Risk

- Establish written safety procedures for department tasks. Sample safety programs are available at www.mass.gov/dols/wshp.
- Provide safe and adequate equipment to perform job tasks:
 - o Operations equipment
 - o Safety equipment
- Implement an equipment inspection and maintenance schedule.
- Pre-plan job tasks to include injury prevention.
- Follow established industry standards for workplace safety.
- Conduct periodic workplace inspections and control hazards.
- Provide new hire and annual training.

Measure Performance

- Monitor department injury patterns and injury costs. A worksheet is available at www.mass.gov/dols/wshp.
- Conduct accident investigations and determine preventive strategies.
- Conduct self-audits using a joint labor-management team.
- Compare performance to annual safety goals.



The Department of Labor Standards (DLS) conducts safety and health inspections in public sector workplaces. These inspections are conducted in response to reports of imminent danger, accidents, complaints, voluntary requests, and planned programmed initiatives to address high-injury activities.

DLS plans the following planned programmed inspections in FY2019 and FY2020:

Aerial Lift Trucks

Typical Departments: Parks and Recreation; Municipal Light

Purpose of Inspection: Prevent fatality caused by ejection out of platform

Focus of Inspection: Fall Protection; work zone set up to prevent truck getting hit by other vehicles; and operator training.

Accident history in Massachusetts public sector: Three fatal accidents FY2008-2013; an additional 10 nonfatal accidents were investigated by DLS in FY2016-2018.

Crossing Guards

Typical Departments: School or Police, depending upon municipality

Purpose of Inspection: Prevent fatality caused by struck by vehicle

Focus of Inspection: Signs; crosswalk markings; STOP paddle; high-visibility clothing; training; Speed enforcement

Accident history in Massachusetts public sector: Three fatal accidents FY2013-2019; an additional 20 nonfatal incidents were investigated in FY2016-2018 by DLS.

Firefighters

Typical Departments: Fire Departments

Purpose of Inspection: Prevent fatality caused by cancer

Focus of Inspection: SCBA respirator program; PPE use, cleaning and storage; bloodborne pathogens

Accident history in Massachusetts public sector: In FY2016-2018, 24 LODD due to cancer reported in Massachusetts, and six LODD cardiac events.

Ladders

Typical Departments: Public Works, Drinking Water, Wastewater, School

Purpose of Inspection: Prevent injury caused by falling off ladder

Focus of Inspection: Ladder condition; training

Accident history in Massachusetts public sector: In FY2017-2018, 30 injuries from ladder falls investigated by DLS; one fatal.



Trenches

Typical Departments: Public Works, Drinking Water, Wastewater

Purpose of Inspection: Prevent fatality caused by trench collapse

Focus of Inspection: Cave-in protection; daily inspection by Competent Person

Accident history in Massachusetts public sector: In FY2017-2018, 10 trench collapse incidents investigated by DLS, all nonfatal.

Wastewater Treatment Plants

Typical Departments: Wastewater

Purpose of Inspection: Prevent injury caused by machinery, lack of railings

Focus of Inspection: machine guarding; electrical; floors and railings

Accident history in Massachusetts public sector: In FY2017-2018, 12 accidents investigated by DLS, all nonfatal.

For each category of planned program inspections, a representative number of sites will be selected each year based on region and potential for hazardous conditions. A planned program inspection is not voluntary.

For questions about safety inspections conducted by the Department of Labor Standards, visit our website mass.gov/dols/wshp, call (508) 6169-0461 and choose option #1, or email safepublicworkplace@mass.gov.



Safety Checklist for Fire Service Operations

Purpose: This checklist is a guide to provide employers with a list of key items that the Department of Labor Standards may look for during a workplace safety inspection at fire department operations. A separate checklist is available for the Fire Station building.

Topic	Description of Requirement	OSHA Standard
Interior Structural Firefighting <i>(Fire personnel)</i>	Training provided commensurate with duties and functions that personnel are expected to perform.	1910.156 (c)(1)
	Quarterly education session or training is provided to assure that each member is able to perform assigned duties and functions satisfactorily and in a safe manner so as to not endanger other members.	1910.156 (c)(2)
	Quality of training can be demonstrated.	1910.156 (c)(3)
	Written procedures for hazards that could be encountered (i.e. SOGs)	1910.156 (c)(4)
	Firefighting equipment is inspected, at least annually, to assure safe operational condition of the equipment. <i>Follow manufacturer instructions.</i>	1910.156 (d)
	Damaged or unserviceable firefighting equipment is removed from service and replaced.	1910.156 (d)
Ladder Trucks and Aerial Lift Platforms <i>(Fire Personnel)</i>	Records and policies showing only trained persons shall operate an aerial lift.	1910.67(c)(2)(ii)
	A personal fall arrest or travel restraint system is used when working from an aerial lift.	1910.67 (c)(2)(v)
Medical Evaluation <i>(Fire/EMS personnel)</i>	<u>Fitness</u> : Records showing that employees are physically capable of performing duties that may be assigned to them during emergencies. <i>(Fire Personnel)</i>	1910.156(b)(2)
	<u>Respirator</u> : Record of medical evaluation to authorize individual to use a respirator. <i>(Fire/EMS Personnel)</i>	1910.134 (e)(1)
	<u>Hepatitis-B Vaccine</u> : Record of Hepatitis-B vaccine series or declination form. <i>(Fire/EMS Personnel)</i>	1910.1030 (f)(1)
	<u>Blood exposure incident</u> : record that medical follow-up was provided. <i>(Fire/EMS Personnel)</i>	1910.1030(f)(3)

Topic	Description of Requirement	OSHA Standard
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Respirator Program <i>(Fire/EMS Personnel)</i> <i>FF – SCBA and any other respirator used</i> <i>EMS – N95disposable, if used at the dept</i>	Written Respirator Program	1910.134 (c)(1)
	Records of medical evaluations to authorize individual to use a respirator.	1910.134 (e)(1)
	Records for Annual Fit Test.	1910.134(f) and (m)
	Records of annual respirator training.	1910.134(k)
	Records showing persons who refill SCBA air cylinders are trained.	1910.134 (k)
	SCBA used in atmospheres that are IDLH (immediately dangerous to life and health).	1910.134 (g)(4)(iii) 1910.156 (f)(1)(ii)
	SCBA must have an indicator with audible alarm when remaining service life of the apparatus is reduced to 20-25% of its rated service time.	1910.156 (f)(1)(vi)
	Certification of grade “D” air in SCBA cylinders.	1910.134(i)
	Appropriate procedures for cleaning and storing respirators.	1910.134(h)(1)
	Policy ensuring respirators issued to more than one employee are cleaned and disinfected before being worn by different individuals.	1910.134(h)(1)(ii)
	Inspection log for monthly inspection of SCBA harness, regulators, facepiece, hose, cylinders and other components per manufacturer.	1910.134(h)(3)(i)[B]
Bloodborne Pathogens <i>(Fire/EMS Personnel)</i>	Written Exposure Control Plan for Fire and EMS.	1910.1030 (c)(1)
	Records of annual training.	1910.1030 (g)(2)
	Records of Hepatitis-B vaccine or declination.	1910.1030 (f)(2)
	Records of medical follow-up after an exposure incident.	1910.1030 (f)(3)
	Disinfection of equipment after blood exposure.	1910.1030 (d)(2)(xiv)
	Fire/EMS uses PPE for potential blood exposure.	1910.1030 (d)(3)
	EMS uses safer needle devices.	1910.1030 (d)(2)(i)
	Sharps disposal containers used.	1910.1030 (d)(2)(viii)
Hazard Communication <i>(Fire/EMS Personnel)</i>	Written Hazard Communication Program for chemical products used by Fire/EMS personnel.	1910.1200(e)
	Containers labeled.	1910.1200(f)(6)
	Safety Data Sheet available for each product.	1910.1200(g)(8)
	Eyewash provided if chemicals are corrosive.	1910.151(c)
	Records showing employees are trained at new hire on chemical products used, and that training is repeated if new chemicals added.	1910.1200(h)
Heat Stress <i>(Fire Personnel)</i>	Procedures to prevent heat stress in firefighters at fire scene.	OSHA General Duty Clause

Ladders <i>(Fire Personnel)</i>	Policy for ladder inspection and employees' able to demonstrate how ladders are inspected before initial use in each work shift.	1910.23 (b)(9)
	Records showing employees trained in ladder use. Training repeated if lack of skill demonstrated.	1910.30(b)(2)
Personal Protective Equipment <i>(Fire/EMS Personnel)</i>	Records showing hazard assessment was conducted to evaluate tasks and corresponding gloves, respirators, eye protection, hearing protection and fire protection required.	1910.132 (d)(1)
	Interior structural firefighting clothing is worn. <i>NOTE: does not apply to use of fire extinguishers or standpipe systems to control or extinguish fires only in the incipient stage.</i>	1910.156 (e)(1)(ii)
	Training records for selection, use and care of personal protective equipment.	1910.132 (f)(1)-(2)
Traffic Incident Management <i>(Fire/EMS Personnel)</i>	Records of training for temporary traffic control when responding to traffic incidents.	OSHA General Duty, with reference to MUTCD 6I.01.07
	High-visibility clothing worn.	OSHA General Duty, with reference to MUTCD 6I.01.07
Training Documentation <i>(Fire/EMS Personnel)</i> <i>Train employees on duties and functions they are expected to perform.</i>	<u>Bloodborne Pathogens</u> ; Records of annual training	1910.1030 (g)(2)
	<u>Interior Firefighting</u> : Records showing training provided commensurate with duties and functions that are expected to perform.	1910.156 (c)(1)
	<u>Ladders</u> (manual): Records of training provided for persons who use a manual ladder.	1910.30(b)(2)
	<u>Aerial lift</u> : operators trained.	1910.67(c)(2)(ii)
	<u>Equipment</u> : operators trained (i.e. ladder truck, pump truck; extrication equipment)	OSHA General Duty
	<u>Personal Protective Equipment</u> : employee trained on task requirements and use of PPE.	1910.132 (f)(1)-(2)
	<u>Traffic Incident Management</u> : Records of training provided for persons who may be on scene at a roadway incident.	OSHA General Duty, with reference to MUTCD 6I.01.07



Safety Checklist for Fire Station Facility

Purpose:

This checklist is a guide to assist Fire Departments conduct an evaluation of the Fire Station facility. A separate checklist is available for Fire/EMS operations.

Facility Inspection – Fire Station	OSHA Standard (29 CFR ____)	Y	N	Correction Required
Diesel Exhaust				
Engines are properly maintained and tuned.	1910.1000			
Engines do not idle inside building.	1910.1000			
Apparatus area is sufficiently ventilated to prevent build-up of exhaust (general, or local ventilation (ie vent at exhaust pipe))	1910.1000			
Ventilation filters maintained and replaced (if filters are used).	1910.1000			
Electrical				
Electrical outlets and switches – cover plates installed.	1910.305(b)(2)			
Receptacles are grounded.	1910.304(b)(2)(i)			
Receptacles in kitchens and wet locations have GFCI.	1910.305(j)(2)(iv)			
Extension cords are not used for permanent wiring.	1910.305(a)(2)			
Power cords - Electrical grounding pins (3-prong) intact.	1910.304(b)(2)(i)			
Power strips are not piggybacked.	1910.303(b)(2)			
Circuit panels have circuits labeled.	1910.303(f)(2)			
Circuit panels and boxes - unused openings are covered.	1910.305(b)(1)(ii)			
Circuit panels – access to panels is kept clear.	1910.303(g)(1)			
Fire Pole				
Floor openings guarded by cover or guardrail and gate.	1910.28(b)(3)			
Floor opening covered to prevent diesel exhaust from entering other building areas.	1910.1000			
Fire Prevention				
Fire extinguishers—monthly checks conducted.	1910.157(e)(2)			
Fire extinguishers—annual maintenance check.	1910.157(e)(3)			
Sprinkler heads – items not hung or obstructing sprinklers.	1910.159(c)(10)			
Hazardous Chemicals (custodial, vehicle maintenance)				
Containers are labeled.	1910.1200(f)(6)			
Safety Data Sheet available for each product.	1910.1200(g)(8)			
Eyewash provided if chemical products are corrosive.	1910.151(c)			
Compressed gas cylinders kept secured.	1910.101(b)			
Ice Machine				
Ice machine is not located in apparatus bay, to reduce potential for contamination.	General Duty (5)(a)(1)			
Ladders				
Ladders for use in facility are properly inspected before use.	1910.23(b)(9)			

Facility Inspection – Fire Station Facility	Standard	Y	N	Correction Required
Lockout-Tagout				
Power is shut off before equipment maintenance (i.e. HVAC, appliances, lighting)	1910.333(a)(1); 1910.333(b)(2)			
Lockout-tagout equipment (tags, locks) is available.	1910.333(b)(2)(iii)			
Material Storage				
Storage mezzanines—weight limit is posted.	1910.22(d)			
Mezzanines—railing if more than 4ft above next level.	1910.28(b)(1)			
Shelves are secured to prevent tipping.	1910.176(b)			
Shelves—item height is at least 18 in below sprinkler heads.	1910.159(c)(10)			
Personal Protective Equipment (PPE)				
Gloves and goggles are supplied for tasks with potential exposure to chemicals or particulates.	1910.132(a)			
A Hazard Assessment for selection of PPE has been conducted (custodial and maintenance staff).	1910.132(d)(1)			
Roof				
Skylights are protected by guardrail, cage or net.	1910.28(b)(3)			
Workers on roof for maintenance activity are protected from falling off roof. See OSHA guide for acceptable methods.	1910.23			
Slip, Trip Prevention				
Floors maintained as dry as feasible.	1910.22(a)(2)			
Stairs have handrails and railings, treads in good condition.	1910.29(f)			
Tools and Equipment				
Power tools inspected before use.	1910.242(a)			
Power tools- electrical cords are 3-prong or double insulated.	1910.334(a)			
Snowblowers, lawnmowers, and other equipment operated according to Owner's Manual.	1910.243(e)			
Vehicle Operation				
Pre-trip inspections conducted.	1910.156(d)			
A spotter is used when backing up vehicles.	OSHA General Duty (5)(a)(1)			

Safety Programs for Fire Services and EMS

The following template programs are available at
<https://www.mass.gov/service-details/safety-programs-for-public-sector>

- Bloodborne Pathogen Plan for Police, Fire, and EMS (Required)
- Emergency Action Plan (Required for fire station)
- Fire prevention plan (Required for fire station)
- Hazard Communication Sample Program (formerly Right-to-Know)
- Ladder Inspection (Required to perform, but written program not required)
- Lockout Tagout Sample plan (Required for fire station)
- Medical clearance for respirator use (Required part of Respirator Program)
- Personal protective equipment (Required)
- Pre-trip Vehicle Inspections (Required to perform, but written program not required)
- Respirator Program for Fire/EMS (Required)
- Technical Rescue: Confined Space, Trench, Diving (Required for employees assigned to these tasks)



Respirator Protection Program for Firefighters

Template Program

The following Respirator Protection Program template is provided by the Massachusetts Department of Labor Standards to assist municipal, county, and state agencies prevent work-related injury. The template is developed to comply with the OSHA regulations on Respirators, 29 CFR 1910.134, and Interior Structural Firefighting, 29 CFR 1910.166.

QUESTIONS AND ANSWERS

Is a written program mandatory? Yes. A written Respirator Protection Program is required when workers perform tasks that require them to wear a respirator. (29 CFR 1910.134(c))

Am I required to use the DLS template? No. You may already have a written program that is satisfactory or you may prefer to create your own. In either case, review your program with the contents of the DLS template to ensure that your program meets Department of Labor Standards requirements.

How to use this template program: The template contains some fill-in-the-blank areas where you should add details specific to your department/agency. You may also decide to add additional information such as NFPA recommendations, which are stricter than the minimum OSHA requirements. You should:

- Review the sample template.
- Remove the annotated notes, which are included in the template so that users can confirm mandatory requirements.
- Confirm that your department is able to implement each component of the program.
- Complete the fill-in-the-blank sections.
- Sign and date the program.
- Communicate and train individuals on the program.

Monitor operations in the field to confirm that individuals understand and are able to conduct the requirements provided in the program. The Massachusetts Department of Labor Standards has resources for public sector employers to reduce work-related injuries and illnesses. Visit us at www.mass.gov/dols/wshp.

Respirator Protection Program for Fire Departments

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Appendix E	Fit Test Form (<i>insert department form</i>)	
Appendix F	Medical Questionnaire (<i>insert OSHA form</i>)	

Respirator Protection Program for Fire Departments

Template

1.0 PURPOSE

This Respirator Protection Program presents the procedures and requirements that must be met to ensure that individuals required to use a respirator for their job duties are provided with safe, effective respiratory protection.

2.0 SCOPE

This written program applies to all fire fighters and EMS personnel who perform tasks that require the use of a respirator.

3.0 RESPONSIBILITIES

3.1 The Fire Chief is responsible for the implementation of this Program, including allocation of adequate resources to ensure adherence to all applicable regulations.

3.2 The SCBA/PPE Coordinator is the Coordinator of the Respiratory Protection Program and has responsibility to:

- Maintain and oversee the Respirator Protection Program.
- Schedule employees for the required respirator-medical evaluations, fit testing, and training.
- Maintain fit test records for the duration of employee employment.
- Maintain documentation that employee has completed a medical evaluation for authorization to use a respirator.
- Maintain training records.
- Maintain inspection records for respirators
- Maintain records that Grade D air is provided to SCBA cylinders
- Conduct an annual evaluation of the program.

3.3 Incident Commanders have the responsibility for:

- Identifying and communicating respirator requirements according to tasks performed at each specific response scene.

3.4 Safety Officer has the responsibility to:

- Evaluate scene conditions during emergency response to identify potential IDLH conditions that require SCBA use.
- Conduct atmospheric monitoring of the work areas where respiratory protection is required. For example, where carbon monoxide, cyanide, and other potential contaminants expected.
- Communicate atmospheric conditions and respirator recommendations with Incident Commander.

Section 1.0: Informational

Section 2.0: Informational

*Section 3.0: Informational
The written program does not require that specific responsibilities are listed.*

Edit the template to reflect the job titles that are used in your department.

A department that omits section 3.0 will be in compliance with 29 CFR 1910.134 (c).

3.5 Shift Commanders (Captains) have responsibility to:

- Ensure that respirators designated by the Incident Commander or Safety Officer for use at a particular response are worn by employees.
- Ensure employees attend the required respirator-medical evaluations, fit testing, and training.
- Ensure that respirators are cleaned after each use and stored properly.
- Ensure respirator equipment is inspected according to department schedule.
- Monitor employee competency for respirator use, SCBA cylinder refilling, and respirator cleaning and inspection.
- Ensure that only approved wearers are issued respiratory protection equipment.

3.6 Firefighters have the responsibility to:

- Use the approved size and style respirator determined by the Incident Commander or Safety Officer for each response.
- Attend and participate in required medical evaluations, fit testing, and training.
- Inspect respirators.
- Clean and properly store respirators after each use
- Perform a face piece fit check for adequate seal each time a respirator is donned (Appendix B, Section 4.0).
- If they have facial hair, ensure that their facial hair does not that interfere with facepiece seals or inhalation/exhalation valves.

If a department does not have a designated Safety Officer, these duties should be assigned to corresponding personnel in the department.

4.0 RESPIRATOR SELECTION

4.1 Respirator Selection

- 4.1.1 Respirators shall be worn when person is exposed to air contaminants above the OSHA permissible exposure limit.
- 4.1.2 Interior structural firefighting should be assumed to be immediately dangerous to life and health (IDLH) until a determination is made that IDLH conditions do not exist.
- 4.1.3 Self-Contained Breathing Apparatus (SCBA) must be used when:
- Oxygen deficiency (less than 19.5% oxygen) exists.
 - Toxic products of combustion may be present.
 - The atmosphere is immediately dangerous to life and health (IDLH), suspected of being IDLH, or unknown.
 - Air contaminants are present in concentrations above the OSHA permissible exposure limit, and no other effective respirator for that contaminant is available for those

*4.1.1 Mandatory
29 CFR 1910.134(d)(1)-(2)*

*4.1.2 Mandatory
29 CFR 156(f)(1)*

*4.1.3 Mandatory
29 CFR 1910.134 (d)(1)-(2)
29 CFR 1910.156(f)(1)(ii)*

concentrations.

4.1.4 Tight-fitting air purifying cartridges (cartridge respirator) must be worn when:

- Air contaminants are above the OSHA permissible exposure limit, there is adequate oxygen, and an effective cartridge is available for the contaminant.
- Air contaminants are above the OSHA permissible exposure limit and an air purifying respirator is not available, then a SCBA shall be worn.

See Appendix A for respirator selection guideline according to specific tasks.

*4.1.4 Mandatory
29 CFR 1910.134(d)(3)(i)*

This paragraph can be omitted from written program if department does not use air purifying respirators.

*Informational
Appendix A is provided as a decision guide.*

5.0 PROCEDURES FOR PROPER RESPIRATOR USE

5.1 **Respirators:** shall be used in accordance with its NIOSH certification and manufacturer instruction.

*5.1 Mandatory
29 CFR 1910.134(d)(1)(iii)*

5.2 **Facial Hair:** Persons required to use a respirator shall not have facial hair that interferes with the facepiece seal or inhalation/exhalation valves. This rule stays in effect even if the person passes a fit test with facial hair.

*5.2 Mandatory
29 CFR 1910.134(g)(1)(i)*

5.3 **Eyeglasses:** Persons who require corrective eyeglasses should not wear the eyeglasses with a full-face respirator, since the eyeglass frame can interfere with the face-to-facepiece seal. Obtain an eyeglass insert provided by the respirator manufacturer. The employee is responsible for paying for the eye examination to determine lens correction and frame size. The employer is responsible for paying for the eyeglass insert.

*5.3 Mandatory
29 CFR 1910.134(g)(1)(ii)*

5.4 **Seal Check:** Conduct a user seal check each time a respirator is put on. Persons using a respirator may not have any condition, such as facial scars, facial hair, or missing dentures, that prevents them from achieving a good facepiece seal. Individuals are not permitted to wear headphones, jewelry, or other articles that may interfere with the facepiece-to-face seal.

*5.4 Mandatory
29 CFR 1910.134(g)(1)(iii)*

5.5 **SCBA Cylinder Air Management:** SCBA cylinders must have a minimum service life rating of 30 minutes. Leave the area when the cylinder end-of-service life alarm is activated. The alarm must activate when the apparatus is reduced to within 20-25% of its rated service time.

*5.5 Mandatory
29 CFR 1910.134 (f)(1)(v)
29 CFR 1910.134 (f)(1)(vi)
Template may be edited to reflect rating and alarm setting at the department, as long as alarm activated before 20-25% of rated service life.*

6.0 BREATHING AIR QUALITY FOR SCBA CYLINDERS

- 6.1** Breathing air in SCBA cylinder must meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association G-7.1 – 1989, Commodity Specification for Air.
- 6.2** When air cylinders are purchased through a third party the SCBA/PPE Coordinator will coordinate deliveries of compressed air and require the provider to certify that the air in the cylinders meets the specifications of Grade D breathing air.
- 6.3** When using air from a compressor, the following conditions must be met:
- Oil compressors must have a Carbon Monoxide sensor to confirm that no Carbon Monoxide has entered the air supply.
 - Compressor intake must be located in a clean air environment.
 - Suitable in-line air-purifying filters must be installed.
- 6.4** SCBA air cylinders shall be filled by personnel trained to use the compressor equipment.
- 6.5** SCBA air cylinders must be stored in a fully charged state and shall be recharged when pressure falls to 90% of manufacturer's recommended pressure level.
- 6.6** Couplings used to fill breathing air cylinders must be incompatible with couplings for other compressed gas cylinders.
- 6.7** SCBA cylinders are required to be hydrostatically tested every 5 years.

*6.1 Mandatory
29 CFR 1910.134(i)(1)(ii)*

*6.2 Mandatory
29 CFR 1910.134(i)(4)(ii)*

*6.3 Mandatory
29 CFR 1910.134(i)(5)*

*Edit template to reflect the type
of compressor used.*

*6.4 Mandatory
29 CFR 1910.134(k)(v)*

*6.5 Mandatory
29 CFR 1910.134(h)(3)(iii)*

*6.6 Mandatory
29 CFR 1910.134(i)(8)*

*6.7 Mandatory
29 CFR 1910.134(i)(4)(i)*

7.0 CLEANING, INSPECTION, MAINTENANCE AND STORAGE

7.1 Cleaning

- 7.1.1 Follow the manufacturer's owner's manual for cleaning, and maintenance.
- 7.1.2 All SCBAs and reusable respirators are to be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
- 7.1.3 Respirators issued to more than one individual shall be cleaned and disinfected before being worn by a different individual.

7.1.1 Informational

*7.1.2 Mandatory
29 CFR 910.134(h)(1)*

*7.1.3 Mandatory
29 CFR 1910.134(h)(1)(ii)
Delete from template if
respirators are assigned to
specific persons*

7.2 Inspection

- 7.2.1 Inspect respirators during cleaning and before placing the respirator back in storage.
- 7.2.2 Conduct monthly inspection of SCBAs.
- 7.2.3 Follow manufacturer's owner's manual for inspection instructions and checklists. Inspect components such as facepiece, valves, faceshield, straps, hose, regulators, harnesses, cylinder condition and alarms.
- 7.2.4 Inspect that SCBA regulator and warning devices function properly.

*7.2.1 Mandatory
29 CFR 1910.134(h)(3)*

*7.2.2 Mandatory
29 CFR 1910.134(h)(3)(ii)
7.2.3 Information*

*7.2.4 Mandatory
29 CFR 1910.134(h)(3)(ii)*

7.3 Defective Respirators

- 7.3.1 Respirators that are defective or have defective parts shall be taken out of service immediately.

*7.3.1 Mandatory
29 CFR 1910.134(h)(4)*

7.4 Maintenance

- 7.4.1 Maintain and service respirators according to manufacturer instructions.
- 7.4.2 Repairs to regulators, alarms, and reducing and admission valves shall be conducted only by the manufacturer or a technician trained by the manufacturer.

*7.4.1 Mandatory
29 CFR 1910.134(h)(4)
7.4.2 Mandatory
29 CFR 1910.134(h)(4)(iii)*

7.5 Storage

- 7.5.1 Store respirators in a manner that prevents deformation of the face seal, other damage, or contamination.

*7.5.1 Mandatory
29 CFR 1910.134(h)(2)*

8.0 RESPIRATOR FIT TEST

8.1 Purpose:

- 8.1.1 The purpose of the respirator fit test is to ensure that contaminants do not leak into the facepiece and to identify the correct size facepiece for each individual (make, model and size).
- 8.1.2 Fit testing may be performed by Fire Department personnel, regional Fire Department personnel, or an outside vendor.
- 8.1.3 The Fit Test evaluates facepiece leakage. The Fit Test is NOT a medical authorization to use a respirator.

8.2 Scope: Each individual required to use a respirator must be fit tested on each manufacturer make/model that the individual will wear. This includes:

- SCBA;
- N95 disposable used for healthcare tasks in EMS
- Air purifying respirators

8.3 Frequency: The Fit Test must be conducted with the same manufacturer, model, and size that the person uses. Conduct the Fit Test and must be conducted:

- Prior to the first time using the manufacturer/model and size of the respirator.
- Annually.
- When there are changes in the individual's physical condition that could affect the face seal (e.g., weight, dentures, facial scarring, etc.).

8.4 Type of Fit Test

- Fit tests can be qualitative or quantitative.
- A Qualitative Fit Test requires the user to report leakage of a test agent into the facepiece.
- A Quantitative Fit Test uses an instrument to measure the presence of a test agent outside and inside the facepiece, and give a numerical result.

8.5 Documentation

- The Fire Department shall maintain records of individual Fit Tests.

8.1.1 Information

8.1.2 Information

8.1.3 Information

*8.2 Mandatory
29 CFR 1910.134(f)(1)*

*Edit template to reflect
types of respirators
used.*

*8.3 Mandatory
29 CFR 1910.134(f)(2)*

*8.4 Information
29 CFR 1910.134(f)(1)*

*8.5 Mandatory
29 CFR 1910.134(m)(2)*

9.0 MEDICAL EVALUATION FOR AUTHORIZATION TO USE A RESPIRATOR

9.1 Purpose: The Medical Evaluation for Authorization to Use a Respirator ensures that the individual is physiologically able to wear a respirator. SCBAs, cartridge respirators, and N95 disposable respirators place different physical burdens on the user's breathing.

*9.1 Information
29 CFR 1910.134(e)(1)*

9.2 Scope: Each individual required to use a respirator must complete a medical evaluation for authorization to use the respirator. This includes SCBA, N95 disposable respirators, and tight-fitting cartridge respirators.

*9.2 Mandatory
29 CFR 1910.134(e)*

9.3 Frequency

The individual must have documentation that they are medically authorized to use a respirator before performing any tasks that require the use of a respirator.

9.3.1 New Hire: New Hires shall complete a medical evaluation for respirator use.

*9.3.1 Mandatory
29 CFR 1910.134(e)(1)*

9.3.2 Re-evaluation of Current Employees: Those currently employed shall be subject to a re-evaluation using the medical evaluation questionnaire when the following conditions occur, as listed in the OSHA Respirator Standard 29 CFR 1910.134 (e)(7).

*9.3.2 Mandatory
29 CFR 1910.134(e)(7)*

- i. Employee reports signs or symptoms that are related to ability to wear a respirator;
- ii. A healthcare provider or Fire Department Officer informs the Fire Chief that an individual needs to be reevaluated;
- iii. Information from the respirator program, including observations made during fit testing, indicate the need for a reevaluation;
- iv. A change occurs in work conditions (i.e. physical work effort, protective clothing, temperature) that may result in substantial increase in the physiological burden placed on an individual while wearing a respirator.

9.4 Contents of Medical Evaluation for Authorization to Use a Respirator

- 9.4.1 **Medical Questionnaire.** Complete the OSHA Respirator questionnaire before an individual is assigned to wear a respirator. The specific contents of the questionnaire are mandatory, as provided in the OSHA respirator standard 29 CFR 1910.134 Appendix C. A licensed healthcare provider is authorized to replicate the questionnaire.

*9.4.1: Mandatory
29 CFR 1910.134(e)(2)*

The questionnaire is confidential. The occupational health provider provides the questionnaire directly to the individual, and the answers are not shared with the employer.

- 9.4.2 The medical questionnaire must be reviewed by a licensed healthcare professional. This includes MD, PA, NP, or RN, but does not include emergency medical technicians or paramedics.

*9.4.2 Information
29 CFR 1910.134(e)(2)*

- 9.4.3 Based on evaluation of the questionnaire, the healthcare provider may authorize an individual for respirator use, or may refer the individual for pulmonary function testing.

*9.4.3 Information
29 CFR 1910.134(e)(3)*

- 9.4.4 **Pulmonary Function Tests (spirometry).** A healthcare provider may request diagnostic tests, including a pulmonary function test, to make a determination for respirator use.

*9.4.4 Mandatory
29 CFR 1910.134(e)(3)*

9.5 Documentation

- 9.5.1 The licensed healthcare professional will provide a statement the individual's department that the individual is or is not, authorized to use a respirator. The documentation should include the date of the evaluation, individual's name, physician's name and contact information.

*9.5.1: Mandatory
29 CFR
1910.134(e)(6)(i)
29 CFR 1910.134(m)(1)*

- 9.5.2 The documentation should not include any personal medical information, questionnaire answers or pulmonary function test results.

9.5.2 Information

10.0 TRAINING

- 10.1 Scope:** Training is required for all individuals who are required to use respirators in their job function.

*10.1 Mandatory
29 CFR 1910.134(k)*

- 10.2 Frequency:** Training must be provided before an individual first wears a respirator, and annually after that.

*10.2: Mandatory
29 CFR 1910.134(k)*

10.3 Effectiveness: Training is performance-based. On an annual basis, the individual must be able to demonstrate knowledge of contents listed in Section 10.4 below.

10.4 Content of SCBA training.

- Instruction in type of respiratory hazards encountered
- Instruction in the use of respirators:
 - When use of respirators is required
 - Inspection procedures prior to use
 - Seal check and adjusting for comfort
 - Wearing of respirator
 - Components of respirators
- Types of respirators used at the workplace, capabilities, and limitations
- How to respond to respirator malfunctions
- SCBA Air Management, and cylinder alarm procedures
- SCBA cylinder filling
- Fit test
- Cleaning, maintenance and storage
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators

10.3 Information

*10.4: Mandatory
29 CFR 1910.134(k)(3)*

Each fire department may determine method of training, including performance based training or skill demonstration. Document dates that knowledge was assessed.

11.0 RECORDKEEPING

The following records will be maintained:

- 11.1 Medical evaluation:** letter from healthcare professional that each individual is medically cleared to wear a respirator.
- 11.2 Fit test record** (initial and annual)
- 11.3 Training record** (initial and annual)
- 11.4** Air cylinder purchases, certification of air quality.
- 11.5** SCBA respirator inspection records (monthly)

*11.1: Mandatory
29 CFR 1910.134(m)(1)*

*11.2: Mandatory
29 CFR 1910.134(m)(2)*

*11.3: Recommended
Written training log is not required in 29 CFR 1910.134.*

*11.4: Mandatory
29 CFR
1910.134(i)(4)(ii))*

*11.5: Recommended
29 CFR
1910.134(h)(3)(iii)*

12.0 PROGRAM EVALUATION

*12.0: Mandatory
29 CFR 1910.134(l)*

The Respirator Program will be reviewed annually by the department. The review should cover the following topics, at minimum:

- Adequacy of the respirator being used;
- Incidents in which the respirator has failed to provide adequate protection; and,
- Adequacy of training and maintenance on the use of respirator.
- Potential changes to and recommendations for the program.

APPENDIX A – SCBA CLEANING AND DISINFECTING INSTRUCTIONS

Note for Template: The written program is required to include instructions for cleaning and maintaining the respirator. Section 7.1.1 provides information to follow the manufacturer's owner's manual for cleaning and maintenance.

Insert your manufacturer instructions here for the make/model of your respirator.

APPENDIX B - Respirator Selection According to Tasks

Note for Template: The written respirator program is required to contain procedures for selecting respirators [29 CFR 1910.134 (c)((1)(i)]. These procedures are described in Section 4.0 of this program. This Appendix is recommended to assist personnel assigned to select respirators. Individual Fire Departments may edit this table based on tasks performed.

Task	Condition	Respirator
Incipient stage fire	Non-IDLH	SCBA at discretion of ICO
Interior structural firefighting, beyond incipient stage	IDLH	SCBA
Cutting vent	IDLH	SCBA
Ladder support	IDLH and non IDLH	SCBA for IDLH SCBA at discretion of ICO
Pump support	IDLH and Non-IDLH	SCBA for IDLH None, at discretion of ICO
Set hose	Non-IDLH	None
Car fire	IDLH	SCBA
Dumpster fire	IDLH	SCBA
Carbon Monoxide alarm	IDLH	SCBA until air monitoring shows levels below 25 ppm Carbon Monoxide
Ammonia refrigeration leak	IDLH	SCBA until air monitoring shows air levels below 15 ppm Ammonia
Fuel oil spill with fire	IDLH	SCBA
Fuel oil spill without fire	Non-IDLH	SCBA until air monitoring shows air level VOCs < 300 ppm
Overhaul	Not IDLH, but Carcinogens in smoke	SCBA
Other tasks, list separately:		
EMS with potential exposure to TB or other airborne infection	Not IDLH, but potential airborne hazard	N95 disposable
EMS medical response with potential splash with blood or vomit	Not IDLH, but potential airborne hazard	N95 disposable

APPENDIX C - Protection Factors of Respirators and Air Test Evaluation

*Note for Template: This Appendix is **optional**. It is informational for personnel assigned to coordinate the respirator program.*

Type of Respirator	Protection Factor	Approved Use (Protection Factor included)
N95 disposable mask	10	Nuisance dust; EMS tasks such as blood; vomit; tuberculosis; influenza
Tight-fitting cartridge respirator with P100 filter (magenta)	10	Nuisance dust; Lead paint dust; silica, asbestos; soot; creosote;
Tight-fitting Cartridge respirator with Olive/Magenta cartridge. Cartridge label must be combination Olive/Magenta (NIOSH Approved for OV, CL, HC, SD, HF, HS, CD, FM,AM,MA, P100)	10	<u>VOCs from fuels <300 ppm in air:</u> paint, pesticide, gasoline, diesel Hydrochloric acid <10 ppm Hydrogen sulfide <10 ppm Ammonia <10 ppm Formaldehyde <10 ppm <u>Dusts:</u> Lead and other metals; asbestos; soot; creosote; <u>Odors:</u> sewage; feces; animal urine; pigeon/bat guano <u>Carbon Monoxide must be <25 ppm</u> (same level as no respirator use at all) <u>Cyanide must be < 4 ppm</u> (same as no respirator use at all)
SCBA	10,000	<u>IDLH or Unknown Atmosphere</u> Firefighting; Oxygen deficiency; Carbon Monoxide > 25ppm; VOC from fuels >300ppm Ammonia, acids, corrosives. Confined space with unknown atmosphere

APPENDIX D – RESPIRATOR INSPECTION FORM

*Note for Template: This appendix is **optional** and is provided to assist personnel assigned to coordinate the respirator program. Monthly inspections of SCBA are required to be conducted and required to be documented, but a blank form is not required in the written program.*

Insert your manufacturer instructions here for the make/model of your respirators.

APPENDIX E – FIT TEST FORM

*Note for Template: This appendix is **optional** and is provided to assist personnel assigned to coordinate the respirator program. A department is required to perform annual fit tests, but the written program is not required to maintain a blank Fit Test Form. A Department should develop its own form.*

Insert a blank copy of your Department's Fit Test Form.

APPENDIX F – RESPIRATOR MEDICAL QUESTIONNAIRE

*Note for Template: This appendix is **optional** even though the questionnaire is mandatory. The written program is not required to maintain a blank questionnaire. This Appendix is suggested because it may help personnel assigned to coordinate the written respirator program.*

Insert a blank copy of the OSHA Respirator Questionnaire.

OSHA RESPIRATOR MEDICAL EVALUATION QUESTIONNAIRE

Date: _____ Chart #: _____
Age: _____ Sex: _____ SSN: _____
Name: _____ ID # _____ Job Title: _____
Employer Name: _____ Department: _____

TO THE EMPLOYER

Answer to questions in Section 1, and to question 9 in section 2 of part A, do not require a medical examination. However, it does require that a Physician or Licensed Health Care Professional (PLHCP) review this questionnaire and answer any questions you may have concerning the questionnaire.

TO THE EMPLOYEE

Can you read? (circle one) Yes No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

TO THE PHYSICIAN OR OTHER LICENSED HEALTH CARE PROFESSIONAL (PLHCP)

Review Part A Sections 1 and 2. When an employee answers YES to any of the questions in Section 2 and the questionnaire is not administered in conjunction with a physical examination, the employee needs to be considered for a follow-up physical examination with particular emphasis on those areas in which the employee answered YES. When an employee answers YES to any of the questions in Section 2 and this questionnaire is completed in conjunction with a physical examination, the physician will place a particular emphasis upon those areas to which the employee answered YES. In either situation the PLHCP will complete the "PLHCP's Written Statement" to both the employee and the employer **within 2 days**.

PART A SECTION 1 (MANDATORY)

The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Your height: _____ ft. _____ in.
2. Your weight: _____ lbs.
3. Your job title: _____
4. A phone number where you can be reached by the health care professional who will review this questionnaire (include area code): _____
5. The best time to phone you at this number is: _____ am/ _____ pm.
6. Has your employer told you how to contact the health care professional who will review this questionnaire? (circle one) Yes No
7. Check the type of respirator you will use (you can check more than one category):
 - a. _____ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
 - b. _____ Other type (for example, half – or full-facepiece type, powered – air purifying, supplied – air, self-contained breathing apparatus).
8. Have you worn a respirator (circle one): Yes No
If "Yes", what type(s): _____

PART A SECTION 2 (MANDATORY)

Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator. (please circle "Yes" or "No").

1. Yes No **Do you currently smoke tobacco, or have you smoked tobacco in the last month?**
2. **Have you ever had any of the following conditions?**
Yes No a. Seizures (fits)
Yes No b. Diabetes (sugar disease)
Yes No c. Allergic reactions that interfere with your breathing
Yes No d. Claustrophobia (fear of closed-in places)
Yes No e. Trouble smelling odors
3. **Have you ever had any of the following pulmonary or lung problems?**
Yes No a. Asbestosis
Yes No b. Asthma
Yes No c. Chronic bronchitis
Yes No d. Emphysema
Yes No e. Pneumonia
Yes No f. Tuberculosis
Yes No g. Silicosis
Yes No h. Pneumothorax (collapsed lung)
Yes No i. Lung cancer
Yes No j. Broken ribs
Yes No k. Any chest injuries or surgeries
Yes No l. Any other lung problem that you've been told about
4. **Do you currently have any of the following symptoms of pulmonary or lung disease?**
Yes No a. Shortness of breath
Yes No b. Shortness of breath when walking on level ground or walking up a slight hill or incline
Yes No c. Shortness of breath when walking with other people at an ordinary pace on level ground
Yes No d. Have to stop for breath when walking
Yes No e. Shortness of breath when washing or dressing yourself
Yes No f. Shortness of breath that interferes with your job
Yes No g. Coughing that produces phlegm (thick sputum)
Yes No h. Coughing that wakes you early in the morning
Yes No i. Coughing that mostly occurs when you are lying down
Yes No j. Coughing up blood in the last month
Yes No k. Wheezing
Yes No l. Wheezing that interferes with your job
Yes No m. Chest pain when you breathe deeply
Yes No n. Any other symptoms that you think may be related to lung problems
5. **Have you ever had any of the following cardiovascular or heart problems?**
Yes No a. Heart attack
Yes No b. Stroke
Yes No c. Angina
Yes No d. Heart failure
Yes No e. Swelling in your legs or feet (not caused by walking)
Yes No f. Heart arrhythmia
Yes No g. High blood pressure
Yes No h. Any other heart problems that you've been told about
6. **Have you ever had any of the following cardiovascular or heart symptoms?**
Yes No a. Frequent pain or tightness in your chest
Yes No b. Pain or tightness in your chest during physical activity

- Yes No c. Pain or tightness in your chest that interferes with your job
- Yes No d. In the past two years, have you noticed your heart skipping or missing a beat
- Yes No e. Heartburn or indigestion that is not related to eating
- Yes No f. Any other symptoms that you think might be related to heart or circulation problems

7. Do you currently take medication for any of the following problems?

- Yes No a. Breathing or lung problems
- Yes No b. Heart trouble
- Yes No c. Blood pressure
- Yes No d. Seizures (fits)

8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space ____ and go to question 9)

- Yes No a. Eye irritation
- Yes No b. skin allergies or rashes
- Yes No c. Anxiety
- Yes No d. General weakness or fatigue
- Yes No e. Any other problem that interfere with your use of a respirator

9. Yes No Would you like to talk to the health care professional who will review this questionnaire about your answers to this question?

Question 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Yes No Have you ever lost vision in either eye (temporarily or permanently)

11. Yes No Do you currently have any of the following vision problems?

- Yes No a. Wear contact lenses
- Yes No b. Wear glasses
- Yes No c. Color blindness
- Yes No d. Any other eye or vision problems

12. Yes No Have you ever had an injury to your ears, including a broken ear drum?

13. Do you currently have any of the following hearing problems?

- Yes No a. Difficulty hearing
- Yes No b. Wear a hearing aide
- Yes No c. Any other hearing or ear problems

14. Yes No Have you ever had a back injury?

15. Yes No **Do you currently have any of the following musculoskeletal problems?**
- Yes No a. Weakness in any of your arms, hands, legs, or feet
- Yes No b. Back Pain
- Yes No c. Difficulty fully moving your arms and legs
- Yes No d. Pain or stiffness when you lean forward or backward at the waist
- Yes No e. Difficulty fully moving your head up or down
- Yes No f. Difficulty fully moving your head side to side
- Yes No g. Difficulty bending at your knees
- Yes No h. Difficulty squatting to the ground
- Yes No i. Climbing a flight of stairs or a ladder carrying more than 25lbs.
- Yes No j. Any other muscle or skeletal problem that interferes with using a respirator

To the PLHCP

Check ☒ the **ONE** that applies

- ☐ I have reviewed Part A Section 2 of this questionnaire with the employee and I do not recommend that a physical examination be performed.
- ☐ I have reviewed Part A Section 2 of this questionnaire with the employee and I am recommending that a physical examination be performed.
- ☐ I have reviewed Part A section 2 of this questionnaire without the employee and I do not recommend that a physical examination be performed.
- ☐ I have reviewed Part A Section 2 of this question without the employee and I am recommending that a physical examination be performed.

PLHCP Signature

Employee Signature
(When Available)

Date

PART – B (OPTIONAL)

PART – B of this OSHA Questionnaire is discretionary. The health care professional who will be reviewing this questionnaire will determine if this part needs to be completed by the employee.

Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. Yes No In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen?

Yes No If “Yes”, do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you are working under these conditions?

2. Yes No At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (for example: gases, fumes, or solvents)?

If “Yes”, name the chemicals if you know them: _____

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

Yes No Asbestos

Yes No Silica (for example: sandblasting)

Yes No Tungsten/Cobalt (for example: grinding or welding this material)

Yes No Beryllium

Yes No Aluminum

Yes No Coal (for example; mining)

Yes No Iron

Yes No Tin

Yes No Dusty Environments

Yes No Any other hazardous exposures

If “Yes”, describe these exposures: _____

4. List any second jobs or side business you have: _____

5. List your previous occupations: _____

6. List your current and previous hobbies: _____

7. Yes No Have you ever worked on a HAZMAT team?

8. Yes No Other than medication for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over the counter medications)

If “Yes”, name the medications if you know them: _____

9. Will you be using any of the following items with your respirator:

- | | | |
|-----|----|---------------------------------------|
| Yes | No | a. HEPA Filters |
| Yes | No | b. Canisters (for example; gas masks) |
| Yes | No | c. Cartridges |

10. How often are you expected to use the respirator(s) (circle “yes” or “no” for all answers that apply to you)

- | | | |
|-----|----|-------------------------------|
| Yes | No | a. Escape only (no rescue) |
| Yes | No | b. Emergency Rescue only |
| Yes | No | c. Less than 5 hours per week |
| Yes | No | d. Less than 2 hours per day |
| Yes | No | e. 2 to 4 hours per day |
| Yes | No | f. Over 4 hours per day |

11. During the period you are using the respirator(s), is your work effort:

- | | | |
|--|----|---------------------------------------|
| Yes | No | a. Light (less than 200kcal per hour) |
| Examples of light work are sitting while writing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines. | | |

If “Yes”, how long does this period last during the average shift: ____hrs. ____mins.

- | | | |
|--|----|--|
| Yes | No | b. Moderate (200 to 350 kcal per hour) |
| Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2mp or down a 5 – degree grade about 3mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface. | | |

If “Yes”, how long does this period last during the average shift: ____hrs ____mins.

- | | | |
|---|----|------------------------------------|
| Yes | No | c. Heavy (above 350 kcal per hour) |
| Examples of heavy work are lifting heavy load (about 50 lbs.) from the floor to your Waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2mph; climbing stairs with a heavy load (about 50 lbs.) | | |

If “Yes”, how long does this period last during the average shift ____hrs. ____mins.

12. Yes No Will you be wearing protective clothing and/or equipment (other than the Respirator) when you’re using your respirator.

If “Yes”, describe this protective clothing and/or equipment

13. Yes No Will you be working under hot conditions (temperature exceeding 77 deg. F)

14. Yes No Will you be working under humid conditions?

15. Describe the work you’ll be doing while you’re using the respirator(s)

16. Describe any special or hazardous conditions you might encounter when you’re using your respirator (for example, confined spaces, life-threatening gases):

17. Provide the following information, if you know it, for each substance that you'll be exposed to when you're using your respirator:

Name the first toxic substance: _____
Estimated maximum exposure to shift: _____
Duration of exposure per shift: _____
Name of second toxic substance: _____
Estimated maximum exposure per shift: _____
Duration of exposure per shift: _____
Name of third toxic substance: _____
Estimated maximum exposure per shift: _____
Duration of exposure per shift: _____
Name of any other toxic substances that you'll be exposed to while using your respirator(s):

18. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example; rescue, security)

**Appendix D to Section 1910.134 (Mandatory) Information for Employees Using Respirators
When Not Required Under the Standard**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not represent a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator packaging. It will tell you what the respirator is designated for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designated to protect against. For example, a respirator designated to filter dust particles will not protect you against gases, fumes, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Hepatitis B Vaccine Log

Name: _____

The OSHA standard 29 CFR 1910.1030 requires employers to offer the Hepatitis B vaccine to employees with potential exposure to blood. Persons who have previously received the vaccine are not required to repeat the vaccine. Persons who have not previously obtained an antibody titer are not required to obtain a titer. Persons for whom the vaccine is medically contraindicated are not required to receive the vaccine.

Directions: Review the sections below and mark your initials on the appropriate line.

Accept the Vaccine:

Dose 1: _____
Dose 2 _____
Dose 3 _____
Titer _____

Decline the Vaccine:

_____ I have already received the Hepatitis -B vaccine.
Dates, if known: Dose 1 _____ Dose 2 _____ Dose 3: _____
[Note from Department of Labor Standards: When dates are not known, repeating the vaccine is not required.]

_____ I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me. *[Note: the preceding paragraph is required by the OSHA standard. Employees are not required to provide a reason for declining. Employees should follow guidance from their physician.]*

Signature: _____

Date _____

Parent Signature: _____

Date _____

(If employee is under the age of 18)

Employee Injury Reporting Requirements for Public Sector Workplaces in Massachusetts

1. Fatal or Catastrophic Incidents

Notify the Department of Labor Standards within 8 hours of any work related injury to a public sector employee involving:

- Fatality
- Loss of an Eye
- * Amputation
- * Inpatient Hospitalization

Department of Labor Standards

Phone: 508-616-0461 and choose option #1

Email: safepublicworkplace@state.ma.us

2. Workers Compensation Incidents

Notify the Department of Industrial Accidents when an employee is disabled for 5 full or partial calendar days. Submit Form 101- Employers First Report of Injury/Fatality on-line at <https://www.mass.gov/dia-online-services>.

3. Near Miss and First Aid Incidents

Employers are encouraged to maintain records of “Near Miss” and “First Aid Only” incidents to evaluate patterns. Do not submit to Department of Labor Standards or Department of Industrial Accidents.

4. OSHA 300 Log

Effective February 1, 2019, public sector employers must complete an OSHA 300 Log if the Bureau of Labor Statistics requests a copy of your log. In addition, complete an OSHA 300 Log if requested by a DLS inspector during a site inspection. Do not enter your logs on the osha.gov website.

Survey of Occupational Injuries and Illnesses, 2017



Massachusetts Fax Response Form Send to (617) 626-6944

Employers selected for the BLS Survey of Occupational Injuries and Illnesses are required by Federal Law to respond. If you have questions please contact us at the phone number listed on the front of your survey instructions.

Section 1: Establishment Information

25 - - ☐ **Establishment ID Number** (from front of survey instructions)

Company Name and Report For (from front of survey instructions)

Today's Date

Contact Name and Title (please print)

Telephone Number (ext)

Fax Number

() - () -

1 Enter the annual average number of employees for 2017.

2 Enter the total hours worked by all employees for 2017.

3 Did you have ANY work-related injuries or illnesses during 2017?

☐ Yes → **Complete Section 2 below.**

☐ No → **Please fax this form to (617) 626-6944.**

Section 2: Summary of Work-Related Injuries and Illnesses

1. Refer to the OSHA *Forms for Recording Work-Related Injuries and Illnesses* for the location referenced on the front of the survey instructions under Report For.
2. If you prefer, you may fax your *Summary of Work-Related Injuries and Illnesses* (OSHA Form 300A) with this form. If more than one establishment is noted on the front of the survey instructions, be sure to fax the OSHA Form 300A for each of the specified establishments.
3. If any total is zero on your OSHA Form 300A, write "0" in that space below.
4. The **total** number of cases recorded in G + H + I + J must equal the **total** injury and illness types recorded in M (1 + 2 + 3 + 4 + 5 + 6).

Number of Cases

Total number of deaths

Total number of cases with **days away from work**

Total number of cases with job transfer or restriction

Total number of other recordable cases

(G)

(H)

(I)

(J)

Number of Days

Total number of days away from work

Total number of days of job transfer or restriction

(K)

(L)

Injury and Illness Types

Total number of ...

(M)

(1) Injuries

(2) Skin disorders

(3) Respiratory conditions

(4) Poisonings

(5) Hearing loss

(6) All other illnesses

Injury and Illness Case Form

Tell us about each 2017 work-related injury or illness case if it resulted in days away from work (Column H in Section 2 on Page 1). If you are reporting for a private industry establishment whose six-digit **NAICS code begins with: 111, 336, 445, 484, 713, or 722**, also tell us about each case with days of job transfer or restriction (Column I in Section 2 on Page 1). Your NAICS code can be found on the front of your survey instruction sheet. One *Injury and Illness Case Form* should be completed for each injury or illness case.

Tell us about the Case

Go to your completed OSHA Form 300. Copy the case information from that form into the spaces below.

Employee's name (Column B)	Job title (Column C)	Date of injury or onset of illness (Column D)	Number of days away from work (Column K)	Number of days of job transfer or restriction (Column L)
		/ /17 month day year		

Tell us about the Employee

1. Check the category which *best* describes the employee's regular type of job or work: (optional)

- | | |
|---|---|
| <input type="checkbox"/> Office, professional, business, or management staff | <input type="checkbox"/> Healthcare |
| <input type="checkbox"/> Sales | <input type="checkbox"/> Delivery or driving |
| <input type="checkbox"/> Product assembly, product manufacture | <input type="checkbox"/> Food service |
| <input type="checkbox"/> Repair, installation or service of machines, equipment | <input type="checkbox"/> Cleaning, maintenance of building, grounds |
| <input type="checkbox"/> Construction | <input type="checkbox"/> Material handling (e.g. stocking, loading/unloading, moving, etc.) |
| <input type="checkbox"/> Other: _____ | <input type="checkbox"/> Farming |

2. Employee's race or ethnic background: (optional-check one or more)

- ☐ American Indian or Alaska Native
☐ Asian
☐ Black or African American
☐ Hispanic or Latino
☐ Native Hawaiian or Other Pacific Islander
☐ White
☐ Not available

NOTE: You may either answer questions (3) to (13) or attach a copy of a supplementary document that answers them.

3. Employee's age: _____ OR date of birth: _____ / _____ / _____
month day year

4. Employee's date hired: _____ / _____ / _____
month day year

OR check length of service at establishment when incident occurred:

- ☐ Less than 3 months
☐ From 3 to 11 months
☐ From 1 to 5 years
☐ More than 5 years

5. Employee's gender:

- ☐ Male
☐ Female

Tell us about the Incident

Answer the questions below or attach a copy of a supplementary document that answers them.

6. Was employee treated in an emergency room? ☐ yes ☐ no

7. Was employee hospitalized overnight as an in-patient? ☐ yes ☐ no

8. Time employee began work: _____ ☐ am ☐ pm

9. Time of event: _____ ☐ am ☐ pm OR ☐ Check if time cannot be determined

Event occurred: (optional) ☐ before ☐ during ☐ after work shift

10. What was the employee doing just before the incident occurred?

Describe the activity as well as the tools, equipment, or material the employee was using. Be specific. *Examples:* "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."

11. **What happened?** Tell us how the injury or illness occurred. *Examples:* "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."

12. **What was the injury or illness?** Tell us the part of the body that was affected and how it was affected; be more specific than "hurt," "pain," or "sore." *Examples:* "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."

13. **What object or substance directly harmed the employee?** *Examples:* "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.

Thank you for your participation. Please fax your completed forms to (617) 626-6944.

For office use

N	P	S	E	SS	OCC
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Death in the line of duty...



A report from the NIOSH Fire Fighter Fatality Investigation and Prevention Program

December 19, 2017

Volunteer Fire Fighter Dies After Running Out of Air and Becoming Disoriented in Retail Store in Strip Mall Fire—North Carolina

Executive Summary

On April 30, 2016, a 20-year-old male volunteer fire fighter died after he ran out of air and became disoriented while fighting a fire in a commercial strip mall. The fire fighter was a member of the first-due engine company, Engine 3 from Department 7. Once Engine 3 arrived on-scene, a preconnected 1¾-inch crosslay was stretched into the 7,000-square-foot retail store to attack the fire. The Engine 3 hoseline crew consisted of a senior captain, a lieutenant, and two fire fighters. After the fire was located and water was flowed on the fire, a fire fighter working the nozzle ran low on air, gave the nozzle to the second fire fighter (victim), and proceeded to follow the hoseline to exit the structure. While operating the nozzle near the Charlie/Delta corner of the retail store,

the remaining fire fighter also ran low on air and told the lieutenant and captain that he had to go outside. He immediately tried to exit but quickly became disoriented in the near-zero visibility conditions within the retail store. The fire fighter returned to the hoseline near the nozzle and the lieutenant and captain tried to calm him down. The lieutenant was low on air and told the captain that he would take the fire fighter outside but the fire fighter broke away and disappeared into the thick smoke toward Side C, the rear of the store. The lieutenant began to follow the hoseline out. He heard the missing fire fighter yelling for help off to his right and tried to make his way toward the missing fire fighter but became entangled in the display racks. After freeing himself, the lieutenant briefly located the missing fire fighter who stated he was completely out of air and had to get out. The fire fighter again disappeared, moving toward the rear of the store. The lieutenant also ran out of air and had to remove his helmet and facepiece because his facepiece was fogging up. The lieutenant activated his PASS device and was soon located by the Engine 16 crew and helped outside. The lieutenant told rescuers that the fire fighter was missing inside the store. A Mayday was transmitted by the Engine 20 captain at the front door for a missing fire fighter. The Engine 3 fire fighter was located about 2



**Retail golf store in middle of commercial strip mall where 20-year-old fire fighter was fatally injured.
(Photo NIOSH.)**

Volunteer Fire Fighter Dies After Running Out of Air and Becoming Disoriented in Retail Store in Strip Mall Fire—North Carolina

minutes later and transported to the hospital where he was pronounced dead. The lieutenant was transported to the hospital for treatment of smoke inhalation and was released later that day.

Contributing Factors

- *Lack of crew integrity*
- *Inadequate air management training*
- *Inexperienced fire fighter*
- *Ineffective fireground communications*
- *Failure to call a Mayday in a timely manner*
- *No sprinkler system in commercial structure*
- *Zero-visibility conditions in smoke-filled retail store*
- *Restricted mobility due to arrangement of floor displays.*

Key Recommendations

- *Fire departments should ensure that crew integrity is properly maintained by sight, voice, or radio contact when operating in an immediately-dangerous-to-life-or-health (IDLH) atmosphere.*
- *Fire departments should ensure all fire fighters are trained on and actively practice air management principles.*
- *State, local and municipal governments, building owners, and authorities having jurisdiction should consider requiring the use of sprinkler systems in commercial structures.*
- *Fire departments should train company officers and fire fighters to report interior conditions to the incident commander as soon as possible and on a regular basis.*
- *Dispatch centers should provide timeframe bench marks to Incident Command on a regular basis.*
- *Fire departments should ensure that fire fighters are trained and proficient on following hoselines outside as a means for egress and self-rescue.*

The National Institute for Occupational Safety and Health (NIOSH), an institute within the Centers for Disease Control and Prevention (CDC), is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. In 1998, Congress appropriated funds to NIOSH to conduct a fire fighter initiative that resulted in the NIOSH Fire Fighter Fatality Investigation and Prevention Program, which examines line-of-duty deaths or on-duty deaths of fire fighters to assist fire departments, fire fighters, the fire service, and others to prevent similar fire fighter deaths in the future. The agency does not enforce compliance with state or federal occupational safety and health standards and does not determine fault or assign blame. Participation of fire departments and individuals in NIOSH investigations is voluntary. Under its program, NIOSH investigators interview persons with knowledge of the incident who agree to be interviewed and review available records to develop a description of the conditions and circumstances leading to the death(s). Interviewees are not asked to sign sworn statements and interviews are not recorded. The agency's reports do not name the victim, the fire department, or those interviewed. The NIOSH report's summary of the conditions and circumstances surrounding the fatality is intended to provide context to the agency's recommendations and is not intended to be definitive for purposes of determining any claim or benefit.

For further information, visit the program website at www.cdc.gov/niosh/fire or call toll free 1-800-CDC-INFO (1-800-232-4636).



Death in the line of duty...



A report from the NIOSH Fire Fighter Fatality Investigation and Prevention Program

January 11, 2018

Volunteer Fire Fighter Struck and Killed by Tanker Backing into the Bay of the Fire Station—Pennsylvania

Executive Summary

On July 23, 2016, a 60-year-old male volunteer fire fighter died when he was struck by a tanker backing into the bay at the fire station. The volunteer fire department had been assisting the community in a motorcycle benefit for a children's cancer organization. At 1130 hours, the fire department placed three of their apparatus at different route locations to control traffic for the motorcycles riding in the benefit. Approximately 2 hours later, when the event had concluded, Tanker 72 returned to the fire station. The driver was attempting to back into Bay 3 when the fire fighter, near the station's man door approximately 30 feet away, walked toward the rear of the backing tanker. A second fire fighter around Side B of the station heard the fire fighter yelling the driver's name and walked around to Side A to see why he was yelling. The second fire fighter noticed that the tanker's right rear wheels were on the fire fighter's left leg and the fire fighter was horizontal on the parking pad of the fire station. The second fire fighter ran to the driver's door to get the driver's attention to stop. When the driver stopped the tanker, it had completely run over the left half of the fire fighter's body. An ambulance was called that arrived within minutes but the fire fighter was pronounced dead at the scene.

Contributing Factors

- *Unknown location of fire fighter near backing apparatus*
- *Limited visibility on right side of the apparatus*
- *Physical mobility of the fire fighter*
- *Impaired hearing of the driver*

Key Recommendations

- *Fire departments should ensure that standard operating procedures and training for the safe backing of fire apparatus are in place and enforced, including adequate training to ensure fire fighter comprehension.*
 - *Fire departments should ensure that all fire fighters wear the appropriate personal protective clothing and equipment, including high-visibility clothing that meets the requirements of NFPA 1500 and NFPA 1971.*
 - *Fire departments should consider equipping fire apparatus and vehicles with rear-view cameras, object-sensing devices, or additional mirrors to assist drivers during backing operations.*
-

Volunteer Fire Fighter Struck and Killed by Tanker Backing into the Bay of the Fire Station—Pennsylvania

- *Authorities having jurisdiction and fire department SOPs should consider including the role and responsibilities of the vehicle spotter along with the role and responsibilities of the apparatus driver/operator when a spotter is deployed.*
- *The States should consider establishing minimum training requirements for fire fighters.*



Tanker involved in incident. (NIOSH photo)

The National Institute for Occupational Safety and Health (NIOSH), an institute within the Centers for Disease Control and Prevention (CDC), is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. In 1998, Congress appropriated funds to NIOSH to conduct a fire fighter initiative that resulted in the NIOSH Fire Fighter Fatality Investigation and Prevention Program, which examines line-of-duty deaths or on-duty deaths of fire fighters to assist fire departments, fire fighters, the fire service, and others to prevent similar fire fighter deaths in the future. The agency does not enforce compliance with state or federal occupational safety and health standards and does not determine fault or assign blame. Participation of fire departments and individuals in NIOSH investigations is voluntary. Under its program, NIOSH investigators interview persons with knowledge of the incident who agree to be interviewed and review available records to develop a description of the conditions and circumstances leading to the death(s). Interviewees are not asked to sign sworn statements and interviews are not recorded. The agency's reports do not name the victim, the fire department, or those interviewed. The NIOSH report's summary of the conditions and circumstances surrounding the fatality is intended to provide context to the agency's recommendations and is not intended to be definitive for purposes of determining any claim or benefit.

For further information, visit the program website at www.cdc.gov/niosh/fire or call toll free 1-800-CDC-INFO (1-800-232-4636).



Death in the line of duty...

A summary of a NIOSH fire fighter fatality investigation

July 1, 2009

Volunteer Fire Fighter Dies after Ten-Foot Fall From Engine – Ohio

SUMMARY

On July 24, 2007, a 38-year-old male volunteer fire fighter (victim) died after falling from the top of an engine. The victim had returned to the fire station after working a structure fire and was preparing the engine for future fire calls. Following the reloading of hose on the engine, the victim climbed on the driver's side of the engine to adjust and secure a vinyl hose bed cover. While attempting to adjust the cover, the victim slipped and fell onto the station's concrete apron. The victim landed on his head and lay supine on the ground. The victim was transported to an area hospital where he received medical care and was pronounced dead. Key contributing factors identified in this investigation include: the design of the engine which introduced numerous potential fall risks when loading the hose bed and securing the vinyl protective cover, fire department practices in loading the hose bed and securing the vinyl hose bed cover which were unwritten and inadequately addressed fall hazards, and damage to the mounting system of snaps which made securing the vinyl hose bed cover more cumbersome.

NIOSH investigators concluded that, to minimize the risk of similar incidents, fire departments should:

- *develop and implement Standard Operating Procedures (SOPs) on the correct procedures/safe methods for reloading hose and securing hose bed covers*
- *consider requiring the use of a ladder when servicing items that are out of reach from ground level on the fire apparatus*
- *ensure that hose bed covers on fire apparatus are maintained in good physical condition or are replaced when needed*
- *consider when purchasing a new fire apparatus, that it be equipped with available safety features to assist with hose loading and covering the hose bed (e.g., a hose bed that hydraulically lowers, or hose bed covers that are hydraulic, roll-up, or hinged metal)*

The National Institute for Occupational Safety and Health (NIOSH), an institute within the Centers for Disease Control and Prevention (CDC), is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. In fiscal year 1998, the Congress appropriated funds to NIOSH to conduct a fire fighter initiative. NIOSH initiated the Fire Fighter Fatality Investigation and Prevention Program to examine deaths of fire fighters in the line of duty so that fire departments, fire fighters, fire service organizations, safety experts and researchers could learn from these incidents. The primary goal of these investigations is for NIOSH to make recommendations to prevent similar occurrences. These NIOSH investigations are intended to reduce or prevent future fire fighter deaths and are completely separate from the rulemaking, enforcement and inspection activities of any other federal or state agency. Under its program, NIOSH investigators interview persons with knowledge of the incident and review available records to develop a description of the conditions and circumstances leading to the deaths in order to provide a context for the agency's recommendations. The NIOSH summary of these conditions and circumstances in its reports is not intended as a legal statement of facts. This summary, as well as the conclusions and recommendations made by NIOSH, should not be used for the purpose of litigation or the adjudication of any claim. For further information, visit the Program Website at www.cdc.gov/niosh/fire or call toll free 1-800-CDC-INFO (1-800-232-4636).



Death in the line of duty...



A summary of a NIOSH fire fighter fatality investigation

June 27, 2012

Career Lieutenant Dies After Being Trapped in the Attic After Falling Through a Roof While Conducting Ventilation – Texas

Executive Summary

On August 14, 2011, a 41-year-old career lieutenant died after falling through a roof and being trapped in an attic. The lieutenant was part of a two-man crew attempting to perform vertical ventilation of a two story multi-family apartment complex. The fire department had responded to multiple fires over the years at this apartment complex. The roof decking material was over 30 years old and would not meet the current building code. The fire on the first floor was quickly brought under control but had spread into the attic along the exterior wall and through the eaves. The fire had compromised the structural integrity of the roof decking material prior to the crew operating on the roof. When the lieutenant crossed over the peak of the roof to ventilate above the fire, he fell through the weakened roof and into the attic. His legs went through the ceiling of the second floor apartment while his body remained in the attic. He was wearing his self-contained breathing apparatus (SCBA) but was not wearing his facepiece and was overcome by the products of combustion. He was rescued by crews operating at the scene and transported to a local hospital where he died from his injuries.

Contributing Factors

- *Hazard assessment/recognition*
- *Structural roof component-damage from previous fire*
- *PPE use*
- *Non-sprinkled building.*

Key Recommendations

- *ensure that the incident commander conducts an initial size-up and risk assessment of the incident scene as outlined in NFPA 1500 before beginning fire fighting operations and continually evaluates the conditions to determine if operations should become defensive*
- *ensure that the incident commander establishes a command post, maintains the role of director of fireground operations, does not pass command to an officer not on scene, and does not become involved in fire-fighting operations*
- *enforce existing standard operating procedures (SOPs) for structural fire fighting, including the use of self-contained breathing apparatus (SCBA) while conducting roof ventilation operations*

Career Lieutenant Dies After Being Trapped in the Attic From Fall Through Roof While Conducting Ventilation – Texas

- *ensure that a rapid intervention team (RIT) is established and available to immediately respond to emergency rescue incidents*

Additionally, municipalities, building code officials, and authorities having jurisdiction should

- *develop a questionnaire or checklist to obtain building information so that the information is readily available to central dispatch if an incident is reported at the noted address*
- *consider requiring apartment complexes and associated multiple-family dwellings that have been “retrofitted” into current structural building code requirements also be brought up to current codes for such things as sprinkler systems and adequate structural roof members when requests for permits are made.*

The National Institute for Occupational Safety and Health (NIOSH), an institute within the Centers for Disease Control and Prevention (CDC), is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. In 1998, Congress appropriated funds to NIOSH to conduct a fire fighter initiative that resulted in the NIOSH “Fire Fighter Fatality Investigation and Prevention Program” which examines line-of-duty-deaths or on duty deaths of fire fighters to assist fire departments, fire fighters, the fire service and others to prevent similar fire fighter deaths in the future. The agency does not enforce compliance with State or Federal occupational safety and health standards and does not determine fault or assign blame. Participation of fire departments and individuals in NIOSH investigations is voluntary. Under its program, NIOSH investigators interview persons with knowledge of the incident who agree to be interviewed and review available records to develop a description of the conditions and circumstances leading to the death(s). Interviewees are not asked to sign sworn statements and interviews are not recorded. The agency's reports do not name the victim, the fire department or those interviewed. The NIOSH report's summary of the conditions and circumstances surrounding the fatality is intended to provide context to the agency's recommendations and is not intended to be definitive for purposes of determining any claim or benefit.

For further information, visit the program website at www.cdc.gov/niosh/fire or call toll free 1-800-CDC-INFO (1-800-232-4636).



Death in the line of duty...



A summary of a NIOSH fire fighter fatality investigation

April 25, 2016

Firefighter Suffers Cardiac Event Following Residential Fire – NY

Executive Summary

On May 4, 2015, at 0700 hours, a 54-year-old male career fire fighter (FF) began his 24-hour shift. At 1058 hours, the FF and his crew were dispatched to a residential fire with reports of a possible victim. The FF assisted in the rescue attempt and fire suppression activities for approximately 40 minutes, when he reported to incident scene rehabilitation. During his 20 minutes in rehab the FF reported no signs or symptoms of distress. However, as the FF was preparing to take his gear to the apparatus, he reported left shoulder pain and was transported by ambulance (no lights or siren) to the local emergency department (ED). As the FF was walking into the ED at 1224 hours, he reported severe chest pain and shortness of breath. Shortly thereafter, he suffered a cardiac arrest. The FF was successfully resuscitated but he remained in cardiogenic shock. An electrocardiogram (ECG) showed findings consistent with an acute heart attack and an emergency cardiac catheterization showed complete occlusion of his left main coronary artery. The catheterization and efforts to open the occluded artery were complicated by two episodes of cardiac arrest and referral for emergency coronary artery bypass graft (CABG) surgery. Despite these intensive measures, the FF had suffered anoxic brain damage. The next day, after discussion with family members, the medical staffed withdrew life support measures and shortly thereafter the FF was pronounced dead.

The autopsy and the death certificate, completed by the County Deputy Medical Examiner, listed "myocardial infarction due to atherosclerotic cardiovascular disease" "in a fireman sustained during a housefire." The autopsy revealed cardiac hypertrophy, marked coronary atherosclerotic stenosis in two vessels, and evidence of infarction (myocardium had area of reddish mottled hemorrhage). NIOSH investigators concluded that the physical stress of responding to and participating in fire suppression activities at the structure fire triggered a heart attack which resulted in his cardiac arrest and subsequent death.

Firefighter Suffers Cardiac Event Following Residential Fire – NY

Key Recommendations

- *Ensure that all fire fighters receive an annual medical evaluation consistent with NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments.*
- *Ensure fire fighters are cleared for duty by a physician knowledgeable about the physical demands of firefighting, the personal protective equipment used by fire fighters, and the various components of NFPA 1582.*
- *Phase in a mandatory comprehensive wellness and fitness program for fire fighters.*

The National Institute for Occupational Safety and Health (NIOSH), an institute within the Centers for Disease Control and Prevention (CDC), is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. In 1998, Congress appropriated funds to NIOSH to conduct a fire fighter initiative that resulted in the NIOSH Fire Fighter Fatality Investigation and Prevention Program, which examines line-of-duty deaths or on-duty deaths of fire fighters to assist fire departments, fire fighters, the fire service, and others to prevent similar fire fighter deaths in the future. The agency does not enforce compliance with state or federal occupational safety and health standards and does not determine fault or assign blame. Participation of fire departments and individuals in NIOSH investigations is voluntary. Under its program, NIOSH investigators interview persons with knowledge of the incident who agree to be interviewed and review available records to develop a description of the conditions and circumstances leading to the death(s). Interviewees are not asked to sign sworn statements and interviews are not recorded. The agency's reports do not name the victim, the fire department or those interviewed. The NIOSH report's summary of the conditions and circumstances surrounding the fatality is intended to provide context to the agency's recommendations and is not intended to be definitive for purposes of determining any claim or benefit.

For further information, visit the program website at www.cdc.gov/niosh/fire or call toll free 1-800-CDC-INFO (1-800-232-4636).



Death in the line of duty...

NIOSH
Fire Fighter Fatality Investigation
and Prevention Program

A summary of a NIOSH fire fighter fatality investigation

March 5, 2012

Volunteer Fire Fighter Struck and Killed While Directing Traffic at an Interstate Highway Incident – Iowa

Executive Summary

On September 18, 2011, a 41-year-old male volunteer fire fighter (the victim) lost his life while directing traffic at a motor vehicle collision on an interstate highway. The victim responded to the scene in the department's rescue truck to establish a traffic incident management area (TIMA) while an ambulance crew from his department checked on vehicle occupants involved in the collision. After establishing and repositioning the TIMA, the victim positioned himself in the left lane ahead of the TIMA to direct oncoming motorists to the right lane. The victim was struck while standing on the left shoulder/left lane when a motorist swerved to the left from the right lane of travel to avoid hitting a vehicle in the right lane. The victim was pronounced dead on the scene.



View of the eastbound travel lanes, where incident occurred, from nearby overpass.
(NIOSH photo.)

Contributing Factors

- *Insufficient training, staffing, equipment, and standard operating procedures to adequately establish a traffic incident management area to protect emergency responders and provide advanced warning to approaching motorists*
- *Victim working in a travel lane outside of the established traffic incident management area*
- *Lack of established pre-incident plans and agreements regarding traffic control incident management at roadway incidents with agencies responsible for responding to roadway incidents*
- *Inattentive motorist.*

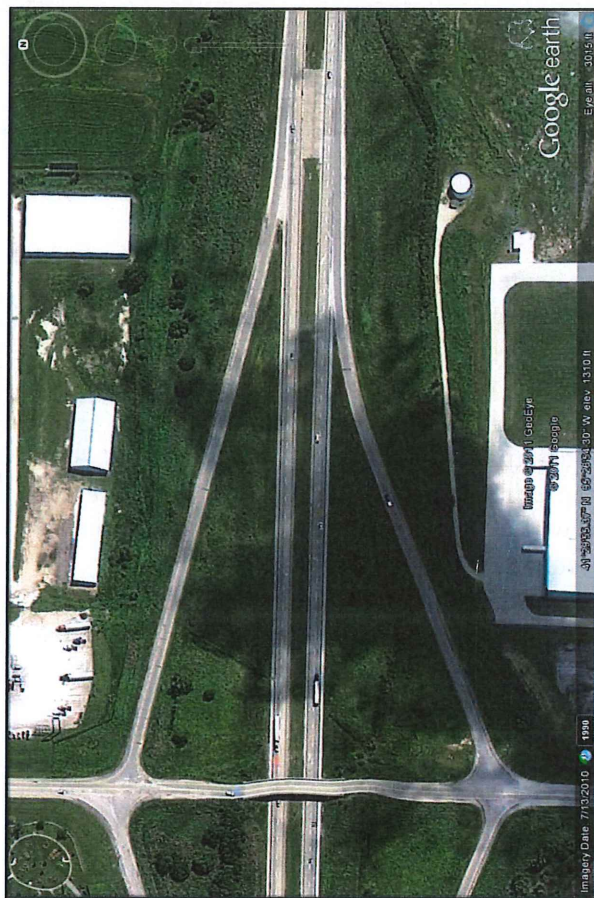
Key Recommendations

- *Fire departments should ensure that emergency responders receive proper training and have adequate staffing, sufficient equipment, and appropriate procedures in place for responding to*

Volunteer Fire Fighter Struck and Killed While Directing Traffic at an Interstate Highway Incident – Iowa

and operating at a roadway emergency incident

- *Fire departments should ensure that standard operating procedures/guidelines include guidance on identifying and maintaining a safe location while working in or near moving traffic*
- *Fire departments should establish pre-incident plans and agreements regarding traffic control incident management at roadway incidents with other public safety agencies (e.g., fire departments, EMS, and law enforcement), local/state departments of highways, and private sector responders.*
- *Motorists should be attentive at all times while operating a motor vehicle, especially when approaching and driving through a traffic incident management area, so that they avoid striking emergency responders, other vehicles, and/or traffic control devices.*



Aerial view of section of interstate where incident occurred.

(Adapted from Google Earth® satellite image.)

The National Institute for Occupational Safety and Health (NIOSH), an institute within the Centers for Disease Control and Prevention (CDC), is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. In 1998, Congress appropriated funds to NIOSH to conduct a fire fighter initiative that resulted in the NIOSH "Fire Fighter Fatality Investigation and Prevention Program" which examines line-of-duty-deaths or on duty deaths of fire fighters to assist fire departments, fire fighters, the fire service and others to prevent similar fire fighter deaths in the future. The agency does not enforce compliance with State or Federal occupational safety and health standards and does not determine fault or assign blame. Participation of fire departments and individuals in NIOSH investigations is voluntary. Under its program, NIOSH investigators interview persons with knowledge of the incident who agree to be interviewed and review available records to develop a description of the conditions and circumstances leading to the death(s). Interviewees are not asked to sign sworn statements and interviews are not recorded. The agency's reports do not name the victim, the fire department or those interviewed. The NIOSH report's summary of the conditions and circumstances surrounding the fatality is intended to provide context to the agency's recommendations and is not intended to be definitive for purposes of determining any claim or benefit.

For further information, visit the program Web site at www.cdc.gov/niosh/fire or call toll free 1-800-CDC-INFO (1-800-232-4636).



WHAT STRUCTURAL FIRE FIGHTERS NEED TO KNOW ABOUT RHABDOMYOLYSIS



Rhabdomyolysis (often called rhabdo) is the breakdown of damaged muscle tissue that releases proteins and electrolytes into the blood. These things can damage the heart and kidneys, result in permanent disability, and can even be fatal! Rhabdomyolysis can be caused by exertion and becoming overheated. Early treatment can prevent serious medical problems.

Because exertion in a hot environment is such a fundamental part of the job, fire fighters need to know the signs and symptoms of rhabdo to be able to quickly recognize the potential danger and get medical attention right away if they are not feeling well.

What can increase your risk for rhabdo?

- + Prolonged, intense physical activity
- + Increased core body temperature
- + Some cold and allergy medications
- + Certain antibiotics
- + Dietary supplements, such as creatine
- + Common prescription medications such as statins that lower cholesterol etc.

There are many risk factors for rhabdo and we still don't know all of them. You should check with your healthcare provider to ensure you don't have any of the known risk factors for rhabdo.

People with no known rhabdo risk factors can get rhabdo. It can happen after activities you have done in the past without a problem. Even fire fighters and athletes who are in



**Centers for Disease Control
and Prevention**
National Institute for Occupational
Safety and Health

excellent physical condition can develop it. Always be on the lookout for signs and symptoms of rhabdo. Seek medical evaluation right away if you have any of the following signs and symptoms of rhabdo:

- + Muscle cramps, aches, or pains that are more severe than expected with the amount of exertion
- + Inability to complete a workout routine due to feeling unusually tired
- + Tea- or cola-colored urine

Sometimes rhabdo symptoms do not appear until several days after the muscle is damaged. If you have any of these symptoms at any time, do not ignore them. Talk to your chief and seek immediate medical treatment. Be sure to tell your healthcare provider about your job so they are aware of your increased risk for rhabdo.

How do I know if I have rhabdo?

The only way to know for sure if you have rhabdo is to see a licensed healthcare provider who can do a blood test for a protein called creatine phosphokinase (also called CK). CK is a muscle protein that is released into the blood when muscle tissue is damaged. Like the appearance of symptoms, the rise in CK may be delayed. Repeat blood tests are needed to determine if CK levels are going up or down.

Rhabdo may be confused with dehydration or heat-related illnesses since these conditions can have the same symptoms. The only way to know if you have rhabdo is to have your CK checked.

How is rhabdo treated?

Less severe rhabdo can be treated with drinking more fluids, getting out of the heat, and resting. Serious cases of rhabdo need hospitalization to monitor heart and kidney function and to quickly treat any problem. Blood tests and EKGs help determine the severity of rhabdo.

Treatment of severe rhabdo includes intravenous (IV) fluids to flush out the muscle proteins and electrolytes. This treatment can prevent dangerous heart rhythms and loss of kidney function. If you do not get proper treatment quickly, the kidneys can become damaged and short-term dialysis is sometimes needed. If kidney function does not recover, then a lifetime of kidney dialysis or a kidney transplant is required. You might need surgery to release pressure on damaged muscles to prevent permanent disability. If treated early, most rhabdo patients return to work in a few days without any lingering effects.



Fire fighter having blood drawn.

What can I do to increase my chances of a full recovery from rhabdo?

Listen to your body! Do your muscles hurt more than expected after a fire response or workout, are you unusually fatigued, or is your urine unusually dark? If you have any of these symptoms, you should:

- + Stop your current activity right away, cool down, and start drinking fluids
- + If symptoms occur while at a fire, tell your chief and an on-site Emergency Medical Services personnel about your symptoms
- + If your symptoms start away from work, contact your healthcare provider or go to the nearest medical center immediately
- + Tell the healthcare provider you are a structural fire fighter or give them this fact sheet
- + Ask to be checked for rhabdo

Reporting your symptoms could save your life and your career! If you hear about or know of these signs or symptoms in a coworker, encourage them to report their symptoms and seek immediate medical care.

To receive information about other occupational safety and health topics, contact NIOSH:

Telephone: 1-800-CDC-INFO (1-800-232-4636)

TTY: 1-888-232-6348

CDC-INFO: www.cdc.gov/info

or visit: www.cdc.gov/niosh

For a monthly update on news at NIOSH, subscribe to NIOSH eNews at www.cdc.gov/niosh/eNews.

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U.S. Fire Administration

National Safety Culture Change Initiative

FA-342/April 2015



FEMA



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U.S. Fire Administration
Working for a fire-safe America

Risk Management Practices in the Fire Service

January 2018



FEMA

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Firefighter Cancer Support Network

PROTECT YOURSELF FROM **CANCER**

- C**LEAN OR CHANGE-OUT YOUR PPE AFTER EVERY WORKING FIRE
- A**FTER EVERY FIRE, TAKE A SHOWER AND CHANGE YOUR CLOTHES ASAP
- N**EVER WEAR OR PLACE DIRTY PPE IN LIVING AREAS, INCLUDING YOUR CAR
- C**ONSIDER SUNSCREEN AND WEARING A HAT WHILE WORKING IN THE SUN
- E**XHAUST IS DEADLY, BE SURE TO USE YOUR STATION'S EXHAUST SYSTEMS
- R**EMEMBER TO GET ANNUAL PHYSICALS, INCLUDING CANCER SCREENINGS!
- S**CBA'S MUST BE WORN FROM ENTRY THRU OVERHAUL, NO EXCEPTIONS!

For Immediate assistance call toll free (866) 994-FCSN.

For further information about

Firefighter Cancer Support Network

visit us on the web: www.FirefighterCancerSupport.org

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Traumatic Incident Stress: Information for Emergency Response Workers

From the National Institute for Occupational Safety and Health

Disasters take many forms and demand quick response from emergency workers. They may include natural disasters such as earthquakes or hurricanes, or they may involve manmade disasters such as technological failures or terrorist attacks. As a member of an emergency response team, you and your team members are at risk of experiencing what psychologists refer to as a traumatic incident—an incident that may involve exposure to catastrophic events, severely injured children or adults, dead bodies or body parts, or the loss of colleagues, for instance.

Traumatic incidents can produce unusually strong emotional reactions that may interfere with your ability to function at the scene or later:

You may experience any of the physical, cognitive, emotional, or behavioral symptoms listed below in Table 1. Some people experience emotional aftershocks weeks or months after they have passed through a traumatic event. Others may experience these reactions while still at the scene, where they must stay clearly focused on constantly changing hazards to maintain their own safety and to rescue injured victims.

Remember that strong emotions are normal reactions to an abnormal situation!

Table 1.—Symptoms of stress that may be experienced during or after a traumatic incident

Physical*	Cognitive	Emotional	Behavioral
Chest pain*	Confusion	Anxiety	Intense anger
Difficulty breathing*	Nightmares	Guilt	Withdrawal
Shock symptoms*	Disorientation	Grief	Emotional outburst
Fatigue	Heightened or lowered alertness	Denial	Temporary loss or increase of appetite
Nausea/vomiting	Poor concentration	Severe panic (rare)	Excessive alcohol consumption
Dizziness	Memory problems	Fear	Inability to rest, pacing
Profuse sweating	Poor problem solving	Irritability	Change in sexual functioning
Rapid heart rate	Difficulty identifying familiar objects or people	Loss of emotional control	
Thirst		Depression	
Headaches		Sense of failure	
Visual difficulties		Feeling overwhelmed	
Clenching of jaw		Blaming others or self	
Nonspecific aches and pains			

*Seek medical attention immediately if you experience chest pain, difficulty breathing, severe pain, or symptoms of shock (shallow breathing, rapid or weak pulse, nausea, shivering, pale and moist skin, mental confusion, and dilated pupils).

Additional Resources

Disaster Mental Health Services, Substance Abuse and Mental Health Services Administration (SAMHSA).

<http://www.mentalhealth.org/cmhs/EmergencyServices/index.htm>

Tips for Talking About Disasters, SAMHSA.

<http://www.mentalhealth.org/cmhs/EmergencyServices/after.htm>

Self-Care Tips for Emergency and Disaster Response Workers, SAMHSA.

<http://www.mentalhealth.org/cmhs/EmergencyServices/response.htm>

Related Links, SAMHSA.

<http://www.mentalhealth.org/cmhs/EmergencyServices/links.htm>

National Center for Post Traumatic Stress Disorder (PTSD), Department of Veterans Affairs.

<http://www.ncptsd.org/>

Disaster Mental Health: Dealing with the Aftereffects of Terrorism. Brief Information for the Public and the Professional.

National Center for PTSD, Veterans Affairs

<http://www.ncptsd.org/disaster.html>

St. Laurent, D. (1996). The nutritional needs of rescue teams. *Emergency Preparedness Digest*, April-June, pp. 26–27.

Please stay safe at work.

OVER →

What You Can Do On-site

Taking care of yourself will help you to stay focused on hazards at the site and to maintain the constant vigilance you need for your own safety. Often responders do not recognize the need to take care of themselves and to monitor their own emotional and physical health—especially when recovery efforts stretch into several weeks. The following guidelines contain simple methods for helping yourself. Read them while you are at the site and again after you return home.

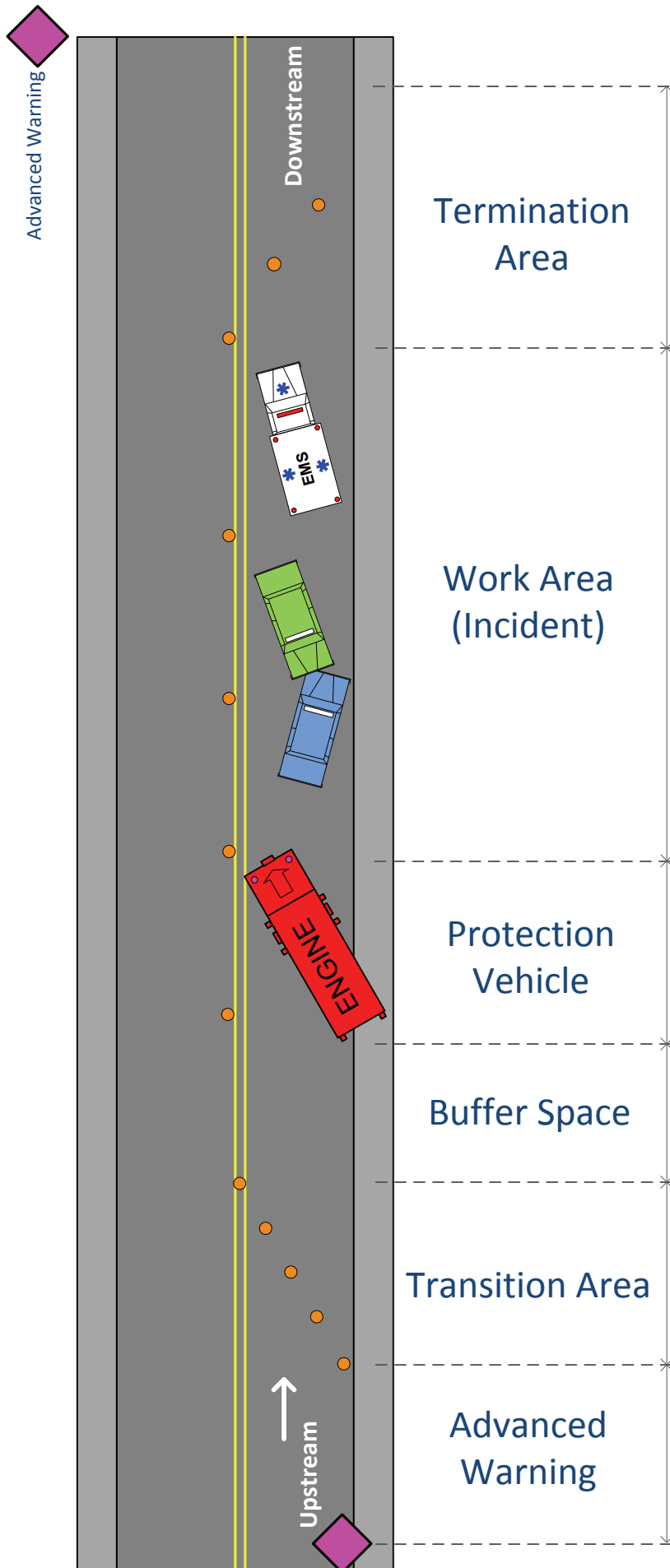
- Pace yourself. Rescue and recovery efforts at the site may continue for days or weeks.
- Take frequent rest breaks. Rescue and recovery operations take place in extremely dangerous work environments. Mental fatigue over long shifts can place emergency workers at greatly increased risk for injury.
- Watch out for each other. Co-workers may be intently focused on a particular task and may not notice a hazard nearby or behind.
- Be conscious of those around you. Responders who are exhausted, feeling stressed, or even temporarily distracted may place themselves and others at risk.
- Maintain as normal a schedule as possible: **regular eating and sleeping are crucial**. Adhere to the team schedule and rotation.
- Make sure that you drink plenty of fluids such as water and juices.
- Try to eat a variety of foods and increase your intake of complex carbohydrates (for example, breads and muffins made with whole grains, granola bars).
- Whenever possible, take breaks away from the work area. Eat and drink in the cleanest area available.
- Recognize and accept what you cannot change—the chain of command, organizational structure, waiting, equipment failures, etc.
- Talk to people when **YOU** feel like it. You decide when you want to discuss your experience. Talking about an event may be reliving it. Choose your own comfort level.
- If your employer provides you with formal mental health support, use it!
- Give yourself permission to feel rotten: You are in a difficult situation.
- Recurring thoughts, dreams, or flashbacks are normal—do not try to fight them. They will decrease over time.
- Communicate with your loved ones at home as frequently as possible.

What You Can Do at Home

Over time, your impressions and understanding of your experience will change. This process is different for everyone. No matter what the event or your reaction to it, you can follow some basic steps to help yourself adjust to the experience:

- Reach out—people really do care.
- Reconnect with family, spiritual, and community supports.
- Consider keeping a journal.
- Do not make any big life decisions.
- Make as many daily decisions as possible to give yourself a feeling of control over your life.
- Spend time with others or alone doing the things you enjoy to refresh and recharge yourself.
- Be aware that you may feel particularly fearful for your family. This is normal and will pass in time.
- Remember that “getting back to normal” takes time. Gradually work back into your routine. Let others carry more weight for a while at home and at work.
- Be aware that recovery is not a straight path but a matter of two steps forward and one back. You will make progress.
- Appreciate a sense of humor in yourself and others. It is OK to laugh again.
- Your family will experience the disaster along with you. You need to support each other. This is a time for patience, understanding, and communication.
- Avoid overuse of drugs or alcohol. You do not need to complicate your situation with a substance abuse problem.
- Get plenty of rest and normal exercise. Eat well-balanced, regular meals.

Temporary Traffic Control For 1st Responders



Estimated Stopping Distances

Speed	Distance (feet)
25 mph	155
35 mph	250
40 mph	305
45 mph	360
50 mph	425
55 mph	495
65 mph	645
70 mph	730

Advanced Warning

Road Type	Distance
Urban (low speed)	100 feet
Urban (high speed)	350 feet
Rural	500 feet
Highway	1000 feet

Estimating Distances

Distance between utility poles

Approx. 75 ft to 100 ft

Roadway skip lines

Line = 10 ft

break = 30 ft

Normal pace (step)

Approx. 3 ft

Example

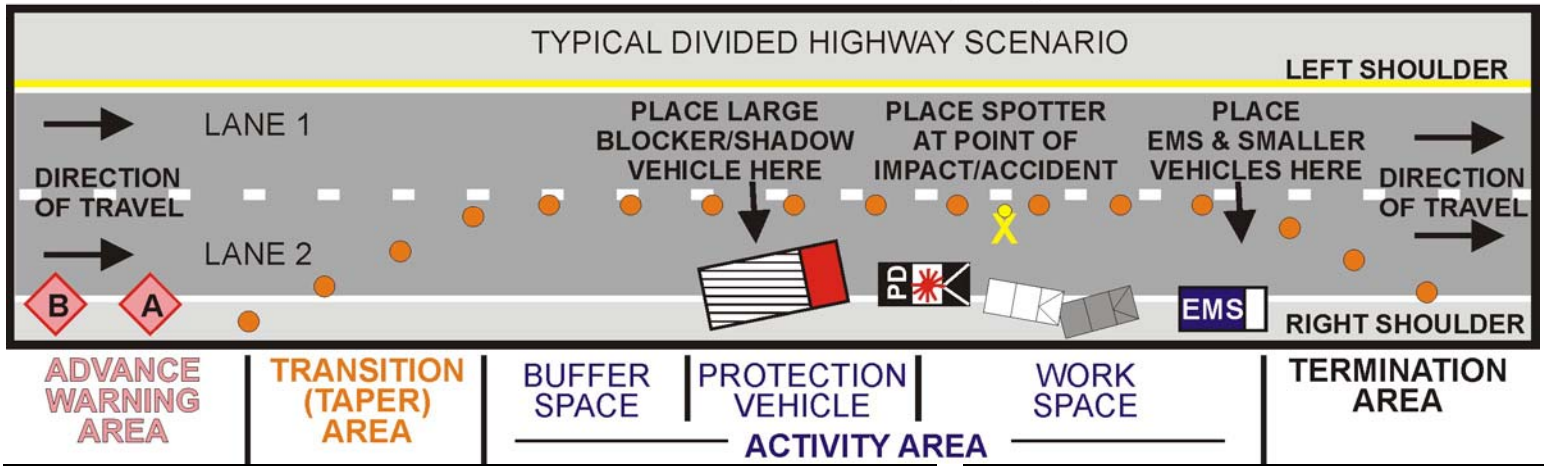
Distance from Transition to Advanced Warning sign on a rural roadway with a typical speed of 50 mph:

Stopping dist = 425 ft Adv Warning = 500 ft

5 to 6 pole sections

12 skip lines

165 paces



INCIDENT MAGNITUDE		
MAGNITUDE	DURATION	STEPS TO TAKE
Minor	<30 Minutes	<ul style="list-style-type: none"> Notify TOC if incident is on roadway where a minor delay can create significant traffic impact Establish Advance Warning Area and other TTC Components as time/personnel permits
Intermediate	30 minutes - 2 hours	<ul style="list-style-type: none"> Notify Transportation Operations Center (TOC) Establish TTC Components Consider DOT Response
Major	2+hours	<ul style="list-style-type: none"> Notify Transportation Operations Center (TOC) Request DOT Response Early Establish Full Work Zone (Same as Non-Emergency)

ADVANCE WARNING AREA		TRANSITION AREA	
SPEED	SIGN DISTANCE	TAPER LENGTH	TYPICAL #CONES
40	A 350	320 ft.	8
55	A 750	660 ft.	16
65	A/B 1000/1500	780 ft.	18

RULES OF THUMB: 1. Travel lanes numbered from left-to-right. 2. Skip line is 10 ft. long with 30 ft. between skips. Taper cones at start of each skip line (40 ft.). 3. Length of Advance Warning Area = 8 x Roadway MPH. Use 12x factor for rural roads due to limited sight distance. Sign distance is from start of taper/transition.



ResponderSafety.com
EMERGENCY RESPONDER CHECKLIST

Safe and Effective Traffic Control is the Responsibility of On-Scene Responders:
Communicate-Coordinate-Cooperate

INITIAL ACTION ITEMS: (Within first 15 minutes)

- ☐ Estimate magnitude/expected duration of incident
- ☐ Estimate vehicle queue (backup) length
- ☐ Establish Incident Command/Unified Command Post
 - o Assign Traffic Control Officer
- ☐ Identify the need for and request secondary response agencies: TOC, HazMat, Towing/Recovery, DPW, DOT, Accident Reconstruction, Medical Examiner, etc.
- ☐ Set-up appropriate TTC Components based on estimates. Upgrade TTC every 15 minutes.
- ☐ Set initial taper in direction of traffic travel
 - o Remove taper in opposite direction of traffic travel



CONSIDERATIONS:

- ☐ Time of the incident and amount of traffic congestion
- ☐ Can vehicles be moved from roadway? *Steer it. Clear it.*
- ☐ Can all lanes remain open?
 - o For Limited Access Highways:
 - 1 minute of lane closure = 1 mile of backup
- ☐ Determine emergency vehicle access route(s)
- ☐ Will closures create backups on other roadways?
- ☐ How quickly can lanes reopen? Minimize on-scene time.
 - o Post incident Recovery:
 - 1 minute of initial delay = 8 minutes to return to normal traffic
- ☐ How can we avoid secondary accidents?
- ☐ What can we do to make the scene SAFER?
- ☐ Update TOC periodically and as incident changes (escalation, termination, etc.)

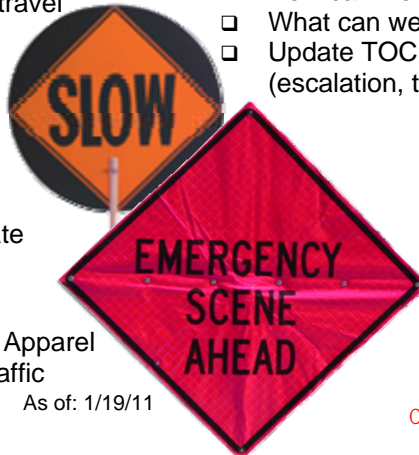
VEHICLES:

- ☐ Limit number of responding vehicles
- ☐ Stage unnecessary vehicles off roadway
- ☐ Park ALL vehicles on same side of roadway
- ☐ Position apparatus to protect responders
- ☐ Minimize emergency lighting
- ☐ Create work area large enough to accommodate apparatus and responders SAFELY!

PERSONNEL:

- ☐ ALL responders Identifiable & in High Visibility Apparel
- ☐ Always: Be alert - Minimize exposure - Face traffic
- ☐ Place spotter at incident scene

As of: 1/19/11



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www.cvvfa.org

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